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Cover image: Flotilla of canoes returned from *ālo atu* with raised paddles indicating a large catch. Photo by Marti Friedlander, 1971.

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## NOTES AND NEWS

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# THE TREASURED THINGS OF TOKELAU

(Nayacakalou Medal Lecture)

JUDITH HUNTSMAN  
*University of Auckland*

Tokelau's most treasured things are *tifa* 'pearl-shells' that are fashioned into *pā* 'lures for skipjack (*Katsuwonus* sp.) casting' and *kahoa* 'pearl-shell pendants'. People say that pearl-shells are "the gold of Tokelau", comparable, said one man, to the whale teeth of Fiji. More commonly, like other things that are highly valued, pearl-shells are referred to as *tāua* 'important/precious', thus *mea tāua* 'treasured things'. Visitors in 1841 recorded that the interior of the Fakaofu god-house was hung about with pearl-shells, and later visitors, as well as written and oral Tokelau accounts, expand upon this observation. Drawing upon ethnographic data, historical accounts and reports, Tokelau texts and a unique and enlightening *kakai* 'fictional narrative', I explore why *tifa*, *pā* and *kahoa* are Tokelau's most treasured things. The other valuables of Tokelau are *kanava* trees/*taiulu* timber (*Cordia subcordata*), *kie* pandanus (*Pandanus freycinetia*) and *vai magalo* 'fresh water', each resource emblematic of one or other of the atolls. *Tala* 'traditional narratives' explain why. These "singular" (versus "common")<sup>1</sup> resources, their associations, their uses and how things produced from them are transferred set them apart as well. The most valuable things—pearl-shells and the *pā* and *kahoa* fashioned from them—are pan-Tokelau treasures sourced from the sea; the three valued resources—*kie* pandanus, fresh water and *kanava* timber—are atoll-specific. Yet, in certain past and present contexts the treasured items fabricated from *kie* pandanus are paired with those fashioned from pearl-shells. These statements entail an engagement with Tokelau cosmological ideas of the past and their reflections in the present. However, a few matters need to be addressed before I turn to the treasures.

Tokelau is three classic atolls, lagoons surrounded by irregular rings of coral on which perch coral-rubble islets densely covered with vegetation under a canopy of coconut palms. The atolls, Atafu, Nukunonu and Fakaofu, are located far enough from each other that movement between them is constrained, and each has its own people, its own genealogy and history and its own characteristic ways of doing things. Yet, all Tokelau has a common language and culture, distinctively different from those of its Polynesian neighbours—Sāmoa, Tuvalu and the northern Cook Islands some 500 to 1,000 kilometres distant. The villages, one on each atoll, are densely peopled and very busy places—children playing, carrying and fetching fill the paths, as do their parents and grandparents engaged in their everyday tasks and going to or returning from numerous village meetings, gatherings and events. And



all of this activity is carefully programmed and controlled by the elders. A Tokelau village, as they say, is a *nuku pulea* ‘controlled/ordered village’. Numerous islets around the lagoon are divided into named plantations, and the reefs and ocean abound with sea life. Men harvest from the plantations and capture fish from the sea; women receive, distribute and process the produce and catches. Tokelau is not an unchanging place, but this essential way of life persists despite events in the past and changes in recent years that have challenged it.

Neither local histories nor accounts of visitors speak of any regular contact between Tokelau and its far-flung neighbours. Indeed, Horatio Hale (philologist and ethnologist of the U.S. Exploring Expedition) wrote: “They appeared, indeed, to know the names of Viti, Tongatabu, and Samoa, but not the direction in which they lay” (Hale 1846: 155). An archaeologist unearthed exotic/imported items in the atolls, e.g., pieces of basalt adzes chemically sourced to Sāmoa and potsherds sourced to Fiji (Best 1988), but by what route they got there can only be guessed. I think it can be assumed that the three atolls of Tokelau did not engage in any kind of *regular* transfer of items beyond Tokelau itself. Thus, my discussion here is microcosmic, concerned with what things and how things are and were transferred (or not) within and between the three atolls.

The ethnographic record provides abundant evidence that reciprocal or dyadic exchange transactions have not been a feature of Tokelau sociality either in daily life or on marked occasions.<sup>2</sup> What is so characteristic of Tokelau is how much time and energy each day is devoted to dividing, distributing, contributing, sharing and transferring items in prescribed ways both within a village through *inati* ‘share units’,<sup>3</sup> and within *kāiga* ‘kin corporations’ specifically, and also ‘families’ in several senses and ‘relatives’ in a general sense (see Huntsman 1971, 1981; Huntsman and Hooper 1976: 109-21). I would venture to give two reasons for this insistence on sharing and distribution. First, within Tokelau communities, hierarchy is suppressed by a clearly articulated and practised egalitarian ethic, albeit with notable precedence accorded the elderly. Second, Tokelau’s villages are circumscribed, densely peopled and largely endogamous—their populations ranging around 500 in recent years. Third, kin relations form a dense network of responsibilities and expectations, owing to the thoroughly cognatic principles of corporate kin group affiliation, so that most villagers are included within multiple *kāiga*. The village polity is referred to rhetorically as a *kāiga*, for example, and its elders as fathers and mothers. Just about everyone is kin in some close or distant way.<sup>4</sup>

The prime inalienable and “singular” things held by Tokelau *kāiga*, as corporate kin groups, are land, created by remote ancestors by clearing

bush and planting coconut palms, and canoes, adzed from *kanava* timber.<sup>5</sup> These things are the *ola* ‘life’ of the *kāiga*, literally inalienable, created and maintained by forebears to sustain them and which present generations should maintain and regenerate for future generations. What then happens to them when a particular *kāiga* breaks up (*kua malepe te kāiga*)? The parcels of land and canoes (or canoe hull sections) are divided among its constituent branches, i.e., they divide among themselves those things that could never be alienated.<sup>6</sup>

Turning now to treasured Tokelau things, I consider in turn (i) observed marriage celebrations and a Tokelau-authored text on the subject, (ii) a Tokelau text explicating the proprieties of “gifting” particular treasures, (iii) a Tokelau *kakai* and a couple of “just-so” stories, and finally (iv) accounts of pre-Christian Tokelau by visitors and today by Tokelau raconteurs. In (i) and (ii) brothers and sisters figure centrally in the way Tokelau “singular” objects are handled, how they are transferred in marked ways within particular relationships and (iv) how, in the past, they were transferred in other ways too—demanded as tribute or “gifted” as offerings. The story (iii) provides the key to it all when viewed as a cosmological or mythopoetic narrative, rather than just an entertaining *kakai*.

#### CELEBRATIONS OF MARRIAGE IN NUKUNONU<sup>7</sup>

All the ways and meanings of transferring things—both “common” and “singular”—occurred in the course of Nukunonu marriage celebrations in the late 1960s. I consider first one of these “common” things, namely food.

The symbolism of combining and sharing food is particularly salient and explicit on the occasions of marriage. Several *kāiga*, specifically corporate *kāiga* of which the girl and boy to be wed are members, together provide and together apportion the lavish wedding feast to celebrate a marriage that promises to produce a new person who will be kin to them all, and they collectively feed the village by providing an abundance of food to be distributed through *inati*.

As many as eight *kāiga* may host a wedding celebration, representing the eight grandparents of the boy and girl who are marrying. Each separately amasses an abundance of foodstuffs: harvested from their plantations, caught from their canoes, and imported commodities, such as flour and sugar, bought with money received from producing copra. On the day of the wedding, colourfully dressed and bedecked with garlands, gaily singing and carrying the food they have cooked, these *kāiga* converge on the place where the wedding feast is to be held. This convergence is neither *en masse* nor direct; rather their routes retrace former *kāiga* unions that brought into being and nourished the life of the boy and girl whose union is about to be celebrated. Finally they

all arrive at the home of the boy's father's sister, each *kāiga* displaying its collective feast contributions with song and splendour. The food is sorted by type (pork, fish, breadfruit, *puta* 'doughnuts', etc.), and then portions of each are placed upon platters and into baskets, including a single platter for the *ulugāliki fou* 'new couple' and smaller platters for the couple's grandparents and other elders, who collectively represent the village. Thereafter baskets of food will be distributed among the hosts, and finally to every *inati* in the village. All this preparation, display, combining, sorting and presenting is replete with Tokelau meanings of *kai fakatahi* 'eating together', as a couple, as a *kāiga*, as a village, and mirrors on a grand scale the continual flow of "common" consumables in everyday life.

Treasured "singular" things are essential for a marriage and are handled quite differently. While the foodstuffs for the wedding feast are being carried about, the couple are being churched, the girl dressed in a white wedding gown and veil, the boy in a sombre suit, thereby becoming a *fafine fou* 'new woman', a *tagata fou* 'new man' and together an *ulugāliki fou* 'new



Figure 1. New couple prepared for *tūala* 'viewing' (lit. 'path-standing').  
Author's photo, 1986.



Figure 2. The new woman with a *kahoa* placed around her neck by her mother's father (at right). Author's photo, 1968.

couple' (Fig. 1). The ceremony is lightly attended; the real wedding begins with the *tūala* 'viewing' (lit. path-standing) of the new couple. They appear conspicuously in the village path, donned in their Tokelau garments and decorations of marriage. Over the new man's sombre suit is tied a reformed version of a loincloth (*malo*) woven of *kie* pandanus by his father's sister. Upon the neck of the *fafine fou* is a *kahoa*, placed there by her mother's brother (or father) (Fig. 2). These Tokelau treasures, the *kie* pandanus garment and pearl-shell pendant, are "gifts" to the marriage. Not only are they "gifts", they are the most significant ones, both for what they are and for who gives them. From the woman's side is "gifted" the pre-eminent men's treasure, for the new woman's pendant is not just an ornament, it is an unbound *pā*. The new woman takes the pendant into her marriage to be properly bound again and put back to use as a lure. From the man's side are "gifted" pre-eminent women's treasures, not only his *malo* but also a *kiekie* 'fine pandanus mat', referred to as the *moega moe* 'sleeping mat' of the new couple. The *malo*, bound around the groom by his father's sister, and the sleeping mat, presented by his father's sister, go into his marriage blessing the fruitfulness of the union.

Bedecked in Tokelau treasures, the new couple begin their slow circuit of the village accompanied by their attendants and followed by village elders

and matrons singing a particular genre of *pehe anamua* ‘songs of old’ that celebrate a new couple. The procession ends at the house where the food is already assembled, and there the *ulugāliki fou* is feasted and entertained by their combined *kāiga*. All have come together: the new couple being celebrated, their several *kāiga* and the food they have provided, and the elders and matrons representing the village. The new couple are repeatedly urged to *fai koulua kāiga fou* ‘make your new family’, with wishes for *manuia* ‘good fortune’. The woman’s *kahoa* and the man’s *malo* and *moega moe* (Fig. 3) are visible expressions of these hopes and wishes that in due course a *kāiga fou* ‘new family’ will come into being with the birth of a child who will be of the several *kāiga* of them both.<sup>8</sup>



Figure 3. *Moega moe* ‘sleeping mat’ for new couple plaited by boy’s father’s sister. Author’s photo, 1967.

## THE WAY OF MAKING MARRIAGES

The following is translated and abridged from the Fakaofu text composed by the late Peato Tutu Perez.<sup>9</sup>

The man is attired in his own home, and likewise, the female is attired in her home. When finished, the man and his whole family proceed to the woman's family and then *tūala i te auala* ['present themselves in the village path']. They sing Tokelau songs that were customarily sung in the old days as well as the present.

*Tūalaga* [lit. 'Path-standing']

There are two particular *pala* [sites in lagoons where a soft whitish sediment lies on the bottom] in Fakaofu: *Pala o te Loto* ['Deep Place'] and *Pala o te Tuāālai* ['Back of Reef Place']. If a pearl-shell is found there, that pearl-shell will *kaina* (excite) the skipjack. These two *pala* are well known in Fakaofu, are cherished in Fakaofu, for a *tifa* found there will attract skipjack.

When the married couple present themselves on the village path, the older women exclaim that the bride is a pearl-shell. These are the words that the old women call out, while the older people of the village sing the songs of the *tūalaga*.

*O! ..., he tifa! ..., he tifa fou! ..., mai te Loto!*

*O! ..., he tifa! ..., he tifa fou! ..., mai te Tuāālai!*

*O! ..., a pearl-shell! ..., a new pearl-shell! ..., from the Deep Place.*

*O! ..., a pearl-shell! ..., a new pearl-shell! ..., from the Reef's Back.*

*Fakakahoa* ['Transferring *pā* as *kahoa*']

This is not done lightly, especially when the daughter of a *tautai* 'master fisherman' is concerned.... It is the *tautai* who knows the *pā* most suitable for *kahoa* and those that are not suitable. This is how he knows. When skipjack are caught, their skins may be either shiny or rough. When they land in the canoe, they are not quick to thrash about, but lie still. They thrash about not long thereafter, and then you see their skin is gleaming on the backside, and the stripes on the underside just begin to appear [Fig. 4]. These stripes on the underside become more vivid when the skipjack is dead. When a skipjack is like that, it has been excited. It has been excited by the lure. These then are the *pā* suitable to give as *kahoa*. The *tautai* gives such *pā* to the head of the family as *kahoa* for the daughters of the family when they marry.

Now after the *kahoa* is put around the bride's neck, it is later removed by the senior *tautai* of the boy's *kāiga*.... In Tokelau customary practice too, the daughter of a *tautai* may have a *pā* placed around her neck as a *kahoa* and

be sent off to go and stroll on the path. A person should not remove it unless he is a *tautai*, and he must not do so too often. *It is unseemly these days the way kahoā are so often displayed* [my emphasis].

*Dressing of the Boy and Girl on the Day of Their Marriage*

The garments are from their fathers' sisters. This means that for the boy it is the sister of his father, called his *mātua tauaitu* [lit. 'spirit-anchoring mother']. For the girl it is likewise the sister of her father, her *mātua tauaitu*.

*Some Interpretation*

The author of this text (Fig. 5), as befits a renowned fisherman, emphasises the “singularity” of *tifa*/pearl-shell > *pā*/skipjack lure > *kahoā*/pendant, and the proprieties surrounding their transformation and transfer. Pearl-shell is sought (and rarely found) in particular places in the lagoon; the skipjack lures that are fashioned from it are used in the pre-eminent (and still ritualised) kind of fishing—known as *ālo atu* ‘skipjack casting’ (Hooper 1985, 2010; Hooper and Huntsman 1991) (Figs 6-8). Only when a lure has been proven effective, that is, *kaina* ‘exciting’ to skipjack, should it be transferred to another, and then not directly but via a woman.<sup>10</sup>



Figure 4. A few *atu* ‘skipjack’ showing stripes, indicating they have been excited (*kaina*). Photo by Marti Friedlander, 1971.



Figure 5. Peato Tutu Perez, 1968.

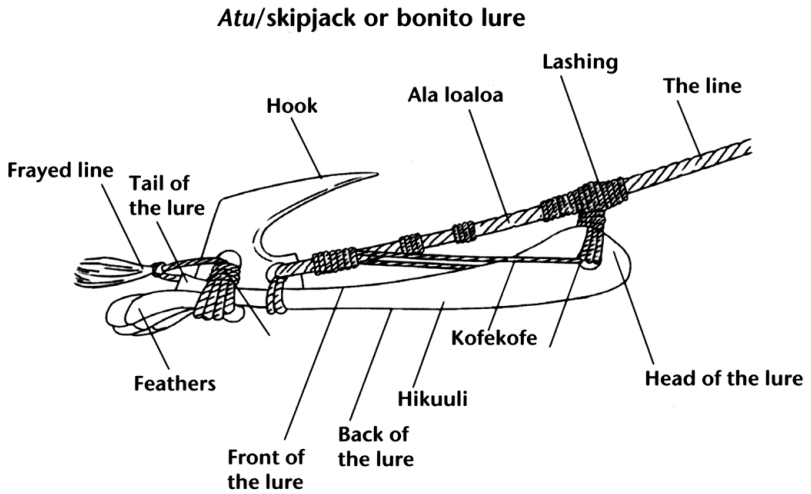


Figure 6. A *pā* properly bound. From Elders from Atafu Atoll, 2012: 73.





Figure 7. A flotilla of canoes returning from successful *ālo atu* 'skipjack casting'. Photo by Marti Friedlander, 1971.



Figure 8. Flotilla of canoes returned from *ālo atu* with raised paddles indicating a large catch. Photo by Marti Friedlander, 1971.

Tokelau men will spend hours gazing at and commenting upon the subtle hues, varieties and shapes of pearl-shells and lures. Cutting lure blanks from a shell and fashioning, refining and binding them to make a lure is a cultivated skill—not something undertaken lightly (Fig. 9). Although nowhere in the text is the etiquette of transferring these “singular” objects via women explicitly stated, it is what is in fact done. When men relate how they acquired their lures, they have most usually passed through women. Take this example: a man gave a centre section of pearl-shell to his sister’s daughter, whose husband appealed to his elderly and knowledgeable father to shape it for a lure. The husband then successfully fished with it and subsequently placed it as a pendant around the neck of his own sister’s daughter at her marriage.



Figure 9. Fakaofu *tautai* checking line for *pā* in preparation for *ālo atu*. Photo by Marti Friedlander, 1971.

## THE TALE OF THE PEARL-SHELL

A Tokelau narrative from the English version of the *Matagi Tokelau* (1991: 212-19) text, considerably abbreviated here, tells the story of the original mother-of-pearl-shell/lure/pendant (see also Burrows 1923: 168-70).

The son of the Sun, following the instructions of an old woman whose sight he restored, journeys to the sky to obtain a *tifa* from his father for his pregnant bride, Hina, the daughter of Tui Fiti. After he has managed to grasp the packet containing the correct *tifa*, the Sun orders him not to unwrap the packet until he has returned to his mother, but alas, he disobeys. The brilliance of the exposed *tifa*, reflecting the rays of the rising Sun, dazzles the eyes of the Sun, who calls upon sharks to devour his disobedient son. The *tifa* slowly flutters to the bottom of the sea, and its flickering attracts skipjack. They nibble at it, shaping it into a *kahoa*, which becomes caught in the eye of a fish-trap belonging to Tui Fiti. When Tui Fiti's fisherman, Lakulu, raises the fish-trap, it is filled with skipjack attracted to the entangled *kahoa*. The *kahoa*, shaped by nibbling skipjack, is retrieved from the fish-trap by Lakulu and handed to Tui Fiti, who recognises it as the *kahoa* that the long-gone son of the Sun sought for his bride—Tui Fiti's daughter. He binds the *kahoa* as a *pā* and tells Lakulu to try casting for skipjack with it. Lakulu, now married to Hina, casts for skipjack with prodigious success. He becomes covetous of the *pā* and schemes to appropriate it for himself. He cuts the *pā* from the line and secretes it, telling Tui Fiti that the *pā* has been lost—*he mala tū* 'a great tragedy'. Shortly thereafter he proposes to voyage afar. Tui Fiti, suspecting that he has appropriated the *pā*, warns that disaster will befall him if he has lied. The voyagers—Lakulu, his three sisters' sons and pregnant Hina—are beset by a storm. Lakulu and then his three sisters' sons drown in turn, each passing the appropriated *kahoa/pā* to the next before sinking into the sea, and the last passes it to Hina. Hina reaches land and delivers her boy child, the grandson of the Sun. When the boy is grown, he asks what the *kahoa* is for, and Hina replies: "Alas, that *kahoa* is mine, brought by your father. It is for *ālo atu*." After several attempts, her son finally succeeds in binding the *kahoa* correctly as a *pā* and to him skipjack swarm.

*Some Interpretation*

This is the only Tokelau tale I know of that has as its central character an object, and in a sense it relates the cultural biography of that object (Kopytoff 1986). The tale is, in fact, more mythic than fictional, because it accounts for the origin and properties of this treasure by embedding it in a distinctively Tokelau cosmic and social order (see Godelier 1999: 123, 134 and elsewhere on "the imaginary"). As the *tifa* is transferred and transformed from its source (the Sun) to its proper recipients (Hina and her son), it brings *malaia* 'disaster' and *manuia* 'good fortune'. It is repeatedly transformed and transmitted actually or symbolically through the agency of women.

- A blind old woman directs the son of the Sun, who gave her sight, to reach his father and the pearl-shell he seeks in the sky.
- The Sun forbids his son to open the packet until he has reached his mother (who is entitled to it by virtue of their union).
- Fish attracted to the *tifa* shape it into a *kahoa*.<sup>11</sup>
- Tui Fiti recognises that the recovered *kahoa* was intended for his daughter and binds it as a *pā*.
- The *pā* attracts many fish and the fisherman becomes covetous of it.
- He pretends it is lost and then takes it away.
- Tui Fiti's curse falls upon him and his sister's sons.
- The unbound *pā*, now a *kahoa*, comes into Hina's hands.
- And finally, Hina eventually passes it to her son who binds it again as a *pā*—to which skipjack swarm.

Men misuse this treasured object, disobeying their elders:

- The Sun's son, ignoring his father's instructions, unwraps the *tifa* and is devoured by sharks.
- The surrogate husband attempts to appropriate the *pā* that rightly belongs to Hina and her unborn son, and is drowned together with his sisters' sons.

Reiterated in episode after episode, pearl-shells must be transferred between men through women. The prescription still applies, but the cosmic order that informs it has been ostensibly abandoned. The belief that *tifa* was a “gift” of the Sun (or indeed of Tui Tokelau—see below) has become a fiction, still imagined in an entertaining tale that people delight in telling and hearing.

#### OTHER SINGULAR THINGS

The first among other marked Tokelau emblematic resources is pandanus—not just any type, but the species known as *kie* (*P. freycinetia*) from which fine, white, soft fibres are produced and plaited into delicate mats and garments (Fig. 10). *Kie* pandanus only flourishes in Nukunonu. Why it only flourishes in Nukunonu is explained in a well-known “just-so story” (see *Matagi Tokelau* 1991: 16-17; also Huntsman and Hooper 1996: 138). Briefly, very long ago the Fakaofu spirit (*aitu*) stole Nukunonu's *vai magalo*, and in retaliation, the Nukunonu spirit stole Fakaofu's *kie* pandanus. So it is that today Fakaofu has relatively abundant supplies of fresh water and Nukunonu has a plantation of *kie* pandanus, and it is indeed true that *kie* pandanus has yet to be cultivated successfully in Fakaofu and there is only a little, inaccessible well of fresh water in Nukunonu.

Another story with the same scenario accounts for the abundance of the canoe-building *kanava* timber in Atafu, where indeed there are more and

larger trees of greater girth (Fig. 11). This story may well be derivative of the Nukunonu one—*kanava* trees simply replacing *kie* pandanus in the plot—and the story is only told in Atafu. This does not make it any less significant, however. Again, the Fakaofu spirit steals water, but then fresh water is present in Atafu, although not right within the village, and little fuss is made about it.

These stories would appear to place three “singular” resources more or less exclusively in the three atolls: fresh water in Fakaofu (Fig. 12), *kie* pandanus in Nukunonu, *kanava* trees in Atafu. Now fresh water is a rather different sort of valuable than pandanus and timber: it is not fabricated into anything



Figure 10. Nukunonu plaiting expert with a fine mat (*kieke*) in her lap and a length of dyed *kie* pandanus around her neck. Author’s photo, 1968.



Figure 11. New outrigger canoe with *kanava* timber hull at anchor in Atafu lagoon. Author's photo, 1976.

and is more diffuse. Yet, pits dug into Fakaofu's freshwater lens support the cultivation of *pulaka* 'swamp taro' and a deep freshwater well still stands in the centre of Fakaofu village containing Fakaofu's "singular" valuable. The well was already there in 1841.

At a little distance from the *malae* ['open space in front of the god-house where wrapped stones stood'] was a well about fourteen feet deep, neatly walled up, and surrounded by a high fence. There were not more than thirty inches of water in it, and from the care which was evidently taken of the place, it is probable that the pure element is an article of much rarity and value among them (Hale 1846: 158).

Near the centre of the Village is a well surrounded by a circular wicker fence about 60 feet in circumference—with a gate way entrance—and from which I presume all the inhabitants are supplied with water—This well is about 15 feet deep—of circular construction and excavated through the coral—or rather into it—and walled up about six feet from the bottom—with stones of five or six inches in diameter—I have an idea that it affords more water than is necessary for the use of the inhabitants. It had about three feet water in it—at the time of our visit. (Hudson, MS)



Figure 12. Fakaofu's fresh-water well. Photo by Marti Friedlander, 1971.

#### TREASURES AND VALUABLES IN HISTORY

From ancient times, though well after the mutual thefts (above) occurred, and into the mid-19th century, Fakaofu was the pre-eminent atoll of Tokelau. This had come about by Fakaofu's conquest of Nukunonu, and the abandonment of Atafu by its autochthonous people when faced with a Fakaofu invasion, and its later resettlement as an outpost of Fakaofu. Thus Fakaofu became overlord of all Tokelau and "the great god" Tui Tokelau became an apparent presence.<sup>12</sup> Tui Tokelau was given concrete form in a huge coral-stone pillar concealed in matting that stood outside the god-house in Fakaofu (Fig. 13). The god's embodiment and house were the focus of the worship of Tui Tokelau, and the *aliki* 'paramount chief' of Fakaofu<sup>13</sup> was the spokesman to and for the god, who was the source of all prosperity and blessings.

The worship of Tui Tokelau demanded significant offerings from Nukunonu. The most marked were the *kiekie* secured with a length of loincloth that enveloped the coral-stone pillar. Two 1841 firsthand descriptions are at odds regarding its dimensions, but not its appearance.

Whatever may have been inside was so thickly covered that it appeared like a pillar of matting ten feet high and as many in circumference. (Hale 1846: 158)

The Gods or Idols were placed outside the Bure [god-house]—the greater one (at least in height) had an elevation of 14 feet and about 18 inches diameter—this was completely enveloped in mats with a narrow maro [malo] mat passed over it after the manner of a shawl—where we should look for a neck and shoulders (although this large Idol had neither head, legs, arms or more definable shape—than to say it was like a long bale of cotton stood on end) and tied with a flat knot in front—with the ends hanging pendant about four feet before the Idol. (Hudson, MS)

Following the abandonment of Atafu, parties from Fakaofu periodically voyaged there to fell and shape the atoll's *kanava* timber for canoes. When Atafu was resettled (c.1800), Fakaofu proclaimed to its pioneering residents this ominous warning: “You are absolutely forbidden to fell the bush of Togaleleva” (i.e., *kanava* trees dedicated to Tui Tokelau). The descriptions of the god-house in 1841 suggest the uses to which such dedicated timber was put.



Figure 13. Tui Tokelau's mat-wrapped stone and god-house. Photo of painting by Agate, artist on the U.S. Exploring Expedition, from sketch made in Fakaofu, 1841.



Near the centre of the town was a large building, which they called the *malae*, and declared to be the house of their god, Tui Tokelau.... The house was oblong, about forty feet by thirty, and at the ridgepole about twenty feet in height.... The circumference was supported by many short stanchions, small and roughly hewn, placed a few feet apart; but the ridgepole rested upon three enormous posts, of which the largest was about three feet in diameter.... In the centre of the house, about the largest post, were piled confusedly together a dozen massive benches, or large stools, two feet high, as many broad, and about three feet long; they were of clumsy make, very thick and heavy, each one being apparently carved from a single block. The natives called them “seats of the god,” and we supposed that they might be for the elders of the village, when they meet in council, or for religious celebration. (Hale 1846: 157)

Two decades after Hale’s visit, a missionary reported that a party of 200 Fakaofu people “had come down to this island to build canoes, as the wood suitable abounded here” (Ella MS 1861)—presumably in “the bush of Togaleva”, and, moreover, in this task they were assisted by the men of Atafu. Clearly, in this instance, Fakaofu was extracting both resources and labour from Atafu. Similarly, Nukunonu accounts assert that *malo* and mats plaited by Nukunonu women were used as coverings of Fakaofu persons, as well as shrouds of the god. How were these transfers perceived—as “gifts” and offerings or as appropriation and tribute or, indeed, differently by the different parties concerned?

