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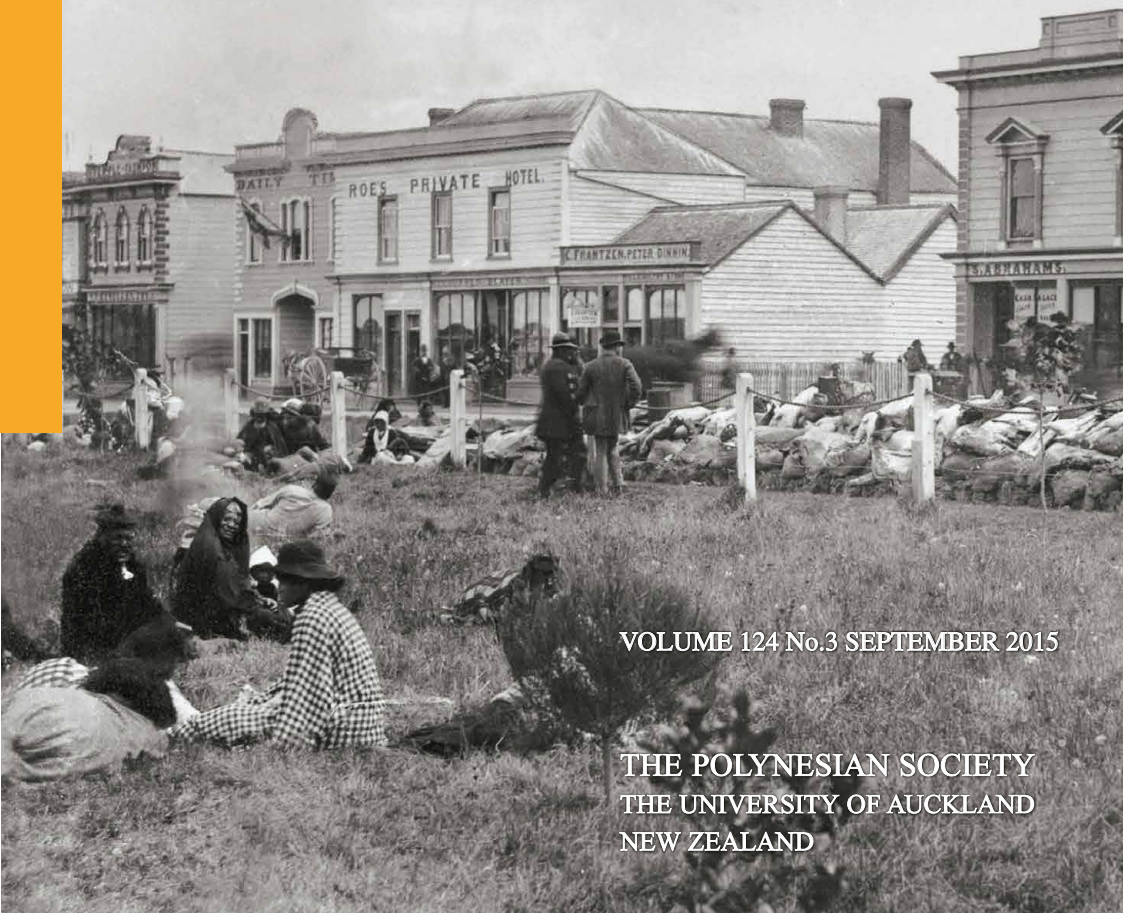

VOLUME 124 No.3 SEPTEMBER 2015

THE POLYNESIAN SOCIETY
THE UNIVERSITY OF AUCKLAND
NEW ZEALAND

THE JOURNAL OF THE POLYNESIAN SOCIETY

Volume 124 SEPTEMBER 2015 Number 3

Published quarterly
by the
Polynesian Society (Inc.), Auckland, New Zealand

Cover image: Land court meeting, Palmerston North.
Groups of Māori gather for a Native Land Court hearing around 1881.
Photograph attributed to George Shailer. Courtesy of the Palmerston
North City Library. Ref: 2008P_Tw2-3_TWH_1918

Published in New Zealand by the Polynesian Society (Inc.)

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ISSN 0032-4000 (print)
ISSN 2230-5955 (online)

Indexed in SCOPUS, WEB OF SCIENCE, INFORMIT NEW ZEALAND COLLECTION, INDEX NEW ZEALAND, ANTHROPOLOGY PLUS, ACADEMIC SEARCH PREMIER, HISTORICAL ABSTRACTS, EBSCO*host*, MLA INTERNATIONAL BIBLIOGRAPHY, JSTOR, CURRENT CONTENTS (Social & Behavioural Sciences).

AUCKLAND, NEW ZEALAND

Volume 124 SEPTEMBER 2015 Number 3

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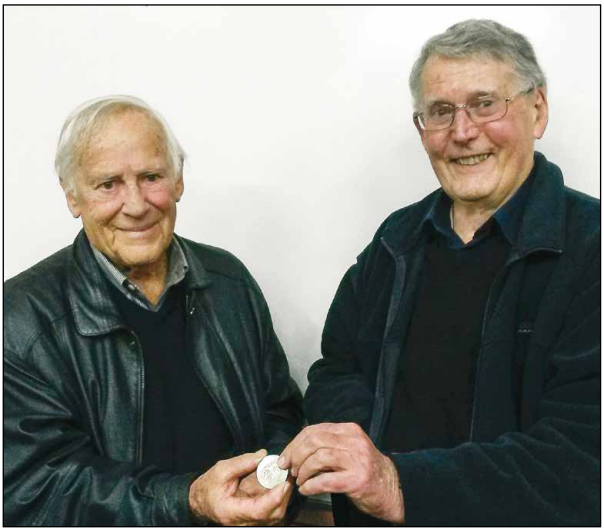

Professor Emeritus Keith Sorrenson (left) being awarded the Elsdon Best Memorial Medal by President of the Polynesian Society, Richard Benton, before the presentation of his paper on the evening of 29 July 2015.

THE LORE OF THE JUDGES: NATIVE LAND COURT JUDGES' INTERPRETATIONS OF MĀORI CUSTOM LAW

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This paper explores what I call the "lore of the judges": the collective wisdom of the Native Land Court judges on Māori custom law, especially in relation to land. I start with the first Chief Judge, Francis Dart Fenton, and end with Norman Smith, whose scholarly works of the 1940s consolidated the collective wisdom of the judges and remained essential texts on Māori custom law until recently—when another Chief Judge of the Court, E.T.J. Durie (1994), wrote a Māori-centric version of custom law.[1] The judges, in the best traditions of English law, were developing a Māori custom law, as judges before them had developed English common law, from their understandings of Anglo-Saxon custom. Custom was made into law, judge-made law. In time, those judicial decisions "became the source of the [English] common law" (McHugh 1991: 67), as common law judges assumed the power to "remould law" (Williams 2014: 150). As Fenton explained in his early epoch-making *Orakei* judgment: "This Court has no common law to direct its steps by; in fact it has by its own operations to make its common law, and to establish 'year-books' which may in the course of time afford a code of law … for guidance in deciding all questions which may come before it" (Fenton 1879: 59, Smith 1948: 60). Fenton's Year Books were meant to emulate the records of the early decisions of the English courts of Common Law. And the judges, led by Fenton, supported their interpretation of Māori custom by way of analogy. As Fenton put it in his 1870 *Kauaeranga Mud Flats* judgment, "if an analogy must be had, the nearest resemblance to the characteristics of native land might, perhaps be found in the focland as distinguished from bocland of our Saxon ancestors" (quoted in Boast 2013: 649). It is the purpose of this paper to examine how far Fenton and other Native Land Court judges, in interpreting and remoulding Māori custom law, managed, like English common law judges, to make a local common law. The whole exercise was undertaken within a regime that, under the Native Lands Act from 1862, required the judges to use Māori custom law to ascertain ownership of land and then eliminate such customary ownership in favour of Crown granted statutory titles to land; at "which point", as Richard Boast has put it, "the feudalisation of customary tenure was complete" (Boast 2013: 59).

Unfortunately the Native Land Court minute books (Fenton's Year Books), while eventually recording enormous screeds of often conflicting evidence

Journal of the Polynesian Society, 2015, 124 (3): 223-242;
DOI: http://dx.doi.org/10.15286/jps.124.3.223-242

relating to Māori occupation of land up to 1840, and sometimes judges' lengthy assessments of it,[2] do not say much about the making of a Māori common law. Norman Smith admitted that Māori custom, or "at least as much of it as could be reduced to a cognisable and applicable form to the social conditions of a modern civilisation", was defined and recorded in the minute books, "and was retained in the recollection of judges [their 'lore'], since no system of publication of judgments was ever introduced" (Smith 1948: 60). There may have been no official system of publication, but Fenton himself did publish a small collection, *Important Judgments ... in the Compensation Court and Native Land Court…*, in 1879. As Smith admitted, the judges did not make that common law merely from evidence of ancient custom presented in court by Māori witnesses, but also on the basis of "divergence" from that custom from "its introduction to the conditions of advanced civilisation", along with "the rules of equity and good conscience". Smith added that those modifications included the imposition of individual ownership of land that was "practically unknown to the ancient Māori" (Smith 1948: 60). Nor were the judges—from Fenton to Smith—content with allowing Māori custom to be tainted by the conditions and needs of "advanced civilisation"; they also interpreted it by analogies of how societies evolved from the primitive to the civilised in Britain and elsewhere; and even by asserting at times through theories of Māori origins a direct descent of those customs from the ancient societies of India and the Middle East. Primitive law was set at the bottom of an evolutionary ladder, though Māori, who had passed beyond wandering and gathering to sedentary agriculture, were already moving up the steps (Benton *et al*. 2013: 16-17). We should not assume that the judges came to their task with open and empty minds, ready to view the Māori customary scene objectively and on Māori terms. On the contrary, they were usually educated men (though only Fenton of the first five judges appointed to the Court was a lawyer), familiar with the prevailing racial and historical theories of their day. Some of them, including Fenton, wrote articles or books on Māori subjects, including the vexed question of Māori origins (see Sorrenson 1979). Smith's writings, which represent the end of a tradition of evolutionary scholarship, are littered with references to the long prevailing texts of lawyers, especially Maine's *Ancient Law,* and Blackstone's *Commentaries*.[3]

Above all, the judges were men with a mission, not merely to interpret and record Māori custom but to free it from the constraints of time and set it on the path of evolution. Māori land was to be converted from the communal or, as it was sometimes described, "communistic" ownership of the tribe, and individualised. Fresh from the still incomplete enclosures of England, the judges used the Native Lands Act from 1862, to promote the "enclosure" (and individualisation) of Māori land, a topic I discussed in a fairly recent essay (Sorrenson 2011: 149-69). Not only were they in tune with history but

they were making it as well. In this respect the role of Fenton was of crucial importance. He had some involvement in drafting the Native Lands Act of 1862 that had, in addition to repealing the Crown's Treaty-based right of pre-emption, allowed Māori committees presided over by a magistrate to ascertain ownership. And he drafted the very different act of 1865 that created a court of record, presided over by a judge (for more than 100 years, a Pākehā judge), the Māori Land Court that we know today. It required the judge to determine, according to Māori custom, which claimants had customary rights to land and then, contrary to that custom, award title to individuals who could alienate it. But under the land legislation "a modified custom was fossilised and made rigid", as Judge Durie put it (1994: 10). I am not going to discuss the numerous complications and successive legislation that followed—a task I began many years ago and others such as the late Alan Ward and David Williams have since continued (Sorrenson 1955, Ward 1973, Williams 1999). Since Fenton was appointed Chief Judge of the Court under the 1862 Act, and retained his position under the succeeding legislation until his retirement in 1885, he was in a key position to lead the Court and his fellow judges in the making of a Māori common law.