This question is particularly pertinent in the case of pearl-shells, which if recovered in Nukunonu and Atafu were transferred to Fakaofu. As “gifts” or offerings they adorned the god-house: “Around the inside of the eaves, a row of mother-of-pearl-shells was suspended...” (Hale 1846: 157). According to some local accounts, only the flat side of each retrieved shell was dedicated to Tui Tokelau—the other side with its bulbous hinge was fashioned into lures for skipjack fishing (Perez 1992), but it is not stated whether Fakaofu retained both sides and thus held a total monopoly on pearl-shell. That is, were these pearl-shells recovered in Nukunonu and Atafu only directed to the worship of Tui Tokelau, or were they also appropriated for the benefit of Fakaofu—as were foodstuffs, other goods and Nukunonu women (see below)?

Undeniably, the transfer of treasures from Nukunonu and Atafu was based on Fakaofu’s political overlordship underpinned by godly sanction. The specific inalienable resources relocated to Nukunonu and Atafu (*kie* pandanus and *kanava* respectively) by their “spirits” in retaliation for the Fakaofu spirit-theft of fresh water were the resources from which they fabricated the “singular” treasured objects that Fakaofu exacted from them (fine mats/*malo* and timber/canoes respectively). In essence, though Fakaofu could not regain those inalienable resources that only a spirit could relocate, Fakaofu did, in the name of Tui Tokelau, appropriate the “singular” objects fashioned from them.

Yet, does the word “appropriate” reflect the thinking of the pre-Christian Tokelau ancestors? True, Atafu and Nukunonu people latterly viewed their tribute to Fakaofu and offerings to Tui Tokelau as subservience to a false god and oppressive rulers. They readily embraced Christianity in large part for these reasons, immediately ceasing to send either “gifts” or tribute (Huntsman 1994). Certainly a liberal Western interpretation would term the transfers appropriation, but did Tokelauans in the early 19th century think about it this way?

The huge stone pillar that “anchored” Tui Tokelau in Fakaofu was the “sacred” object (see Godelier 1999): inalienable, immobile and, indeed, hidden from the view of all but the *aliki* and his attendants who annually removed and replaced the fine mats that shrouded it. Tokelauans everywhere believed that Tui Tokelau was the source of prosperity, fertility and abundance, and their recorded prayers to him attest to this belief (Huntsman and Hooper 1996: 150-51; *Matagi Tokelau* 1991: 45, 48-49). Tui Tokelau, remote in the sky, but instantiated in Tokelau by his stone in Fakaofu, controlled the weather and the bounty of all natural things, especially the myriad fish of the sea, reef and lagoon, and was annually celebrated in Fakaofu with prayer and offerings. Lister, during his ten-day stay at Fakaofu in 1889, recorded the following report on this annual ritual gathering.

A yearly feast was held in honour of Tui Tokelau, and the people of Nukunonu and Atafu came over with *offerings of mats and pearl-shells*—the mats hung to the masts of the ships as they approached, to display them. When they landed the mats were wrapped round the stone, to remain until they rotted away, and the pearl-shells were placed along the eaves of the house sacred to the god, close at hand. (1892: 50, my emphasis)

Tui Tokelau’s blessings were also regularly acknowledged by symbolically returning to the god what he had provided. From Lister, again, the following note: “If a good haul of fish was taken, part of it would be offered before the stone [of Tui Tokelau] by the king [*aliki*], and afterwards *it was distributed*” (1892: 50, my emphasis). Other accounts indicate that all the atolls reciprocated the blessings of Tui Tokelau in this way, that is, the “gift” of the god was symbolically “returned” or acknowledged, and this “gift” was then distributed.<sup>14</sup>

One other feature of Fakaofu’s conquest and overlordship is, I think, crucial to an understanding of Lister’s “offerings of mats”. In the past, not only were *kie* pandanus treasures produced by Nukunonu women taken to Fakaofu, Nukunonu women were also taken as wives of Fakaofu men. That appropriation is the right word for this “wife-taking” is underscored by its denial of Tokelau customary uxorilocality: a matter invariably noted. Nukunonu women were taken to live and bear their children in Fakaofu.<sup>15</sup> The

two appropriations may be linked: both are tied up with reproduction. The women bore children that were “of Fakaofu”, alienated from their mothers’ *kāiga* and their mothers’ brothers. Men’s *malo* conceal and contain male virility, and fine mats, as conjugal sleeping mats, give blessings of fertility. Both retain these associations at Nukunonu weddings, and in the past they were likewise associated with Tui Tokelau. The fine mats that enveloped the stone pillar of Tui Tokelau and the *malo* that secured them certainly hid, surely contained, and possibly constrained the vital powers of the god.<sup>16</sup> In “taking” both women and their mats, Fakaofu was actually and symbolically appropriating the reproductive powers associated with Nukunonu.

#### REFLECTIONS OF THE PAST IN THE PRESENT

##### *Tokelau Treasures in Tokelau Today*

Today in Tokelau certain kinds of fish called *ika hā* ‘sacred fish’—billfish, turtles (classified as fish) and, most especially, skipjack—must be distributed in village *inati*. These are exactly the fish reported to be “sacred to Tui Tokelau” and were offered and afterwards distributed in the past. Likewise, any exceptionally good haul of fish today should be distributed, and will be if fishermen are *lotonuku* ‘devoted to village’. Clearly, what was offered to the god and thereafter distributed links the *inati* distribution system of today to ancient ritual offerings. The fish “sacred to Tui Tokelau” (now simply sacred fish) and abundant fish catches offered to the god and then distributed in the god’s name came to be taken to the village and distributed under the aegis of its elders.<sup>17</sup> The male elders, collectively, have replaced the *aliki* of the past—they assure the welfare of all. There is a further reflection of that past in the special portion that is set aside for the pastor/priest, whose presence in the village is as the privileged intermediary to the Christian God, now the source of all blessings.

Tokelau treasures are no longer either offered to Tui Tokelau or appropriated by Fakaofu. But Nukunonu’s *kie* pandanus, Atafu’s *kanava* timber and Fakaofu’s fresh water continue to be inalienable emblems of the separate places. Nukunonu’s *kie* pandanus is obviously a female valued resource. Women propagate, tend and harvest the plants, process the leaves and plait the fine fibres. In recent years, most Tokelau women plait mats only rarely, but Nukunonu women continue to assemble regularly to plait fine mats and ceremonial men’s *malo* from their *kie* pandanus (Fig. 14). *Kanava* timber is a male valued resource from which men laboriously craft canoes (Fig. 15-16). Yet, whereas men are no longer building canoes in Nukunonu and Fakaofu, preferring to import aluminium runabouts, Atafu men are still building new canoes and refurbishing old ones, though they import runabouts too. Thus, the emblematic resources of Atafu and Nukunonu and their associated treasures with their gender attributions are nicely paired. In fact they view

their relationship in much these terms: Nukunonu gave Atafu's founding father his wife, and so their relationship is one of mother's brother and sister's son.

But what about Fakaofu? It still has its inalienable fresh water and the well in the centre of the village. What does Fakaofu do with its emblematic fresh water? As the other atolls do, it produces something from it, but in a rather less direct way, by digging huge pits down to the freshwater lens and planting swamp taro (*pulaka*) in them.<sup>18</sup>

The treasured things that are produced from the emblematic resources are not *fōki tauanoa* 'given away indiscriminately'. Rather, they should be given purposefully, in recognition of relationships and attendant obligations. When all Tokelau gathers for pan-Tokelau occasions or to collectively host important guests, Atafu "gifts" *tuluma* 'cylindrical fishing containers' or model canoes carved from *kanava*, Nukunonu "gifts" mats incorporating *kie* pandanus and



Figure 14. Nukunonu women gather for mat plaiting. Author's photo, 1997.



Figure 15. New outrigger canoe being crafted in Atafu. Author's photo, 1991.



Figure 16. New *vaka* at anchor. The platform on the stern outrigger booms is for an outboard motor and the raised platform for a lamp to attract flying fish at night. Author's photo, 1991.

Fakaofu provides delicacies made from swamp taro. Apart from presentations at pan-Tokelau events, the inter-atoll transfers of emblematic resources and treasured objects take place between kin.<sup>19</sup> A Fakaofu or Nukunonu man with *kāiga* connections in Atafu might seek, and probably receive, *kanava* timber for a canoe from kin there. Fakaofu or Atafu women with *kāiga* links in Nukunonu may request and receive a reel of processed *kie* pandanus from kinswomen there. Fakaofu people give their kin elsewhere parcels of grated and baked swamp taro. This kind of gifting restates (or recreates) the bonds between kin and between the atolls by the transfer of things which are emblems of each and treasured by all.

Pearl-shell, whether as pendants or lures, never figures in this kind of emblematic “gifting”. In certain respects *tifa/kahoa/pā* are different from the emblematic things. They are more enduring and cherished treasures.<sup>20</sup> Take as an instance the death of a notable person: his or her body may be placed in a section of a canoe and covered with a mat (in Nukunonu a fine mat), and a *pā/kahoa* may be placed upon the body. But, before burial, the pearl-shell object is removed, while the canoe section and mat are buried. Today, only at marriage do *tifa/kahoa/pā* and the *kie* pandanus appear as counterparts with complementary symbolic qualities, and with certain visual similarities—they both glisten with the luminosity of “an opening gardenia... freshly cut heart of palm... the clouds reflecting the dawning sun”, as Tokelau poets have sung.<sup>21</sup>

The symbolic qualities of *kie* pandanus garments and mats have already been considered above, but what about the pearl-shells that hung around the eaves of “the house of Tui Tokelau”? As distinct from the treasures derived from land-based resources secured in the separate atolls, pearl-shells are found, fortuitously but rarely, in the lagoons. (More often today they are sought and acquired overseas.) They can appropriately be compared to the whale teeth of Fiji in these respects (see Sahlins 1983). However, unlike whale teeth, as *pā* they are used as “means of production”, if you will. As *kahoa* and as they adorned the god-house they are “display items”. Once a *pā* is fashioned from a *tifa* it has a dual nature—a bound *pā* to be used and an unbound *kahoa* to be displayed—and is always to be treasured.

Recall that the first *tifa* came from the sky—the abode of both the Sun and Tui Tokelau. This initial “gift” made it possible for men to cast for skipjack, and catches of skipjack were in the past offered before the stone of Tui Tokelau. Was it the blessing of abundance that was being acknowledged, or the “gift” of the *tifa*? What about the *tifa* that adorned the god-house in Fakaofu? Were they offerings in recognition of the initial “gift”? Or was their display intended to attract the attention of Tui Tokelau? Or perhaps both? Further, there are the connections between *tifa* and women. Both of them were taken to or taken by Fakaofu in the past, and they are likened to one another. Recall the exclamations of the old women referring to the nubile

*fafine fou* adorned with a *kahoa* as she stands in the path: “a pearl-shell! ... a new pearl-shell!” This equation of *tifa* and new woman has puzzled me. I think it less puzzling if the beauty and value of the new woman is being compared to the beauty and value of the *tifa*, both essential to continuing prosperity. The *pā* that excites skipjack symbolises abundance, a “gift” of Tui Tokelau; the nubile woman adorned with a *kahoa*—to which she is compared—is the source of human fecundity, again a “gift” of Tui Tokelau.

A Tokelau text (referring to Fakaofu long ago)<sup>22</sup> explains that when a woman bore her first child she remained cosseted for 40 days. Thereafter, she was dressed, adorned and oiled, and danced before seated onlookers at the *malae* of Tui Tokelau. By her performance, was she acknowledging Tui Tokelau’s “gift”—her child? The “new pearl-shell” had fulfilled the promise that her marriage had anticipated. Women, like pearl-shells, are unique treasures and, like pearl-shells, were once taken to Fakaofu.

#### *Tokelau Treasures in New Zealand*

Today over 7,000 Tokelau people reside in New Zealand. Here the treasures of Tokelau figure too. In the Greater Wellington area, where the largest number of Tokelau people live, those from the separate atolls cluster in specific places and spaces. In the eastern region of the Hutt Valley where many Nukunonu people reside, they congregate at their Hall in Naenae. In Porirua, Pāhina Church Hall is the gathering place for Fakaofu people, and the Atafu community has built their own Matauāla Hall on a hilltop. These are not exclusive places; rites of passage and Tokelau celebrations of one sort or another bring Tokelau people together at one venue or another, as do long-running projects of various kinds. Yet, the identity treasures of the atolls still prevail: Nukunonu women gather in their Hutt Valley Hall every Wednesday at 10:30 a.m. to plait mats from pandanus sent by women in the atoll, and a group of weavers made a video both instructive and celebratory; at Matauāla Hall, Atafu elders built a Tokelau outrigger canoe and wrote a book detailing Atafu fishing practices (Elders from Atafu Atoll 2012, *Mafutaga a Toeaina o Atafu i Matauāla Porirua* 2008). Again, we see that Fakaofu’s identifying treasure is not portable. However, their church hall Pāhina (*pā* ‘skipjack lure’, *hina* ‘white’) does perhaps reference the house of Tui Tokelau with pearl-shells hanging from its eaves. But then *tifa/pā/kahoa* were and are pan-Tokelau treasures. In recent years, so-called *kahoa* have increasingly become neck adornments of Tokelau girls and young women. Usually they are fashioned from the thin marginal sections of *tifa*—one enterprising Fakaofu man even fashions them for sale. They have become icons of Tokelau ancestry. Yet, the words of the text of that Tokelau elder, composed at least a half-century ago—“It is unseemly in these days the way

*kahoa* are so often displayed”—have been echoed in a different context today: “These pearl-shell ornaments are not really *kahoa*.” This is because of the ways they are acquired and given, but more to the point, because they were never laboriously fashioned and properly bound *pā* that excited skipjack.

\* \* \*

Tokelau treasures appear never to have been transacted. In the past they were stolen by spirits and “gifted/appropriated” in the name of Tui Tokelau; in the present they are transferred, primarily as expressions of *alofa* ‘devotion/compassion’ and *manuia*. The most “singular” treasure is pearl-shell, cherished and admired, fashioned into lures to excite skipjack and then transferred among Tokelau men through women. They are never exchanged for something else, or indeed given in expectation of a return. How they are transferred indeed makes either impossible—the “Tale of the Pearl-Shell” warns of the consequences of doing otherwise.

In New Zealand, the treasures of Tokelau have taken on new meanings: they have become icons of identity as “of Nukunonu”, “of Atafu”, “of Fakaofu” within the community, while pearl-shell neck adornments identify the wearers as “of Tokelau” within New Zealand. Cultural treasures indeed have a history—in new contexts they take on new meanings while retaining echoes of their meanings in the past.

#### ACKNOWLEDGEMENTS

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#### NOTES

1. My usage of “singular” here and by contrast “common” follows Kopytoff 1986. I thus avoid the term “commodity” that seems so out of keeping in the Tokelau context, except for imported store-bought items (see following note).
2. One might say that Tokelau formal structures of exchange in the broad sense, i.e., the transfer of things by people, eschew any kind of exchange in the narrow sense, i.e., dyadic, commodity transactions between individuals or groups. Things produced by fishing, harvesting or processing are regularly, even daily, brought together and apportioned throughout the village or among some recognised group



within it. These transfers are a classic exemplification of Sahlins' "pooling" and "redistribution" (1965: 141-43), except there are no chiefs involved. Rather they occur either under the aegis of the collective *toeaina* 'elders' in village pooling, or under the aegis of *tuafafine* 'sisters' in *kāiga* pooling. Informal exchange in the broad sense again is decidedly not conducted as exchange in a narrow sense. People regularly request and receive things from their kin and neighbours (it is often difficult to tell which is which in a Tokelau village), and foodstuffs are continually being transferred to neighbours or to kin. To immediately give something in return would be decidedly crass. Properly, things are given out of *alofa*, not in expectation of return. The Tokelau lexicon reflects this emphasis on pooling and aversion to dyadic transactions. There are numerous lexemes, in both nominal and verbal forms, for distributing, allocating, dividing and apportioning, and none for reciprocal exchange, excepting the compound *fefakatauaki* composed of *fe...aki* 'mutual, reciprocal' and *fakatau* 'shopping, trade' (or perhaps *fakafetōlaki* which may simply be glossed as 'swap', that is to exchange like for like, as when today's young people swap T-shirts). Tokelau people do speak about reciprocal exchange in the foreign context of shopkeepers and traders, though it is rather cumbersome to do so, and certainly not in keeping with how things should be done among themselves.

3. Tokelau *inati* is obviously cognate with, for example, Tongan *inasi*. The widespread form is among the reconstructed Proto-Polynesian lexemes, glossed as 'share, portion' (Biggs and Clark 2010). In Tokelau today, every person in a village is assigned to one and only one *inati*, and these 'share units' are weighted according to how many persons are assigned to them. The outcome of any *inati* distribution is that each person in the village, irrespective of age, gender or status, receives, in principle, an equal portion (see Huntsman and Hooper 1996: 76-83).
4. Village endogamy is pragmatic, not prescriptive. Natal villages are usually where people's resources and support are strongest, and where their loyalties and obligations lie. There is an obvious conundrum here, given the Tokelau concepts of marriage proprieties—one should not marry kin—which I am not going to examine here, but see Huntsman and Hooper 1976. Yet, while villagers may be categorised as "mothers", "fathers", "sons" and "daughters", they are only referred to collectively as brothers or sisters in single-sex contexts, that is, as *taina* or *uho* 'same-sex siblings'. Complementary brothers (*tuagane*) and sisters (*tuafafine*) are the focus (or structural pivot) of *kāiga*, discriminating between its members as *tamatāne* 'issue of brothers' and *tamafafine* 'issue of sisters', each with specific rights and obligations (for more, see Huntsman 1971, 1981, Huntsman and Hooper 1996: Ch. 3).
5. *Kanava* (*Cordia subcordata*) is a slow-growing hardwood and the only timber locally available for fashioning long-lasting canoe hulls. The trees themselves are treasures, part of the endowment of a *kāiga*. *Kāiga* canoes were essential to provisioning the kin group—large ones commodious enough to transfer coconut provisions from *kāiga* lands and smaller ones for ocean fishing. In the 1970s they began to be replaced by aluminium runabouts equipped with outboard motors, and by the 1990s they had virtually been replaced, except in Atafu Atoll (see text below).

6. *Kāiga* landholdings consist of more or less extensive stands of coconut palms and other vegetation located on different islets of the atoll. These may be allocated or divided. Canoes are likely to be unlashd and the hull sections allocated. Canoe hull sections may be used as coffins (*vaka* referents are both ‘canoe’ and ‘coffin’). They may be sections just lying around or set aside for the purpose. However, in cases of significant senior members of a *kāiga*, a canoe may be dismantled for the purpose. It is said that this was a test of the integrity of that *kāiga*—in the absence of the elder could the *kāiga* work together to restore the canoe, or would the *kāiga* too be *malepe* ‘broken up’?
7. Nukunonu rites of passage (celebrations of marriage, first birth and death) are self-consciously traditional. This traditionalism may be attributed to Catholic tolerance of local practices in the 19th century (versus Protestant repression), which Nukunonu Catholics celebrate and Protestants elsewhere acknowledge. I draw this account from three celebrations in 1967–68.
8. The new couple is only potentially a new family and only actually becomes one when a child is born of the union, ensuring the generational continuity that is the essence of *kāiga*. The fine *kiekie* mat gifted by the man’s father’s sister most clearly expresses this *manuia*, for the father’s sister is attributed with powers to bless or curse the offspring of her brother (as in Tonga and Sāmoa). The *kahoa* is more opaque in this regard. Its centrality as a lure shank for a *pā* in the most elaborated Tokelau fishing practice links it more to provision/production than reproduction (but see text below).
9. The late Peato Tutu Perez composed the text (in Tokelauan) from which this passage is excerpted and translated by the author. He authenticated his text by attributing his knowledge to his grandfather, and saw this text and others as legacies concerning the Tokelau past for future Tokelauans. The practices described are generally placed in the past and in Fakaofu, and no mention is made of Christian marriage vows, though Peato was a Catholic catechist. Nonetheless what he described is clearly reflected in more recent practice. Another of Peato’s texts, *Kupu o te moana* ‘words of the sea’, includes a finely detailed description of the Tokelau method and etiquette of casting for skipjack (Hooper and Huntsman 1991) and in 1960 he composed a Tokelau text on Tokelau treasures for a school reader (reprinted in English as Perez 1992).
10. There are exceptions to this statement. When men are inducted as *tautai* ‘master fishermen’ after they have proven their skills as fishermen, established *tautai* “gift” fishing tackle of various sorts, including lures for skipjack casting, to these new *tautai*. This gifting is within a communal context—the new *tautai* are being recognised as accomplished providers *mo te manuia o te nuku katoa* ‘for the welfare of all’. Likewise, the etiquette of communal skipjack casting calls for *tautai* to provide *pā* to those of their compatriots who for one reason or another have none. Again, this is “for the welfare of all”.
11. In the Tokelau gendering of their world, fish are gender-feminine and the birds that prey upon them are gender-masculine. This I assert on the basis of analogies in other *kakai*, though no Tokelau person has ever directly said so. For further discussion of gendering in Tokelau, see Huntsman and Hooper 1975.

12. Tui Tokelau features in Tokelau traditions only after Fakaofu establishes pre-eminence and, Tokelau sages assert, never had human form. The name does not appear in Tokelau founding genealogies.
13. *Aliki* figured in the religious and political life of Tokelau until the mid-19th century, as the *leo* ‘voice’ of the collectivity to the gods and of decisions reached by the elders to the polity. In recent times the oldest man in a village voices important decisions of the elders (see Hooper 1994 and Huntsman 1994).
14. This resonates with Mauss’s concept of the *hau* of *The Gift* (1954) as this concept has been revisited and revised by other scholars (see especially Godelier 1999).
15. Nukunonu local histories and genealogies attest to this transfer. However, the Nukunonu interpretation tends to view it as “wife-giving” by means of which significant kinship links were established with (and in) Fakaofu (Huntsman and Hooper 1985). The impressionistic but consistent demographic observations that Nukunonu had a far smaller population than Fakaofu again support the assertion that Nukunonu’s women were given or appropriated.
16. I assert this based on Polynesian analogies elsewhere; Tokelauans have not said so.
17. Casting for skipjack is properly done communally, with all able men going to the fishing grounds together in a fleet of canoes (refer to Figs 6 and 7). Sometimes one or more skipjack are hooked in the course of regular fishing, in which case they are sensibly not shared in *inati*, though the fishermen (or the ‘sister’ who allocates the catch) may pointedly send them to particular people, such as an elder, a pregnant woman or someone who is ill. Billfish and turtles—as well as any communal catches—are always distributed through *inati*. More generally, the idea of treating any fish as a saleable commodity is shunned. In recent years individual entrepreneurial fishing ventures have been thwarted, indeed sabotaged. Even what seemed rational communal enterprises—supported by external aid—have been thoroughly compromised. Fish, simply, must not be sold to enrich a few, but shared for the benefit of all—that is Tokelau *aganuku* ‘hallowed custom’.
18. *Pulaka* production was introduced and promoted by Cook Island and Tuvalu pastors in the late 1800s and greatly increased in the 1930s by vastly expanding the area of the excavated pits.
19. In this way, non-resident *kāiga* members, who cannot receive their rightful shares in regular *kāiga* distributions of produce, are recognised with special gifts.
20. Pearl-shells are now very rarely found in Tokelau lagoons (though this may not have been the case in the distant past), but are sought afar from, for example, the northern Cook Islands, Tahiti and Papua New Guinea.
21. See “The Tale of Alo” in *Matagi Tokelau* (1991: 210) or *Songs and Stories of Tokelau* (Thomas *et al.* 1990: 78). Godelier (1999: 166) equates the association of gold and the Sun in ancient Egypt with the association of mother-of-pearl with gods elsewhere, commenting: “it was the mother-of-pearl... that captured the imagination of societies which saw in the iridescent whiteness the presence of life, the trace of the sperm of the gods and that of men”. The latter association does not seem widely generalisable to me, but the “iridescent whiteness” might translate into Tokelauan as *gigila* ‘glitter, sparkle, glisten’, something that dazzles the eyes.
22. Again the text was composed by Peato Tutu Perez (see note 9 above).

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#### ABSTRACT

Drawing upon multiple lines of research in and about Tokelau—ethnography as participant-observation and conversation/discussion, documentary research in all available published sources (few) and unpublished materials in offices and archives, Tokelau narratives and texts, conversations with other scholars of Tokelau, and relevant anthropological literature—the late Antony Hooper and I have aimed to create a narrative of Tokelau over time and in places that speaks to both differences and continuities in Tokelau lifeways—their activities and beliefs, ideas and relationships. This essay is a contribution to and illustration of our endeavours, focusing on those particular things that Tokelau people treasure: their emblematic resources and the valued things they make from them, and their supreme valued treasures—pearl-shells (*tifa*), and the lures (*pā*) and pendants (*kahoa*) fashioned from them.

*Keywords*: pearl-shells, skipjack casting, Tui Tokelau, emblematic resources, cultural histories of things, Tokelau

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INSTRUMENTS IN MOTION:  
FLUTES, HARMONICAS AND THE INTERPLAY OF  
SOUND AND SILENCE IN COLONIAL MICRONESIA

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*The few native musical instruments are now obsolete or nearly so and are replaced by the guitar, harmonica, and ukulele (Fischer and Fischer 1957: 203)*

*Music enters the history of empire as silence (Bohlman 2016: 174)*

While I was residing in the islands of Chuuk in the Federated States of Micronesia, friends told me a story about a musical instrument no longer seen or heard in the islands but not completely without a presence. I first listened to this tale in 2001 and again in subsequent years. In accounts of the story—said to date from the German colonial administration (1899–1914)—the identity of the instrument was not always clear, but most believed it to be the *aangün*, a nose flute made of bamboo or mangrove root but not regularly constructed or played since the mid-20th century. The word *aangün* can be translated as ‘soft-sounder’, a term that designates its delicate tone, but the name also calls to mind its quiet place in histories of Chuuk. The story about the instrument relates how a group of men from one village planned to ambush those from another as part of traditional warfare practices. Although the warring party disguised their plans, one knowledgeable man who knew how to play the instrument sounded a coded warning to his village after he learned about the intentions of the visitors. Narrators related to me how at that time people could no longer understand the meaning of the instrument, and because the message was not understood, people died in the ensuing battle. This oral history suggests an anxiety about efficacious cultural things long after they have been discarded in the islands, and it also underlines some of the challenges in coming to terms with material and musical pasts of the Pacific.

In contrast to this local account, the written descriptions of the *aangün* from the mid-20th century explained the flute and its disappearance in relation to the pressures of missionisation and colonialisation. In these inscribed narratives flutes were quickly displaced by the imposition of European instruments—particularly harmonicas and accordions—and they remained only in museums as obsolete relics of a supposed pre-colonial music culture. These divergent narratives about the Chuukese nose flute reveal outstanding questions of local agency and the complexity that surrounds sensorial, ephemeral things of colonial pasts in the Pacific.

This article explores musical instruments in colonial Micronesia in their sonic, material and historical contexts.<sup>1</sup> It focuses in particular on the Chuukese *aangún*, but also on instruments adopted during colonial administrations in the late 19th and early 20th centuries. The movements of instruments during this period reflected the broader social and material entanglements that took place within Micronesian communities. In this study I argue that critical attention to the unfolding of sound and silence within imperial enterprises in the Pacific offers insights into cultural agency within the turbulence of colonial contexts. An examination of the movements of things, including the abandonment of some instruments and the acceptance of others, addresses the choices of musicians and listeners within a musical and material modernity. Part I of this article situates the study of Micronesian flutes within scholarship on instruments, materiality and colonialism in the Pacific. I undertake a comparative mapping of historical reports about flutes in the Caroline and Mariana Islands as case examples of the unfolding silence brought by colonial domains. Part II focuses specifically on the Chuukese *aangún*, on its material and sonic forms and its past social contexts. In Part III I explore the circulation of musical instruments in the islands and internationally, as well as the incorporation of new colonial instruments as part of emerging practices from this period. Through my investigation of flutes and other instruments I query how we understand the movement and integrations of musical things in their material and aesthetic forms.