FENTON'S *IMPORTANT JUDGMENTS*...

Richard Boast has suggested that Fenton's selection of "important judgments" in the Native Land Court was designed "to suit those with an interest in Māori traditional history rather than the needs of judges or the legal profession" (Boast 2013: v). However Fenton had a larger purpose since, as he noted in his Preface, the Court, in delivering judgments on titles to land, had frequently to take "a short retrospective view" of the history of claimants "inasmuch as Native title is founded upon either long-continued occupation from ancestral tribes, or upon conquest".

This was illustrated in the *Oakura* judgment of June 1866 when Fenton and his fellow judges laid down what has become known as the 1840 rule. It had the effect of freezing Māori customary land tenure at 1840 when New Zealand became a British colony and subject to English law, including common law. As the Fenton put it:

> Having found it absolutely necessary to fix some point of time at which the titles, as far as this Court is concerned, must be regarded as settled, we have decided that that point of time must be the establishment of the British Government in 1840, and all persons who are proved to have been the actual owners or possessors of land at that time, must (with their successors) be regarded as the owners or possessors of those lands now, except in cases where changes of ownership or possession have subsequently taken place with the consent, expressed or tacit, of the Government, or without its actual interference to prevent these changes. (Fenton 1879: 10)[4]

Here Fenton was following an ancient precedent in English common law, whereby a custom that had been practised since "time immemorial" was dated from the first year of the reign of Richard I (New Zealand Law Commission 2001: 9). Nevertheless Fenton's application of the 1840 rule was not entirely new; William Spain had applied it in Taranaki in 1844 when reporting on pre-1840 land claims, including those of the New Zealand Company (Waitangi Tribunal 2001: 135).

Since Fenton (and many others) saw Māori title to land as having been established primarily by conquest and maintained by occupation, the decision gave considerable advantage to those tribes who were the victors in the musket wars before 1840. However, Fenton himself did not rigidly and consistently apply the rule. Although he applied the rule in denying titles to land in Taranaki to people who had migrated to the Chathams or elsewhere and had not returned *by* 1840, he did award titles to others, taken prisoner by Waikato but who had returned to Taranaki *after* 1840 "with the tacit, if not with the express approval by the Government" and retaken possession of their ancestral lands (Waitangi Tribunal 2001: 13). In the *Waitara South* judgment Fenton recognised the rights of some absentees who had not returned because the government had already paid them for rights in the land, and to two other absentees who had obtained "civilized employments"—one in the church, the other in government (Waitangi Tribunal 2001: 14-15). Such decisions suggest that Fenton and his Court, while usually independent of government, sometimes made politically correct judgments, a point I shall illustrate with further examples below.

The 1840 rule was being haphazardly applied elsewhere. For instance in Hawkes Bay, where valuable pastoral land already occupied by squatters on the strength of "grass lease" titles was coming before the Court, Judge T.H. Smith applied the rule, without explanation, in the *Heretaunga* decision of March 1866. But usually he and Judge H.A.H. Monro continued to award titles to ten or fewer claimants purely on the basis of witnesses' claims—or, if there was disagreement, by blessing out of court arrangements.[5] Elsewhere, the judges gradually applied the 1840 rule. Native Land Court hearings became contests between rival claimants to establish their occupation from time immemorial to 1840 and beyond. Judgments, where they were written out at all, were essentially attempts to arrange and referee between these competing narratives. The winner in 1840 usually took all. In the process there was an excessive emphasis on the role of warfare—something that was encouraged by the formation of the Native Land Court in the midst of the New Zealand wars—with insufficient consideration being given to peaceable arrangements between different groups during and after warfare, and the importance of *whakapapa* in determining ownership. Recent Waitangi

Tribunal reports (such as *Rekohu*, discussed below) have extensively reviewed the 1840 rule and the rights of ostensibly "conquered" peoples.

The *Oakura* judgment set a precedent whereby the judges, if they wrote judgments at all rather than merely announcing awards, constructed long historical narratives. These summarised the contests for and occupation of land up to 1840 that were played out in evidence before the Court. These histories have been mined time and again by their descendants or advocates in subsequent appearances before the Court and, in recent years, before the Waitangi Tribunal. The evidence for constructing narratives came from Māori witnesses before the Court, some of whom were claimants, others counter-claimants who invariably told a different story. Fenton himself set a classic example of the analysis of competing narratives in his *Orakei* judgment, "the longest and most detailed judgment the Court ever wrote" (Boast 2013: 9).[6] He also encouraged the procedure in the rules he set for the operation of the Court in which, as David Williams put it, he "brought a keen sense of the importance of the English common law's adversarial modes of trial... (Williams 1999:140). But both sides told of apparently unceasing battles in their endeavours to establish title by *take raupatu* (conquest) which, as Williams also pointed out, was "incorrectly elevated … to the status of being the primary source of Maori customary title" (Williams 1999: 22). Since the judges of the early Native Land Court were operating during the course of another war, this time an Anglo-Māori war, it is perhaps not surprising that they were inclined to exaggerate Māori warlike inclinations. Fenton was not immune from this tendency. As he said in his *Waitara South* judgment: "the true foundation of all Maori title is force" (Fenton 1879: 13). But he also accepted that in constructing his "Year Books" he needed to consider evidence based on "pedigrees" (*whakapapa*) recounted by witnesses, "giving them such weight as they seemed entitled to from their intrinsic merits in each case" and according to a principle laid down in a previous (unspecified) case, that "They must be received, not for the purpose of deciding tribal estates, but for the purpose of determining members of tribes." Nevertheless Fenton was cautious on how far "pedigrees" could be stretched to determine ownership especially with those who had married into other tribes: otherwise, he said, "there will be no such thing as even a tribal right in New Zealand. The whole of the tribes are related by blood in a more or less remote degree; and if any such proposal were sanctioned … New Zealand would become one vast inheritance, of which all the Maories [*sic*] in the island would be the joint owners" (Fenton 1879: 61-62, 82). But Fenton did not stick with this decision.

Fenton's other important judgment, so far as this paper is concerned, was *Papakura—Claim to Succession* in 1867 (Fenton 1879: 19-20). This case related to succession of 1,120 acres of land near Papakura that was in the

sole ownership of Ihaka Takaanini. On his death, succession was disputed by his widow, a daughter and two sons on one side; and a cousin, Heta Te Tihi, and other members of their *hapū* 'sub-tribe' on the other side. Although Fenton in his judgment said that he was bound by statute (his Native Lands Act 1865) to follow the English law of succession (based on primogeniture), he decided to allow an exception where "a strict adherence to English rules of law would be very repugnant to native ideas and customs…." He decided, "The Court does not think the descent of the whole estate upon the heir-at-law could be reconciled with native ideas of justice or Maori custom; and in this respect only the operation of the law will be interfered with. The Court determines in favour of all the children equally." This confused judgment has caused much harm because equal inheritance for all children is not Māori custom, anyway. Though it may have applied to male off-spring, it did not apply to females who had, on marriage, taken residence with their husbands' kin (McHugh 1991: 75, Williams 1999: 143, 178-82). Applied consistently by the Court for many years, equal succession for males and females has been the source of fragmentation of titles that has blighted Māori land ownership ever since. Though we cannot know what was passing through Fenton's mind when he wrote this strange judgment, it could be that he was thinking as an equity lawyer, a common procedure according to Michael Belgrave, though equity in 19th century terms rather than today's (Belgrave 2005: 30), even if that meant the unusual practice of disobeying a statute. It portrays Fenton as an untypical democrat, especially as he usually had little sympathy for rank and file of Māori, displayed most notably in his determination to award titles to ten or fewer chiefs under the Native Lands Act 1865 and subsequent resistance to legislation that attempted to ensure that all individuals who had customary rights were included. "It is not part of our job," Fenton proclaimed, "to stop eminently good processes because certain bad and unpreventable results may collaterally flow from them …nor… is [it] the duty of the Legislature to make people careful of their property by Act of Parliament, so long as their profligacy injures no one but themselves."[7]

OTHER IMPORTANT JUDGMENTS

As Richard Boast pointed out his historical study of Native Land Court cases to 1887, there had been no further publication of Court decisions after Fenton's *Judgments* in a proper law report format that would allow lawyers and judges to cite and build a body of precedent and doctrine "which is the essence of Common Law technique…". In Boast's view, most judges were content to rely on personal knowledge, were "overwhelmingly concerned with the facts [presented in evidence] and their interpretation," and the Court

"never developed an especially comprehensive or sophisticated understanding of Maori customary tenure …" (Boast 2013: 181-82, 187, 215). Nevertheless subsequent judgments did continue to apply basic assumptions, such as the 1840 rule, sometimes in highly politically charged circumstances, though there were also continuing exceptions (Belgrave 2005: 308). Important judgments that asserted the 1840 rule included several that were politically convenient in paving the way for Crown or private acquisition of land and European settlement, a point I shall return to later.