#### PART I. SILENT INSTRUMENTS

##### *Micronesia and Musical Instruments*

Musical instruments are especially complex things in their multi-sensorial and social materiality. While scholars have historically viewed instruments as objects of cultural-musical domains (Dawe 2012), research has only begun to question our past and present social relationships with them (Bates 2012; Dawe 2012). Recent research with instruments intersects with a broader focus on materiality and things (Bell and Geismar 2009; Harvey and Knox 2014) that has brought a renewed attentiveness to their movements and itineraries (Hahn and Weiss 2013; Joyce and Gillespie 2015), as well as their pathways and impermanence (Hodder 2011) and the ever-flowing processes of “making, growth, and transformation” (Ingold 2012: 435). Examined over time and especially through colonial entanglements (Thomas 1991), instrumental practices in the Pacific Islands have been integral to processes of cultural revival and renewal (Ammann 1996; Flintoff 2004; Hau‘ofa 2005; Nunns 2014). Moreover, recent research has shown musical instruments to be central to past indigenous technological innovations (Kaepler 2001; Troutman 2016), just as past instrumental practices have offered both material and musical histories for the Pacific (Dietrich 2011; Moulin 1997; Moyle 1988). In this article I build on these ideas to chart the movements of instruments in

the late 19th and early 20th centuries, through processes that simultaneously brought innovation and abandonment.

Contemplating historical musical instruments in the Pacific Islands emphasises the fundamental relationship between colonialism and the process of silencing, for as Philip Bohlman (2016: 173) has eloquently declared, “the history of encounter is narrated by silence”. Throughout the Pacific and beginning with the earliest cultural engagements with European and American ships, silencing followed—in audible transformations that give voice to the turbulence of the times. “For it is from the power to silence that the power to colonise and to subjugate eventually comes”, adds Bohlman (2016: 173). In Micronesia, not just the voices of instruments but also a plethora of musical practices became gradually muted during the imperialism of the 19th and 20th centuries, a time span that brought Spain (1886–1899), Germany (1899–1914), Japan (1914–1945) and the USA (1945–1976) to the northwest Pacific Islands. As trophies of the sonic transformations that took place in the name of art, technology and exotica, musical instruments were collected for museums and archives that today provide visual evidence of the interplay of sound and silence that moved across the Pacific. Musical instruments held as inaudible artefacts in international collections reveal much about the links between imperial enterprises and the process of silencing. In this article I position the abandonment of flutes in Micronesia as a case study in a larger history of sound and silence in Oceania. But such a history must account for the musical voices that filled the absences, for silencing gives way to sound. As musicians in Micronesia put down their flutes, new technologies were on hand, brought in on ships and initially through whalers, traders and missionaries. Considering the movements and intersections of these instruments speaks to the material and sonic modernities that emerged in the late 19th-century Pacific, a period of simultaneous upheaval and creativity. These spaces of materiality and non-materiality underscore questions of agency for indigenous societies in dynamic, colonial contexts.

For the area of the Pacific called Micronesia, musical instruments—or more precisely a supposed lack of—have been influential in a broader discourse of cultural absence (Diettrich 2011; Rainbird 2003). Absence forms an underlying theme in numerous writings about Micronesian music and instruments, particularly in reports from the colonial powers that administered the islands. Just as commentators lamented the apparent disappearance of the islands, they also judged them for their lack of materials and cultural artefacts. The absence of flutes appears at the nexus of this representational and material nonexistence, as things ephemeral but abandoned during colonial enterprises, and yet preserved as specimens of historical presence. A critical study of this absence reveals instead spaces of movement, of musical possibilities and capacities in the face of colonialism and of transformational shifts in sound and silence.



*Mapping Silence: Historical Flute Practices*

The peoples of Oceania historically produced a great variety of instruments, including numerous types of flutes (Ammann 1996, 2007, 2012; Fischer 1986; Flintoff 2004; Kaeppler 1974; McLean 1968, 1974, 1999; Moyle 1988, 1990a, 1990b; Nunns 2014; Nunns and Thomas 2005; Zemp 1978, 1981). The most comprehensive survey of flutes was part of Fischer's (1986) broad historical study of Oceanic instruments, but as Ammann (2007: 9) has commented, "detailed research on the existence of nose-blown flutes in Micronesia has not been undertaken". Beginning with the periods of colonisation and missionisation, and especially with the acceptance of new musical styles and structures, the peoples within Micronesia gradually discarded many instruments that were previously reported in the 19th century. Past accounts speak of the encroaching silence that followed initial cultural encounters and colonisation, and by the late 20th century indigenous flutes were no longer produced or played across the Caroline Islands, with reports of their past existence linked to a few knowledgeable elders. In order to better understand this silencing as part of instrument circulations and in part to amend the lacuna in musical knowledge for the northwestern Pacific Islands, a close and comparative reading of the historical contexts of these instruments is needed. In the sections below I undertake a mapping of these muted practices that illustrates the acoustic and material impositions that were forged through colonisation.<sup>2</sup>

*Mariana Islands.* In the Mariana Islands, including the island of Guam, Chamorro constructed and played two types of indigenous flutes until the late 18th century. After centuries of colonisation beginning with the Spanish in the 17th century and early abandonments within cultural and musical transformations, little information is available about these instruments. Historical records mentioned two types of flute both made from bamboo: an end-blown instrument called *silag* played with the mouth and made with six finger holes and a hole for the thumbs, and a nose flute called *bangsi* that was held transversely.<sup>3</sup> According to Freycinet (1824: 399) Chamorro no longer played these flutes at the time of his visit to Guam in 1820, and they seem to be some of the earliest types of flutes to have been discarded in the Pacific Islands (Clement 2001:76).

*Eastern and Central Caroline Islands.* From the early 19th century and from increased contact with European and American ships, the people of Kosrae underwent decades of social upheaval and population decline, in part from the spread of infectious disease (Gorenflo 1993). The resulting cultural transformations were evident during the visit of Ernst Sarfert in 1910 as part of the Hamburg South Seas Expedition. Without museum examples, images, or sound recordings available, Sarfert's work remains the single, tenuous source for Kosraean musical instruments (1919: 487).<sup>4</sup> Although Kosraeans had already abandoned flutes and their musics by 1910, Sarfert

was able to elicit information from elder men who played the instruments in their youth and who could describe them. Kosraeans apparently called their bamboo flutes *nikacruhruh* (Sarfert 1919: 487). Unlike the Caroline Islands to the west, elders described a pan flute and what Sarfert calls a mouth flute, but not a nose flute. The only reported case of a pan flute in Micronesia, Kosraeans noted to Sarfert that the instrument had four to eight pipes in a single row. Although Sarfert refers to the second type as a mouth flute, what he describes—a vertical instrument with a carved tongue—was apparently a single-reed aerophone. Sarfert learned that this instrument was fashioned from bamboo, was end-blown, was closed on the blown end and open at the distal end, and had several finger holes. He also recorded that it was played by children, but he added that the sound of the instrument had magical power and thus suggested a greater cultural significance than that implied by a toy (Sarfert 1919: 487). Sarfert speculated that the reed aerophone was imported from European visitors, and while there is precedent for this from a case on Pohnpei (see below), no details have come forward from the historical record. Sarfert also mentioned that Kosraeans imitated European transverse pipes but provides no details. By 1910 there was a clear disruption in knowledge about indigenous instruments on Kosrae, and the silence left behind is reflected in Sarfert’s pains to describe the inaudible past.

By the early 20th century flutes were rare on the island of Pohnpei, where people formerly constructed and played distinct types from local materials (Hambruch 1936: 221). By the 19th century Pohnpeians produced the following flutes: (1) an end-blown nose flute called *keseng en tumwe* (instrument of the nose) that had two finger holes, (2) a side-blown mouth flute called *keseng lepin rahu* (instrument of reeds) with three or four finger holes and (3) what Hambruch calls a “tongue [lamella] flute” with four finger holes (Hambruch 1936: 223-25; O’Connell 1972 [1836]: 162).<sup>5</sup> While the earliest writers consistently cited only a nose flute on the island (Cheyne 1971 [1841–44]: 188; Finsch 1893: 243; O’Connell 1972 [1836]: 161; Scherzer 1862: 584), the side-blown mouth flute was only mentioned by visitors near the end of the 19th century (Cabeza Pereiro 1895: 130; Christian 1899: 298), and this perhaps points to its introduction through European visitors. Finsch (1893: 243) reported and collected a different type of nose flute for Pohnpei than those described in early reports, and this instrument is now held in the Museum für Völkerkunde at the Weltmuseum in Vienna (see Diettrich forthcoming). This type of long nose flute is similar to a type commonly played in Chuuk, as described below. The “tongue flute” reported by Hambruch is a single-reed aerophone, an instrument also reported for Kosrae and elsewhere in Polynesia; nothing else is known about it in Micronesia. Pohnpeians constructed these melodic instruments from bamboo (*pehri*), grown widely on the island, but they also used the reed *rahu* (*Phragmites karka*) (Hambruch 1936: 223). Hambruch’s (1936: 223) published sketches of the nose and mouth flutes and

the single-reed aerophone provide the best illustrations of these instruments. In addition to the reports from Pohnpei, Eilers (1934: 396) reported the name of a nose flute (*gaseng*) for the outer island of Mwoakilloa.

In the islands of Chuuk Lagoon and its surrounding atolls people played nose flutes called *aangún* and sometimes named with the more general term *áttik* or *nikáttik* (sound-producer). The men of Chuuk constructed nose flutes from bamboo or mangrove root and of two types: one short with finger holes and the other long without finger holes (Bollig 1927: 240; Damm and Sarfert 1935: 263; Finsch 1893: 311; Krämer 1932: 384, Plate 17, 1935: Plate 23; Kubary 1889: 61; LeBar 1964: 383-84; Tanabe 1935, 1968). On the atoll communities surrounding Chuuk people historically played nose flutes similar to those of the lagoon, with reports of flutes from the Mortlock Islands called *anin* or *atik* (Girschner 1912: 166; Krämer 1935: 130) and from Pollap Island (Krämer 1935: 286), as well as from Polowat (called *anin*) and Houk (called *ligatik*) (Damm and Sarfert 1935: 263). Flute players from Chuuk recorded their music into the phonograph of Augustin Krämer in 1907 in what are the only sound examples of these instruments (Krämer 1932: 395, 402-3; Ziegler 2006: 383). The nose flutes from Chuuk are the most representative of Micronesian flutes in international museum collections, perhaps indicating the popularity of their past use.

People played flutes on at least some of the central Caroline atolls that are scattered between Chuuk and Yap and to the southwest of Yap. German researchers for the Hamburg Expedition reported a nose flute of bamboo called *janil* on Satawal Island (Damm and Sarfert 1935: 264), a nose flute of bamboo called *tigetig* and collected by Helwig (Krämer 1937: 175) from Lamotrek Island, and a flute from Tobi called *fasafasarien* (Eilers 1936: 113). Little else is known of these instruments, and the German expedition was apparently the last to document their usage.

*Western Caroline Islands.* On Yap a bamboo flute played in the early 20th century was called *ngael* (Born 1903: 134; Haas 1906: 138; Müller 1917: 203). The instrument was end-blown from the mouth, and historical reports do not describe a nose-blown instrument for Yap. The Yapese *ngael* had four finger holes and was played with an external duct. By all accounts the Yapese flute was more or less identical with the instrument made on Palau, a connection that stemmed from the close cultural associations between both areas. Haas (1906: 138) wrote that “the flute produces a very soft and sensually tender sound and, indeed, serves less for actual musical entertainment than for communication between lovers”.<sup>6</sup> According to Müller (1917: 203), by 1910 Yapese had considered the *ngael* as a toy. One Yapese man, unnamed, recorded a melody on the *ngael* for the phonograph of Krämer in 1907 (Herzog 1936: 298; Ziegler 2006: 383), and this is the only such sound document in existence.

The people of Palau (Belau) formerly played an end-blown bamboo mouth flute called *ngaok* that was almost identical to the Yapese *ngael* (Abels 2008:

67-73; Krämer 1926: 319; Semper 1873; Yamaguchi 1967: 55-57). This flute was actively played in the late 19th century (Semper 1873), and unlike reports of other flutes, both men and women played the *ngaok*, with women playing in the contexts of the men's clubhouse. Palauan men played the *ngaok* into the phonograph of Siemer in 1936 and into the microphone of Smith in 1963. Smith recorded the flute played by Ucherbelau Ngirubekbad, one of the last knowledgeable Palauans who could do so.<sup>7</sup> For the island of Tobi (Hatohobei) that lies southwest of Palau, Eilers (1936: 113) reported a bamboo flute of unknown type documented by the Hamburg Expedition in 1909.

The mapping of flutes in Micronesia, and especially within the Caroline Islands, demonstrates a variety of flute types—both mouth- and nose-blown—that were formerly constructed and played (Table 1). Tracing reports of these instruments and their practices through time, and notwithstanding the limited information available for some island areas, reveals a gradual abandonment of flutes from the 19th century, with the last reports of players from Chuuk and Palau in the mid-20th century. For Chuuk detailed archival documentation is supported by numerous flutes in museums and some oral history, and together this data provides material and contextual information about the *aangún*. In the remainder of this study I first explore the Chuukese *aangún* as a focused case study of one flute type from Micronesia, and second, I examine the discarding of flutes within the circulation of colonial instruments and musics from the late 19th century.

Table 1. Historical flutes from the Mariana and Caroline Islands.

Place	Name	Type	Material
Mariana Is.	<i>silag</i>	mouth, end-blown	bamboo
	<i>bangsi</i>	nose, side-blown	bamboo
Kosrae	<i>nikacruhruh</i>	panpipe/reed aerophone	bamboo
Pohnpei	<i>keseng en tumwe</i>	nose, end-blown	bamboo, reed
	<i>keseng lepin rahu</i>	mouth, side-blown	bamboo, reed
Mwoakilloa	<i>gaseng</i>	nose	unknown
Chuuk	<i>aangún</i>	nose, end- & side-blown	bamboo, mangrove
Mortlock Is.	<i>atik</i>	nose, end- & side-blown	bamboo
Satawal	<i>janil</i>	nose, end-blown	bamboo
Woleai	<i>tigetig</i>	nose	bamboo
Yap	<i>ngael</i>	mouth, end-blown	bamboo
Palau	<i>ngaok</i>	mouth, end-blown	bamboo
Tobi	<i>fasafasarien</i>	unknown	bamboo

## PART II. INTIMATE SOUNDS

*Materiality and Nose Flutes in Chuuk*

Musical instruments are closely linked to place through their material qualities, and thus a beginning to the study of the *aangün* is an examination of its rootedness and thus its history in the environment of Chuuk. The resources of Chuuk's numerous islands (including its surrounding atolls) and its seas have been used in making sound instruments, but it was bamboo and mangrove wood that Chuukese exploited for flute manufacture. Common bamboo (*Bambusa vulgaris*) is known as *iich* in Chuuk, and it grows in the cultivated agroforests of the lagoon's high islands. Using stalks of the plant Chuukese men also carved mouth harps (or jew's harps) called *fillipwow* or *tinipwow*, and long dance staves that were a substitute for a hardwood type. Compared with bamboo, mangrove trees, known generally as *chiya* in Chuuk, have a much larger role in the ecosystem of the islands. Mangroves grow in the saltwater swamps surrounding the high islands and form a liminal environment between land and the shallow sea beyond. Of two general types of mangroves found in Chuuk, it was those with soft and porous hanging aerial roots (*chiyaan iimw* or *chiyaan wuumw*) that extend from under the water to the trunk well above that Chuukese hollowed out and dried for flutes (Merlin and Juvik 1996). Although not immediately as resonant as bamboo, they nevertheless serve as an efficient material to convey sound.

In the late 19th and early 20th centuries both mangrove and bamboo served as valued musical materials with which Chuukese men constructed two distinct types of nose flutes. One type was an end-blown flute without finger holes and made from a long single piece of bamboo or mangrove root. It was open at the distal end but at the playing end it was fit with a plug that had a hole bored into it to direct the air column from the nose. The second type, also made from mangrove or bamboo, was a shorter instrument, also open at the distal end, and apparently end-blown using a plug or possibly with the hole bored into the bamboo node; it had one to three finger holes in the lower half of the instrument. Two photographs of nose flute players from Krämer's publications on Chuuk (Krämer 1932: Plate 17, 1935: Plate 23) show the two types of flute and the playing position of each (Figs 1 and 2). Tanabe (1968: 55) also provides a photograph of a Chuukese man playing the long type of nose flute. The flutes held in international collections as well as those described in the ethnographic literature are mostly of the longer flute type without finger holes, perhaps indicating that this type may have been used more widely by the late 19th century.

The short nose flute (Figure 3) is similar to a type reported on Pohnpei, and except for its possible end-blown form, this type of nose flute is also similar to that of eastern Polynesia (Moyle 1990a). Fischer documented



Figure 1. A man from Chuuk playing a short nose flute in 1907 (courtesy of the Micronesian Seminar Library, Chuuk, Micronesia).



Figure 2. Haliong from Pollap Island playing a long overtone nose flute in 1907 (courtesy of the Museum für Völkerkunde, Hamburg, Germany).

and sketched two short nose flutes that he attributed to the card catalogue of the Museum für Völkerkunde, and that were originally collected from the Mortlock Islands, south of Chuuk Lagoon (1986: 202-3). At the time of writing I have not been able to confirm these instruments, but the sketches by Fischer show nose flutes similar to the example illustrated in Figure 3; flute 968:05 is 18 cm in length with one sound hole, and flute 969:05 is 19 cm in length with three sound holes (Fischer 1986: 202-3).

The long nose flute without finger holes (Fig. 4) has not been previously documented in detail for Oceania. Technically an overtone flute, this long instrument appears to be the sole representative of this type of nose flute in the Pacific Islands.<sup>8</sup> This flute required a separate piece of material with a hole in it that was inserted directly into the blowing end and that directed the airstream from the nose. Tanabe (1968: 54) reported that this separate piece was made from coconut wood, while LeBar mentioned coconut meat:

A straight section of root about 3 feet long is selected and the outer bark cut away for a few inches in from either end. The pithy core is removed by twisting, leaving a hollow shell of mangrove bark. A flat, circular piece of coconut meat with a small hole through the center is then inserted at one end of the bark tube. The meat becomes hard on exposure to the air. (LeBar 1964: 383-84)

The player changed pitch by overblowing and produced two separate series of tones, one with the pipe open and the other with the pipe stopped at the distal end with a finger. According to LeBar (1964: 383), the instrument “is held out to the right of the player, the left index finger pressing on the right nostril, thus forcing the air through the left nostril”. Using these two series of tones, this instrument had a more extended range than the shorter type of nose flute with finger holes (Tanabe 1968). Additionally, the technique of overblowing with the nose required technical proficiency and some practice.

The only available sound recordings of the *aangún*, all made by Krämer in 1907, demonstrate the music of both the long and short types of nose flute, and thus show the melodic differences between both instruments. The two recorded examples of the overtone flute both illustrate a melodic range of over an octave (Herzog 1932: 402-3), while the range of the shorter flute is limited and encompasses three tones (Herzog 1932: 395). These two very different instruments afforded players two contrasting approaches to melody and musical practices more broadly.

The *aangún* was an intimate instrument, through the process of its construction and playing, and in its social contexts. The process of making the flute required time in drying the material and for the longer type, skill in fashioning the plug. From the perspective of the player the two types required

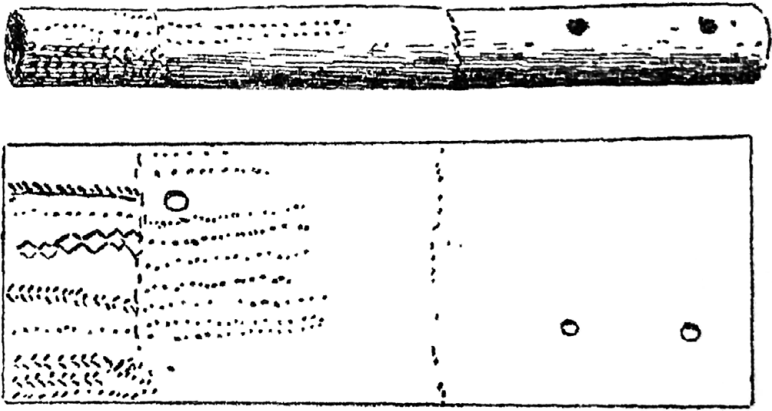


Figure 3. A short Chuukese nose flute from 1907 and showing sound holes (courtesy of the Micronesian Seminar Library, Chuuk, Micronesia).



Figure 4. A long Chuukese nose flute made from bamboo, item E138.896 in the Canterbury Museum, dates from 1895 or 1896 (courtesy of the Canterbury Museum, Christchurch, New Zealand).



both hands with the instrument held close against the face to accept the airstream from the nose. Further practice and gauging was needed with any new instrument as each was different and required time to produce a resonant sound, especially using the longer flute that required skill in overblowing with air from the nose to achieve different tones. The breath from the nose was clearly valued for its distinctive qualities. Tanabe (1968: 53) noted a Chuukese comment that “the mouth exists for eating food and the nose exists for breathing”. Indeed, the quiet sound of the flute, recorded in its suggestive name, is a result of the use of the nose. Played with one nostril blocked but with less air pressure than from the mouth, the flute produced a soft, slightly breathy sound from its acoustic properties, due to its long resonating chamber but especially from its exploitation of the upper harmonics of the overtone series. Beyond its sound quality the intimacy of the flute was associated with its performance contexts.

### *The Nocturnal Lives of Nose Flutes*

*A soft melody played upon a nose flute outside a girl's house was both a serenade and an invitation* (Gladwin and Sarason 1953:104)

The Chuukese *aangún* was made by men who played favourite melodies, especially those from the genre of love chants called *engi*. The social interactions that surrounded nose flute playing, however, were more significant than the flute's tunes alone. Rather it was sounded for nocturnal courting and thus closely associated with sexuality (Goodenough 2002: 252). This explains the comments of Catholic missionary Bollig (1927: 240) who condemned the flute because it did not “have a good reputation”, and he referred to it as an “instrument of licentiousness”. Tanabe provided more details about the playing context of the flute:

The nose flute is performed only by men; women do not play it. When a man goes to the house of the woman he loves and plays the nose flute quietly, the woman who hears it recognizes the player. If she does not like the man, she ignores it, and if she likes the player, she tiptoes out of the house and disappears with the man into the palm forest in the mountain. In other words, the nose flute is used for calling a woman out. (Tanabe 1968: 56)

The association of the flute with courting is one of the few threads of oral history that is still linked to the instrument by a few Chuukese elders. For example, in 2001 the late Meichik Amon of Toleisom in the western islands of Chuuk identified to me one of Krämer's 1907 recordings of the *aangún* as music for *kamwmwet* (sweetheart or lover) and explained that the flute was played as a means to communicate in secret.

As an instrument of communication and expression the nose flute was interwoven into a complex Chuukese aesthetic associated with nocturnal affairs and especially with the practices of *itenipwin* (serenading) and also *tééfán* (house crawling), avenues of courtship and sexuality (Goodenough 2002: 251-52; Moral 2002). As such, the use of the nose flute was aligned with practices recorded about the Chuukese courting stick (*fánáy*), known as the “love stick” in English and which provides some further context for the flute. Men apparently used these individual carved, slender spears of wood as a means of identity, and as the stories today relate, they apparently used them to awaken a woman surreptitiously in the night by inserting one into the thatch of her home (Goodenough 2002: 252; LeBar 1964: 180). Underpinning the practice is a strong aesthetic of concealment in the various means by which individuals conduct affairs and communicate covertly. The playing of the nose flute was evidently another means of this disguised communication between lovers, a context also recorded for flutes not only for Chuuk but elsewhere in Micronesia and the Pacific Islands.<sup>9</sup> The melody of the nose flute communicated a quiet, sonic message that personally identified the player. Tanabe accordingly wrote, “the islanders play their own unique melodies (or rather motifs), so women can identify who is playing the flute even in the dark of night. That is why the nose flute is often used at night to invite out one’s beloved woman” (Tanabe 1968: 47).

The music played on the nose flute comprised the tunes of *engi*, a genre of lament for unrequited love (LeBar 1964: 384).<sup>10</sup> It is unclear exactly how players performed instrumental versions of these chants. *Engi* and older forms of love songs (*kéénún nukún*) exhibit expressive and ornate styles of melody that Chuukese associate with the emotional character of music and its sentiments. This melodic practice is also heard in the two recorded melodies of the larger *aangún* from 1907. These cultural and musical underpinnings further characterised nose flute playing in Chuuk as a deeply personal and private activity that played an important role in individual relationships. Nose flutes must have been especially intimate instruments for both players and listeners, their soft reverberations closely linked with clandestine, nocturnal practices outside of the public gaze.

As visual artefacts the surviving examples of *aangún* in international collections are mostly undecorated lengths of cane, but with two important exceptions. The first example is a flute sketched in Damm and Sarfert’s volume on the islands surrounding Chuuk (Damm and Sarfert 1935: 263). In their brief description of music the authors include a sketch of a nose flute from Polowat, item 2366 in the Hamburg Museum at the time of the original publication. Along the length of the 74 cm flute are incised characters of the Caroline Island or Woleai script, a syllabary devised in the Caroline Islands from the influence of Protestant missionary-taught writing in Chuuk in the late



Figure 5. Detail of incised design on nose flute E138.896 from 1895 or 1896 and held at the Canterbury Museum (courtesy of the Canterbury Museum, Christchurch, New Zealand).

19th century (Brown 1914; Riesenber and Kaneshiro 1960). It is likely then that the maker or someone else incised this flute with a personalised message. The second example is a nose flute collected by amateur British naturalist Alan Owston (1853–1915) in Chuuk in 1895 or 1896. This flute, now item E138.896 in the Canterbury Museum, was overlaid with detailed incised decorations down the full length of the flute and which comprised triangular patterns, crossed lines, angular motifs and diamond shapes (Fig. 5)—nuanced details similar to Chuukese visual designs documented by Krämer (1932: 113-14). Clearly the construction and imagery of this instrument was a work of some contemplation, its personal and sonic qualities amplified through its visual intricacies. These two examples of flute decoration offer further visual evidence for the personal and intimate contexts of the *aangún* in the late 19th and early 20th centuries.<sup>11</sup>

### PART III. INSTRUMENTS IN MOTION

#### *Flute Movements, 1879–1947*

*There is hardly anyone left, if anyone at all, who knows how to play the nose flute* (Fischer and Fischer 1957: 203)

Scholars of materiality have come to explore more fully the movements and pathways of things and their intersections with humans (Hahn and Weiss 2013; Hodder 2011; Joyce and Gillespie 2015). This attention to motion has shifted our understanding of materials and things from sedentary to dynamic, and it further emphasises the role of things in their complex “meshwork” of relationships (Ingold 2012; Joyce and Gillespie 2015). Viewing things through unfolding movements in time and across space also provides an alternative to ubiquitous frameworks of encounter that, although usefully

situate cross-cultural engagements with Pacific artefacts, have nevertheless tended to echo pervasive contact narratives for the Pacific.<sup>12</sup> Understanding instruments in motion, rather, offers insights into the everyday material and musical circulations that took place in Micronesia during the late 19th and early 20th centuries, in which newly appropriated musical things travelled locally, just as Micronesian things moved internationally through channels of scientific and archival collection.

In late 19th-century Chuuk musicians played nose flutes alongside the instruments that arrived in the islands on ships. They incorporated these novel instruments—harmonicas, accordions and metal jew's harps—into their social and musical lives, and these quickly became part of the sonic fabric of village life. Underpinning these circulations were new materialities as well as emerging musical structures, some decreed by missionaries and others brought by traders and other visitors. Simultaneously, foreign collectors and other visitors deemed local musical instruments as valued exotica, visual trophies of primitive expressions and of disappearing cultures to be displayed in museums. Flutes played with the nose presented strikingly novel artefacts for acquisition in international collections, and the nose flutes of Micronesia would have reminded some collectors of the more well-known examples from Polynesia. Chuukese nose flutes moved internationally at the same time that men at home in Chuuk put down their flutes and looked to new modes of expression.

The first nose flutes obtained from Chuukese musicians for an international collection were those acquired by Johann Stanislaus Kubary (1846–1896), an ethnologist and collector for the Godeffroy Company before its closing. Kubary resided in Chuuk from May 1878 to August 1879 and visited again in 1885 aboard the *Albatross*, and he was apparently the first to publish on the existence of Chuukese flutes (1889). In 1879 and over the course of his longest stay, Kubary acquired two bamboo flutes that are now held in Leipzig at the Museum für Völkerkunde, though the exact island of their origin in Chuuk is not known (Schmeltz and Krause 1881). Missionaries also had a role in transporting flutes to museums as artefacts of the very heathenism that they battled against. Such a case is the pair of long mangrove flutes without finger holes that now reside in the Bernice P. Bishop Museum in Honolulu and designated as C3448 and C3450.<sup>13</sup> These instruments were received in Honolulu by Joseph Swift Emerson, who credited their acquisition in Chuuk to Arthur Logan (Evans 1974), the young 16-year-old son of missionaries Robert and Mary Logan of the American Board of Commissioners of Foreign Missions (ABCFM), and the first American missionaries to reside in Chuuk. As part of early 20th-century salvage research, the Hamburg Expedition sought out and obtained Micronesian flutes and other instruments, and also

represented musical practices in audio and visual media. In still another example, the musical qualities of the *aangún* led early Japanese music researcher Hisao Tanabe to learn to play the flute from a young man from Tonoas Island in 1934. Tanabe later brought three Chuukese nose flutes to Japan, and remarkably, he played one of them in person on a hobby radio programme on NHK, Japanese National Public Broadcasting. This was a singular instance of a performance of the *aangún* outside of Micronesia to an international radio audience (Tanabe 1968). Table 2 presents examples of 15 Chuukese nose flutes currently held in collections internationally, and each holds its own itinerary of movement (Joyce and Gillespie 2015).

Table 2. Fifteen nose flutes from Chuuk and its outer islands in international collections.

Date	Origin	Designation	Museum	Collector	Length (cm)
1879	Chuuk	Mi1872	Leipzig	Kubary	73.0
1879	Chuuk	Mi1873	Leipzig	Kubary	68.5
1887	Weno Is.	C3448	Honolulu	A. Logan	81.2
1887	Weno Is.	C3450	Honolulu	A. Logan	80.6
pre-1891	Mortlock Is.	828-74	Leiden	Brandt (?)	84.0
1895–96	Chuuk	E138.896	Christchurch	Owston	70.5
1899	Weno Is. (?)	E206354-0	Washington	H.F. Moore	81.3
1909	Polowat Is.	Mi 3907	Leipzig	Hamburg Expd.	51.8
1909	Polowat Is.	Mi 3098	Leipzig	Hamburg Expd.	69.7
1910	Chuuk (?)	Mi 3516	Leipzig	Lorensen	68.5
1909 (?)	Caroline Is.	2001-56	St Petersburg	Hamburg Expd.	60.5
1909 (?)	Caroline Is.	2001-57	St Petersburg	Hamburg Expd.	64.3
1909 (?)	Polowat Is.	2001-16	St Petersburg	Hamburg Expd.	55.8
1936	Chuuk	C8656	Honolulu	Bishop Museum	84.2
acq. 1975	Chuuk	K0000437	Osaka	Tanabe (?)	69.0

While nose flutes were prized personal instruments in Chuuk, by the early 20th century they also represented increasingly specialised practices in an expanding world of musical styles and material things. Chuukese gradually sang less from the musical structures of *engi* and instead favoured newly

created love songs, with tunes and harmonies variously drawn from church hymns, Japanese school songs and popular musics. The first published reference to the possible abandonment of the *aangün* came from Namoluk Island, an atoll south of Chuuk Lagoon, and where Girschner (1912: 166) reported that the harmonica and jew's harp were popular instruments just as the nose flute was increasingly rare. Evidence of the widespread abandonment of the flute came with the American publications and reports from Chuuk that appeared after World War II. Gladwin, for example, noted that the harmonica had taken over the serenading function of the flute in the preceding decades (Gladwin and Sarason 1953: 104). Additionally, Jack and Anne Fischer wrote in their postwar handbook on the Caroline Islands:

The few native musical instruments are now obsolete or nearly so and are replaced by the guitar, harmonica, and ukulele ... As such it [the nose flute] was a target for missionary prohibition, although perhaps a more important factor in its disappearance was the great popularity of Western music and introduced instruments. (Fischer and Fischer 1957: 203)

The Fischers suggest the importance of musical choices and new acoustic possibilities in the islands, and that were evident by the 1950s, in the discarding of former instruments. Although they hint also at the role of missionaries, the vast archive of ABCFM missionary letters contains scant evidence of a direct missionary silencing of nose flutes, though in the new Christian morality that the ABCFM promulgated, nose flute practice and its associated contexts in clandestine affairs would have been viewed negatively. Having conducted research from 1947 to 1948, LeBar was the last to mention the Chuukese nose flute, writing cryptically that it could still be found but without information on players or contexts (1964: 383-84). Into the cultural and musical vacuum from discarded flutes—and, as I suggest, assisting to create these spaces—were new instruments, new musics and novel opportunities. It is to these musical and material pathways that I now turn.

### *New Instruments in Colonial Circuits*

*European musical instruments, such as the accordion and harmonica, are widespread on the islands and are often played very well* (Bollig 1927: 240)

In their material and musical forms instruments have always been moving technologies that challenge our understanding of the past beyond simple binaries of tradition and modernity. For example, in a useful study, Kaepler (2001) has examined the integration of accordions into Tahitian performance as an indicator of “musical modernity”, while Troutman (2016: 10-30) has

explored the Hawaiian steel guitar as a means of indigenous innovation and experimentation in the cultural landscape of the American overthrow of the Hawaiian Kingdom. Instruments are intricately linked to colonisation, for just as imperialism brought new silences, so too did it offer new resonances, for example in the sounds of military bands and instruments of religious service. In the martial-laden metaphors of 19th-century missionisation in Micronesia, sound instruments were not simply forms of entertainment or communication: they were powerful tools in the battles for souls and salvation. On Weno Island in Chuuk in 1885, for example, ABCFM missionaries made special mention of a new church bell from California that resounded for the first time across the village of Mwáán in March or April of that year, and by which they replaced the shell trumpet that they previously, and perhaps reluctantly, used until then (Logan, 8 April 1885). For the American missionaries this new instrument that rang out in Chuuk for the first time was not merely a call to service, but a technology bearing civilisation itself in its tuned, metallic resonance. The impact of instruments in the colonial Pacific is inclusive of a sensorial world that is broader than audible culture alone, as instruments ushered in new material, visual, technological and social relationships. Such pathways in the meshwork of Pacific experiences (Ingold 2012) sit alongside of and challenge stark narratives of indigenous cultural vanishings. Accounts of instrumental innovation provide a more nuanced reading of colonial pasts and illustrate how in the wake of imperial silencing, some Pacific Island musicians adapted and re-imagined cultural and expressive possibilities.

Most of the musical instruments that made their way from Europe and America to the Caroline Islands by ship in the 19th century were small and portable, and they included accordions and harmonicas (both free-reed aerophones), as well as jew's harps (lamellophones) made from metal. The accordion and the harmonica originated with German-speaking manufacturers in the early and mid-19th century, and due in part to their portability, both instruments were played on board ships. They became closely linked with maritime culture and were eventually incorporated into numerous global and indigenous music cultures (Beynon 2017; Harrington and Kubik 2017). Jew's harps have an older history globally, but their small size and portability also meant that they were brought on ships and were used as trade items in the 19th century (Wright 2011, 2017). Islanders likely perceived metal jew's harps as more of a material transition than a new instrument, with bamboo jew's harps fashioned and played in the area of Micronesia. Each of these instruments were introduced at different times variously by whalers, traders, beachcombers and missionaries from the mid-to-late 19th century, but direct information about their earliest movements and usage is limited in historical accounts.

The island of Pohnpei to the east of Chuuk, however, held a sustained traffic of traders and missionaries in the mid-to-late 19th century, and we therefore have a frequency of reporting about these same instruments on the island that is a useful case example for comparison. Writing about Pohnpei from the early 1840s, for example, trader Andrew Cheyne was one of the first to mention the importation of new instruments to the island; he noted: “The description of goods which are most sought after by the natives ... [included] jew’s harps” (Cheyne 1971: 173-74). By 1871 Pohnpeians had such an understanding of new instruments that a crew member aboard the bark *John Wells* sold an accordion to one of the district chiefs (Ransom 1871). Likewise, writing from his 1887–91 experiences with the Spanish administration, Cabeza Pereiro (1895: 124) noted that it was rare to find a home without an accordion and commented on its incorporation into dance, and in 1887, during the Pohnpeian uprising, the Spanish government noted that among the colonial items confiscated by the islanders were two small accordions (de la Concha 1887). Toward the close of the 19th century, an anonymous Spanish naval officer noted in 1890 that five pianos were present on the island (*El Comercio of Manila* 1890), and Christian (1899: 299) reported on the popularity of both the accordion and the jew’s harp.

Similar reports of new instruments were lodged for elsewhere in the Caroline Islands. On the outer atoll of Pingelap, for example, the crew of the German ship *Albatross* noted in 1885 that harmonicas were a major trade item on the island (Plüddemann 1886). To the east on Kosrae, people began applying the name for the flute (*nikacruhruh*) to the harmonica after it was introduced in the 19th century (Lee 1976: 83), thus implying a close linkage between the two instruments. On Kapingamarangi atoll the Hamburg Expedition of 1910 found that harmonicas and jew’s harps were popular on the island (Eilers 1934: 140), and farther west on Yap, Haas (1906: 47) wrote of the Yapese fondness for harmonicas. All together these scattered reports point to the fairly sustained adoption of new instruments during 19th-century colonial administrations of Micronesia that was simultaneous with the large-scale abandonment of cane flutes in these areas.

In Chuuk the individuals who forged new musical possibilities within the colonial instrumental circuits were very likely those who also played nose flutes and who heard new capacities for expression in introduced musical practices, similar to the vocal music examples recorded by Tanabe in 1934 (Tanabe 1978). By the 1880s foreign traders and missionaries, along with islanders who worked alongside them, were active in Chuuk’s islands, including prominent Germans such as Frederick Narruhn and later Charles Gierow (Hezel 1995: 66-67). At this time imported goods of clothing and food were increasingly valuable, and from these interactions novel musical



instruments would have been increasingly visible and audible from the foreign traffic and growing interest in new sacred and secular musics. From his residence in Chuuk (1913–1919) the Catholic priest Bollig (1927: 240) reported that “European musical instruments, such as the accordion and harmonica, are widespread on the islands and are often played very well”—an indication of their acceptance by the early 20th century. Demonstrating the integration of the *kuchuyen* (accordion) into Chuukese aesthetics, Bollig (1927: 242) transcribed a Chuukese song that mentioned the instrument as well as the newly incorporated ideas about music, shown in excerpt below:

*He presses the musical instrument,  
it is said the accordion.  
It sounds bass, it sounds bass,  
alto and soprano.  
Oh alas,  
we weep.*

Accordions and harmonicas are well remembered by middle-aged and older Chuukese musicians, who in many cases recall playing them and their musical contexts from their youth and early adult lives. From these oral histories, it is clear that both instruments held prominent musical roles and cultural associations in secular and sacred musics. Due to their diatonic tuning, the harmonica and the accordion were compatible with Christian hymn-singing and imported secular songs, and they became associated with these musics. Today it is rare to find these instruments actively played in Chuuk. Much like the nose flute before them, harmonicas and accordions followed transient pathways in the mid-20th century, when later generations of musicians looked toward the guitar (*kitar*), the ukulele, and eventually the electronic keyboard for musical and social expression (Diettrich *et al.* 2011: 124-28). Oral histories among older musicians in Chuuk point to the incorporation of additional instruments over the 20th century such as the *oroken* (organ), *rapwapwa* (bugle), mandolin and piano. Further research is required to explore the roles of these instruments and others in the social and musical lives of colonial Micronesia.

In Chuuk the harmonica stands out for its prominent historical role in music. Following the social contexts of the nose flute, Chuukese incorporated the sounds of the harmonica, named *muusik* in Chuuk, to play favourite love songs. Indeed the name *muusik* suggests that perhaps the harmonica and its reedy sounds were taken as an early representative example of the introduced Western concept of music into the islands of Chuuk. The harmonica was portable, like the *aangún*, but it was also more permanent in its physical materiality, and its sound could be learned relatively easily, compared to the more unpredictable open tube of cane. During the first half of the 20th

century musicians developed the sound of the harmonica into new musical repertoires, such as *nawen chinnap* (coughing of the old) and *keenun piruumw* (song of the broom), also called *piruumwen nukun imwen kamwmwet* (broom for the outside of the sweetheart's house) (Goodenough 2002: 260). The wordless love songs that were played on harmonica had their precedent in the love chants (*engi*) sounded on the *aangún*. In adopting the harmonica and its musical structures, Chuukese continued the practice of instrumental music in intimate relationships. For example elders in Chuuk have recalled to me stories about harmonica serenading heard in villages both during the night and at dawn, signalling the instrument's role in courtship, much like that documented for the nose flute. But the harmonica also gained a wider usage, for entertainment as an accompanying instrument for marching dances (*maas*), and by the 1960s as an integral instrumental part within small string bands that performed love songs (Diettrich and Smith 2005). The adoption of the harmonica was not simply an appropriation of sonic novelty, but in learning to play it, and in creating new practices, Chuukese musicians forged new aesthetics and imaginative pathways.

#### REFLECTIONS

In this study I have begun to trace the movements of musical instruments within the historical circumstances of the northwest Pacific Islands. Examining indigenous practices of flute playing and the instruments themselves provides insights into the social, material and musical lives of late 19th- and early 20th-century Micronesia, a period of cultural upheaval that brought the silencing of some instruments and musical forms just as it allowed for new creative practices and possibilities. Through the case of flutes and new colonial-derived instruments I have attempted to address how we might critically understand the large-scale unfolding and interplay of sound and silence in imperial circumstances of the Pacific. The case of Micronesia with its multiple colonial entanglements illustrates the usefulness of frameworks of material motion, within the realities of an indigenous modernity that was heard, seen and created by musicians and listeners.

In his writings on the ecology of materials, Ingold explored materiality as a process of becoming when he wrote that "... paths of movement and lines of flow do not connect. They are not between one pre-existing entity and another but perpetually on the threshold of emergence. They are the lines along which materials flow and bodies move" (Ingold 2012). Ingold views this continual unfolding as the basis for the "meshwork" that situates the interplay of materials and forces, and as such, I suggest these ideas have bearing on how we critically understand musical and material expressions. The case of Chuuk in particular reveals the interplay of localised and newly adopted instruments and the capacities of new expressive forms. Thus harmonicas

and their musics emerged in the colonial period from increased possibilities of expression, as did later incorporations of string instruments and eventually electronic and digital instruments. From this perspective instruments might be usefully compared to the capacities and becoming in sound technology, for example in the historical use of open-reel and cassette-tape recording in Micronesia (as globally) that faded with the arrival of compact discs, music on cell phones and online formats. I suggest in this study that this material motion runs alongside aesthetic choices of expression: knots of emergence that further underpin a local historical consciousness of adaptation, accommodation and renewal, and incorporation within existing cultural preferences. These patterns of emergence offer significant insights into how we might approach the discarding of cultural practices and the simultaneous acceptance of others. Considering the dynamic motion of musical instruments brings attention to the interplay of sound and silence across Pacific pasts and presents.

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#### NOTES

1. There has been a sustained scholarly debate about the usage of the term Micronesia (Hanlon 2009; Petersen 2009; Rainbird 2003), and as a result I employ the term cautiously and with an awareness of its colonial origins. My usage of Micronesia does not suggest a culturally bounded or unified area, but instead I attempt to redress cultural information about the northwest Pacific that has been omitted in studies of the wider Pacific.

2. Flutes played with the nose are a particular type formerly played in numerous areas of the Pacific, and elsewhere globally. Except for Rapa Nui, nose flutes were previously played throughout the islands that comprise Polynesia (Moyle 1990a; Nunns 2014). In a comprehensive study, Ammann (2007) has shown that nose flutes were not likely indigenous to New Caledonia, Vanuatu and the Solomon Islands, but with some possible cases of the nose flutes in New Guinea. The historical record does not indicate flutes for the Marshall Islands or Kiribati (Fischer 1986), and thus I exclude these areas from this study. The history of different types of flutes in Micronesia, their status as indigenous instruments and the likely influence of cultural exchange has remained largely unexplored. My treatment of flutes does not assume an instrumental origin in the deep past, and questions remain about how representative flute types were over many islands in Micronesia.
3. Both types of flute were roughly 76 cm in length. The term *bangsi* also designates flutes in Southeast Asia; see Abels (2008: 283, note 329) for a comparison with the Palauan flute.
4. Finsch visited Kosrae between February and March 1880 but did not mention flutes in his published account, despite describing the instruments for elsewhere in the Caroline Islands (1893).
5. See Diettrich (2018) for a detailed examination of historical flute types on Pohnpei.
6. Haas (1906: 138) also described the use of a whistle on Yap made from a *Calophyllum* nut into which holes were bored.
7. Abels has speculated that the *ngaok* may not have been indigenous to Palau, citing that there are no indigenous stories about its origins (2008: 71). For sound recordings of Palauan flutes see the collections *Chelitakl: Early Reel-to-Reel Recordings from Palau* (2015) and *Wax Cylinder Recordings from Palau, Micronesia, 1909/1936* (2011).
8. I use the term overtone flute to designate a flute without finger holes, and that is reliant on the harmonics produced.
9. For similar cultural contexts, see Buck (1957: 391) and Roberts (1926: 38) for Hawai'i, Ammann (2012: 64) for Vanuatu, Abels (2008: 67-68) for Palau, Haas (1906) for Yap, and Nunns (2014: 78-80) about the Māori *kōauau* (cross-blown flute).
10. As a musical style, *engi* are sung solo, are unmetered with vocables, exhibit recognised melodic and cadential patterns, and emphasise poetry about individuals or personal experiences.
11. An intriguing but unknown possibility is whether some flutes may have been given proper names, comparable to the naming of large breadfruit bowls and sailing vessels in Chuuk, and as for some instruments elsewhere in the Pacific Islands.
12. See for example the recent volume edited by Thomas, Adams, Lythberg, Nuku and Salmond (2016).
13. The second of these flutes, C3450, is capped at one end with a brass top of a rifle cartridge shell, with a hole in the shell casing to direct the air column in place of the usual piece of coconut (Evans 1974). Rifles were used in late 19th-century warfare in Chuuk before being confiscated by German colonial authorities in the early 20th century.

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#### ABSTRACT

This article explores musical instruments in colonial Micronesia in their sonic, material and historical contexts. Using archival and oral sources and museum artefacts this study investigates the movements of instruments, including the abandonment of some and the acceptance of other types within Micronesian communities in the late 19th and early 20th centuries. The study argues for critical attention to the interplay of sound and silence within imperial enterprises in the Pacific, and it addresses the agency of musicians and listeners within a musical and material modernity. Specifically, this study also provides the first in-depth, comparative investigation of indigenous flutes from the Caroline Islands, as well as the first detailed cultural study of nose flutes from Chuuk in the Federated States of Micronesia. Through the investigation of historical flutes and colonial-derived instruments such as the harmonica I query how we understand the movements of things in their material and aesthetic forms, and I argue for the role of musical instruments in the unfolding of Pacific pasts and presents.

*Keywords*: Musical instruments, Chuukese nose flutes, colonial circuits, musical appropriation, indigenous modernity, cultural agency

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# NEW AMS RADIOCARBON DATES AND A RE-EVALUATION OF THE CULTURAL SEQUENCE OF TIKOPIA ISLAND, SOUTHEAST SOLOMON ISLANDS

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The small volcanic island of Tikopia, situated at a geographically key intersection between the southeastern terminus of the Solomon Islands and the northern end of the Vanuatu archipelago, first gained anthropological fame through the extensive ethnographic field research and writings of Sir Raymond Firth (1936, 1939). Tikopia is a Polynesian Outlier, one of about 18 such islands lying within Melanesia and Micronesia whose populations speak Polynesian languages (Feinberg and Scaglione 2012). Based on Tikopia oral traditions, Firth (1961) opined that many of the Tikopia lineages traced their origins to islands in Western Polynesia, with ancestors arriving from Tonga, Sāmoa, Futuna, 'Uvea or Rotuma.

In 1977–78, as part of the second phase of the Southeast Solomon Islands Culture History Program organised by the Bernice P. Bishop Museum and funded by the U.S. National Science Foundation, the senior author and Douglas E. Yen carried out two seasons of archaeological and ethnobotanical investigations on Tikopia (Kirch and Yen 1982). Excavations totalling more than 271 m<sup>3</sup> at 26 different localities around the island revealed well-stratified archaeological deposits, yielding large assemblages of artefacts (5,650 objects) and faunal remains (>35,000 NISP vertebrate remains; 1.03 metric tons of mollusc remains). The cultural sequence of Tikopia proved to be complex, with three discrete prehistoric cultural phases recognised on the basis of changes in the material cultural assemblages. The initial Kiki Phase, estimated to have commenced c. 900 BC, was marked by the presence of sand-tempered pottery related to the early Lapita Cultural Complex (Green 1979). This was followed by the Sinapupu Phase during which incised Mangaasi-style ceramics (Garanger 1971, 1972) were imported into Tikopia from one or more localities in the Vanuatu archipelago. The final Tuakamali Phase lacked ceramics altogether but contained distinctly Polynesian-style adzes and fishing gear indicative of the arrival of voyagers from Western Polynesia (as the oral traditions suggested). It was therefore during the Tuakamali Phase that Tikopia took on its cultural and linguistic characteristics as a Polynesian

Outlier. The Tikopia cultural sequence, as defined by Kirch and Yen (1982: 311-34; see also Kirch 1984, 1986, 1997) remains one of the best-defined archaeological sequences for any Polynesian Outlier, and is of considerable importance for our understanding of the prehistory of the southwestern Pacific.

Kirch and Yen (1982: 311-17, Table 50) submitted 20 samples from their Tikopia excavations, primarily of wood charcoal or carbonised coconut shell, to the radiocarbon laboratories of Teledyne Isotopes, University of California at Riverside, Beta Analytic, and the Australian National University. Based on the  $^{14}\text{C}$  results received from these laboratories, the three-phase Tikopia cultural sequence was pegged to a chronological sequence as follows: Kiki Phase, 900–100 BC; Sinapupu Phase, 100 BC–AD 1200; and Tuakamali Phase, AD 1200–1800.

From the perspective of the many advances that have been made in sample selection, preparation and  $^{14}\text{C}$  dating methods, more than three decades after these initial radiocarbon dates were run, it is apparent that the initial programme of dating the Tikopia sequence suffered from several shortcomings. First, although it was recognised that some samples contained carbonised coconut (*Cocos nucifera*) shell (endocarp), the wood charcoal samples were not botanically identified, leaving open the possibility that some samples could have included charcoal from old-growth trees or even driftwood, a problem that later became apparent in the dating of archaeological sites in Eastern Polynesia (Spriggs and Anderson 1993). Second,  $\delta^{13}\text{C}$  values were not determined for the dated samples and the reported ages were based on an assumed  $\delta^{13}\text{C}$  value of -25.0‰. For most samples this assumption was probably reasonably accurate, although for one sample of human bone and another of *Thalassia*, a genus of seagrass with  $\text{C}_4$ -like carbon stable isotope ratios, this is more questionable. In addition, radiocarbon laboratories at the beginning of the 1980s were still using the liquid scintillation method of beta-particle decay counting, with standard errors ( $1\sigma$ ) for the Tikopia samples ranging from  $\pm 75$  yr at best, and up to  $\pm 165$  yr in the case of two samples. Finally, the calibration of radiocarbon samples using calibration curves derived from dendrochronologically dated bristlecone pines was then in its infancy. Kirch and Yen (1982: 312, Table 50) used the early calibration tables of Michael and Ralph (1972) and of Damon *et al.* (1972) to derive “corrected dates” for the Tikopia samples. Table 1 lists the original 20 radiocarbon dates, given here with new calibrated age ranges, calibrated using OxCal v4.2.4 with the SHCal13 atmospheric calibration curve (Bronk Ramsey 2009a; Hogg *et al.* 2013).

Given these issues, as well as the continued importance of the Tikopia cultural sequence for our understanding of southwestern Pacific prehistory, additional re-dating of archaeological samples from Tikopia seemed desirable. The opportunity to carry out such a re-dating program arose in 2015 in conjunction with Swift’s dissertation research on bone collagen stable isotope

analysis of Pacific rat (*Rattus exulans*) remains recovered from several Pacific archaeological assemblages, including Tikopia. Drawing upon the Kirch and Yen 1977–78 collections that have been curated in the Bishop Museum, samples of rat bone, pig (*Sus scrofa*) teeth, and previously undated charcoal samples were selected for AMS radiocarbon dating. In this paper we present the results of 13 new AMS dates, along with a Bayesian calibration model that combines the new AMS dates with the previously dated samples in order to reassess the Tikopia cultural chronology.

#### MATERIALS AND METHODS

Rat and pig elements were subsampled for stable isotope analysis prior to submission for AMS radiocarbon dating; specifically bone collagen and tooth dentin were analysed for carbon and nitrogen, and tooth enamel for carbon and oxygen. Rat bone elements were sonicated in ultrapure water for four hours, dried and abraded to remove surface contaminants. Samples were then crushed into chunks (~1 mm) with the aid of an agate mortar and pestle. Approximately half of each sample was reserved for future stable isotope analysis by Swift. Pig teeth were sampled for enamel and dentin just above the cemento-enamel junction using a Foredom SR-series motor and diamond-tipped drill bit, and the remainder of each tooth was submitted for AMS dating.

Curated charcoal samples from several stratigraphic contexts excavated in 1977–78 were examined in the laboratory by PVK, and carbonised fragments of coconut (*Cocos nucifera*) endocarp were extracted whenever these were present. Coconut endocarp (the hard “shell” of the nut) burns with a hot fire and is a preferred fuel for igniting earth ovens on Tikopia and elsewhere in Polynesia. The carbonised endocarp, with its two parallel surfaces and hard, shiny texture, is readily identifiable.

All samples for radiocarbon dating were submitted to the W.M. Keck Carbon Cycle Accelerator Mass Spectrometry Laboratory at the University of California, Irvine. When sample sizes permitted, submitted bone and tooth dentin collagen samples were also analysed separately for  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$ . The samples were radiocarbon dated using a 500 kV compact AMS unit from the National Electrostatics Corporation (Southon *et al.* 2004).  $\delta^{13}\text{C}$  values were measured to a precision of <0.1‰ relative to standards traceable to Pee Dee Belemnite (PDB), using a Thermo Finnigan Delta Plus stable isotope ratio mass spectrometer (IRMS) with gas bench input. Aliquots of ultra filtered bone and tooth dentin collagen were analysed for  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  to a precision of <0.1‰ and <0.2‰, respectively, using a Fisons NA1500NC elemental analyser/Finnigan Delta Plus IRMS (J. Southon, pers. comm., 2015). All results have been corrected for isotopic fractionation according to the conventions of Stuiver and Polach (1977), with  $\delta^{13}\text{C}$  values measured on prepared graphite using the AMS spectrometer.

Table 1. Original radiocarbon dates for Tikopia reported by Kirch and Yen (1982), with new calibrations.