I begin with the 1870 Chatham Islands decisions which Boast says were "quintessential illustrations of the Native Land Court's '1840 rule' and of its doctrine of *take raupatu*" (Boast 2013: v, 581). The judgments were also the subject of close examination by the Waitangi Tribunal in its *Rekohu* report of 2001. The Court, under Judge John Rogan, fulsomely applied the 1840 rule and awarded most of the Chathams to Ngāti Mutanga, who had conquered and killed or enslaved many of the Moriori in 1837. Surviving Moriori were awarded several small reserves which comprised a mere 2.7% of the available land (Belgrave 2005: 300). That decision was politically convenient, since it compensated Ngāti Mutunga for being refused land in Taranaki (as noted above) when many of them returned there between 1864 and 1868 to defend their interests in land that had been confiscated under the New Zealand Settlements Act 1863. As I noted, they were denied title to land there by the Compensation Court in its *Oakura* judgment (Waitangi Tribunal 2001: 103-4, 131-34, 138-39, 144).

Then there was Judge Mair's politically charged *Rohepotae* judgment of 23 October 1886, which he regarded as "one of the most important of all 19th-century decisions of the Court" (Boast 2013: 1171). Mair applied the 1840 rule with a vengeance to uphold the claims of Ngāti Maniapoto and related *iwi* 'tribes' to the King Country. Mair's was but one of a series of decisions dealing with the outer fringes of the King Country, from Mokau in the southwest, through Tauponuiatia on the western edge of Lake Taupo, to Patetere on the east, whereby the court awarded titles to the resident tribes, while denying any rights to Waikato Kīngitanga who, under Tawhiao te Wherowhero, had taken refuge in the King Country following their defeat at Orakau in 1864 (Boast 2013: 1092-101, 1110-116, 1168-190).[8] The decisions were an integral part of the government's campaign to open the King Country to the Main Trunk railway, land purchase and Pākehā settlement, a policy promoted by a succession of Native Ministers through direct negotiations with King Tawhiao but which always foundered on his insistence on the prior return of the confiscated lands of Waikato. Eventually in 1883 Native Minister John Bryce decided to negotiate directly with the Ngāti Maniapoto chiefs and ignore Tawhiao. As the *New Zealand Herald* put it;

> Mr Bryce intends to proceed in what may be termed the natural way of encouraging and enabling certain natives to put their land through the Court …. All the attempts made to conclude negotiations with Tawhiao and the Kingites en bloc, have been miserable failures …. The government influence will simply be exerted to enable certain sections of the Kingites to take advantage of the law, and the Land Court will do the rest. (*New Zealand Herald* 13 November 1883, p. 5; see also Sorrenson 1955: 98-113)[9]

Indeed it did.

Though Boast stoutly defends the independence and integrity of the Native Land Court judges (2013: 189-91), I believe that they were burdened by their intellectual environment, influenced often by previous employment in the front line of the of the government's native administration and, above all, they were committed to the advancement of Pākehā settlement. Though theoretically Māori claimants initiated court proceedings by applying for a hearing, they were often, as I pointed out in my Master thesis many years ago (Sorrenson 1955), already committed to the sale or lease of their land to private Pākehā or Crown purchase agents, and often as well indebted to local publicans or store-keepers. It was these interests that drove the court proceedings and frequently, if they did not get their way, expensive appeals to higher courts. Governments of the day were perpetually badgered by Pākehā interests, especially local newspapers, to "open up" more and more Māori country and the Court, as seen in some of the examples noted above, became a willing and essential participant in that process (Sorrenson 1955: Chapters 1-5). Whether they liked it or not, the judges were part of that process because their decisions enabled the legal validation of purchases that were already underway. Also, most of the early judges, including even Fenton himself, had served in one capacity or another in the Native Department or as Crown land purchase officers. Rogan, who sat with Fenton on the *Oakura* hearing, presided over the Chatham Islands hearings, and applied the 1840 rule in both instances, was a former Crown land purchase commissioner. The Waitangi Tribunal in its *Rekohu* report questioned his impartiality and noted how Fenton and other judges had, on occasions, advised government on land purchases to avoid litigation and how government had sometimes modified Court decisions by executive action (Waitangi Tribunal 2001: 108, 147). One could also question the impartiality of Gilbert Mair, also a prime government agent in the opening of the King Country, in the *Rohepotae* decision. No matter how jealously the judges asserted the independence of the Native Land Court, it became not merely an "engine of destruction" of Māori culture, as Hugh Kawharu (1977: 15) and David Williams (1999: 133-99) have put it, but a mechanism for opening up of the country, fuelled always by advances of credit by surveyors, storekeepers, publicans—and, yes, lawyers as well—

and the follow-up killings of private and Crown purchasers. Williams details numerous instances where the judges collaborated with government officials and ministers to facilitate hearings and, ultimately, purchases of land. He quotes historian Robyn Anderson who examined the purchase of Hauraki land and concluded that the "Native Land Court thus acted as an obliging instrument of Government policy" (Williams 1999: 46). The notion of an independent court is more lore than law. After all, the prime purpose of the settler *cum* legislators who set up the Native Land Court under the Native Lands Acts was to facilitate the private purchase of Māori land—what was then described as "free trade" in Māori lands. Today, we would call it the operation of market forces.

By the end of the 19th century, the Native Land Court had nearly finished its primary task of ascertaining ownership according to custom and awarding title to individuals under the various Native Lands Acts (Boast 2013: 154). Thereafter, it was mainly concerned with sub-divisions, often to cut out land purchased by the Crown or Pākehā individuals, and successions. Accordingly, I leave the examination of "important judgments" in favour of the codification of Māori customary tenure, particularly through the work of the latter-day judge and long-time authority on Māori customary tenure, Norman Smith.

Before doing so, however, I want to acknowledge the contribution of one intermediary figure, Judge F.O.V. Acheson. Like many of his predecessors, he had served in the Native Department before he was appointed to the bench of the Native Land Court in 1919. He had also written an LL.M. thesis in 1913 on "The Ancient Maori System of Land Tenures" in which he closely examined Māori customary land tenure, with numerous references to leading authorities such as Sir William Martin and those who had been officially involved in the controversy over the outbreak of the Waitara war (Acheson 1913). Acheson regarded Māori custom in relation to land as having legal force, though he did not use the term "custom law"—a later invention. In 1918 Acheson was promoted to the position of land purchase officer and the following year was appointed a judge in the Native Land Court. He worked originally in the lower North Island but in 1924 he was shifted to Tai Tokerau where he subsequently became heavily involved in land development schemes, and made several controversial judgments. These included taking "judicial notice" of the Treaty of Waitangi and recognising Māori customary title to the foreshore and lake beds. Such views, as his biographers put it, were ahead of his time and in tune with modern, post-Waitangi Tribunal views on the Treaty and Māori customary rights (Acheson and Boast 1998: 2-3). Acheson was a transitional figure in another way. Under his leadership, the Court, instead of being an agent of Pākehā colonisation, began to adopt its modern function of helping Māori to retain and develop their much reduced remaining land.

NORMAN SMITH AND THE "CODIFICATION" OF MĀORI LAND TENURE

Norman Smith was another lawyer who had been a long-serving Research Officer in the Native and Maori Affairs Department before he became a Maori Land Court judge in 1952. However, it is not for his work as a judge but as a mentor of judges that Smith is important for this article. Even more so than Acheson, he came to the bench with an established reputation as a scholar of Māori custom. During his time in the department Smith wrote two books—*Native Custom and Law Affecting Native Land* (1942) and *The Maori People and Us* (1948). Subsequently, when he had been appointed to the bench of the Court, he published *Maori Land Law* (1960), and *Maori Land Incorporations* (1962). These, as I noted above, remained the essential texts on Māori custom and law until recently.[10] Despite his undoubted importance as a scholar of Māori land law and custom, Smith has not been the subject of academic study, apart from some recent work by Dr Grant Young. His essay, "Judge Norman Smith: A Tale of Four 'Take'" (Young 2004: 309-30), is mainly concerned with Smith's role in establishing four *take* or root causes—discovery, ancestry, conquest and gift, with each needing to be validated by continuous occupation—as the basis for claims to land. In this respect Smith was building on a long tradition whereby judges of the Court, and other authorities such as Sir William Martin, "codified" Māori customary law, especially in relation to land. In noting Smith's association with the Native Department when he published *Native Custom*..., Young wrote "The book was a direct response to the imperatives of the Native Department." Smith was identifying the rules of custom to assist those concerned with the administration of Māori land, gathering together "rules" that had been buried, unpublished, in the minute books of the Court. But, as Young added, Smith did not make a "comprehensive and systematic assessment of the decisions of the Court", though he did use Fenton's *Judgments* ... and an 1890 collection of "Opinions … on Native Land Tenure" (Young 2004: 315). Young then examines the contributions of several early 20th-century judges, including Acheson, particularly in the more sophisticated interpretation of the four *take*, before outlining the findings of his own sample analysis of the Court's use of the *take* in judgments. In that final analysis he concludes that, though the judges drew on earlier decisions of the Court, "they did so selectively and there was no attempt to create a body of precedent" (Young 2004: 330). Yet in summarising his essay Young concluded "Smith codified the practice of the Court by imposing twentieth century order retrospectively on nineteenth century chaos." Though the 19th century judges had been ambivalent about customary rules that would govern all judgments, they were required by statute to define ownership according to custom and usage. But these concepts were so elusive that judges were unwilling to define their practices clearly and they

relied on their own discretion in interpreting the requirements of statutes, with several of them (Young lists Mackay, Maning and MacCormick, but I would add Fenton whom I quoted above in relation to the *Orakei* judgment) attempting "to dress that discretion in legally acceptable terms by referring to that elusive concept of 'equity' " (Young 2004: 330).

My interest in Smith's *Native Custom...* (1942) is somewhat different from Young's. I am concerned with Smith's intellectual approach—more specifically his evolutionary approach—to the analysis of Māori custom and the transformation of customary ownership of land into legally recognised individual freehold titles. Smith soon reveals that evolutionary approach when he acknowledges his intellectual indebtedness to some of the founding fathers of New Zealand jurisprudence. He quotes at length an 1861 paper by Sir William Martin, with its analogies to Anglo-Saxon tenures, and the interpretation of them by Palgrave and Hallam who were clearly still respected authorities for lawyers in Smith's time as they had been for Martin. Smith also refers to some anonymous "Notes on Maori Matters, 1860", possibly also written by Martin. The "Notes" conclude that:

> There was no general government or general intertribal polity among the Maori tribes of New Zealand. They had no common head, no common tribunal, no common interests. The government of tribes—if their customs can be called by such a name—corresponded with no known type among civilized peoples. There are some features of monarchy, more of aristocracy, and many of republicanism; but the combination was not definite nor capable of assimilation to any known constitution of civilized society; nor was government merely patriarchal. Their notions of property of any kind were the vaguest; nothing approaching regular commerce existed. The origin of the interest of tribes and individuals in land was communistic, and the enjoyment of it in some degree communistic…. There was no practice of alienation of land by individuals at all, except … for … the usufruct of … land belonging to a woman who married into another tribe, [and] slaves and others were allowed to hold lands by sufferance of conquerors who retained in themselves the *mana* of the land…. (Smith 1942: 38)

The extract concluded with an admission that the "customs and practices" were "by no means uniform or definitely settled" and that there were no customs "such as the ordinary modes of alienation of property in civilized communities, before the Europeans came to the country" (Smith 1942: 38).