Lab No.	SORC-*	Site/ Locality	Stratigraphic Provenience	Tikopia Sequence Phase	Material	Reported <sup>14</sup> C Age BP†	Calibrated Age Range (2σ)**
UCR-964	101	TK-4	Unit U17, Layer II, 55–75 cm	Kiki	Charcoal	2680 ± 90	1012–488 cal BC
UCR-965	104	TP-52	Layer IV, 110–145 cm	pre-Kiki	Charcoal and coconut	3360 ± 130	1943–1291 cal BC
UCR-966	105	TK-36	Layer III, Zone C2	Kiki	Charcoal and coconut	2695 ± 90	1041–517 cal BC
Beta-1227	102	TP-48	Layer III, Zone C1	Kiki	Charcoal	2110 ± 95	361 cal BC–cal AD 115
I-10702	30	TP-20	Layer IV, 127–145 cm, Zone B2	Early Sinapupu	Charcoal	1955 ± 165	363 cal BC–cal AD 431
Beta-1224	31	TP-20	Layer V, 208 cm, Zone B2	Early Sinapupu	Charcoal	1760 ± 85	cal AD 120–530
I-10700	26	TK-1	Unit J8, Layer VII, 120–125 cm, Zone B1	Late Sinapupu	Charcoal	850 ± 75	cal AD 1040–1305 cal AD 1362–1378
I-10699	24/25	TK-1	Unit J8–J9, Layer III, Zone A2	Early Tuakamali	Charcoal	1165 ± 85	cal AD 683–743 cal AD 760–1046 cal AD 1089–1110 cal AD 1119–1131
I-10722	55	TK-1	Unit J7–J8, Layer II, Zone A1 (Fe 1)	Late Tuakamali	Human bone	310 ± 75	cal AD 1451–1707 cal AD 1721–1811 cal AD 1837–1846 cal AD 1859–1879 cal AD 1931
Beta-1225	42	TP-2	Layer II, 80–110 cm	Early Sinapupu	Charcoal	1990 ± 100	335–329 cal BC 206 cal BC–cal AD 225 cal AD 290–337

Lab No.	SORC-*	Site/ Locality	Stratigraphic Provenience	Tikopia Sequence Phase	Material	Reported <sup>14</sup> C Age BP†	Calibrated Age Range (2σ)**
I-10720	49	TP-19	Layer IV, 120–126 cm	Late Sinapupu	Charcoal	840 ± 75	cal AD 1045–1098 cal AD 1106–1316 cal AD 1356–1382
I-10719	47	TP-16	Layer V, 150–160 cm	Early Tuakamali	Charcoal	660 ± 125	cal AD 1150–1508 cal AD 1583–1620
I-10724	57	Rakisu	Trench B1, Layer III	—	Charcoal	1220 ± 160	cal AD 576–1189
Beta-1228	114	Rakisu	Trench D1, Layer III	—	Charcoal	1130 ± 130	cal AD 678–1190
I-10723	56	Rakisu	Trench C2, Layer IIB	—	Charcoal	600 ± 165	cal AD 1047–1086 cal AD 1134–1670 cal AD 1749–1754 cal AD 1784–1795
I-10754	58a	Muripera	Trench F2, Layer VI/VII	—	Seagrass	490 ± 75	cal AD 1325–1342 cal AD 1390–1630
ANU-2942	58b	Muripera	Trench F2, Layer VI/VII	—	Coconut husk (noncarbonised)	200	cal AD 1670–1686 cal AD 1727–1748 cal AD 1756–1781 cal AD 1796–1805
I-10721	51	TP-25	Layer III, 90–95 cm	Late Tuakamali	Charcoal and coconut	490 ± 75	cal AD 1325–1342 cal AD 1390–1630
Beta-1226	54	TP-39	Layer II	Historic	Charcoal	<90	—
I-10717	38	TK-6	Pit A, 60–70 cm	Late Tuakamali	Charcoal	480 ± 75	cal AD 1330–1333 cal AD 1391–1636

\* SORC=Solomon Islands Radiocarbon; the SORC numbers were assigned by the Bishop Museum.

\*\* Calibrated with OxCal v4.2.4 using the SHCal13 atmospheric calibration curve.

† Note that reported ages were not corrected for δ<sup>13</sup>C.



## AMS RADIOCARBON DATING RESULTS

Twenty-four samples were submitted to the University of California, Irvine W.M. Keck Carbon Cycle AMS facility for dating: eleven consisting of Pacific rat bones, six of pig teeth and seven of carbonised coconut endocarp. Unfortunately, only four rat bone and two pig tooth samples yielded sufficient collagen for AMS dating. All of the submitted carbonised coconut endocarp samples were dated. The results of AMS dating on these 13 samples are presented in Table 2. Age ranges shown in Table 2 were calibrated using OxCal v4.2.4 with the SHCal13 atmospheric calibration curve (Bronk Ramsey 2009b; Hogg *et al.* 2013), and are given at  $2\sigma$  ranges (95.4% confidence intervals).

Carbon stable isotope ratios of pig and rat samples were evaluated for potential marine dietary contributions, as intake of marine reservoir  $^{14}\text{C}$  can influence calendar age radiocarbon results by several hundred years. Assuming an entirely terrestrial  $\text{C}_3$  diet would produce bone collagen  $\delta^{13}\text{C}$  values of around  $-20 \pm 1\text{‰}$  (Clark *et al.* 2013), the  $\delta^{13}\text{C}$  value of only one sample in this study (SORC-133,  $\delta^{13}\text{C} = -17.0$ ) suggests a marine dietary contribution (though this value may also be produced by consumption of  $\text{C}_4$  plants such as sugarcane and other tropical grasses). The proportion of potential marine dietary carbon in the SORC-133 sample may offset the date produced by up to around 100 years (Petchey *et al.* 2014); however, this would not substantially alter the model produced here.

The cultural associations of the 13 new AMS dates are provided in Table 3. Two samples (UCIAMS-163474 and -163477) are from Kiki Phase contexts from sites TK-4 and TK-36 respectively. Site TK-4 is regarded as the oldest cultural deposit on Tikopia, containing a number of exotic (i.e., non-local) artefacts (metavolcanic adzes, obsidian from an Admiralty Islands source, chert from a probable Solomon Islands source). Kirch and Yen (1982: 111-25, 312-14) regarded TK-4 as the most likely locus of the island's founding settlement. TK-36 is part of the long Sinapupu transect (Kirch and Yen 1982, Fig. 30); the deeper layers there contain calcareous-tempered ceramics very similar to those from site TK-4. As indicated in Table 2, the two new dates from these sites yielded nearly identical ages. While these dates are consistent with two dates obtained previously for these sites (UCR-964 and -966; see Table 1), their much tighter error ranges provide greater precision in estimating the date of initial human colonisation of Tikopia.

Three of the new dates (UCIAMS-163457, -163475 and -163476) are assigned to the Early Sinapupu Phase. UCIAMS-163457 came from a deep stratigraphic context in site TK-1 where it was associated with incised pottery of exotic origin (likely from Vanuatu) and *Trochus* shell armbands. The date provides a good estimate for the later part of the Early Sinapupu Phase.

Table 2. New AMS dates on Tikopia samples.

Lab No. UCIAMS-	SORC-*	Site/ Locality	Stratigraphic Provenience	Material	$\delta^{13}\text{C}$ (‰)	$^{14}\text{C}$ Age BP	Calibrated Age Range (2 $\sigma$ )**
163474	133	TK-4	Unit R16II, Layer II	<i>Rattus exulans</i> bone	-17.0	2625 ± 15	811–755 cal BC (92.5%) 680–671 cal BC (1.5%) 606–595 cal BC (1.4%)
163475†	136	TK-35	Unit A1, Level 2	<i>Rattus exulans</i> bone		1505 ± 20	cal AD 572–645 (95.4%)
163476	137	TK-35	Unit A2, Level 3	<i>Rattus exulans</i> bone	-19.2	1540 ± 15	cal AD 536–630 (95.4%)
163477†	140	TK-36	Unit A2, Layer II	<i>Rattus exulans</i> bone		2590 ± 15	800–745 cal BC (55.6%) 686–666 cal BC (9.8%)
163478	148	TK-1	Unit J5, 20–40 cm	<i>Sus scrofa</i> tooth	-19.9	825 ± 15	cal AD 1221–1275 (95.4%)
163479	149	TK-1	Unit J5, 40–55 cm	<i>Sus scrofa</i> tooth	-19.1	870 ± 15	cal AD 1181–1235 (80.0%) cal AD 1240–1266 (15.4%)
163456	23	TK-1	Unit J5, 40–60 cm (Fe 1)	<i>Cocos nucifera</i> endocarp	-23.3	970 ± 15	cal AD 1039–1160 (95.4%)
163457	28	TK-1	Unit J9, 140–160 cm	<i>Cocos nucifera</i> endocarp	-23.6	1600 ± 15	cal AD 430–548 (92.5%) cal AD 560–570 (2.9%)
163458	33	TK-4	Unit T28II, 75–95 cm	<i>Cocos nucifera</i> ? endocarp	-25.9	215 ± 15	cal AD 1665–1682 (14.7%) cal AD 1730–1803 (80.7%)
163459	37	TK-5	Pit A, 42–48 cm	<i>Cocos nucifera</i> endocarp	-23.8	250 ± 15	cal AD 1648–1674 (43.8%) cal AD 1741–1772 (24.9%) cal AD 1778–1798 (26.6%)
163460	46	TP-15	170–200 cm	<i>Cocos nucifera</i> endocarp	-26.2	140 ± 15	cal AD 1697–1726 (16.7%) cal AD 1807 (78.7%)
163461	48	TP-19	Layer IV, 109–114 cm	<i>Cocos nucifera</i> endocarp	-25.2	895 ± 15	cal AD 1161–1222 (95.4%)
163462	53	TP-30	Layer II, 70–75 cm	<i>Cocos nucifera</i> endocarp	-25.8	235 ± 15	cal AD 1655–1676 (21.1%) cal AD 1737–1799 (74.3%)

\* SORC=Solomon Islands Radiocarbon; the SORC numbers were assigned by the Bishop Museum.

\*\* Calibrated with OxCal v4.2.4 using the SHCal13 atmospheric calibration curve.

† These samples did not yield sufficient extra collagen to provide for EA/IRMS analysis of  $\delta^{13}\text{C}$ .

Samples UCIAMS-163475 and -163476 both came from site TK-35, part of the deep Sinapupu sequence, where they were associated with *Tridacna*-shell adzes, *Trochus* shell armrings and a drilled shell ornament. One of the new dates (UCIAMS-163461) came from a Late Sinapupu Phase context, TP-19, associated with exotic Sinapupu Ware ceramics and a *Tridacna* shell adze. The age of this sample provides a good estimate for the beginning of the Late Sinapupu Phase.

Three of the new dates (UCIAMS-163478, -163479 and -163456) derive from Early Tuakamali Phase contexts, all from excavation unit J5 in site TK-1. In these stratigraphic contexts, ceramics are entirely lacking and associated cultural artefacts include *Tridacna* shell adzes and obsidian of the Banks Islands (northern Vanuatu) source. The oldest (UCIAMS-163456) and the youngest (UCIAMS-163478) of these dates bracket the Early Tuakamali Phase.

The remaining four dates (UCIAMS-163458, -163459, -163460 and -163462) all can be assigned to Late Tuakamali or early Historic (i.e., post-European contact) phases. One sample (UCIAMS-163459) is associated with a traditional religious site (*marae*), while two samples (UCIAMS-163460 and -163462) come from occupation deposits directly underlying the modern village hamlets of Paepaevaru and Potu sa Kafika (Kirch and Yen 1982: 138-41, 160-62). All four samples yielded ages of less than 250 years BP, with calibrated age ranges in the 17th and 18th centuries. The relatively recent date from Potu sa Kafika is of particular interest, as this hamlet is situated on the low-lying sandy tombolo that forms a barrier between the crater lake (Te Roto) and the sea. The Potu sa Kafika date provides a *terminus ante quem* for the formation of the tombolo, which formed no later than the 18th century AD. As discussed in detail by Kirch and Yen (1982: 346-49), the formation of the tombolo was a key event in Tikopia history, because the resulting transformation of a marine embayment into a brackish-water lake had major consequences for the communities residing around the lake's perimeter.

The Sinapupu area on the island's northwestern side, which includes sites TK-1, TK-35, TK-36 and transect units TP-20 and TP-46 to -53 (inclusive), provided the key to the island's cultural sequence due to its deep and continuous stratigraphy (Kirch and Yen 1982: 89-111, Fig. 30). Seven of the original radiocarbon dates, and eight of the new AMS dates, come from these Sinapupu excavation units. Figure 1 shows these 15 radiocarbon dates, plotted in stratigraphic order. With one exception, the dates correspond to their relative stratigraphic positions. Sample I-10699, which came from site TK-1, is clearly out of stratigraphic order, and represents a "Type T" outlier (Bronk Ramsey 2009b), in which the dated sample does not properly correspond to the event presumed to be dated. This could either be because the unidentified wood charcoal consisted of old wood with an in-built age,

Table 3. Cultural associations of new AMS radiocarbon dates on Tikopia samples.

Lab No. UCLAMS-	SORC-	Site/ Locality	Stratigraphic Provenience	Sinapupu Strat Zone	Associated Material Culture	Tikopia Sequence Phase
163474	133	TK-4	Unit R16II, Layer II	—	Calcareous sand-tempered ceramics	Early Kiki
163475	136	TK-35	Unit A1, Level 2	B2	<i>Tridacna</i> shell adzes, <i>Trochus</i> shell ceramics, volcaniclastic tempered ceramics	Early Sinapupu
163476	137	TK-35	Unit A2, Level 3	B2	<i>Trochus</i> shell armrings, volcaniclastic tempered ceramics, drilled shell	Early Sinapupu
163477	140	TK-36	Unit A2, Layer II	C2	Calcareous sand-tempered ceramics, obsidian	Early Kiki
163478	148	TK-1	Unit J5, 20–40 cm	A2	<i>Tridacna</i> shell adzes, shell bead, obsidian	Early Tuakamali
163479	149	TK-1	Unit J5, 40–55 cm	A3	<i>Tridacna</i> shell adzes, obsidian	Early Tuakamali
163456	23	TK-1	Unit J5, 40–60 cm (Fe 1)	A3/B1 interface	Obsidian, <i>Tridacna</i> shell adzes	Early Tuakamali
163457	28	TK-1	Unit J9, 140–160 cm	B2	Incised pottery with nubbins, <i>Trochus</i> shell arm rings, pig bone	Early Sinapupu
163458	33	TK-4	Unit T28II, 75–95 cm	—	Obsidian	Late Tuakamali
163459	37	TK-5	Pit A, 42–48 cm	—	Traditional <i>marae</i> 'temple' site	Late Tuakamali
163460	46	TP-15	170–200 cm	—	Paepaevaru hamlet	Late Tuakamali/Historic
163461	48	TP-19	Layer IV, 109–114 cm	B1	1 sherd, <i>Tridacna</i> shell adze	Late Sinapupu
163462	53	TP-30	Layer II, 70–75 cm	—	Potu sa Kafika hamlet	Late Tuakamali/Historic

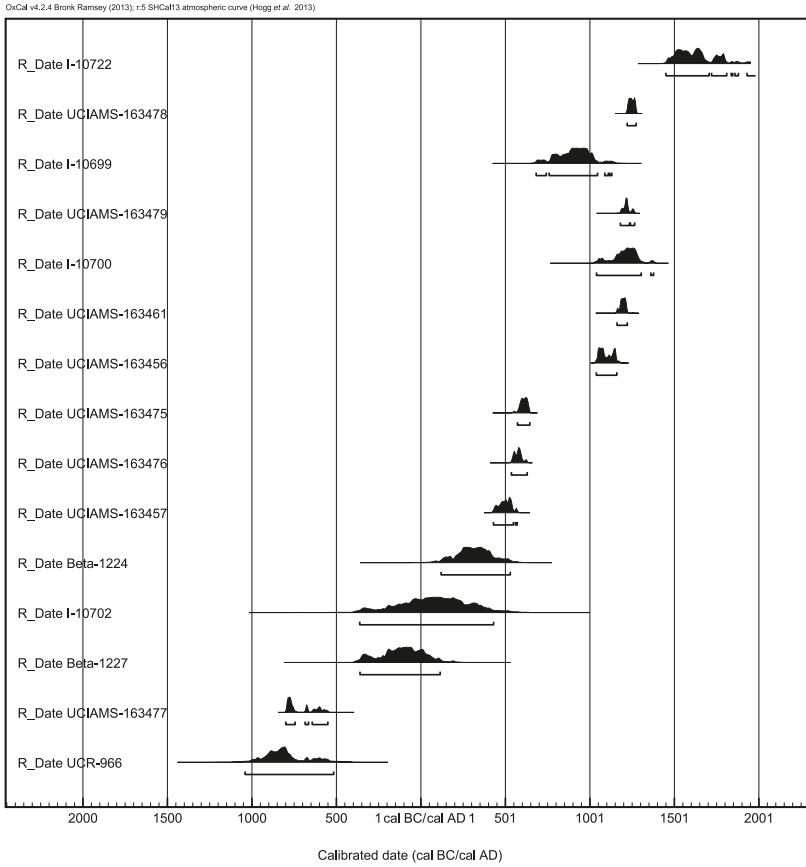


Figure 1. OxCal plot of 15 original and new radiocarbon dates from the Sinapupu area of Tikopia, plotted in stratigraphic order.

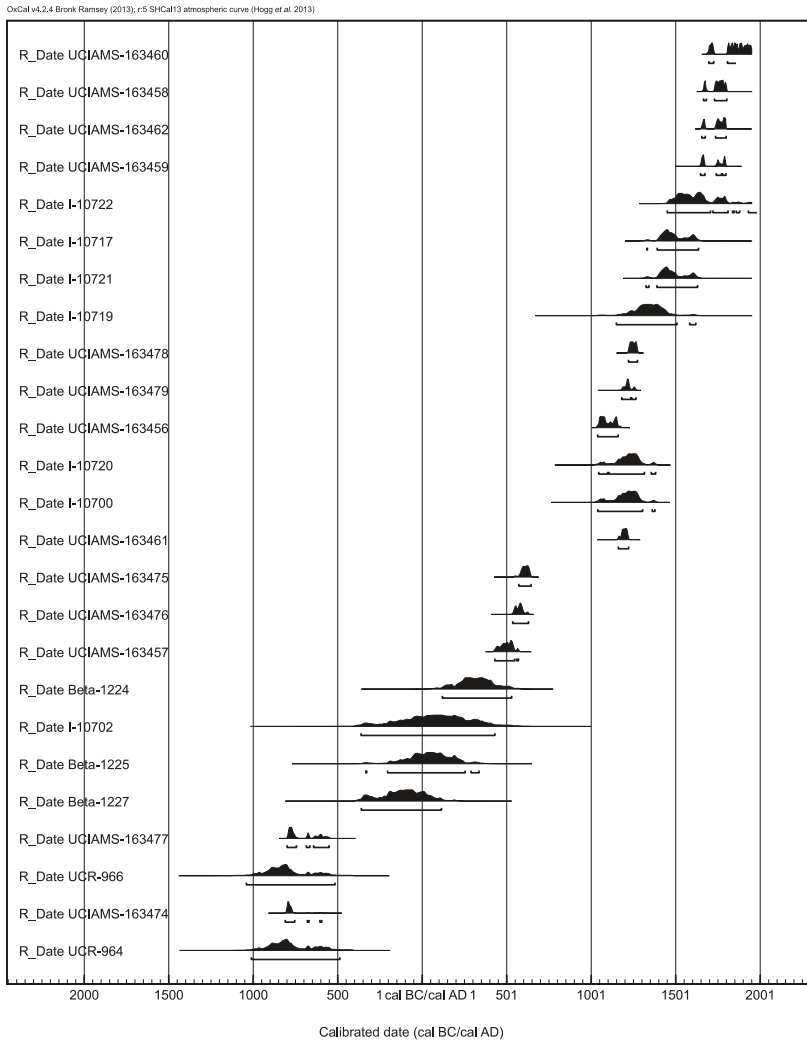


Figure 2. OxCal plot of 25 old and new radiocarbon dates from Tikopia, in inferred stratigraphic order.

or—more likely—due to the vertical displacement of older charcoal within the TK-1 site due to the digging of deep burial pits within the confines of this structure in the Late Tuakamali Phase.

An additional 11 radiocarbon dates from sites and transect pits outside of the Sinapupu area can be placed along with those from Sinapupu into a relative stratigraphic sequence based on their cultural contents (this excludes the five dates listed in Table 1 from the Rakisu agricultural area and the Muripera swamp, both of which lack associated artefact assemblages, and one very recent date from TP-39). Figure 2 is an integrated plot of these 25 dates (excluding the TK-1 outlier I-10699) from all cultural contexts.

#### BAYESIAN MODELLING OF THE TIKOPIA SEQUENCE

The original set of radiocarbon dates from Tikopia (Table 1) was characterised by low precision, with standard errors (68% probability) ranging from 65 up to 165 years. Given the inherent uncertainty in this suite of dates, and following common practice three to four decades ago, Kirch and Yen (1982) assigned temporal spans to the three culturally defined phases of the Tikopia sequence based on an *ad hoc* approach, which can be described as “eyeballing”. The recent development of Bayesian modelling for the calibration of radiocarbon data sets, which incorporates prior knowledge regarding the stratigraphic relationships among sets of samples, now allows for a more rigorous approach to temporally calibrating cultural sequences such as that for Tikopia. Bayesian modelling has recently been applied with considerable success in Pacific prehistory, as for example in Tonga (Burley *et al.* 2015), Sāmoa (Clark *et al.* 2016), Hawai‘i (Athens *et al.* 2014), and Aitutaki (Allen and Morrison 2013) and Mangaia (Kirch 2017) in the Cook Islands.

We applied Bayesian modelling to the integrated suite of 25 radiocarbon dates shown in Figure 2. In addition to excluding sample I-10699 for reasons discussed above, we also excluded an anomalously early date from a pre-Kiki Phase deposit in TP-52 at Sinapupu (UCR-965; see Table 1). This sample predates any known cultural deposits elsewhere in this part of Remote Oceania (Sheppard *et al.* 2015), and must also be regarded as a Type T outlier, probably due to in-built age. Our Bayesian model also did not incorporate the samples from the Rakisu agricultural zone (I-10724, Beta-1228 and I-10723) or the Muripera swamp area (I-10754 and ANU-2942) as these do not have artefact assemblages permitting them to be assigned to the Tikopia cultural phases. The Bayesian calibration was thus based on 25 radiocarbon dates: four from the Early Kiki Phase, one from the Late Kiki Phase, six from the Early Sinapupu Phase, three from the Late Sinapupu Phase, three from the Early Tuakamali Phase and eight from the Late Tuakamali to Historic Phases.

We used the BCal online calibration tool hosted by the University of Sheffield (<http://bcal.shef.ac.uk/>; see Buck *et al.* 1999) to construct our Bayesian model. Six groups were specified in the model, each corresponding to one of the phases just mentioned. Based on prior stratigraphic information, the boundary parameters between the phases were specified as sequential and non-overlapping (i.e., Late Kiki Phase earlier than Early Sinapupu Phase, and so on). No floating parameters were specified. For each group, the BCal program calculated  $\alpha$  and  $\beta$  statistical parameters (highest posterior density estimates, HPD) defining the beginning and ending probabilities for the group. For those unfamiliar with Bayesian terminology, given a group or phase,  $k$ , within a stratigraphic or chronological sequence, with one or more radiocarbon dates, the time period represented by phase  $k$  can be stated as  $\alpha_k$  minus  $\beta_k$ , where  $\alpha$  (the alpha parameter) is the early bounding temporal estimate for group  $k$  and  $\beta$  (the beta parameter) is the later bounding temporal estimate. Individual likelihood estimates are provided by the radiocarbon dates (the theta parameters) associated with group  $k$ , designated  $\theta_{k(1)}, \theta_{k(2)} \dots \theta_{k(n)}$ . The relationship between all three parameters can be stated as:  $\alpha_k > \theta_{k(1..n)} > \beta_k$ . If group  $k$  overlies or supersedes another group  $j$ , then the relationship between those two groups would be specified as:

$$\alpha_j > \theta_{j(1..n)} > \beta_j \geq \alpha_k > \theta_{k(1..n)} > \beta_k.$$

Results of the calibrated Bayesian model for the Tikopia Phase are presented in Table 4, with the HPD estimates (at 95%) for the  $\alpha$  and  $\beta$  parameters for each phase. Table 5 presents the calibrated age ranges (HPD ranges for the  $\theta$  parameters) for each of the 25 radiocarbon dates used in the Bayesian model. Figures 3, 4 and 5 graphically display the HPD regions (95% probability) for the  $\alpha$  and  $\beta$  parameters for the Kiki, Sinapupu and Tuakamali Phases of the Tikopia sequence. Finally, Table 6 presents estimated elapsed time ranges for each of the modelled groups.

## DISCUSSION

Kirch and Yen (1982) “eyeballed” the settlement of Tikopia at 900 BC based on the original set of radiocarbon dates. A Bayesian model now more precisely brackets initial human colonisation of Tikopia to sometime between 1046–1031, 1029–769 cal BC ( $\alpha_1$  parameter, Table 4). The new AMS dates from the earliest cultural deposits at sites TK-4 and TK-36 (UCIAMS-163474 and -163477; see Table 2) have HPD regions of 805–767 cal BC ( $\theta_2$ ) and 801–746, 680–669 cal BC ( $\theta_4$ ), allowing us to more precisely define the time frame for initial occupation at these localities. Based on radiocarbon dating and a Bayesian calibration for the SE-SZ-8 Lapita site of Nanggu, Santa Cruz Islands (Nendö), Green *et al.* (2008) put the initial Lapita incursion into



Table 4. Highest posterior density (HPD) estimates for Tikopia phases.

Model Groups	Parameter	95% HPD Intervals (cal BP)	95% HPD Intervals (cal BC/AD)
Early Kiki Phase	$\alpha 1$	2996–2981 2979–2719	1046–1031 cal BC 1029–769 cal BC
	$\beta 1$	2747–2524 2508–2497	797–574 cal BC 558–547 cal BC
Late Kiki Phase	$\alpha 2$	2650–2636 2629–2614 2602–2003	700–686 cal BC 679–664 cal BC 652–53 cal BC
	$\beta 2$	2282–2270 2268–1804	330–320 cal BC 318 cal BC–cal AD 146
Early Sinapupu Phase	$\alpha 3$	2067–1640	117 cal BC–cal AD 310
	$\beta 3$	1374–1050	cal AD 576–900
Late Sinapupu Phase	$\alpha 4$	916–874 849–751	cal AD 1034–1076 cal AD 1101–1199
	$\beta 4$	879–866 795–743	cal AD 1071–1084 cal AD 1155–1207
Early Tuakamali Phase	$\alpha 5$	792–738	cal AD 1158–1212
	$\beta 5$	730–552	cal AD 1220–1398
Late Tuakamali Phase	$\alpha 6$	610–339	cal AD 1340–1611
	$\beta 6$	200–1	cal AD 1750–1949

the Reef–Santa Cruz Islands at approximately 1250 cal BC. More recently, based on a re-excavation at the Nanggu site and Bayesian calibration of all radiocarbon dates from Nanggu and the Nenumbo (RF-2) site in the Reef Islands, Sheppard *et al.* (2015) conclude that Lapita movement into the Santa Cruz Islands did not commence before about 1050 cal BC. This suggests that the colonisation of Tikopia took place 200 to 250 years following the first entry of humans in this part of Remote Oceania.

It is also instructive to compare the estimated date of colonisation of Tikopia with the settlement chronologies of two other Polynesian Outliers in the region, Anuta and Taumako. Anuta, a very small island (area 0.4 km<sup>2</sup>) situated 137 km northeast of Tikopia, was archaeologically investigated by Kirch and

Table 5. Bayesian posterior age estimates for individual radiocarbon dates from Tikopia.

BCal Model Parameter	Lab No.	Phase	95% HPD Intervals (cal BP)	95% HPD Intervals (cal BC/AD)
01	UCR-964	Early Kiki	2856–2676 2630–2614	906–726 cal BC 680–664 cal BC
02	UCIAMS-163474	Early Kiki	2755–2717	805–767 cal BC
03	UCR-966	Early Kiki	2867–2683	917–733 cal BC
04	UCIAMS-163477	Early Kiki	2751–2696 2630–2619	801–746 cal BC 680–669 cal BC
05	Beta-1227	Late Kiki	2313–1923	363 cal BC–cal AD 27
06	Beta-1225	Early Sinapupu	1941–1576	cal AD 9–374
07	I-10702	Early Sinapupu	1927–1467 1465–1453 1449–1439 1437–1418	cal AD 23–483 cal AD 485–497 cal AD 501–511 cal AD 513–532
08	Beta-1224	Early Sinapupu	1795–1764 1752–1448 1446–1423	cal AD 155–186 cal AD 198–502 cal AD 504–527
09	UCIAMS-163457	Early Sinapupu	1519–1403	cal AD 431–547
010	UCIAMS-163476	Early Sinapupu	1413–1346	cal AD 537–604
011	UCIAMS-163475	Early Sinapupu	1378–1308	cal AD 572–642
012	UCIAMS-163461	Late Sinapupu	796–751	cal AD 1154–1199
013	I-10700	Late Sinapupu	899–871 816–748	cal AD 1051–1079 cal AD 1134–1202
014	I-10720	Late Sinapupu	900–870 815–748	cal AD 1050–1080 cal AD 1135–1202
015	UCIAMS-163456	Early Tuakamali	784–736	cal AD 1166–1214
016	UCIAMS-163479	Early Tuakamali	764–716 704–687	cal AD 1186–1234 cal AD 1246–1263
017	I-10719	Early Tuakamali	772–612	cal AD 1178–1338

— Table 5 continued over page

BCal Model Parameter	Lab No.	Phase	95% HPD Intervals (cal BP)	95% HPD Intervals (cal BC/AD)
018	UCIAMS-163478	Early Tuakamali	730–680	cal AD 1220–1270
019	I-10721	Late Tuakamali	532–433 418–307	cal AD 1418–1517 cal AD 1532–1643
020	I-10717	Late Tuakamali	526–424 422–309	cal AD 1424–1526 cal AD 1528–1641
021	I-10722	Late Tuakamali	470–254 221–147	cal AD 1480–1696 cal AD 1729–1803
022	UCIAMS-163459	Late Tuakamali	302–277 310–180 171–154	cal AD 1648–1673 cal AD 1640–1770 cal AD 1779–1796
023	UCIAMS-163462	Late Tuakamali	295–275 214–153	cal AD 1655–1675 cal AD 1736–1797
024	UCIAMS-163458	Late Tuakamali	286–267 220–149	cal AD 1664–1683 cal AD 1730–1801
025	UCIAMS-163460	Late Tuakamali	266–221 146–81 72–60	cal AD 1684–1729 cal AD 1804–1869

Table 6. Modelled elapsed time estimates for Tikopia cultural phases.