Smith assumed that by about 1895 "the rules of Native custom, with proper regard to any exceptions prevalent in different parts of the country, became more or less clearly defined" (Smith 1942: 48). But he admitted that there had been other exceptions, besides any regional variations, where there was a need for "grafting upon it of such subsidiaries that were necessary to meet

the equities of each case as well as the demands of a changing society" (Smith 1942: 48). This was reminiscent of Fenton's *Papakura* judgment where he invented the "custom" of equal rights for all children in successions (Smith 1942: 94). As Smith put it, though the statutes required that

> every title to, and interest in customary land shall be determined according to the ancient custom and usage of the Māori people so far as can be ascertained … no known custom existed to aid the Court in defining the relative shares of the owners of *papatipu* 'customary ancestral' land, except that they were not always entitled equally. Ancient Māori custom did not contemplate or provide for an individual title to land, or the conversion of ownership of tribal lands to a share or monetary value in the manner practised according to British law. (Smith 1942: 75)

Neither Smith nor the legislators who had been designing the Māori land acts for a hundred years could square the circle of Māori land customs with English law.

Smith's *Native Custom and Law Affecting Native Land* remained the main legal text on Māori law until Smith replaced it with the considerably expanded and up-dated *Maori Land Law* in 1960. That remained the essential text for Maori Land Court judges and lawyers for another 30 years when, as I observed at the beginning, Chief Judge Durie wrote a Māori-centric interpretation of Māori customary law.

In the meantime, Smith had published *The Maori People and Us* in 1948. It was more of an historical than a legal text, and is more relevant to this essay because it demonstrates more of Smith's evolutionary mode of writing Māori custom and history. He begins with the then classic chronology and narrative of the Māori occupation of New Zealand first established by S. Percy Smith and reiterated by Sir Peter Buck, before providing a brief outline of Māori culture. But it is not long before Smith falls back on Maine's *Ancient Law* for the assumption that "the organisation of Maori society was comparable with that of ancient European society" (Smith 1948: 17). He also uses Maine for the notion that "early commonwealths" had been founded on the basis of a common lineage, with the family evolving firstly into a House, next into a tribe and lastly to a state. Later, Smith described the evolutionary process as "distinguished by the slow but steady substitution of the individual for the family as the unit of which the law could take cognisance", a process Smith said had been seen in "the progress of Maori society [that] began to make itself felt a century ago [in 1840] when active colonisation of the country was introduced, and law and order, according to the notions of a civilised society, brought to the notice and obedience of the Maori" (Smith 1948: 20). In a footnote reference to Maine's description of ancient society, Smith added:

"The description also fits the Maori tribal system." Then, in more general terms, he said that "the organisation of Maori society was comparable with that of an ancient European society", noting in particular the strength of the "blood tie and heredity" (Smith 1948: 17).

Though Smith may not have designated the Māori as Semites, he did accept the still common view that they were Aryan in origin. He referred with approval to "anthropologists, or some of them", who said that the origin of the Polynesian could be "traced to and through, India". He added: "it is a rather remarkable feature of the Maori social system, and his customs in regard to the proprietorship of land, that there is a distinct resemblance to the incidence of the Indian Village Community." And who was the source on that community? None other than Sir Henry Sumner Maine, who is quoted at length. Smith does not name the book, though it is probably Maine's *Village Communities* (1871). In one of Smith's long quotes from Maine we find that, in contrast to Roman law, where "co-ownership is an exceptional and momentary condition of the rights of property … in India this order of ideas is reversed, and it may be said that separate proprietorship is always on its way to become proprietorship in common" (Smith 1948: 58). Smith saw Māori land tenure as proceeding in the same fashion: from the individual rights claimed by the original occupants of New Zealand, to the communal tenure that had evolved by the time of European contact. Later on in the quote from Maine, we are told that "… the Village landholders are all descended from one or more individuals who settled in the Village", apart from outsiders who derived their rights by purchase or otherwise from the original members of the village or their families. Maine stressed that for a landowner to sell or mortgage his rights, he needed the consent of the Village. But if the family became extinct, its land reverted to "the common stock". Likewise for Māori, particularly with gifts of land when there was no issue, "the land usually … reverted to the source from which it came, thereby following a similar custom of the Indian Village Community." Smith added that with the coming of the Pākehā a different system of alienation was introduced but the failure to completely understand Māori customs in relation to land had resulted in bitterness and strife between the races.

Smith then discussed the role of the Native Land Court in defining "what is accepted as Maori land custom today". He quoted Fenton's influential comment in his *Orakei* judgment that I also quoted at the beginning of this essay. It was this court made custom, or, as Smith put it, "as much of it as could be reduced to a cognisable and applicable form to the social conditions of a modern civilisation", that was recorded in the minute books of the Native Land Court. By Smith's time Māori customary law had been established on the basis of rules that had been "accepted for too many

years now to be contradicted". Yet he then admitted that it was difficult to ascertain "what custom really was" and, as a result there was inconsistency in the judges' early decisions—until around 1895 "when the rules of custom became more or less clearly defined" (Smith 1948: 60). As a result it was now accepted that Māori rights to land were founded on four *take* (those discussed by Young)—discovery, conquest, gift or any combination of these—but they always had to be confirmed by occupation. Though Smith described the various forms of activity that Māori used to demonstrate their occupation—fishing, hunting, bird-snaring and cultivation—he could not resist going to Maine's *Ancient Law* for further definition of occupancy and adding that "in broad essentials" Māori "ideas were not far removed from our ancient conceptions". And from Maine he went to another legal authority, Blackstone, for the notion that "by the law of nature and of reason, he who first began to use it acquired therein a kind of transient property that lasted so long as he was using it … but the instant he quitted the use or occupation of it, another might seize it without injustice …." (Smith 1948: 62).[11] Applying this notion to the Native Land Court, Smith noted that it had decided that occupation in 1840 was to be the basic rule by which Māori title would be decided. Smith attributed this rule to Fenton's 1869 *Orakei* judgment though, as noted above, the rule had been developed and used earlier (Smith 1948: 63-64). Smith went on to describe how the Court had attempted to sift and decide between often conflicting claims of occupation to 1840 and concluded that each case had to be decided by its own circumstances, "and by the weight of evidence, which as Lord Blackburn has pointed out, depends on the rules of common sense" (Smith 1948: 64-66). Then Smith refined the ways in which the Court interpreted competing claims to title by virtue of various forms of occupation. In doing so, he sometimes admitted that there was no customary basis for some of the rules that the Court was obliged [by legislation] to apply. For instance, there was no customary law defining the relative shares in customary land. But "British law … required a measurement of the interests of owners holding land in common; and in the application of legal principles of a modern society to the extinguishment of the Native title, the Court was faced with the necessity of reducing ownership to a share value upon the basis of the estimated extent of occupationary rights." In the early days of the Court, Smith admitted, "the distribution of rights was often settled by the Maori themselves without much dispute". Later, however, the Court had tried to arrange distribution by various means: by the relative strength of occupation or by allocation to heads of families irrespective of the numbers of their children, though this was abandoned when, under the 1867 and 1873 Native Lands Acts, the Court generally allocated land in equal shares, irrespective of rank.

As I noted above, this principle was also applied to succession of land. As Smith put it, if Māori died intestate, the Court applied the artificial rule of equal succession "in accordance with what is called Māori custom, but which is, in truth, a custom that has been more or less artificially created by analogy, in order to make the usages of the Māori people fit into the social and legal system of a modern society." Though Smith does not say so, we go back to Fenton's judgment in the *Papakura* case where on grounds of the English principle of equity, he decided in favour of equal succession for all children.

We can conclude that Smith was, with his evolutionary and comparative notions on land tenure, a latter-day Sir William Martin and very nearly the last of his line. But in his optimistic views on the progress of contemporary Māori, he was in tune with other authorities of his day, including Professor Ivan Sutherland and Sir Apirana Ngata.

THE MAKING OF MĀORI COMMON LAW

Judge Durie's paper, "Custom Law" (1994), though unpublished, has been extremely influential, not merely in recognising Māori custom as a living, evolving body of law, but also in placing it firmly in the realm of New Zealand common law. This point was reiterated time and again in the Law Commission's Study Paper, *Maori Custom and Values in New Zealand Law* (2001). Before writing its report the Commission asked three academics—anthropologist, Dame Joan Metge; historian, Dr Michael Belgrave; and political scientist, Dr Richard Mulgan—to comment on Judge Durie's paper. Additional commentary was provided by lawyers: Maori Land Court Chief Judge Joe Williams, Richard Boast, Whaimutu Dewes, and Dr David Williams; and by the distinguished members of the Commission's Maori Committee. The Commission's Study Paper described an evolving New Zealand jurisprudence "which draws on both British law and Maori custom law, and which has the potential to incorporate solutions based on Maori world views" (New Zealand Law Commission 2001: 52). It went on to provide examples in resource management law, land law and family law, and concluded from these that "the courts and the legislature are attempting to ensure that Māori custom law is respected in the law" (New Zealand Law Commission 2001: 59). This was a world away from the earlier situation described in this essay whereby Māori custom law was progressively replaced by English inspired statutory law, especially in relation to land.

There is now no doubt in the minds of academic lawyers and judges that Māori customary law, where it has not been modified or eliminated by statute, has survived in New Zealand common law—as an addition to the English common law that was automatically applied in New Zealand on the Crown's acquisition of sovereignty (Brookfield 1999: 49, 163, McHugh 1991: 85-86,

94-95, 110-12). Indeed, for many years after New Zealand became a British colony in 1840 what were generally referred to as "native laws, customs, or usages" were allowed to prevail in Māori districts, provided they were not "repugnant to the general principles of humanity". Section 71 of the New Zealand Constitution Act 1852 allowed such districts to be set aside but, although it remained in operation until 1986, no such districts were ever proclaimed (McHugh 1991: 116-19). The Native Circuit Courts Act and the Native Districts Regulation Act, both of 1858, allowed tribal *runanga* to administer customary law (McHugh 1991: 200). Nevertheless, as Mark Hickford noted, "native districts in which native title and customary laws prevailed were in existence—there was no need to invoke the Constitution Act to declare them to exist" (Hickford 2012: 405). In existence, perhaps, but in a legal lumber, awaiting elimination by legislation.