Phase	Elapsed Time (years)
Early Kiki	0–401, 403–417
Late Kiki	0–525, 527–560, 562–609
Early Sinapupu	323–893, 895–934
Late Sinapupu	0–106
Early Tuakamali	17–234
Late Tuakamali	165–562

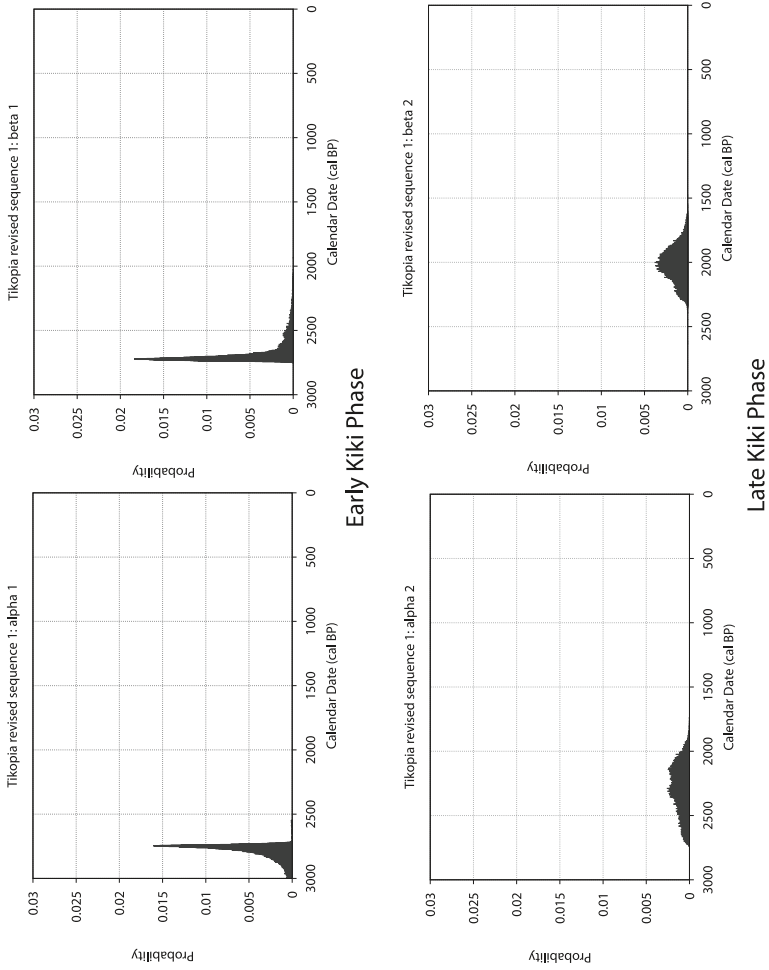


Figure 3. Alpha and beta parameters (HPD regions) for Early and Late Kiki Phases.

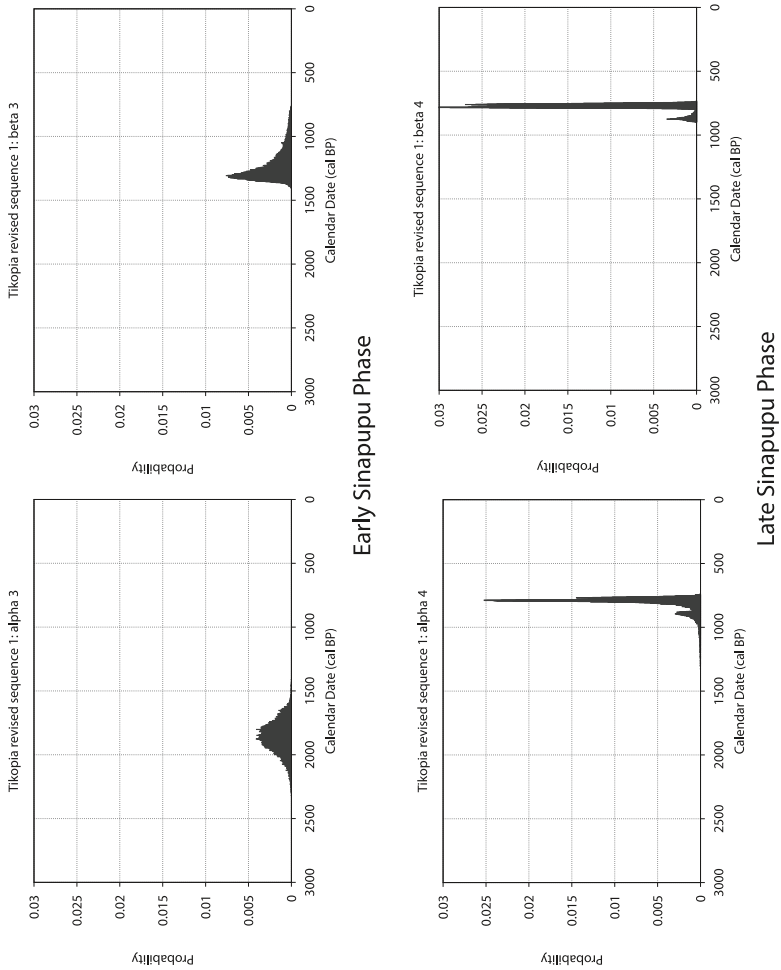


Figure 4. Alpha and beta parameters (HPD regions) for Early and Late Sinapupu Phases.

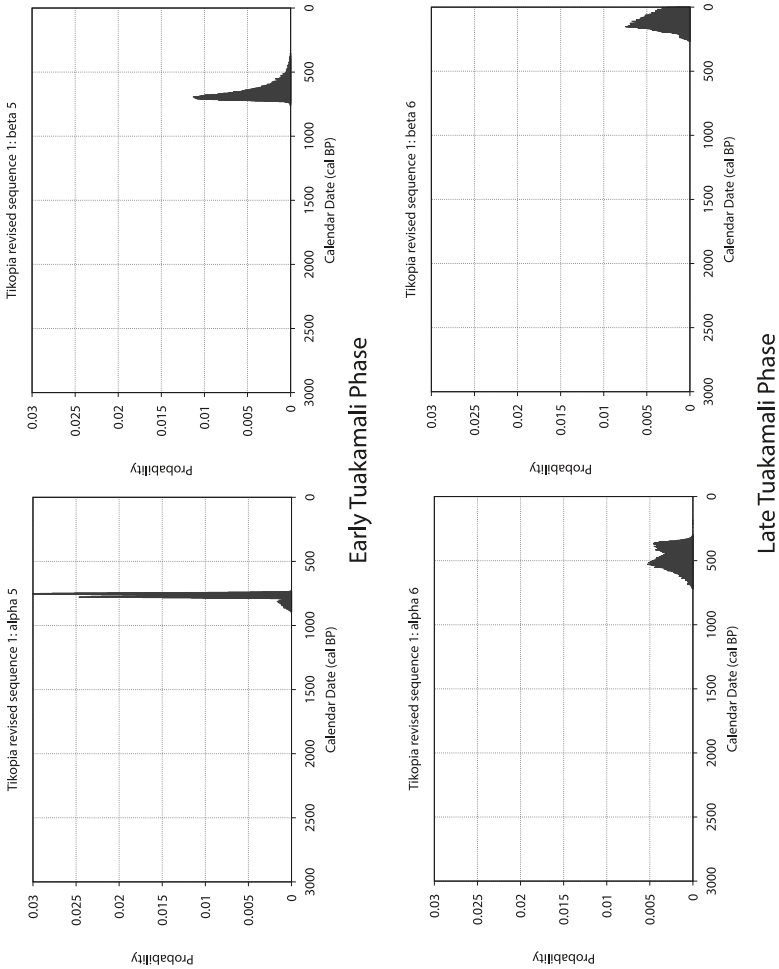


Figure 5. Alpha and beta parameters (HPD regions) for Early and Late Tuakamali Phases.

Rosendahl (1973). Layer III at the AN-6 site, which contained calcareous-tempered ceramics nearly identical to the Kiki Ware of Tikopia, was dated with three charcoal samples (I-6274, -6272 and -6275, Kirch and Rosendahl 1973, Table 31). The samples yielded calibrated age ranges (95.4% probability) of 843–406, 896–427 and 1297–833 cal BC. The last of these seems improbably old and may reflect an “old wood” issue, but the first two are consistent with the estimated age of the Kiki Phase on Tikopia. For Taumako, the earliest occupation deposits in the Ana Tavatava site likewise yielded a ceramic assemblage not unlike that from the TK-4 site, with an associated radiocarbon date (NZ-4641) of  $2602 \pm 64$  BP, with a calibrated range of 834–475 cal BC (Leach and Davidson 2008: 295-96, Table A12.1). This is again consistent with the Early Kiki Phase dating. In sum, all three of these islands—Tikopia, Anuta and Taumako—appear to have been first settled at approximately the same time by populations all producing similar, largely plainware ceramics.

The transition from the Kiki Phase to the Early Sinapupu Phase is the most difficult to pin down in absolute chronological terms. There is just one radiocarbon date (Beta-1227) from a Late Kiki Phase context, TP-48 of the Sinapupu site transect (see Table 1). Bayesian calibration yields a 95% HPD estimate for this date ( $\theta_5$ ) of 363 cal BC to cal AD 27. Parameter  $\beta_2$ , for the end of the Kiki Phase, has HPD intervals of 330–320 cal BC and 318 cal BC to cal AD 146. Parameter  $\alpha_3$ , for the beginning of the Early Sinapupu Phase, has a 95% HPD region of 117 cal BC to cal AD 310. In sum, the Kiki to Sinapupu transition occurred sometime between the late first millennium BC and the early first millennium AD. Defining the timing of this transition more precisely would require further datable samples from Late Kiki Phase or Early Sinapupu Phase contexts.

The Sinapupu Phase on Tikopia is characterised by a number of distinct changes in material culture and in the exploitation of particular faunal resources, but the most notable feature is the importation of distinctive incised ceramics from one or more sources in the Vanuatu archipelago (the Sinapupu Ware ceramics, described by Kirch and Yen 1982: 200-202). This incised pottery falls within the overall ceramic tradition known as Mangaasi, originally defined by Garanger (1971, 1972). Bedford (2006, Fig. 8.16) has defined the ceramic traditions of various subgroups within the extensive Vanuatu archipelago, noting that Mangaasi-style ceramics occur in both the Shepherd Group and on Efate between approximately 250 cal BC and cal AD 750. This correlates reasonably well with the time frame estimated for the Early and Late Sinapupu Phases, bracketed between 117 cal BC to cal AD 310 ( $\alpha_3$ ) and cal AD 1071–1084, 1155–1207 ( $\beta_4$ ) (Table 4).

The transition from the Late Sinapupu to the Early Tuakamali Phase marks another major cultural transition on the island, one that is reflected in

material culture with distinctively Polynesian traits such as basalt adzes and trolling lures of Western Polynesian forms (Kirch and Yen 1982: 236-37, 244, 333). This phase is believed to represent the successive arrival of several Polynesian-speaking groups who were the direct ancestors of the various social lineages presently occupying the island (Kirch and Yen 1982: 341-43). The Bayesian model allows us to define the timing of this transition quite precisely. Parameter  $\alpha_5$ , for the Early Tuakamali Phase, has an HPD region of cal AD 1158–1212. The earliest radiocarbon date from a Tuakamali Phase context is UCIAMS-163456 from site TK-1, which is associated with Banks Islands obsidian and *Tridacna* shell adzes (Table 3), and has a modelled age range of cal AD 1166–1214 (015, Table 5).

It may not be coincidental that the arrival of these Polynesian groups in Tikopia occurred around AD 1100–1200, contemporaneous with the dispersal of Polynesians out of the Western Polynesian homeland region into the archipelagos of Eastern Polynesia (i.e., the Society Islands, Marquesas, Cook Islands, Mangareva and others). While the settlement histories of the Polynesian Outliers and of Eastern Polynesia have typically been treated by culture historians as separate phenomena, it seems possible that both were part of a larger diaspora that extended both east and west out of the Western Polynesian core after AD 1000. In this regard, the linguistic analysis of Wilson (2012), which identifies a common origin in the dialects of certain Polynesian Outliers and those of Eastern Polynesia, may be relevant.

\* \* \*

Additional new high-precision AMS dates for the Tikopia cultural sequence, combined with a Bayesian calibration of a total of 25 radiocarbon dates from the island, allows a reassessment of the original temporal framework proposed by Kirch and Yen (1982). In general terms the new AMS dates confirm the sequence as originally proposed, but it is now possible to more precisely estimate the time spans for the phases of the Tikopia sequence. Initial settlement of Tikopia, originally estimated by Kirch and Yen (1982) to have occurred slightly later than 900 BC, can now be estimated to have occurred sometime between 1046–1031, 1029–769 cal BC. The transition between the Kiki and Sinapupu Phases remains less precisely dated due to the limited number of radiocarbon dates, but occurred sometime between 117 cal BC and cal AD 310. The final major change in the cultural sequence, from the Sinapupu to Tuakamali Phases, marked by the arrival of new settlers who had a distinctive Western Polynesian material culture and were presumably the direct ancestors of the ethnographically documented Tikopia, occurred sometime during the period cal AD 1158–1212.



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#### ABSTRACT

The Polynesian Outlier of Tikopia, situated in the Santa Cruz Islands group (Temotu Province) of the Solomon Islands, has one of the best-defined archaeological sequences in the southwestern Pacific. Archaeological excavations in 1977–78 yielded a rich record of material culture and faunal remains, with a chronological framework provided by 20 radiocarbon dates. These dates, however, were processed on unidentified wood charcoal using the older liquid-scintillation method; the large standard errors associated with these dates rendered this chronology rather imprecise. Here we report 13 new, high-precision AMS radiocarbon dates on carbonised coconut endocarp, rat bone and pig teeth from the original excavations. The new AMS dates confirm the original sequence and, when combined with the original radiocarbon dates in a Bayesian calibration model, allow for a refinement of the cultural chronology for Tikopia. This updated model provides a more precise chronology for key events in Tikopian prehistory including first human colonisation, the arrival of Polynesian-speaking populations to the island and the formation of the sandy tombolo transforming Te Roto into a brackish-water lake.

*Keywords:* Lapita, *Rattus exulans*, Tikopia, Polynesian Outliers, Bayesian modelling, Solomon Islands, Remote Oceania

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# PRECESSION ISSUES IN POLYNESIAN ARCHAEOASTRONOMY

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Until about the 17th century, nowhere in the world could longitude be determined at sea other than by dead reckoning. Longitude fixing only became practicable, and initially only for European navigators, following advances in instrumentation (primarily the marine chronometer and sextant) and the availability of astronomical data in the late 17th and 18th centuries. In the absence of information on longitude, latitude and azimuth determination were crucial for early Polynesian navigators, in addition to a range of other navigation strategies including the use of swells, birds and techniques to expand landfalls (e.g., Evans 2011: 55-72). Neither latitude nor azimuth could be determined exactly, and extensive use of stars was required for both. For azimuths, complex star compasses have been important throughout Polynesia (Chauvin 2000: 112; Finney 2006: 159-61, 183-84; Lewis 1994: 104, 108, 118; Low 2006: 188). Such compasses relied on detailed knowledge of the movements of a great many stars (Evans 2011: 56; Finney 2006: 162). Good precision was hard to realise, especially at higher latitudes, because stars follow increasingly inclined trajectories and are only useful for a short time after rising (Evans 2011: 64).<sup>1</sup> For determining latitude, the angle of stars above the horizon could be used, gauged roughly by hand-spans or finger-breadths (Low 2006: 191). Latitude could also be determined using zenith stars, or vertical star pairs, or by the simultaneous rising or setting of star pairs (discussed further below). Since dead reckoning to allow for currents and winds was inexact, navigators would sometimes return home after north/south voyages by deliberately aiming too far east or west and then sailing a line of constant latitude (Finney 2006: 169; Lewis 1994: 286-87).<sup>2</sup> Stars or groups of stars might also have been important as an inspiration for voyages if navigators assumed that prominent stars passed over significant islands (Kyselka 1987: 7-9). Vertical or simultaneously rising pairs of stars that made sailing on a particular latitude easier might also have suggested the presence of islands at that latitude, or at least have made sailing those latitudes more likely, so increasing the likelihood of discovering land.

Given this dependence on stars, it is important to bear in mind that their positions alter gradually over the centuries, with by far the biggest change being due to precession,<sup>3</sup> the phenomenon by which the Earth's axis of spin alters relative to the stars over a period of about 25,800 years, like a spinning

top (Ruggles 2015: 473-74). Although there is no shortage of general literature about the effects of precession in archaeoastronomy (e.g., Ruggles 2015: Chapter 31; see also Lusby *et al.* 2010: 15; Magli 2015: 16-19), this article grew out of a need for a better understanding of precession in the context of Polynesian voyaging. Knowledge about the effects of precession can assist scholars in weighting one voyaging date more likely than another, or in providing possible reasons why certain voyages took place in a particular era if navigation methods depended on star configurations that were particularly favourable in that era. Precession has been adduced by Lusby *et al.* (2009: 21) to support an “archaeoastronomical dating method” and the possibility of “sea lanes” on latitudes at which star pillars are vertical, and sailing on the latitude of particular island targets would have been particularly easy (Lusby *et al.* 2010: 16). For example, when Goodwin and colleagues (2014) suggest windows of off-wind (i.e., downwind) sailing from the Central Eastern Pacific to Easter Island as being between AD 800 and 1275 (with AD 1200–1253 being the best colonisation estimate; p. 14717), it may be helpful to note that the star pillar comprising Spica and Antares (setting) formed a more vertical star pillar on the latitude of Easter Island in AD 1275 than it did in 800, by about 20' (or 37 km on the Earth's surface). Also, if the effects of precession were not recognised and accounted for by successive generations of navigators, then the locations of distant known islands, especially those which were small targets, might be “lost”.

The influence of precession on stars used for different methods of latitude determination is not always intuitive, and in this article a graph of the change in declination per century as a function of right ascension is proposed as a way of understanding the influence of precession on different methods of latitude and azimuth determination and of deducing when and where significant configurations occur.

#### DEFINITIONS

To understand precession, several terms and units need to be defined and explained. Stars are catalogued using two coordinates, namely declination and right ascension, which are illustrated in the inset to Figure 3. Declination ( $\delta$ ) is the equivalent of an observer's latitude on the Earth. In other words, it is the angle to the north or south of the equator on a conceptualised celestial sphere, the centre of which is the Earth, and which for convenience treats stars as having a uniform distance from the Earth. Declination is usually measured in degrees, minutes of arc (which are one sixtieth of a degree) and seconds of arc (which are one sixtieth of a minute of arc). Right ascension, which is equivalent to longitude on the Earth's surface, is measured from an arbitrarily chosen origin on the celestial sphere where the sun appears to cross

the celestial equator going from south to north each year. Modern astronomers name this origin the vernal equinox, and from it, right ascension is measured eastwards in units of hours, minutes of time and seconds of time, where 24 hours is equivalent to  $360^\circ$  of arc, and converting from hours to degrees is a simple matter of decimalising and multiplying by 15. On the Earth, an observer's meridian is the plane containing the observer and true north (as opposed to grid north on a projection, or to magnetic north). On the celestial sphere, the observer's meridian is the great circle containing the observer's zenith (i.e., the point on the sphere directly above the observer), the North Celestial Pole (NCP; i.e., the point where the North Pole projects onto the celestial sphere), and similarly the South Celestial Pole (SCP). The azimuth is the angle of a star (or other heavenly object) measured clockwise (i.e., positive east) in degrees, minutes and seconds of arc from true north. The altitude of a star refers to its angle above the horizon, with zenith distance being the complementary angle (in other words, the angle from the observer's zenith measured down to the star). Both altitude and zenith distance are measured in degrees, minutes and seconds of arc.

#### DETERMINING LATITUDE

Four methods of non-instrument latitude determination are considered here: first, by the altitude of stars in the meridian; second, by the special case of zenith stars in the meridian; third, by the verticality of star pillars; and fourth, by simultaneously rising or setting stars. The effect of precession on each of the four methods is then discussed, and a graph proposed as a way of understanding and quantifying the effect of precession on latitude.

##### *Latitude by the Altitude of Stars in the Meridian*

With suitable tables and instrumentation, it is a relatively simple matter to calculate latitude by measuring the zenith distance of a star in the meridian and adding or subtracting its declination. If a numerical value of declination is unavailable, and in the absence of an instrument capable of measuring angles at sea, the angle above the horizon can be gauged approximately by finger-breadths or extended fingers at arm's length, or by knotted string. Such methods are sufficiently precise for navigators to know when they have reached a particular latitude, such as the one they started out from or have visited previously (Chauvin 2000: 106-7; Lewis 1994: 293; Low 2006: 191). Even in the 20th century, Lewis was told by senior navigators of the Micronesian island of Satawal that the height of the Pole Star is still "judged by eye or by the span of the fingers loosely extended at arm's length", with one hand-span being the measure of one *ey-ass*, equal to about  $15^\circ$  (Lewis 1994: 277). In the Northern Hemisphere, Polaris (or alternative pole stars over the centuries as

precession altered the position of the Earth's pole on the celestial sphere) is a convenient mark because it is always approximately in the meridian and its declination is always approximately  $90^\circ$ , meaning that its altitude above the horizon is a direct measure of latitude. In the Southern Hemisphere, where there is no suitable pole star of sufficient magnitude, the angle of other stars at meridian transit is also a measure of latitude, for example, stars in the Southern Cross when its longer axis is roughly vertical (Thompson 2016: 2). However, the disadvantage of this is that stars will only cross the meridian twice in 24 hours, once at upper transit and once at lower transit.

#### *Latitude by Zenith Stars*

Zenith stars, passing overhead of an observer, are a special case of stars in the meridian. In order to pass through the observer's zenith, these stars must have a declination equal to the observer's latitude. For example, today Sirius is a zenith star for Fiji, passing directly overhead of Vanua Levu once in 24 hours. In Polynesia, a zenith star may be known as "the star on top" or "the star that points down to an island, its overhead star" (Lewis 1994: 278-81).

Another dimension to the use of zenith stars is the way in which Polynesian cosmogonies featured stories that linked bright stars, and also groups of stars, with important islands. Star groups may comprise either official constellations or else asterisms, with the latter being stars comprising a subset of constellations or sometimes stars from more than one constellation that have been arbitrarily grouped by societies. Kyselka (1987: 7-9) suggests that significant stars or asterisms may have inspired Pacific explorers to voyage in search of the islands that they were presumed to mark. Lewis writes that for latitudes south of the equator, where the Pole Star is not visible, the most significant means of fixing latitude was "by means of overhead or zenith stars" (Lewis 1994: 277). In theory, zenith stars can be used as a rough yardstick of latitude by estimating whether they pass directly overhead or to the north or south. In practice, Lewis found that by allowing for the rake of the mast it is possible to estimate closeness to the zenith within about a degree of latitude, and with practice this could be improved to about  $30'$  where observations are made in good weather from a stable catamaran (Lewis 1994: 288). Although the usefulness of this method is confirmed by Finney (2006: 169), other navigators have expressed a preference for different methods (see below).

#### *Latitude by the Verticality of Star Pillars*

The term "star pillars" has been used to describe both single stars and also pairs of stars comprising a near-horizon star and a star vertically above it. For the former use, namely as single stars, Teuira Henry quotes Rua-nui, "a clever old woman" (Henry 1928: 359), who referred to "great twinkling stars in the heavens" as pillars of the sky (361),<sup>4</sup> and David Lewis (1994:

284) appears to use the term “star pillar” synonymously with (single) zenith stars. In contrast, Lusby *et al.* (2009: 22-23) note that carved pillars were a feature of Tahitian architecture, and these authors explore the possibility of “star pillars” referring to pairs of stars with one star representing the base of an upright pillar and the other its top. Vertical star pillars can be used as an indicator of latitude because they tip up according to how far north or south of their vertical position an observer is, either of which causes one or other of the celestial poles to climb in the sky (see Figs 1 and 2). The verticality of such pillars is influenced by precession as well as alterations in latitude. In other words, star pillars will be vertical at different latitudes in differing centuries owing to precession.

#### *Latitude by Simultaneously Rising or Setting Stars*

Latter-day non-instrument navigators such as Nainoa Thompson favour using pairs of simultaneously rising or setting stars (i.e., with similar altitudes) in preference to zenith stars as a gauge for changes in latitude (Chauvin 2000: 111; Low 2006: 190-92). Star pillars and synchronous stars to the east and west of observers are illustrated in the following figures:



Figure 1. A vertical star pillar and a pair of near-horizon stars viewed to the east (rising).

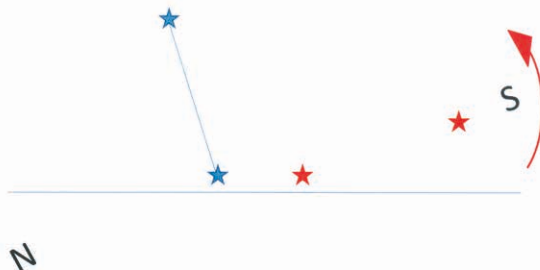


Figure 2. On moving south, the south celestial pole and star pillar will tip up in the sky, and one near-horizon star will rise before the other of the pair. The identical effect may be produced by precession.



## THE EFFECTS OF PRECESSION ON MEASURES OF LATITUDE

Precession manifests itself differently for stars in different parts of the sky. In order to convey a feel for the magnitude of changes in celestial coordinates due to precession, between AD 1000 and AD 2000 the declination of Aldebaran increased by about 15' per century, the declination of Antares decreased by about the same amount, and the declination of Polaris increased by about 32' per century. To put this in context, the average human eye can resolve angles of about one minute of arc (Chapman 1983: 135), meaning that in theory the human eye could discern a difference in the position of Polaris in one thirty-second of a century, or about three years. Only changes in declination are considered here because changes in right ascension manifest themselves as small changes in time. Illustrating this with the example of a zenith star that passes over an island in one epoch, an angular change in right ascension of 1' of arc over three years will have the effect of making the star pass over the island four seconds earlier or later at the end of that period, which would be unnoticeable except with sophisticated time-keeping technology. In contrast, changes in declination are independent of time and, depending on where stars are situated in the sky and which of the latitude methods described earlier are being used, these changes may be discernible to the human eye. For instance, the effect of precession on declination can cause a zenith star that passes over an island at one epoch not to do so at another epoch, or it may alter the tilt of star pillars discernibly or affect the synchronicity of simultaneously rising star pairs. Changes in a star's declination per century are easily evaluated using software packages such as SkyMap or Cartes du Ciel (Sky Charts), or else these can be looked up on declination tables such as the one Ruggles (2015: 475-78) gives, which lists the declinations of the 25 brightest stars between 5000 BC and AD 2000.