Likewise, what is now referred to as common law aboriginal title (Williams 2011: 229), applied to Māori land before that title was transformed into Māori freehold land under the Native Lands Acts. That task was so thoroughly carried out that, these days, only tiny specs of land remain in original customary title, though the Te Ture Whenua Act of 1993 reversed some 130 years of legislation by requiring that the Maori Land Court adopt as its "primary objective" to "promote and assist in … [t]he retention of Maori land and General land owned by Maori …"[12] and making better provisions for the administration of land through trusts and incorporations. Māori customary law rights survived legislative extinguishment in some other areas, most notably as the 1989 *Te Weehi* judgment of Mr Justice Williamson demonstrated, in the customary Māori fishing rights.

* * *

Recently Matthew Palmer wrote that "our law upholds for Maori the existence of special rights to possess and use land…. This is the nature of the law of aboriginal title and customary rights…. As common law, made by judges, the law of aboriginal title has existed for at least 200 years" (Palmer 2008: 230, 358). This is an intriguing suggestion but it is not clear whether Palmer is saying that he regards this aboriginal title as part of New Zealand common law, or whether it exists as a distinct Māori common law. This was a law that was made by the Native Land Court judges in their judgments in court, recorded periodically in the Court's minute books (or Fenton's Year Books) and selectively in his *Important Judgments…*, and particularly a common law that included Fenton's 1840 rule and his equal rights on succession. There is a tantalising suggestion in a 2005 essay by Alex Frame and Paul Meredith that "there is sufficient compatibility and identity between the concepts and

values of Maori customary law and those of the English common-law system, which arrived in Aotearoa/New Zealand with the Treaty of Waitangi in 1840, for these concepts and values to function together or in association, or even to contribute to the evolution of a third and new 'hybrid' system" (Frame and Meredith 2005: 135). Unfortunately, they do not develop the concept of that new "hybrid" system in the remainder of their essay or, indeed, in the important compendium on Māori customary law that they (with Richard Benton) published in 2013 (Benton *et al*. 2013). Another legal scholar, Mark Hickford, in a quote attributed to Robert FitzRoy, uses the term "the '*ritenga* Maori' '*tikanga* Maori', or native 'common law' ...." (Hickford 2012: 180-181). He does not explain what he means by "native common law". However, he did add, in a footnote: "The intersection between common law and customary notions of law and tenure remains an issue, including the extent to which the common law is able or prepared to accommodate customary concepts." Hickford then refers to the seabed issue as one example and quotes Australian scholar Noel Pearson's statement, that "native title is not a common law title but is a title recognised by the common law" (Hickford 2012: 15). A similar position was taken by the Court of Appeal in the Ngāti Apa decision in 2003. In this Chief Justice Sian Elias, in reversing previous court judgments, stated that "The common law as received in New Zealand was modified by recognised Māori customary property interests. If any such custom is shown to give interests in foreshore and seabed, there is no room for a contrary presumption derived from English common law. The common law of New Zealand is different" (quoted in Williams 2011: 205). It is different in that it has assimilated some Māori custom law.

But that still does not mean the existence of a *Māori* common law. I note, however, that my plea for its possible existence is supported by Michael Belgrave. In his paper prepared for the Law Commission, he suggested that the 19th-century Native Land Court had attempted to "turn Maori custom into a kind of Maori common law" (Belgrave 1996: 4). Richard Boast also discusses the Fenton quote and his hope that the Native Land Court records would become "the basic raw material for a new body of doctrine, created in much the same way as the Common Law was created, but peculiar and distinctive to New Zealand." However, Boast merely concluded: "Whether a body of doctrine ever did emerge from the mass of detail—and, if so, what it amounts to substantively—are perhaps the most important historical and legal questions that need to be resolved with respect to the Native Land Court" (Boast 2013: 489-90). And he left it at that.

So where have we got to? That two historians have barged in where lawyers fear to tread. Perhaps it is time for academic lawyers to examine just what has been going on in the making of common law in New Zealand.

NOTES

1. In his unpublished but widely distributed paper, "Custom Law", January 1994.
2. See Native Land Court Napier Minute Book, Vol. I. University of Auckland Library Microfilm reel 201, *passim.*
3. See Smith 1948, pp. 15-17, 59, 61-63 for references to Maine's *Ancient Law*, and pp. 62-63 for reference to Blackstone.
4. *Oakura* was heard in the Compensation Court, not the Native Land Court.
5. Several of Fenton's fellow judges were slow to apply the rule in Hawkes Bay where they were content, after cursory examinations, to award title to ten or fewer individuals who were identified in Court as occupants and named in certificates of title under the Native Lands Act 1865. This allowed pastoralists, who were already in occupation of most of the land on the strength of "grass money" leases, to validate their titles. For details see Native Land Court Napier Minute Book, Vol. I. University of Auckland Library Microfilm reel 201.
6. However, as Boast points out (2013: 284), the decision printed in Fenton's *Important Judgments* (1879) was only a small part of the actual judgment.
7. See in particular the discussion of this by Alan Ward 1973, pp. 216-17. The quotation from Fenton is in Fenton to Native Minister, 11 July 1867, AJHR 1867, A-10, pp. 3-5.
8. However Boast is incorrect in his claim (p. 1182) that "until very recently there has not been a great deal of writing about the case." He ignores the discussion of it in my (1963) essay on the King movement, originally published in Robert Chapman and Keith Sinclair (eds), 1963. *Studies in a Small Democracy*: *Essays in Honour of Willis Airey,* pp. 33-55.
9. There is a much fuller discussion of the opening of the King Country in my MA thesis (Sorrenson 1955, pp. 98-113).
10. Smith (1960) *Maori Land Law* was a substantial rewrite and expansion of *Native Custom and Law Native Affecting Land* (Smith 1942).
11. Once again Smith failed to provide the source of his Blackstone quotation.
12. S. 17(1) (a); quoted and discussed by Brookfield (1999: 132).

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ABSTRACT

The essay explores what I call the 'lore of the judges': the collective wisdom of the Native Land Court judges on Māori custom law, especially in relation to land. It is led by a comment by F.D. Fenton, the first Chief Judge, in his *Orakei* judgment, that the judges' decisions should emulate those of English Common Law judges, and create a body of precedents recorded in 'Year Books' (or Minute Books). The paper examines how the judges' interpretations and remoulding of Māori custom were eventually incorporated in New Zealand common law. It concludes by asking whether the judge-made law could be considered a Māori common law.

Keywords: Māori customary law, New Zealand common law, Native Land Court judges, indigenous land rights, New Zealand land tenure judgments, historical legal practices

CITATION AND AUTHOR CONTACT DETAILS

Sorrenson,[1] M.P.K. 2015. The lore of the judges: Native Land Court judges' interpretations of Māori custom law. *Journal of the Polynesian Society* 124 (3): 223-242. DOI: http://dx.doi.org/10.15286/jps.124.3.223-242

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IDEOLOGY, CEREMONY AND CALENDAR IN PRE-CONTACT HAWAI‘I: ASTRONOMICAL ALIGNMENT OF A STONE ENCLOSURE ON O‘AHU SUGGESTS CEREMONIAL USE DURING THE MAKAHIKI SEASON

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The Polynesians had extensive knowledge of astronomical phenomena, knowledge that played significant social, ideological and political roles. Such knowledge was prized throughout Polynesia because of its importance in ocean voyaging, but also owing to its role in a ritual-calendrical cycle that was carried from ancestral homelands in the central Pacific out to islands scattered over many thousands of kilometres (Kirch and Green 2001). In the Hawaiian Islands in particular, a rich ethnohistoric record attests to the prominent place of astronomy within religious, navigational and calendrical traditions (Kepelino 1932, Makemson 1941, Ruggles 1999a). Although some archaeologists have investigated the orientation and positioning of temples and other structures in Hawai‘i and elsewhere in Polynesia (e.g., Hommon 2013: 105, Kirch 2004a, 2004b, Ruggles 2014a, 2014b), the interpretation of sites in an archaeoastronomical context is a relatively neglected area of investigation.

In this article we report on mapping, test excavations and archaeoastronomical analysis of a 1,577 m^2 walled enclosure in the uplands of Honouliuli, O‘ahu Island, Hawai‘i (Fig. 1). Multiple lines of evidence—astronomical orientation, ethnography and carbon dating—converge to indicate that this enclosure had a ceremonial use associated with the annual Makahiki harvest season, a four-month ritual period whose onset was determined by observation of the rising of the Pleiades star cluster, upon which the enclosure is aligned. During the late period of Hawaiian history (AD 1650–1819) the Makahiki was institutionalised as a means of tribute collection by the emerging archaic state hierarchy (Hommon 2013, Kirch 2010).

Journal of the Polynesian Society, 2015, 124 (3): 243-268;
DOI: http://dx.doi.org/10.15286/jps.124.3.243-268

THE MAKAHIKI SEASON IN PRE-CONTACT HAWAI'I

The Hawaiian lunar calendar was divided into two parts: a period of four lunar months collectively called the "Makahiki" and dedicated to Lono, deity of dryland agriculture, and a longer period of eight lunar months when the main temple rituals associated with the war god Kū were performed by the king and high priest (Handy and Handy 1972: 327-88, Kamakau 1964: 19-21, Kirch 2010: 61-64, Malo 1951: 141-59, Valeri 1985). The Makahiki commenced once the Pleiades (Makali'i, literally 'Little Eyes' in Hawaiian), rising progressively earlier each night, became visible above the horizon in the ENE immediately after sunset, an event known as the acronychal (or acronical) rise (see Kirch and Green 2001: 262 and Hommon 2013: 100). During the Makahiki season war was prohibited and dryland sweet potato and other crops were harvested. In a highly ritualised process that occurred toward the end of the Makahiki, the priests of Lono collected tribute from the commoners. One key element of the process was the clockwise circuit around the island of the *akua loa* 'long god' and the accompanying collection of starch staples, pigs, dogs, cloth, capes, fishlines, feathers and other items of food and prestige goods, tribute which was used to support the chiefly class (Hommon 2013, Kirch 2010, 2012). The English navigator Captain James Cook famously arrived in Hawai'i during the Makahiki season of 1778, and again in 1779, a fact that played into the treatment he received from the Hawaiian priests and chiefs (Kirch 2012: 250, Sahlins 1995).