However, how precession influences the latitude methods described above is not intuitive. For example, it is not readily apparent how much a navigator's latitude needs to change in order to make a star pillar vertical at a different epoch, or to make simultaneously rising stars again rise synchronously. Such calculations may be facilitated by the following graph (Fig. 3) of the change in declination per century plotted against right ascension, between AD 1000 and 2000, the centuries most relevant to East Polynesian colonisation and post-settlement voyaging (Goodwin *et al.* 2014; Kirch 2000: 231). Apart from Arcturus, which is slightly anomalous and would need a more in-depth look at the catalogues used, the result is a reasonably consistent cosine relationship.

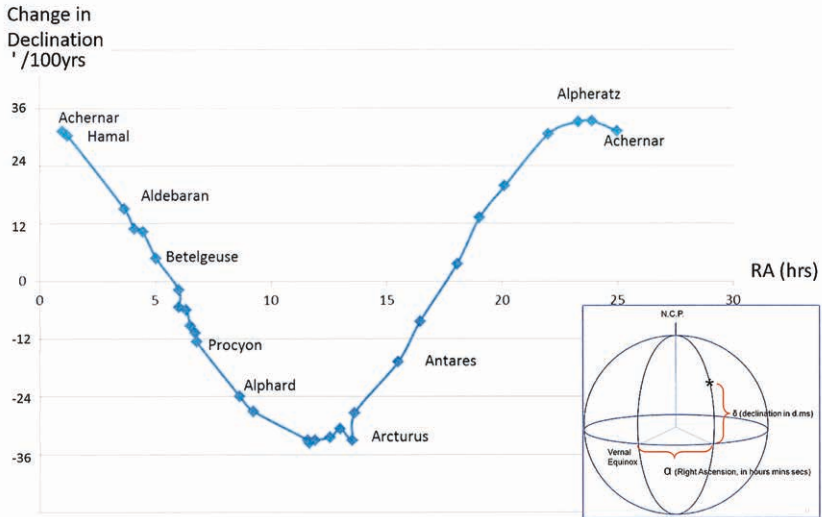


Figure 3. Change in declination with right ascension.

### *Precession and Star Pillars*

How does the graph in Figure 3 help to quantify the effect of precession on a star pillar? Consider for example the star pillar comprising Betelgeuse and Procyon, observed approximately east of an observer (chosen because relationships will become progressively less stable nearer the Poles). From the graph it can be seen that Betelgeuse, the higher star of the pillar, has a right ascension of roughly five hours and its declination changes by about  $+5'$  per century (i.e.,  $\delta$  is getting more northerly). Procyon, the lower star of the pillar, has a right ascension of about seven hours and a change in declination of roughly  $-13'$  per century (i.e.,  $\delta$  is getting more southerly). Considering Figure 4, the star pillar comprising that star pair has thus in effect twisted anticlockwise, as if the NCP and observer's zenith have migrated anticlockwise.

What we really need to know is how far an observer's zenith has tipped, because the angle between the zenith and the celestial equator is in fact the observer's latitude. To find the rotation of the zenith, we can deduce the right ascension of the observer's zenith from the graph in Figure 3 (because its separation from the horizon will be approximately  $90^\circ$ , or six hours), and using this right ascension we can read from the graph by how much the declination of the observer's zenith (which is in fact the observer's latitude)

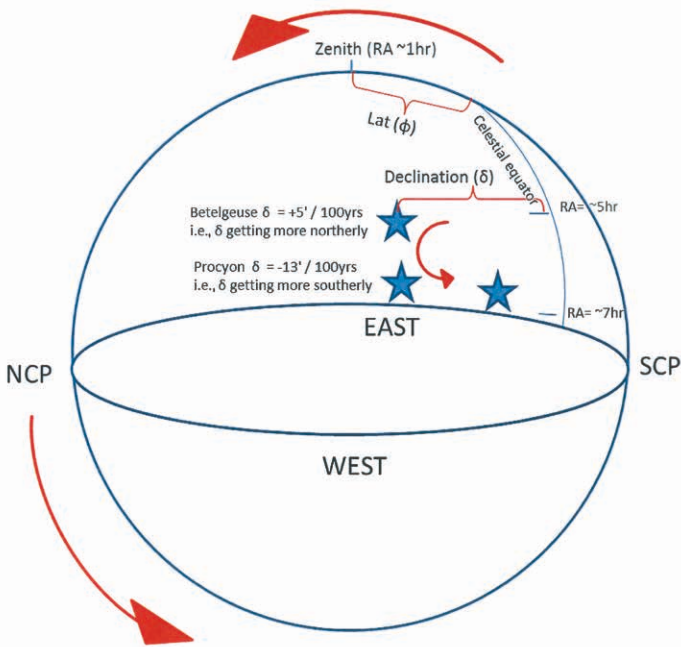


Figure 4. Zenith movement caused by star-pillar twist.

has altered. For this particular pillar, Procyon is the near-horizon star, with a right ascension of roughly seven hours, and the observer is looking east, meaning that the observer's zenith has a right ascension of approximately six hours less than that of Procyon, in other words about one hour. This approximate right ascension permits interpolation of an approximate change in declination of the observer's zenith from the graph in Figure 3, namely about  $+34'$  per century. Simply put, the observer's zenith when observing that star pillar will change by about  $34'$  in a hundred years, and hence the difference in latitude necessary to counteract that precessional change will be, very approximately,  $34'$ . Thus a "sea lane" with an upright pillar comprising those stars would now lie further to the north, at a latitude where the NCP has tipped up in the sky and the star pair has rotated clockwise to counteract the effect of precession. This is easily verified: a century later, the star pillar is indeed vertical at a latitude of about  $36'$  further north (see the numerical example below).

If the star pillar had been to the west, then the order of stars in the pillar would have been reversed, meaning that a “sea lane” with the inverted star pillar would now lie further to the south. Pillars comprising other stars will change by different amounts depending on their declination, the observer’s latitude, and the separation of the stars forming the pillar. It is not difficult to find examples ranging from 1', 7', 25' and up to about 36' per century, with the sign depending on whether pillars are observed to the east or west. As stated earlier, the average human eye can resolve changes of about one minute of arc, so a precessional change that alters the verticality of a star pillar by about 32' per century will change 1' (and therefore be visible to the human eye) within about three years. In a generation of 25 years, it will change by eight times this. Clearly this has to be borne in mind in any attempt to explain or date voyages using the verticality of star pillars as one evidence strand, as has been done by Lusby *et al.* (2009, 2010).

Numerical examples are given below for east and west pillars. Cartes du Ciel and SkyMap software were used as a check for one another (Cartes du Ciel; SkyMap).

*East pillar:* From 0° latitude (i.e., the Equator) and longitude 149°34'00"W (this is arbitrary; the longitude could have been anything) on 20 March AD 969 at UT 22:27:13 looking roughly east, Procyon and Betelgeuse form a near-enough vertical pillar. A century later (20 March AD 1069) at UT 22:29:10 the “sea lane” with the same star pillar will be further north, at 36'20"N.

*Using the same stars, but forming a west pillar:* On 10 September AD 982 at UT 21:23:24 from 3°N and 149°34'00"W, Betelgeuse and Procyon form a vertical pillar when looking west. This pillar will be vertical again a century later (10 September AD 1082; UT 21:25:26) at 36'56" further south (i.e., at 2°23'04"N).

### *Precession and Simultaneously Rising Stars*

Simultaneously rising star pairs selected to be roughly east or west, and at non-extreme latitudes, will have declinations that differ by approximately the angular separation of the stars. They will also have similar right ascensions to one another (because in order to rise or set simultaneously, stars have to occupy approximately the same meridian). Since we have shown that changes in declination due to precession is a function of right ascension, we can conclude that the change in declination per century of both stars in a simultaneously rising pair will be more or less the same. Greater variations will occur for more widely separated stars and higher latitudes. As with the star pillar scenarios, the observer’s zenith will be about six hours different in right ascension from synchronously rising star pairs, and again, as the declination of the zenith changes over the centuries as a result of precession,

so too will one or other of the synchronous stars appear to rise earlier. Once again, the graph in Figure 3 can be used to calculate how far north or south to move in order to make the stars again rise simultaneously.

The foregoing can be illustrated with an example from Ra'iātea in the Society Islands ( $16^{\circ}58'50''\text{S}$ ,  $151^{\circ}21'30''\text{W}$ ). On the day of 5 November AD 1100 at local time 20:21:46, the synchronous star pair of Sirius ( $\alpha$  Canis Majoris) and Adara ( $\epsilon$  Canis Majoris) will rise roughly simultaneously. The azimuth of both stars is within  $30^{\circ}$  of east ( $106^{\circ}$  and  $119^{\circ}$  respectively). On the same date, altering the latitude by  $10^{\circ}$  N causes Sirius to rise first and to be at altitude  $2^{\circ}15'36''$  when Adara is rising. At  $10^{\circ}$  S, Adara rises first and is at altitude  $2^{\circ}03'42''$  when Sirius rises. At that epoch from latitudes north or south of this, the stars will not rise simultaneously. Importantly, precession has an identical effect over a long period. To work out at what latitude the star pair is synchronous in the year AD 1650, for example, given that the above stars again have a right ascension of approximately six hours, the observer's zenith will have a right ascension of about  $0^{\text{h}}$  (i.e.,  $90^{\circ}$  different). The graph in Figure 3 tells us that for  $0^{\text{h}}$ , the change in declination per century is about  $35'$  of arc. Thus, in AD 1650 the change in the declination of the observer's zenith will have been about  $5.5$  centuries  $\times$   $35' = 3^{\circ}12'30''$  (approximately). The observer's zenith has moved north, so an observer 5.5 centuries later will need to sail north in order to tip the North Celestial Pole up in the sky and effectively to move the zenith south again;  $3^{\circ}12'30''$  to the north of  $16^{\circ}58'50''\text{S}$  is a latitude of  $13^{\circ}46'20''\text{S}$ . Thus, as we would expect, on the same date in AD 1650 and at  $13^{\circ}46'20''\text{S}$  and a time of 21:14:39, the star pair is again roughly synchronous.

#### *Precession and Stars in the Observer's Meridian Including Zenith Stars*

Excluding stars near the poles for which even a small movement of the Earth's axis can result in a large change in right ascension, for other stars observed in the meridian, the observer's zenith will have the same right ascension as the stars (i.e., they are both in a meridian with the same right ascension). The observer's zenith will therefore have the same change in declination per century as stars transiting the meridian. This means that an observer's latitude will have to change by the same value as a star's declination in order for the star to maintain the same altitude above the horizon.

For example, from a location in the far north of New Zealand in the year AD 1100, the star Fomalhaut, with declination  $34^{\circ}13'$  and right ascension  $22^{\text{h}} 7^{\text{m}}$ , is directly overhead. From the graph in Figure 3, the change in declination is about  $31'$  per century. Thus, in AD 1600, five centuries later, Fomalhaut would no longer be directly overhead from this position. Rather, an observer would have to be approximately 290 km further north or at approximately  $31^{\circ}38'$  latitude (calculated from  $5 \times 31' = 2^{\circ}35'$ ) in order for Fomalhaut to be observed directly overhead.

## AZIMUTH CHANGES IN EX-MERIDIAN STARS AND ASTERISMS

This final section moves on from latitude determination to consider the effect of precession on single stars and asterisms used for determining azimuth. An important distinction needs to be made between azimuths derived from stars (in which case precession will automatically be a factor) and azimuths based on bird migration paths. An example of the latter is when David Lewis was told in 1966 of a tradition in the Solomon Islands of islanders deducing the presence of a previously unknown island by the behaviour of birds, and following their flight path to discover and settle that land (Lewis 1994: 215). Although such a migration path ought to be independent of precession, stars can be used as a bridging mechanism for flight paths, as confirmed by Lewis when he writes, “The direction of the birds’ flight would be perceived in star compass or analogous terms” (Lewis 1994: 215). In other words, even if “following a bird migration path” is cited as the means of orienting a voyage, stars are likely to have been used in the day-to-day navigation, in which case precession will have been a factor.

Take for example a bar-tailed godwit (*Limosa lapponica*) approaching the great navigation temple or *marae* of Taputapuātea on Ra‘iātea (Society Islands) on a direct line from the Matariki constellation in the evening early in November of the late 13th century AD (a reasonable colonisation date of New Zealand according to Wilmshurst *et al.* 2008), the time of Matariki.<sup>5</sup> Although the normal flight path for godwits is further west (Gill *et al.* 2014: 119), they have been observed even further east than the Society Islands,<sup>6</sup> and passing over Ra‘iātea is plausible. If such a godwit flew on to New Zealand, it would fly in the direction of Māui’s Fishhook (Chauvin 2000: 96), or in other words, towards the tail of Scorpius. If the assumption was made that the godwit was making for distant land, and a voyage was undertaken keeping the Matariki constellation dead astern and Māui’s Fishhook ahead, the North Island of New Zealand—*Te Ika-a-Māui* (Māui’s Fish)—would have presented a forgivingly broad target. From a landfall at, say, Whakatāne, Māui’s Fishhook would now pass directly overhead, and Scorpius would form an elegant bridge connecting the North Island with Ra‘iātea.<sup>7</sup> From Whakatāne, the Matariki constellation in the northeastern sky would be approximately in line with Ra‘iātea. One corollary is that if voyages were determined by the flight paths of birds alone, azimuths determined from Google Earth or spherical trigonometry would still be true today, and would remain so irrespective of era, but any stars used to create a sailing plan based on a bird migration path would need to have precession taken into account. Thus if orientation is checked today—in archaeological work, for example—then even if orientations were nominally towards places, if stars were involved then allowance would need to be made for the action of precession. To give an idea of the magnitudes involved, the

azimuth of the Pleiades between AD 1300 to the present changes by a little under half a degree per century due to precession. Thus if a meeting house was built in Whakatāne in AD 1300, and was oriented towards Matariki (and so, Ra'īātea), and subsequent meeting houses were built on the same footprint up to the present, seven centuries later,<sup>8</sup> then the azimuth to Ra'īātea should still be identical (other than for minute tectonic movements) but the azimuth to Matariki would have altered by about three degrees.<sup>9</sup>

#### CONCLUSIONS

This article has explored precessional changes in the context of latitude and azimuth determination in Polynesian voyaging. A graph of changes in declination as a function of right ascension has been proposed as a way of understanding and quantifying the latitude change necessary to counteract the effects of precession on vertical star pillars, simultaneously rising star pairs, and latitude stars in the meridian, including zenith stars. It has been shown that for an easterly pair of stars, the movement needed over the centuries to keep the pillar vertical or the star pair rising simultaneously is opposite to when the pillar sets in the west. Also, depending on the right ascension of the stars, the magnitude of the change will be anywhere between zero and about 35 minutes of arc per century, both positive and negative. Finally, it has been shown that even in the absence of knowledge of longitude it is theoretically possible for alignments to have been made to distant places by means of the migration paths of some bird species, but if stars or asterisms were employed as navigational aids to these flight paths then precession ought to be factored in as part of any analysis of directions.

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#### NOTES

1. Northern Hemisphere navigators could find approximate north using the Pole Star, but between AD 1000 and AD 2000 its angular separation from the North Pole altered by about 1° per year. The magnetic compass was used by Europeans from about the 12th century, but the angle between Magnetic North and True North can vary by tens of degrees over long voyages (NOAA 2016), and the compass did not supersede older methods of navigation but rather was used as a bridging device for overcast and misty periods (Marcus 1956: 18). In the same

way, some Micronesian navigators even today only use the magnetic compass as a secondary orientation device to maintain headings between star observations (Gladwin 1970: 155; Lewis 1994: 109-10).

2. Some scholars prefer the term “windward landfall” to “latitude sailing” because in the absence of precise positioning it is prudent for sailing vessels to set a course so as to arrive windward of the objective, turning downwind on reaching the required latitude (Chauvin 2000: 111; Lewis 1994: 286-87).
3. Star coordinates also change due to a phenomenon known as proper motion, but these changes are orders of magnitude smaller than changes due to precession.
4. “The sky is said to have been low down formerly, and propped up from the earth with pillars...” (Henry 1907: fn, p. 102).
5. There is no universally agreed time of Matariki, also known as Makali’i in Hawai’i, Matali’i in Sāmoa, Mataliki in Futuna, Mataiki in the Marquesas, Matari’i in Tahiti and by a variety of similar sounding names even beyond Polynesia (Ruggles 2015: 2236). In Polynesia, it is “the first appearance of the Pleiades in the eastern sky at sunset” (Chauvin 2000: 113), in other words, in November sometime. For New Zealand Māori, Matariki is often its heliacal rising before sunrise (first appearance after a period when it has not been visible), in other words, in late May or early June. Or it may be the first new moon following this, or the first full moon, and there are also other ways of marking the New Year such as the first rising of Rigel (Puaka, Ngāi Tahu/Kāi Tahu; or Puanga elsewhere) (Williams 2013: 7).
6. Robert Gill (personal correspondence, 2015) observed a bar-tailed godwit in breeding plumage on Rangiroa, 400 km further west than the Society Islands, on 14 April 1988. This makes it possible that godwits have flown over or landed on Ra’iātea. Sooty shearwaters (*Puffinus griseus*) are another “long-haul” species that visits Ra’iātea and could have signalled the existence of distant islands (Shaffer *et al.* 2006: 12800). The place of birds in orientation is supported by folklore, for example in the following ancient song recorded by Teuira Henry (1928: 123):

*Above is Te-ao-uri,  
Below is Te-ao-tea,  
All is encompassed by the birds  
As they look towards the east!*

Other examples are found in Stimson’s (1957: 73) interpretations of oral literature, such as the “sea road of the Black-heron”.

7. The “claws” of Scorpius extend a little further north than Ra’iātea (which has a latitude of about 17° S), and the furthest southern extent of the tail is 42° S (for comparison, Kaikōura has a latitude of about 42° S, and Cape Rēinga about 34° S).
8. Whether or not this has ever happened remains speculative. Michael Linzey (2004: 16) states that “the ridge pole also points to Hawaiki and New Zealand (as directions in front and behind in cosmological space)”, and Amoamo *et al.* (1984: 27) emphasise the symbolic significance of directing the *tāhu* ‘ridgepole’ towards the sea and Hawaiki. However, on a more literal, less conceptual level,



at present there is as yet no proof that structures were in fact oriented in this way, and initial findings show that pragmatism was evident in the way that meeting houses were oriented in sympathy with confined land sections, and orientation preferences also needed to be balanced with competing customs such as welcoming (Goodwin 2013).

9. For locations elsewhere in New Zealand, the azimuth to Ra‘iātea diverges about 5° in the one direction (for Paihia) and a degree and a half the opposite way (for Cape Saunders).

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#### ABSTRACT

Latitude and azimuth determination were crucial for Polynesian navigators, supplemented by techniques such as observations of swells, birds and expanded landfalls. Longitude could only be determined by dead reckoning. Both latitude and azimuth made extensive use of stars, which alter gradually over the centuries due to precession, the movement in the Earth's axis of spin. Knowledge about the effects of precession can assist scholars in weighting one voyaging date higher than another, or in providing possible reasons why certain voyages took place in a particular era if navigation methods depended on star configurations that were particularly favourable in that era. The influence of precession on stars used for different methods of latitude

determination is not intuitive. In this article a graph of the change in declination per century as a function of right ascension is proposed as a way of understanding the influence of precession on different methods of latitude and azimuth determination, and of deducing when and where significant configurations occur.

*Keywords:* Polynesian navigation, archaeoastronomy, zenith stars, star pillars, star compass, precession

#### CITATION AND AUTHOR CONTACT DETAILS

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## REVIEWS

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Barclay, Barry: *Our Own Image: A Story of a Māori Filmmaker*. Minneapolis: University of Minnesota Press, 2015. 128 pp., photographs. US\$20.00 (softcover).

JO SMITH  
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This 2015 reprint of Māori filmmaker and philosopher Barry Barclay's (Ngāti Apa) first book by the US-based publisher University of Minnesota Press signals the ongoing significance of Barclay's work both nationally and internationally and offers a still-timely toolkit to understanding both local and global Indigenous media production. The original *Our Own Image* (without the subtitle now present) was published in 1990 in the wake of the success of Barclay's first feature film *Ngati* (1987), a film widely described as a world first in Indigenous fiction feature film production. Shown in a number of international film festivals that to which Barclay and colleagues travelled, the book emerged from conversations with Indigenous communities in other countries as well as the lessons learnt by Barclay in his filmmaking practices leading up to *Ngati*'s release. These practices included, among others, the ground-breaking documentary series *Tangata Whenua* (with historian Michael King and Pacific Films producer John O'Shea), screened on New Zealand television in 1974, the made-for-television Tūhoe documentary *Journeys in National Parks: Te Urewera* of 1987, *Ngati* itself, and the film training course run by Barclay at the Hawke's Bay Polytechnic at Taradale.

In general, *Our Own Image* discusses the technological, institutional and, most importantly, cultural challenges facing Māori filmmakers in the 1980s and 1990s. The book subsequently formed the basis for what Barclay would later describe as Fourth Cinema, a significant and internationally influential concept referring to filmmaking shaped by Indigenous voices and ways of knowing within cultural contexts conditioned by non-Indigenous interests. Invaluable then, *Our Own Image: A Story of a Māori Filmmaker* remains extremely relevant today in light of the continuing production of Indigenous media both locally and globally. At the time of writing this review Taika Waititi's fourth feature film *Hunt for the Wilderpeople* (2016) enjoyed success at the box office while Lee Tamahori's *Mahana* (2016) signaled the return of significant Māori actor Nancy Brunning to New Zealand screens. In this same month, New Zealand television provider TV3 launched its new Māori current affairs programme *The Hui* with host Mihingarangi Forbes, a former employee of the Indigenous network Māori Television, established in 2004. More globally, the flourishing of Indigenous media can be seen in the 2008 establishment of the World Indigenous Television Broadcasters Network (WITBN), including television providers from Canada, Taiwan, Australia, Hawai'i, Scotland and the Sami people of the Arctic area of Sápmi. International arts festivals such as imagineNATIVE (now linked with NZ-based Ōtaki Māoriland Film Festival), launched in 2000, continue to showcase emerging Indigenous talent. Feature films such as the Aboriginal Australian

*Samson and Delilah* (2009) and Inuit-produced *Before Tomorrow* (2008) continue to assert the perspectives and experiences of those dispossessed through processes of colonisation. As such, the 2015 reprint of *Our Own Image* reminds its readers of the persisting challenges and responsibilities facing Indigenous media makers today, at the same time as it provides conceptual resources for understanding the complex conditions of production and consumption surrounding historical and contemporary Indigenous creative practices.

The book includes seven chapters with a foreword by Jeff Bear (First Nation Maliseet), president of Urban Rez Productions and fellow filmmaker who first met Barclay at the Australian Independent Documentary Conference held in Perth in 2001. The book also includes a letter from Barclay early on to the Chief Dan George Memorial Foundation in Vancouver, framing *Our Own Image* as a *koha* 'gift' to the people who looked after Wi Kuki Kaa and himself on their visit to Canada in October 1987. Such a beginning gives clear guidance to any reader that the book is designed as a conversation between Indigenous peoples (a form of "talking in" in Barclay's terms). Yet the book also includes a generosity of spirit that invites non-Indigenous readers to listen in and perhaps learn something about those who endeavour to affirm alternate ways of being, knowing and doing in the face of enduring constraints of a majority culture.

Chapter one is entitled "A Fitting Companion", a reference to the ways in which filmmakers need to ensure that the camera that is taken into communities acts with integrity and dignity to affirm the people of that place. This chapter discusses Barclay's experiments with film to make a camera "a good listener" while making *Tangata Whenua*, so that the flow of talk between participants could be supported and the *mana* 'authority, prestige' of the *kōrero* 'conversation' and community upheld. Chapter two, "The Other Eye", refers to the routine scrutiny and judgments endured by Māori when the majority culture holds the purse strings. This chapter offers reflections on funding imperatives that demand that Māori filmmakers represent "real Māori values", and Barclay relates a desire to make a "Māori kung fu film" to disrupt the pious expectations placed on Māori projects by both Māori and Pākehā alike. Barclay also invites his reader to imagine a reverse situation where non-Māori had to present their ideas to a Māori-controlled funding body to get their creative projects supported. This provocation, while briefly stated, provides insights into the depths of Barclay's thinking which offer the possibility of developing Treaty of Waitangi-based initiatives across New Zealand's wider civil society in ways that could have enduring and transformative effects, if only there was collective will to do so.

Chapter three, "Setting Out", begins by invoking the act of sailing, and then provides insights into the behind-the-screen practices that are an integral part of the Fourth Cinema conceptual framework. Dynamics that feed the creative and cultural processes of "being on location", training courses that raise the ugly face of institutional racism within Pākehā-run organisations, and the importance of *kai* 'meals, food' to a film shoot and to community are all layers of the complex encounters that go into Māori media making. This chapter reminds the reader of how Barclay, Don Selwyn, Selwyn Muru, Merata Mita and many others spent a great deal of their time offering mentoring and guidance to those interested in entering the media industry. Chapter four, "A Pen Among Strangers", reflects on the principles of domination

underpinning majority culture film scripts, influenced by both Hollywood and earlier forms of colonising cultures. This chapter raises the question of audience and who a Māori scriptwriter might labour for: is it to provide an “ethnic touch” to a film that might appeal to a broad non-Māori audience? Or is it a script for those people understood as your own? The chapter ends with the reflection on how, while access to a pen (as a mode of representation) may be a good first step for Indigenous creatives, true power is expressed when Indigenous forces shape the overall conditions of production.

The final two chapters, “Talking In” and “The Held Image”, most explicitly articulate the ethics of filmmaking underpinning Barclay’s practices and philosophies. In the former chapter Barclay outlines a significant concept in Indigenous media studies, the dual mode of address of “talking in” (designed in terms specific to the community being engaged with) and “talking out” (with a focus on communicating to a broader audience). Arguing that both modes are necessary, this chapter goes on to unpack the notion of a “communications *marae*” ‘meeting place’ where Māori ways of knowing and doing ground subsequent acts of communication while nonetheless remaining hospitable to non-Māori audiences. *Our Own Image* is itself a working demonstration of this model of communication. The final chapter, “The Held Image”, raises the issue of *kaitiakitanga* ‘guardianship’ and offers thoughtful insights on the responsibilities of the media maker when people have gifted stories and images to them. Not only relevant to those institutions which house Indigenous sounds and images (Barclay’s later book *Mana Tuturu* develops this line of enquiry), this final chapter also holds lessons for those who participate in making media, as well as those who consume and distribute such media at a time when media platforms are diversifying and the reproduction and circulation of media is ever-intensifying. Under such conditions, *Our Own Image* is a timely reprint relevant not only to Māori media makers or global Indigenous media studies, but to all who have an interest in the ethics and politics of media production and consumption.

Chang, David A.: *The World and All the Things Upon It: Native Hawaiian Geographies of Exploration*. Minneapolis: University of Minnesota Press, 2016. 344 pp., biblio., illus., index, notes. US\$27.00 (softcover).

JAIME ULUWEHI HOPKINS  
*University of Hawai‘i, Mānoa*

It seems rather natural to see one’s world through one’s own eyes. This is as true for individuals as it is for entire societies and nations. But for the last two centuries, the story being told through education and popular media centres the Euro-American viewpoint at its core. It has been this perspective dominating politics, economics, history and academia. David Chang’s book is a necessary intervention in that ongoing narrative. He reveals a Hawaiian-centred world, exploring how Kanaka Maoli, specifically people of Hawaiian ancestry, viewed their geography, and the constructions that emerged once they expanded that landscape to include the entire globe in the post-Contact period.

Geography is simultaneously physical and abstract. We can all see the same river, the same mountain peak, but the conceptual significance of that feature can be radically different from one person to the next. A 19th-century capitalist might have seen a river as hydroelectric power, or a transportation system, and would have proceeded to manipulate it into a form better suited to achieving those ends. A Kanaka Maoli might have seen that same river as the life force that waters his or her *lo'i* 'taro fields', thus providing for his family, which in turn motivated him to honour that river as a god-like manifestation to ensure its continual flow. The value judgments placed upon each of these abstract perspectives supported the "civilised" vs "savage" trope that has long dominated history. Chang turns that narrative around by focussing on the Kanaka Maoli concept of geography and illustrating how they used their own perspective to counteract the imposed "savage" label and instead presented as a "civilised" nation using the coloniser's own criteria. For example, while geography books and missionaries taught that the Holy Land was far away from Hawai'i, they also taught that what made it holy was that sacred acts occurred there. Kanaka Maoli skilfully used these same justifications by presenting a wealth of godly feats performed upon these islands using a knowledge base referred to as *wahi pana* 'storied sites', thus claiming many Hawaiian locales to be sacred as well. Chang's book is full of such flipped perspectives, challenging the idea that the people of Hawai'i ever saw themselves as anything less than civilised, by anyone's standards.

One of Chang's overarching themes is that education, and specifically geographical thought, was the continuation of an ancient practice, regardless of whether or not the content being taught was considered "Western" in origin. He begins with the idea that Hawaiians already knew of a wider world, had names for many distant lands and incorporated that knowledge into the earliest textbooks and lesson plans. Geography textbooks were used as a vehicle to reinforce a racially constructed hierarchy, but most of the teachers were Kanaka Maoli and utilised those books in ways that circumvented those destructive ideas. Chang analyses each of the geography textbooks used throughout the 19th century, teasing out the perspectives in each. All were copied from existing primers used in the United States and changed to suit the Hawaiian classroom, but the amount of Kanaka Maoli influence over each book decreases as the century progresses. The earliest textbook was translated with a significant amount of help from Kanaka Maoli, as is evidenced by the language used in the book. For example, situational words such as *nei* 'here/near' and *aku* 'there/away/far' which are commonly used in Hawaiian language are generously sprinkled throughout the text, constantly reinforcing a reader's view that Hawai'i is "here", the Pacific is "here", and other places are "there". This original book was also printed in Hawai'i, so the first few maps show a Pacific-centred world, progressively zooming in on the island nation. This earliest book also features ample information about "this" Pacific world. As new textbooks were produced through the 19th century, and as power structures changed within the Hawaiian educational system, this viewpoint changed, gradually ending up with the Atlantic-focussed geography that is so prevalent today.

Because geography was used to also teach racial supremacy (or rather, racial inferiority), the last half of Chang's book focusses on race relations between Kanaka Maoli and other peoples who were subjugated by this Western-constructed hierarchy. The author focusses generously on Kanaka Maoli–Native American relations on the

West Coast of North America, where many Kanaka Maoli sailors ended up settling. Because of their non-white appearance in a politically white-dominated land, they faced a level of racism that individuals remaining in Hawai‘i did not experience. Throughout most of the 19th century, missionaries in Hawai‘i were hard-pressed to train the people to see themselves as inferior, but in a place like California, where the law usually favored the white settler, Kanaka Maoli increasingly came to associate with and assimilate into Native American societies. It cannot be assumed, however, that in doing so they stopped identifying themselves as belonging to the Hawaiian nation. Chang focusses on specific individuals who spent their lives with their adopted Native American kin, but who also built a Kanaka Maoli stronghold in this distant land. A portion of a chapter also examines how sailors from various Pacific nations interacted mainly with African Americans along the East Coast of the United States. Since these interactions were more transient in nature, they undoubtedly generated children of Pacific ancestry, but did not necessarily create the same kind of communal connections that emerged between the West Coast and Hawai‘i. In the racial hierarchy presented in geography books, Kanaka Maoli were ranked slightly higher than Native Americans, and significantly higher than Africans. Yet, interactions along both coasts indicate that, despite their supposed higher ranking, Kanaka Maoli often sided with those deemed “inferior” over the course of the 19th century. It is, however, erroneous to assume that they had many opportunities to choose otherwise, nor that they would have sided with white settlers if they had the chance. Part of Chang’s analysis includes the regard Kanaka Maoli held for the Haole ‘foreigner’ (but also a term that increasingly came to identify people of white ancestry), and how that esteem decreased over the course of the century.

Chang’s work earns greater value for using Hawaiian-language sources to inform his research. Scholars of French history must speak French, yet, up until very recently, scholars of Pacific history were not required to learn the language of the island group they study. The result was that most academic works about the Pacific (Hawai‘i included) were assembled using research composed only in Western languages. This trend is changing as the wealth of the indigenous archive is finally becoming known. Chang has become another participant in this still-young practice, and let us hope that he sets an example for others.

Ian Conrich and Herman Mückler (eds): *Rapa Nui—Easter Island: Cultural and Historical Perspectives*. Berlin: Frank & Timme, 2016. 250 pp., biblio, illustrations. €37.20 (cloth).

CARL P. LIPO

*The State University of New York, Binghamton*

Since Europeans first encountered the island in 1722, stories about Rapa Nui (Easter Island, Chile) have been a thread woven into the cultural fabric of Western culture. In a wide variety of books, movies, art and stories, Rapa Nui is characterised as a mythical place that is simultaneously ancient, exotic and conceptually challenging. Following this thread, generations of explorers, merchants, naturalists, travellers,



tourists and researchers have been drawn to this tiny island in a remote part of southeastern Polynesia. The accounts, drawings and photographs from these visitors to the island have then continued to inspire countless legends of lost continents, ancient civilisations, secret rituals, untranslated languages and mysterious statues. Generally speaking, these tales stem from observations made on the island of Rapa Nui but are often dramatically exaggerated, reshaped and emphasised to reflect European desires and fears.

*Rapa Nui—Easter Island: Cultural and Historical Perspectives*, a multi-authored volume, features a wide-array of authors documenting the ways in which Rapa Nui has woven its way into European culture. The central core of this work describes how the island has inspired the myth of the lost continent of “Mu” (Dominic Alessio), feeds exotica to art appearing on music albums (Dan Bendrups), forms the setting of a French cartoon series (Jennifer Wagner), has led to claims about extraterrestrial visitors (Roy Smith), and serves as a backdrop for the adventures of fictional characters from Scooby-Doo to Dr. Who (Ian Conrich). As a consequence, if one is expecting this book to contain extensive new information about Rapa Nui (i.e., the island, its archaeological record, the people who live there and so on), the content within the book is going to be at least partially disappointing. Roughly half of the book focuses on the *idea* of Rapa Nui and how this idea has played a role in European cultural phenomena. For many, the topics here will be amusing: we learn of aliens, fantastic adventurers, magic and other classic *moai* ‘monolithic human figures’ inspired tropes. For those who study Rapa Nui as a physical place and people, however, some of the chapters may be a bit naïve or demonstrate a shallow use of the primary academic literature. For example, Bendrup’s chapter on Rapa Nui-based album cover art argues that CD covers are used as they are “durable in withstanding the island’s subtropical environments” (p. 75), an assertion that begs the question as to what alternative choices island musicians would have in recording and distributing their music. Similarly, Alessio’s chapter references secondary newspaper articles about archaeological findings rather than the original sources, leading to a somewhat skewed interpretation of the findings. Yet, given the theme of the volume, the overall emphasis on European imaginings of Rapa Nui and the lack of empirical evidence is certainly consistent.

The book, however, also features content that centres more directly on Rapa Nui in terms of the island’s environment, people and material culture. Three archaeologically-focused contributions, offer interpretations of the use of caves in prehistory (Ruth Whitehouse), island-centric perceptions of the island’s archaeological landscape (Sue Hamilton), and a consideration of the “risk” perception that must have accompanied potential failures during monument construction (Colin Richards). These chapters provide interesting and plausible takes on the archaeological record, but like the rest of the volume’s chapters, are firmly embedded in extrinsic interpretation. The chapter on Rapa Nui caves, for example, reflects that these spaces have an effect on the senses and induce fear for visitors, a claim that is largely based on the personal experiences of the author in Mediterranean caves. This claim is then used to argue for their purpose in “rites of passage”. It is impossible to determine, however, whether caves induced such emotions among Rapanui in the past. Such claims entirely reflect

the logic of an outside observer. For Rapanui living on an island riddled with caves, there is no necessary reason to think that they would have experienced these spaces in the same way as a present-day European. But once again, given the shared theme of the book, this is a consistent logic.

The three last chapters of the book (Rafał Wiczorek, Albert Davletshin and Tomi Melka) explore the character and diversity of the famously undeciphered Rongorongo script. Even these chapters, however, tend to focus on an interpretative reading rather than being strongly analytic and thus reflect views and opinions of outsiders more than placing Rapa Nui phenomena in an island and historical context. For the linguistic chapters, the dependency on external logic is done out of necessity: lacking a translation, researchers here are forced to use descriptions of non-randomness as a means of extracting patterns from these cryptic characters. Whether they are successful in achieving this goal, however, is impossible to say, but the chapters prove useful in their documentation of the still-enigmatic script. Interestingly, the chapters on the Rongorongo script are the best documented of the volume and provide original data and detailed analyses.

There are two chapters that can be distinguished from the majority of the book. The first is the relatively standard historical documentation by Hermann Mückler of Walter Knoche and his visit to the island in the early 20th century. Like many Europeans before and after Knoche, he is afforded his own story and recognition of the contributions made toward European knowledge of the island. Knoche's visit was just a little under two weeks in duration and his descriptions have not contributed much to subsequent research. The point of the chapter is to recognise that Knoche's ethnohistoric descriptions, photographs and collections pre-date those of more widely-known Katherine Routledge, who arrived a few years later and after the death of a number of key elderly islanders.

The other distinctive chapter is the most intriguing of the volume. Maxi Haase's chapter on "Popular Perceptions and Local Negotiations of Easter Island Culture" provides an outsider view of some of contemporary struggles of islanders to redefine themselves through tradition, while also recognising that much of the fame of Rapa Nui comes from the myths and tales told by generations of Europeans who now contribute economically via the recent massive influx of tourists. As Haase points out, the narrative of Rapanui people depends on indigenous voices who are taking increasingly control of the administration of the island and the message that they wish to share with the world.

Overall, this volume serves to bring together a disparate group of researchers with wide-ranging topics centred on ideas about Rapa Nui. In that sense, the book is an excellent demonstration as to how this tiny island has permeated and influenced popular and academic European discourse. Based on sometimes wildly inaccurate representations, the island has served as an exotic canvas for the extraordinary and these edited chapters serve to document and explore some of these remarkable flights of fancy. Ideally, with better primary documentation and greater access to first-hand observations, the gap between the European imaginings and the historical record of Rapa Nui will close, while also leading to new, better-grounded narratives that fully embrace the details of empirical record of this remarkable island.

Tomlinson, Matt and Debra McDougall (eds): *Christian Politics in Oceania*. New York, NY: Berghahn Books, 2013. vix + 235 pp., bib., figs, index, maps. US\$90.00 (hardcover).

ROGER I. LOHMANN

*Trent University*

Christian domination across Oceania, fractured along denominational and cultural lines, has political consequences. This fine volume explores the intersections of Christianity and politics in relatively young and weak states of the Western Pacific. The chapters mainly describe and analyse local struggles, losses and triumphs during ethnographic moments when cultural anthropologists were living in the thick of things, while touching on broader regional and temporal perspectives.

In the introduction, Tomlinson and McDougall point out that Christianity is very frequently treated as an assumed basis for agreement in the cases from Papua New Guinea, the Solomon Islands, Vanuatu and Fiji featured in this book. Churches often serve as focal points for all sorts of political concerns, they argue, because while states are often distant and ineffectual, churches are often socially present and vibrant venues for action. Politicians, governments and constituents make ubiquitous references to Christianity. However, while both churches and states have universal pretensions that may inspire common identity, cultural divisions continually give the lie to claims of national or cosmic unity. It is inaccurate to label these countries “nation-states” (e.g. p. 5) since they comprise multiple ethnic and cultural aggregates, including indigenous and exogenous religions as well as multiple versions of Christianity.

Courtney Handman’s chapter, “Mediating Denominational Disputes: Land Claims and the Sound of Christian Critique in the Waria Valley, Papua New Guinea”, discusses the tension between the universalistic aspirations of Christianity and on-the-ground political realities. Her examples are a land dispute between denominations and questions about the appropriateness of locally traditional drums versus introduced guitars for church services. In the first situation, a church leader claimed authority from God. Resistance exposed speaking on behalf of a deity to be neither politics-free nor universally “true”, but rather an act of domination. In the latter situation, drum use signalled a critique of the competing denomination.

Michael W. Scott’s chapter, set in Solomon Islands, compares competing images and evaluations of Makira Islanders’ notions about an underground army. These discourses draw both on pre-contact beliefs in underground, dwarfish indigenous people who represent true, primordial custom (*kastom*), and cargoist ideas deriving from World War II and recent civil war experiences. The dominant view is that the underground army will bring back a purified customary way of life on earth that is conflated with Christian ideas of Heaven. Scott compares this to the view of a Seventh Day Adventist couple who conflate the underground army with Satanic powers.

Matt Tomlinson’s chapter considers how denominational politics affect Christianity in Fiji. Although his focus is on a particular sermon reflecting a fleeting moment following a coup, he contextualises this in the broader history of Fiji since missionaries arrived in 1830. Tomlinson shows how religious fashions respond to and influence political developments in a country’s history. The sermon, associated with the

breakaway New Methodist denomination, called on listeners to accept the new government since their coup's success proved divine approval. This denomination emphasises newness and chatty prayer rather than the formulaic prayer of Methodism.

Annelin Eriksen's "Christian Politics in Vanuatu: Lay Priests and New State Forms" relates recent theorising about how states work to the contemporary denominational situation in Vanuatu. Non-governmental organisations such as churches carry out state functions of organising people, distributing resources and providing services. How these developments relate to non-state political systems and non-Christian religions in this part of the world is not described.

Debra McDougall's chapter, "Evangelical Public Culture: Making Stranger-Citizens in Solomon Islands", traces knock-on effects of Billy Graham's 1959 Australian tour. It inspired people to seek personal evidence of supernatural favour and helped generate denominational diversification and acceptance of non-Christian religions including Islam. She illustrates this with the sect-hopping religious lives of two young men. Transcending the cacophony is evangelical drive and charismatic worship, which connects people from different ethnic, geographic, linguistic and religious orientations.

John Barker's "Anthropology and the Politics of Christianity in Papua New Guinea" shows that the preponderance of cultural anthropologists working there has led to an emphasis on local communities rather than state-wide perspectives. Work on the relationship between Christianity and PNG politics has addressed connections between Christianity and traditional leaders, millenarian movements, vernacular Christianity, conversion and the relationship between continuity and change.

Goeffrey White argues in "Chiefs, Church, and State in Santa Isabel, Solomon Islands" that the state has yet to be clearly conceptualised in the "government" component of the three-part Melanesian paradigm of government, church and custom. He documents 30 years of events surrounding the installation of chiefs and bishops, and fraught efforts to create a meaningful role for chiefs as both part of and distinct from the state. While imagery of "traditional" chiefship and Christian institutions are well integrated, the state appears stodgy and artificial.

Joel Robbins's chapter asks, "Why Is There No Political Theology among the Urapmin?" His answer is that roles requiring self-assertion, critique and conflict ("politics") are separated from those expressing religious and social unity in their identity as charismatic Christians. I wonder if restricting "politics" to individual wrangling as opposed to organising around common sacred assumptions might not introduce confusions. Urapmin pastors and deacons are also political leaders, but they maintain common purpose rather than expressing controversial views. As Robbins says, it is helpful to "stretch" culturally limited definitions of politics to fit the varying empirical realities that anthropologists discover.

Webb Keane's afterword points up several patterns emerging from the volume. Christianity both unifies and divides people. There is a widespread assumption that morality must or should have a basis in religion, and in Christianity in particular. And, Christianity's explicit rules exist in tension with implicit moral systems. This high-quality and original volume inspires us to ask what is distinctive about Christian politics versus that of other religions and secular ideologies. Answering this question enables us to recognise the uses and dangers of politically charged Christianities and other supernaturally based truth claims.

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PUBLICATIONS RECEIVED\*

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June to August 2017

Frimigacci, Daniel: *Archéologie de 'Uvea Mama'o*. Noumea: l'Institut d'archéologie de la Nouvelle-Calédonie et du Pacifique, 2016. 398 pp., appendices, biblio., illus. XPF4995, €41.86 (soft cover).

Sand, Christophe: *Bilan 2010-2015*. l'Institut d'archéologie de la Nouvelle-Calédonie et du Pacifique (IANCP). *Archeologia Pasifika* 6. 2016. 142 pp., illus. (soft cover).

Sand, Christophe: *Kibô: Pétroglyphs du pays Kanak (Petroglyphs of the Kanak Country)*. Édité par l'Institut d'archéologie de la Nouvelle-Calédonie et du Pacifique (IANCP). *Archeologia Pasifika* 7. 2016. 56 pp., illus. (soft cover).

Silva, Noe K: *The Power of the Steel-tipped Pen: Reconstructing Native Hawaiian Intellectual History*. Durham: Duke University Press, 2017. 288 pp., biblio, glossary, illus., index, notes. US\$25.95 (soft cover).

Skelly, John Robert and Bruno David (eds): *Hiri: Archaeology of Long-distance Maritime Trade Along the South Coast of Papua New Guinea*. Honolulu: University of Hawaii Press, 2017. 570 pp., biblio, illus., index. US\$85.00 (cloth).

Veys, Fanny Wonu: *Unwrapping Tongan Barkcloth: Encounters, Creativity, and Female Agency*. London: Bloomsbury, 2017. 227 pp., appendix, biblio, glossary, illus., index, notes, plates. AUD\$130.00 (cloth).

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

MINUTES OF THE 126th ANNUAL GENERAL MEETING  
OF THE POLYNESIAN SOCIETY (INC.), 24 MAY 2017,  
DEPARTMENT OF MĀORI STUDIES,  
UNIVERSITY OF AUCKLAND.

*Present:* Dr Michael Reilly in the Chair and 9 members.

*Apologies:* Dr R. Benton, S. Mallon, R. Hooper  
Carter/Allen: “That the apologies be sustained.” Agreed.

*Minutes of 2016 AGM:* Goldsmith/Macdonald: “That the Minutes be received as a true account of the meeting.” Carried.

*Presentation and Adoption of the Council’s Report*

Dr Michael Reilly presented and spoke to the Council’s Annual Report.

- The Society relies heavily on the Institutional Subscriptions and the Society is able to maintain its operations even though there has been a significant decrease in Ordinary members. The decrease in members could also be attributed to the online accessibility. Payment from online providers helps with income revenue and therefore we prefer not to increase subscriptions this year. Annual dues and subscriptions cover production and postage of the *JPS* and the Society’s running expenses. Although member dues and subscription payments do not cover other expenses, income from other sources (e.g., royalties on publications) help cover these.
- Online access has been provided to 94 individuals and 74 institutions.
- The Society’s website and Facebook page are maintained by designated Council members who post *Journal* contents and information regarding membership, submission of manuscripts, etc. Contents and information regarding membership are also sent to several appropriate newsletters and websites. Having the *Journal* online also is publicity.

Carter/Allen: “That the Report of Council be received. Carried

*Presentation and Adoption of Annual Accounts*

- Annual accounts have been completed for 2016 and were presented for information by the Hon. Treasurer Rangimarie Rawiri.
- The Reviewers report was attached to the Annual Accounts and the Treasurer noted: The Accounts are prepared on a cash basis—i.e., people who have not paid do not receive the *Journal*. The Income derived from royalties and copyright fees has enabled us to maintain the membership fees at the current level. The decline in

full membership has been offset by growing online subscriptions. Council will continue to monitor the effect of online access to the *JPS* on subscription income and the extent to which payments from online providers helps compensate for any income decline.

Macdonald/Sheppard: “That the 2016 Accounts be accepted.” Carried.

#### *Honoraria*

Goldsmith/Carter: “That the honoraria for the year 2016 be at the same rate as 2015, and that they be paid.” Carried.

#### *Presentation and Adoption of the Editor’s Report*

- In June of 2016 Judith Huntsman retired as Co-Editor of the *Journal*, with Melinda Allen assuming full editorial responsibilities from that point forward. Throughout the year, the Honorary Editors were well supported by the editorial team: Ethan Cochrane and Lyn Carter as Book Review Editors and Dorothy Brown as Editorial Assistant. Hamish Macdonald continued to provide exceptional services as Production Editor and Manager of the *Polynesian Society* website (<http://thepolynesiansociety.org/jps/index.php/JPS/index>). Melinda thanks the editorial and production team, and the Council, for their support throughout the year, along with Council Secretary/Treasurer Rangimarie Rawiri, who oversees the *Journal* distribution and financial affairs. The many referees who gave generously of their time and provided valuable feedback to the authors are also recognized and thanked; they are crucial partners in our efforts to maintain the high quality of the *Journal*.
- Currently manuscript submission and acceptance rates are healthy. Issues are appearing online in a timely manner, with only minor lags in the production of print copies. We continue to solicit Special Issues, the most recent being the September 2016 issue: *Ceremonial Architecture in East Polynesia: Development and Variability* with Guest Editor Guillaume Molle of The Australian National University.
- The *Journal* metrics continue to improve and *JPS* now ranks 52nd out of 84 Anthropology journals worldwide (Thomson Reuters Journal Citation Reports, 2016). Our 2016 *Impact Factor* was 0.607, higher than some other multi-disciplinary journals in the region. *JPS* also has a stand-alone page on the academic site *Researchgate*, which shows annual increases in use of and citation rates for *JPS* articles ([https://www.researchgate.net/journal/0032-4000\\_The\\_journal\\_of\\_the\\_Polynesian\\_Society\\_Polynesian\\_Society\\_NZ](https://www.researchgate.net/journal/0032-4000_The_journal_of_the_Polynesian_Society_Polynesian_Society_NZ)). Data from *Journal Citation Reports* shows improving annual metrics over the last few years, largely the result of our CrossRef membership and implementation of DOIs.
- Financial data provided by Secretary/Treasurer Rangimarie Rawiri indicates *Journal* costs for the period 1 May–31 August were as follows: June 2016: Layout \$1408; Print \$3301, March 2016: Layout \$1320; Print \$3398.
- We are currently in the process of obtaining quotes for additional copy editing support due to personnel availability in the second half of 2017, to reduce the Editor’s workload, and to insure stability and consistency going forward. A goal for the coming year is to make better use of the online submission system. It has the potential to be a more robust archive of submitted and revised manuscripts.

It also could be used more effectively to communicate the progress of individual submissions and to automate routine communications to authors and referees. Some authors have indicated difficulties in using the online submission system—the team will follow up on these concerns and improve instructions where possible.

### *Facebook Update*

Ben Davies continued as webmaster for the Society's *Facebook* page (<https://www.facebook.com/ThePolynesianSociety>) and assisted Hamish with the website as appropriate. Highlights for the year include:

- The Society now has 991 followers, up from 817 in 2016.
- Most issue publication notices attract around 1000 views, except the December issue, which attracted less than 400; this was attributed to the announcement being made during the holiday period.
- Experimentation with a “photosphere” (a 360-degree panorama) post in August, taken from one of the *pa* sites in Ngaruawahia was successful, attracting around 1000 views (<https://www.facebook.com/ThePolynesianSociety/posts/654694611349544:0>)

Huntsman/Sheppard: “That the Hon. Editor Report be adopted.” Carried.

### *Election of Officers*

Having been duly nominated and seconded, the following were elected to hold office until the year 2018 AGM:

President: Richard Benton  
 Hon. Secretary: Rangimarie Rawiri  
 Hon. Treasurer: Rangimarie Rawiri  
 Hon. Editor: Melinda Allen

### *Election of Council Members*

The following, whose nominations were duly nominated and seconded, were elected as Members of the Council for two years: L. Carter, H. Macdonald, M. Muru-Lanning, M. Reilly.

### *Election of Reviewers:*

Rawiri/Allen: “That Tane & Assocs., Chartered Accountants be the elected Reviewers.” Carried.

### *General Business*

There being no more business, the Chair thanked members for their attendance and declared the 2017 AGM meeting closed at 6:00pm

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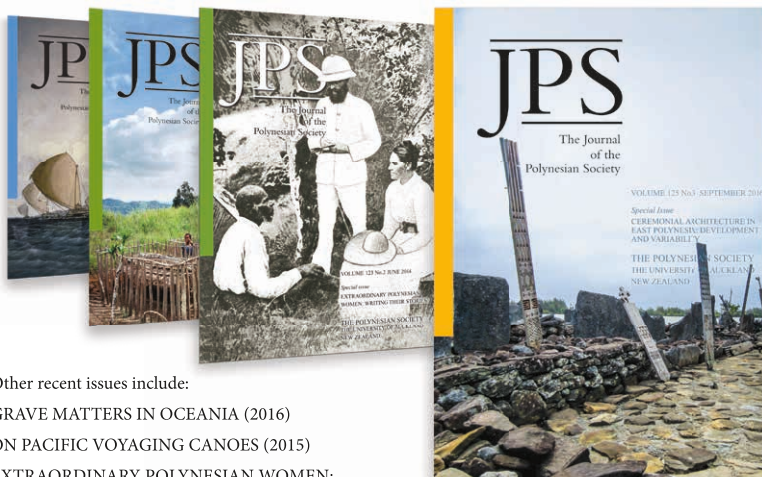
Members reconvened for the PRESENTATION OF THE NAYACAKALOU MEDAL to Assoc. Prof. Judith Huntsman who then spoke on the topic “Treasures of Tokelau”



# The Journal of The Polynesian Society

## JPS SPECIAL ISSUES

The *JPS Special Issues*, collected articles on particular topics, can be purchased separately from journal subscriptions. The most recent *Special Issue* is *Ceremonial Architecture in East Polynesia: Development and Variability*. (September 2016).



Other recent issues include:

GRAVE MATTERS IN OCEANIA (2016)

ON PACIFIC VOYAGING CANOES (2015)

EXTRAORDINARY POLYNESIAN WOMEN:  
WRITING THEIR STORIES (2014)

TABUA AND TAPUA:

WHALE TEETH IN FIJI AND TONGA (2013)

COLONIAL GRIEVANCES, JUSTICE AND  
RECONCILIATION (2012)

To order print issues:

Please email the Society's Secretary ([jps@auckland.ac.nz](mailto:jps@auckland.ac.nz)) with your name, postal address and the issues that you wish to order. An emailed electronic invoice will be sent to you with a simple button link enabling payment using a credit card. Price per issue is NZD \$15.00 (+ NZD \$5.00 for international postage, + NZD \$2.50 for postage within New Zealand).

Quarterly issues over two years old can be electronically accessed without charge from [www.jps.auckland.ac.nz](http://www.jps.auckland.ac.nz). Refer to the back pages of this issue or our website ([www.thepolynesiansociety.org](http://www.thepolynesiansociety.org)) for a full list of the Polynesian Society's publications.

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## PUBLICATIONS OF THE POLYNESIAN SOCIETY

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The publications listed below are available to members of the Polynesian Society (at a 20% discount, plus postage and packing), and to non-members (at the prices listed, plus postage and packing) from the Society's office: Department of Māori Studies, University of Auckland, Private Bag 92012, Auckland, New Zealand. All prices are in NZ\$. Some Memoirs are also available from: The University of Hawai'i Press, 2840 Kolowalu Street, Honolulu, Hawai'i 96822, U.S.A., who handle North American and other overseas sales to non-members. The prices given here do not apply to such sales.

### MĀORI TEXTS

1. NGATA, A.T. and Pei TE HURINUI, *Ngā Mōteatea* (Part 1). New Edition of 1958 edition, 2004. xxxviii + 464 pp., two audio CDs, genealogies. 2004. Price \$69.99 (hardback).
2. NGATA, A.T. and Pei TE HURINUI, *Ngā Mōteatea* (Part 2). New Edition of 1961 edition. xxxviii + 425 pp., two audio CDs, genealogies. 2005. Price \$69.99 (hardback).
3. NGATA, A.T. and Pei TE HURINUI, *Ngā Mōteatea* (Part 3). New Edition of 1970 edition. xlii + 660 pp., audio CD, genealogies. 2006. Price \$69.99 (hardback).
4. NGATA, A.T. and Hirini Moko MEAD, *Ngā Mōteatea* (Part 4). New Edition of 1991 edition with English translation. xviii + 380 pp., two audio CDs, genealogies. 2007. Price \$69.99 (hardback).

### MEMOIR SERIES

14. OLDMAN, W.O., *The Oldman Collection of Maori Artifacts*. New Edition with introductory essay by Roger Neich and Janet Davidson, and finder list. 192 pp., including 104 plates. 2004. Price \$30.
15. OLDMAN, W.O., *The Oldman Collection of Polynesian Artifacts*. New Edition with introductory essay by Roger Neich and Janet Davidson, and finder list. 268 pp., including 138 plates. 2004. Price \$35.
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