Ethnohistoric descriptions reveal that the Makahiki circuit conducted by the Lono priests carrying the *akua loa* representation of Lono was marked not only by the collection of tribute within each territorial unit (*ahupua'a*), but also by large gatherings of people from each community as the procession of priests and warriors passed through. As Handy and Handy (1972: 357-58) wrote: "The evening before the feeding of Lono by the *mo'i* [king], the people gathered in every village and district throughout the island and engaged first in boxing, and then in other games and dancing." The 19th-century Hawaiian sage David Malo noted: "During the Makahiki season, when the Makahiki god made his rounds, the people of different districts *gathered at one place* and held boxing matches" (1951: 232, *emphasis added*). Another Native Hawaiian scholar, Samuel Kamakau, noted that "a place had been made ready" before the arrival of the Makahiki gods, where sporting matches were performed after the tribute offerings were made (1964: 20). These references suggest the presence of particular locales where Makahiki rituals and celebrations were performed annually; they raise the possibility that such assembly places might be archaeologically identifiable on the Hawaiian landscape.

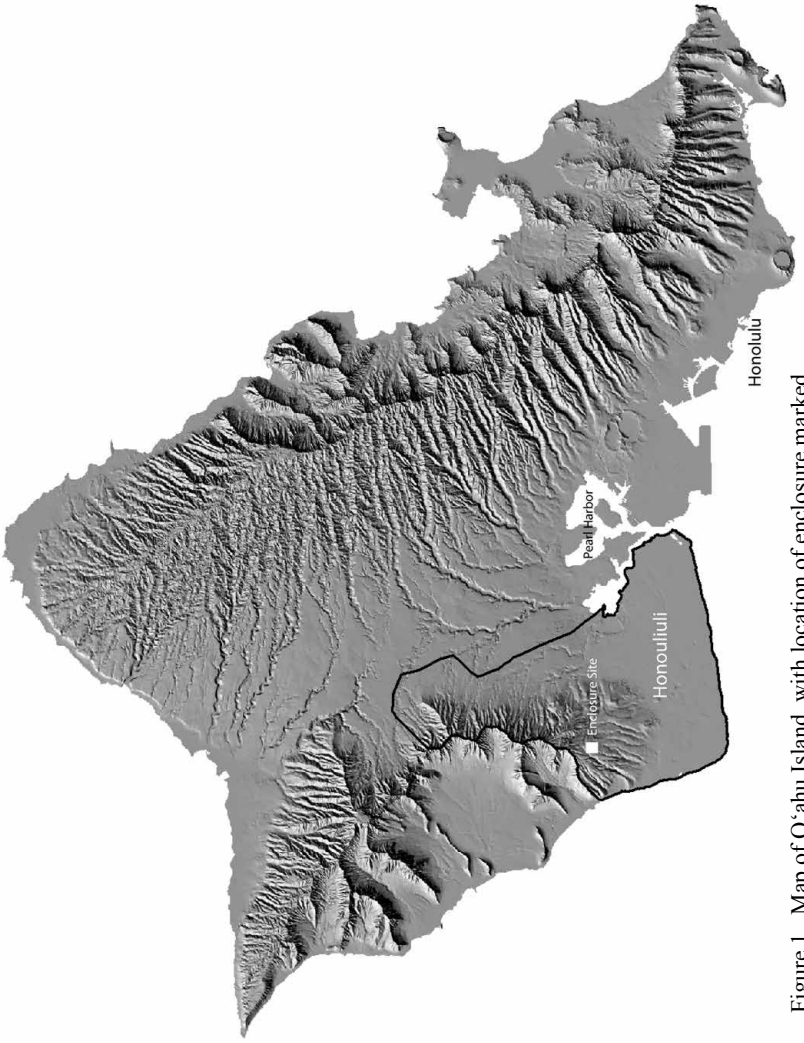

Figure 1. Map of O'ahu Island, with location of enclosure marked.

THE HONOULIULI UPLAND ENCLOSURE

Near the southern terminus of the Wai'anae mountains of western O'ahu Island, at an elevation of approximately 510 m, a substantial square, dry stone masonry walled enclosure with an area of 1,577 m^2 occupies a shallow swale on a ridge that slopes gently towards the west (Fig. 1.) This upland area of Honouliuli Ahupua'a is today commonly referred to as Pālehua. This is the leeward, and therefore drier, part of O'ahu, an area that was restricted to dryland farming, primarily of sweet potato. It is likely that the broad ridge descending below the enclosure was used for such dryland farming before being put into pineapple plantation cultivation in the early 20th century. The enclosure commands a sweeping view west over the Pacific Ocean; from nearby higher ground there is an expansive view of southern O'ahu Island (Fig. 2).

Prior to the work described here, the Pālehua area was the subject of several archaeological surveys which briefly identified and described the enclosure, giving it the temporary designation CSH-3 (Tulchin and Hammatt 2007, 2008), but no archaeological excavation or precise mapping of the

Figure 2. View of Honouliuli enclosure, looking west.

enclosure had been undertaken. The site does not appear in McAllister's classic study of O'ahu archaeology, which included most known *heiau* 'temples or places where rituals were performed' (McAllister 1933; see also Sterling and Summers 1978), and we have found no reference to the site in any historical accounts. Field research took place over eight days during May 2012. The main enclosure and adjacent shrine were mapped with plane table and alidade, as well as with a Trimble GeoXT GPS unit. Excavations were carried out to obtain samples for radiocarbon dating and to gain information on the possible uses of the enclosure.

The site is known to the local Hawaiian community and is considered a significant cultural site, regarded by some as a place where martial arts (*lua*) were practiced; there is, however, no known ethnohistoric documentation for this claim. School and community groups visit the enclosure and contribute to its upkeep and preservation. Our research was carried out in close consultation with the local Hawaiian community, and included the participation of Hawaiian cultural practitioners.

Figure 3 is a plan of the main enclosure based on plane table and alidade survey at 1:200. The enclosure is nearly square, with dimensions of 38 by 41.5 m. The walls are well constructed of subrounded basalt boulders (most ranging in size from c. 30-80 cm in diameter), with clear interior and exterior faces varying between 1-1.5 m apart. The relatively uniform size of the boulders suggests that they were carefully selected from the surrounding landscape for this purpose. One to three wall courses are intact, but an additional one to perhaps three courses are represented by fallen stones lying alongside both the inner and outer faces, so that the original wall height was probably about 1 m or slightly higher. The uniform removal of these upper courses around the entire enclosure suggests intentional deconstruction of the wall at some point.

Gaps in the enclosure's walls on the upslope (ENE) and downslope (WSW) sides were made by a bulldozer, probably as part of a dirt road, during the historic ranching period; similarly, a gap in the southeast corner was accidentally bulldozed during a fire-fighting operation. However, a narrower gap in the wall about 2 m wide near the west corner may be a formal entryway into the enclosure.

Aside from a few naturally outcropping basalt boulders, the enclosure's interior is devoid of any surface features, consisting of a gently sloping soil surface which would have been well suited as a seating or assembly area for dozens or possibly more than 100 people. The ground surface drops about 3 m from the upslope (ENE) to the downslope (WSW) wall.

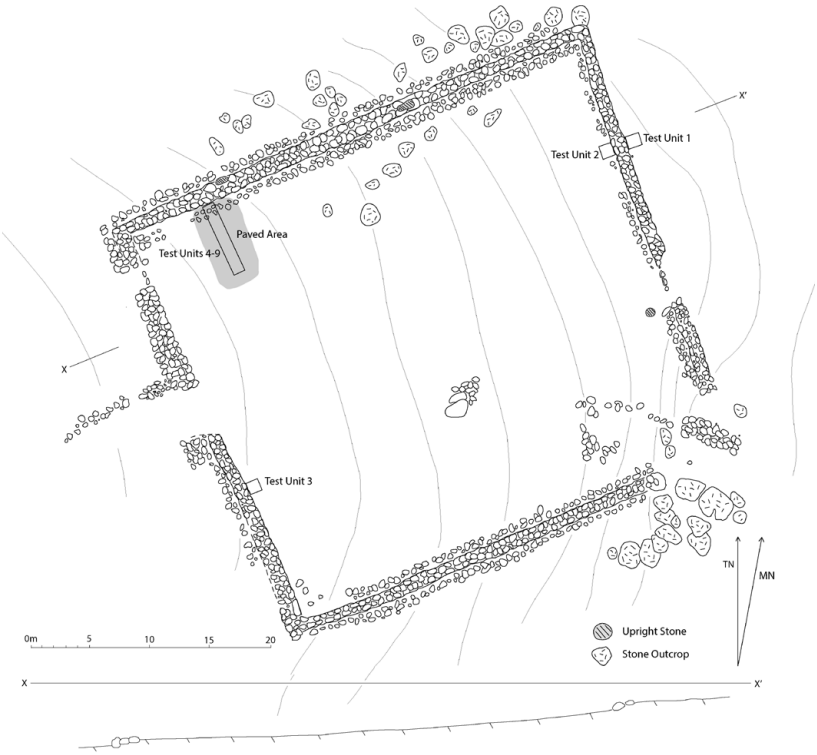

Figure 3. Plan of the enclosure site.

OTHER FEATURES

Approximately 25 m to the NW of the enclosure an artificial alignment of five upright basalt boulders runs WSW–ENE (roughly parallel to the enclosure walls) between a pair of much larger natural outcrop boulders. The upright boulders range from 35-60 cm in height. A cleared, level space fronts the row of uprights to the SSE, as seen in Figure 4. Such rows of uprights are typical of simple *marae* 'temples or shrines' found in various Polynesian islands (Emory 1943). In the Hawaiian Islands, such rows of uprights are rare, although they are known to occur on the remote islands of Nihoa and Necker in the northwestern Hawaiian Islands (Emory 1928), as well as in association with the high-altitude adze quarry site on Mauna Kea (McCoy *et al.* 2009). We interpret this row of uprights as a shrine which may have been related to

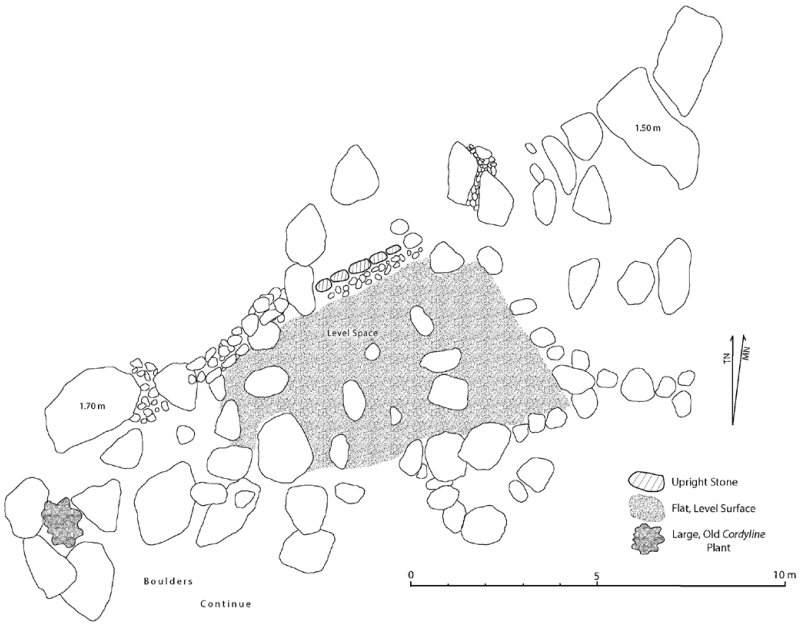

Figure 4. Plan of the small shrine site with row of five upright stones.

the larger, nearby enclosure. We did not excavate at this shrine structure in deference to concerns expressed by our Native Hawaiian collaborators who did not wish to see this structure disturbed by subsurface investigations. It is mentioned here as one of several sites in the area and because of its potential religious significance; however, its relationship to the previously described enclosure remains to be determined.

Other features in the vicinity of the enclosure include short sections of stone wall and possible pre-contact burials represented by spaces between natural boulders filled by compacted small stones. In addition, the enclosure sits at the uphill terminus of Maka‘iwa Gulch, which contains stone platforms and paved areas, as well as possible post-contact and pre-contact burial sites. Within a few hundred metres to the NE of the enclosure the remains of other stone structures, possibly house sites, have been identified. Given the number of such nearby features, it is likely that other sites also existed in this area in the past, but were destroyed by the decades of plantation agriculture and ranching on the mountainside.

THE 2012 EXCAVATIONS

We dug nine 1 m^2 sondages, designated as TP (Test Pits) 1 through 9. Our excavations were situated so as to relate the surface architecture to any subsurface stratigraphy and to obtain dateable materials in contexts that would allow for an estimation of the age and use of the enclosure, following the approach advocated by Dye (2009). Excavation proceeded in 5 cm arbitrary levels within stratigraphic layers, with all artefacts plotted manually in three dimensions. Sediment was dry screened through nested ¼ inch (6.4 mm) and ⅛ inch (3.2 mm) sieves. Four of the nine test pits were placed against the walls of the enclosure, with the others located in the area of a suspected pavement (Fig. 3). We recorded excavation data on pre-printed forms and through photography, but also employed the beta version of a "Codifi" electronic database, developed by the Center for Digital Archaeology at the University of California, Berkeley and adapted specifically for this project. This database, using a FileMaker Go iPad application, allowed us to take pictures and short movies of the test units and other aspects of the excavation using a third-generation iPad, uploading them directly into the database and adding descriptive information in real time.

Test Pits 1 and 2

The first two 1 m^2 units were excavated on either side of the upslope, ENE wall of the enclosure, in an effort to expose the wall base and obtain charcoal for radiocarbon dating. TP-1, on the upslope side, revealed an accumulation of sediment c. 25 cm thick which partially buried the lowest course of wall stones. In TP-2, against the interior wall face, 10 cm of recent, reddish-brown clayey sediment (Layer I) containing a considerable quantity of non-carbonised candlenut (*kukui*) endocarps overlapped the base course of the wall. Beneath this, the sediment adjacent to the wall base became slightly more compact with flecks of charcoal (Layer II); a charcoal sample from 12 cm below the surface was extracted for radiocarbon dating (Beta-326898, see "Dating the Construction of the Enclosure" below). A small bead of *Conus* shell was found in Layer II near the base of the wall.

Test Pit 3

This 1 m^2 unit was excavated against the interior face of the enclosure's WSW wall, on the downslope side of the enclosure where sedimentation against the wall appeared to be greatest. Our aim was to determine the depth of the wall base and to recover dateable charcoal in association with the base of the wall which would inform on timing of the enclosure's construction. The stratigraphic section of TP-3 (Fig. 5) shows an accumulation of between

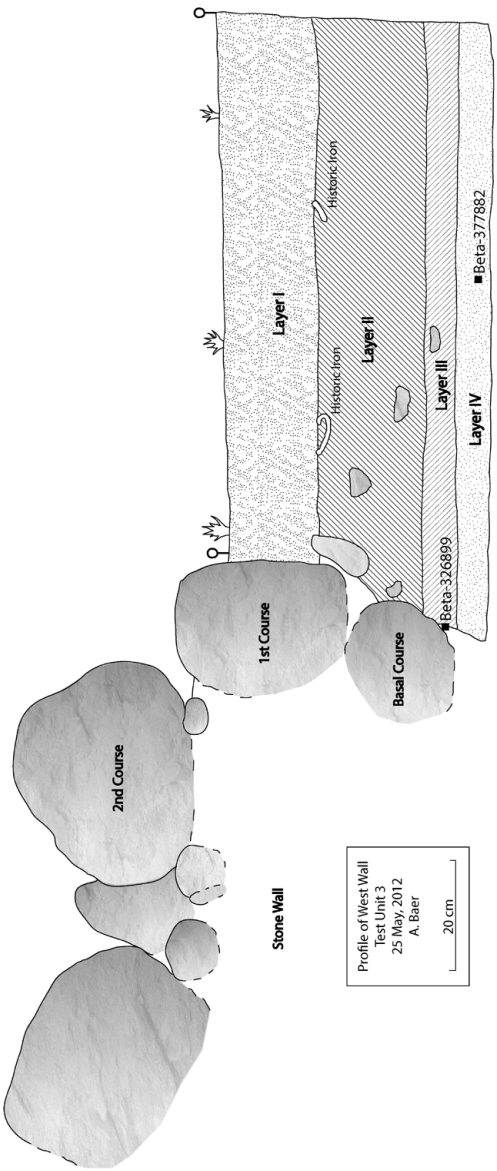

Figure 5. Stratigraphic profile of excavation unit TP-3.

45-48 cm of sediment against the wall face (much greater than at TP-1 and TP-2), burying the lowest boulder course, and consisting of four distinct stratigraphic units. Layer I is a compact, reddish-brown silty clay. At the interface between Layer I and Layer II were two pieces of rusted iron which were deposited on a surface represented by the top of Layer II and prior to the accumulation of Layer I, indicating that the stratigraphic boundary between Layers I and II dates to the historic, ranching period. Layer II was similar in colour to Layer I and also consisted of silty clay, but with larger and more angular peds; it lacked any historic period artefacts. Layer III also consisted of silty clay but with a considerable amount of basalt cobbles and with charcoal flecking throughout; this thin deposit accumulated against the base of the enclosure wall and from it we obtained a sample of charcoal immediately adjacent to the wall base (Beta-326899). Underlying the wall is Layer IV, a dense, hard-packed clay with flecks of charcoal presumably deriving from land clearance or agricultural activities prior to construction of the enclosure; one small concentration of charcoal in Layer IV at 50 cm depth below surface was sampled for radiocarbon dating (Beta-377882). Layer IV represents the original land surface upon which the enclosure was constructed.

Test Pits 4 Through 9

Near the western corner of the enclosure we observed the tops of a few exposed, rounded stones suggesting the presence of a stone pavement (Fig. 6). In addition, during mapping a large piece of branch coral (*Pocillopora* sp.) was found on the surface in this area; such branch coral was used as ritual offerings on Hawaiian temples (Kirch and Sharp 2005). Test Pit 4 confirmed the presence of the paving, shallowly buried under a few centimetres of sediment. We then extended the excavation as a trench (TP-5 to TP-9) to the NNW wall of the enclosure. Small pieces of coral were found throughout the paving. Dateable charcoal was recovered from beneath the top layer of paving stones (samples Beta-326901 and Beta-371023), as well as from sediment immediately adjacent to the inner face of the enclosure wall (Beta-326900). Our excavation was too limited to reveal the full extent of the pavement, but we were able to determine that it does not extend under the NNW wall, and therefore does not predate the enclosure. It is likely that the pavement represents the foundation for some kind of structure (possibly a thatched house) situated within the enclosure.

Figure 6. Area of pavement, TP-4 through TP-9.

DATING THE CONSTRUCTION OF THE ENCLOSURE

Six charcoal samples from Test Pits 2, 3, 5 and 9 were submitted to the International Archaeological Research Institute, Inc. (IARII) in Honolulu for botanical identification, with the aim of selecting charcoal from short-lived, native Hawaiian shrubby species for dating and avoiding old-growth wood (see Bayman and Dye 2013: 32). Identified charcoal samples were AMS radiocarbon dated by Beta Analytic, Inc. Table 1 presents the results of ^{14}C dating, with calibrations using the IntCal13 curve (Reimer *et al*. 2013) at 2σ ranges (95.4% probability). Figure 7 is an Oxcal plot (Bronk Ramsey 2009) of the calibrated probability distributions for the six samples organised by stratigraphic phases.

Interpretation of a suite of radiocarbon ages deriving from the last few centuries poses challenges due to the complex probability distributions that result from multiple intercepts of the radiocarbon ages with the calibration curve. To help interpret the radiocarbon dates reported in Table 1 we applied a

Table 1. Results of radiocarbon dating. Calibrations made with Oxcal version 4.2.3 (Bronk Ramsey *et al*. 2013), using the IntCal13 atmospheric calibration curve (Reimer *et al*. 2013).

Sample number	Provenience (all depths below surface)	Botanical taxon / Hawaiian name	Measured radiocarbon age BP	$^{13}C/^{12}C$ ratio (o/oo)	Conventional radiocarbon age BP	Calibrated age ranges AD (2 σ – 95.4 % probability)
Beta-326898	TP-2E, Level 2; 12 cm; Layer II	cf. *Chamaesyce* sp. / *'Akoko*	102.4 ± 0.4 pMC	-10.4	50 ± 30	1694-1782 (21.8%) 1812-1919 (73.6%)
Beta-377882	TP-3, Level 9; 50 cm; Layer IV (small concentration of charcoal 40 cm from N face of unit)	*Chenopodium oahuense* / *'Āheahea*	440 ± 30	-26.6	410 ± 30	1430-1522 (82.2%) 1578-1583 (0.5%) 1591-1620 (12.1%)
Beta-326899	TP-3E, Level 9; 48 cm; Layer III (associated with wall base stone)	*Chenopodium oahuense* / *'Āheahea*	160 ± 30	-24.6	170 ± 30	1695-1699 (17.3%) 1721-1818 (50.5%) 1833-1880 (8.0%) 1916...(19.6%)
Beta-326901	TP-5, Level 2; 12 cm (within pavement)	cf. *Chamaesyce* sp. / *'Akoko*	90 ± 30	-10.7	320 ± 30	1483-1646 (95.4%)
Beta-371023	TP-5, Level 2; 12 cm (within pavement)	*Cocos nucifera* / *Niu* (coconut)	200 ± 30	-23.6	220 ± 30	1642-1684 (36.7%) 1735-1806 (44.7%) 1933... (14.0%)
Beta-326900	TP-9, Level 4E; 20 cm (adjacent to base wall stones)	cf. *Pittosporum* / *Hō'awa*	240 ± 30	-23.2	270 ± 30	1514-1599 (42.8%) 1617-1669 (46.4%) 1781-1799 (6.2%)

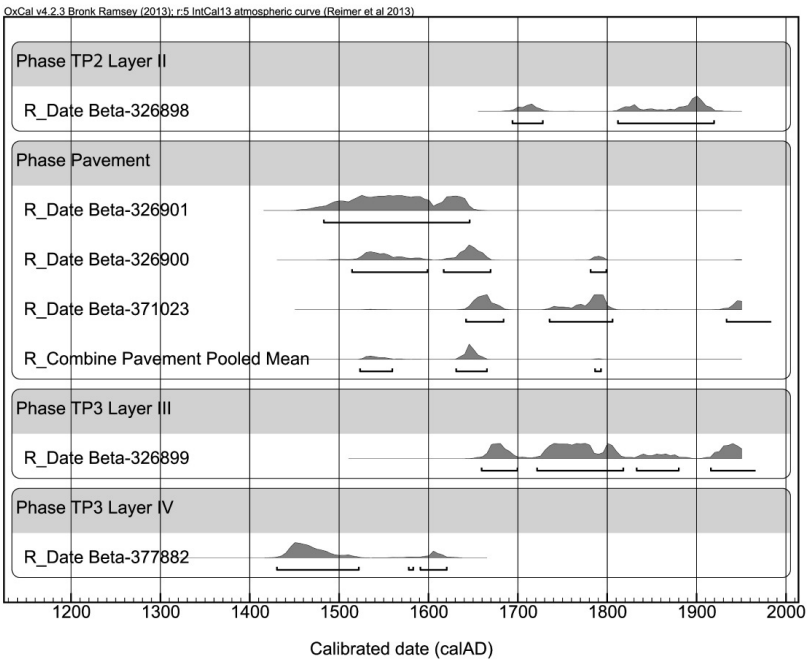

Figure 7. Oxcal plot of the six radiocarbon dates from the enclosure (see text for discussion).

Bayesian statistical approach using the BCal program (Buck *et al.* 1999). We first constructed a chronological model based on the inferred stratigraphic relationships of our six dated samples. Stratigraphically, the oldest context is Layer IV in TP-3 which underlies the enclosure wall and provides a *terminus post quem* (the limit after which) for the wall, while Layer III in TP-3 abuts the base of the wall and provides a *terminus ante quem* (the limit before which) for wall construction. Using the standard symbology of BCal in which α and β represent the maximum and minimum ages (start and end dates) for their particular contexts, we can express the relationship between the Layers IV and III and the enclosure wall as follows: $\alpha_1 \geq \beta_1 \geq$ wall $\geq \alpha_2 \geq \beta_2$, where α_1 and β_1 refer to lower and upper boundary parameters of Layer IV and α_2 and β_2 refer to lower and upper boundary parameters of Layer III. Sample Beta-377882, in Layer IV, provides an estimate (θ_1) of

an (unknown) date γ_1 in the range α_1 to β_1, while sample Beta-326899, in Layer III, provides an estimate (θ_2) of some γ_2 in the range α_2 to β_2. The relationship $\gamma_1 \geq$ wall $\geq \gamma_2$ allows us to derive the prior model $\theta_1 \geq$ wall $\geq \theta_2$. Similarly, Layer III in TP-3 (θ_2) and the pavement exposed in TP-5 to TP-9 (θ_3, θ_4 and θ_5) both post-date wall construction; in our model we assume them to be penecontemporaneous, representing the main period of use of the enclosure, as they appear to bear the same stratigraphic relationship to the enclosure wall. The age of the pavement context (θ_3, θ_4 and θ_5) is estimated by radiocarbon samples Beta-326901, -326900 and -371023. Finally, the shallow context of Layer II in TP-2 (θ_6) is modelled as being the latest phase in the site chronology and its age is estimated by Beta-326898. We further constrained the model with two floating parameters: φ_1 is the best current estimate for the date of initial Polynesian colonisation of the Hawaiian Islands, set at 1050 ± 100 BP (Athens *et al.* 2014), while φ_2 is the beginning of the post-contact ranching period on O'ahu, set at 90 ± 25 BP, by which time the Pālehua area was known to have been abandoned by Native Hawaiians (Von Holt 1985). In our model, these floating parameters set lower and upper bounds on the possible time frame for the construction and use of the enclosure.

Based on this Bayesian model of the inferred stratigraphic relationships between our sample contexts, BCal calculates the highest posterior density (HPD) regions at 95% and 67% probabilities for the various parameters as reported in Table 2. Most importantly, construction of the enclosure wall is bracketed by β_1 (509-372 BP at 95%) and α_2 (442-146 BP at 95%). The radiocarbon date from TP-3, Layer III (parameter θ_2) indicates that this deposit accumulated against the inner face of the enclosure wall between 290-249 or 229-135 BP. While the three dates from the pavement area all have multiple intercepts, parameters θ_3 to θ_5 all have HPD regions that range between 422-150 BP with pronounced peaks at around 300 BP, strongly supporting an interpretation of main site use in the mid-17th century AD Continued use of the site into the early post-contact period is suggested by the date from TP-2 (θ_6), with 95% HPD regions of 135-113, 108-98 and 83-31 BP.

In sum, the six radiocarbon age determinations from the enclosure, when modelled with a Bayesian approach, yield an internally consistent chronology. From our BCal analysis we infer that the enclosure was constructed not earlier than AD 1500 and not later than AD 1804. The main period of site use involving the pavement area dates to the mid-17th century, although use of the site may have continued into the early 19th century.

Table 2. Highest Posterior Density (HPD) estimates for modelled stratigraphic groups.

Stratigraphic model group	Event	HPD 95% (BP)	HPD 67% (BP)
TP-3, IV	α1	978-964, 927-917, 01-889, 887-871, 869-451	657-644, 635-470
	θ1	517-453	508-479
	β1	509-372	496-434
TP-3, III	α2	442-146	333-261, 249-189
	θ2	290-249, 229-135	282-266, 215-193, 191-170
	β2	272-243, 218-66	190-103
Pavement	α3	466-314	429-385, 375-363, 348-327
	θ3	415-299	367-350, 336-305
	θ4	422-391, 389-376, 372-357, 331-283, 166-155	320-285
	θ5	308-268, 213-196, 188-150	303-276
	β3	272-243, 218-66	190-103
TP-2, II	α4	179-35	95-46
	θ6	135-113, 108-98, 83-31	70-37
	β4	103-86, 83-1	103-86, 83-1

ORIENTATION OF THE ENCLOSURE

Initial estimates of the orientations of the enclosure walls and other potentially meaningful alignments at the site were obtained by Kirch using a Suunto compass-clinometer and confirmed by GPS readings. Ruggles then visited the site independently on 13 January 2013 in order to carry out an accurate archaeoastronomical survey using a Leica TCR1205 Total Station. The

instrument was set up close to the centre of the enclosure and due north was accurately determined by a series of timed observations of the sun—a standard procedure in archaeoastronomy (Ruggles 1999b: 164-71). Sequences of surveyed points along segments of intact wall facing were used to obtain best estimates of the intended orientation of the walls. Segments of intact wall facing were identified along the inner faces of all four walls and on parts of the outer faces of all but the WSW wall. Historically introduced *Eucalyptus*

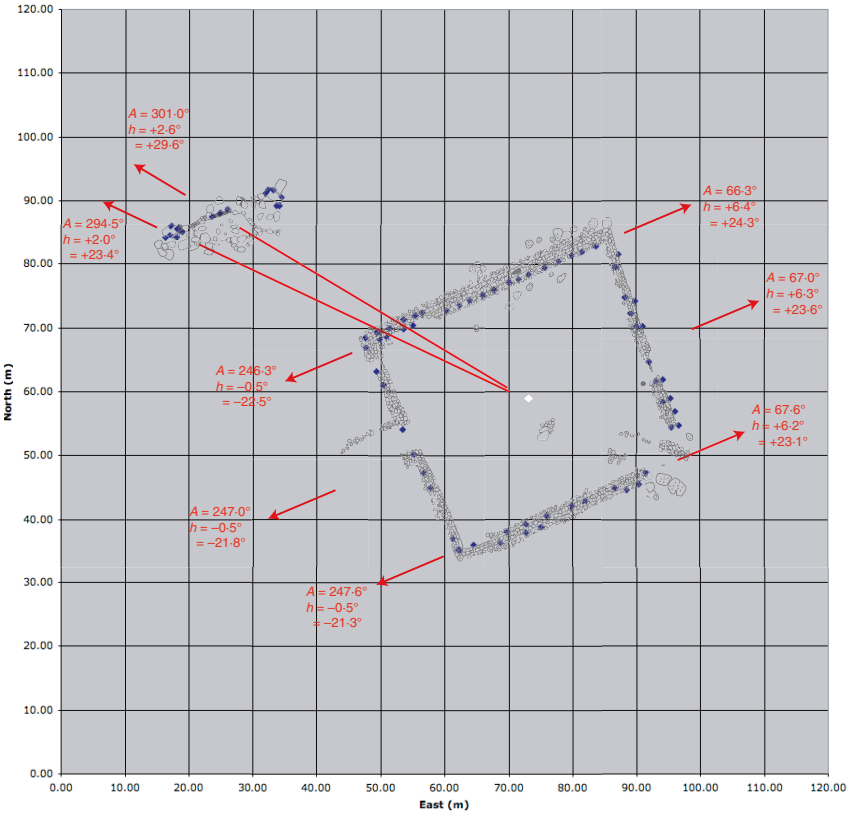

Figure 8. Points on intact wall facings fixed in the archaeoastronomical survey, plotted on a grid oriented in the true cardinal directions with the survey station at (70, 60). The annotations indicate the azimuth (A), horizon altitude (h) and declination (δ) in potentially significant directions.

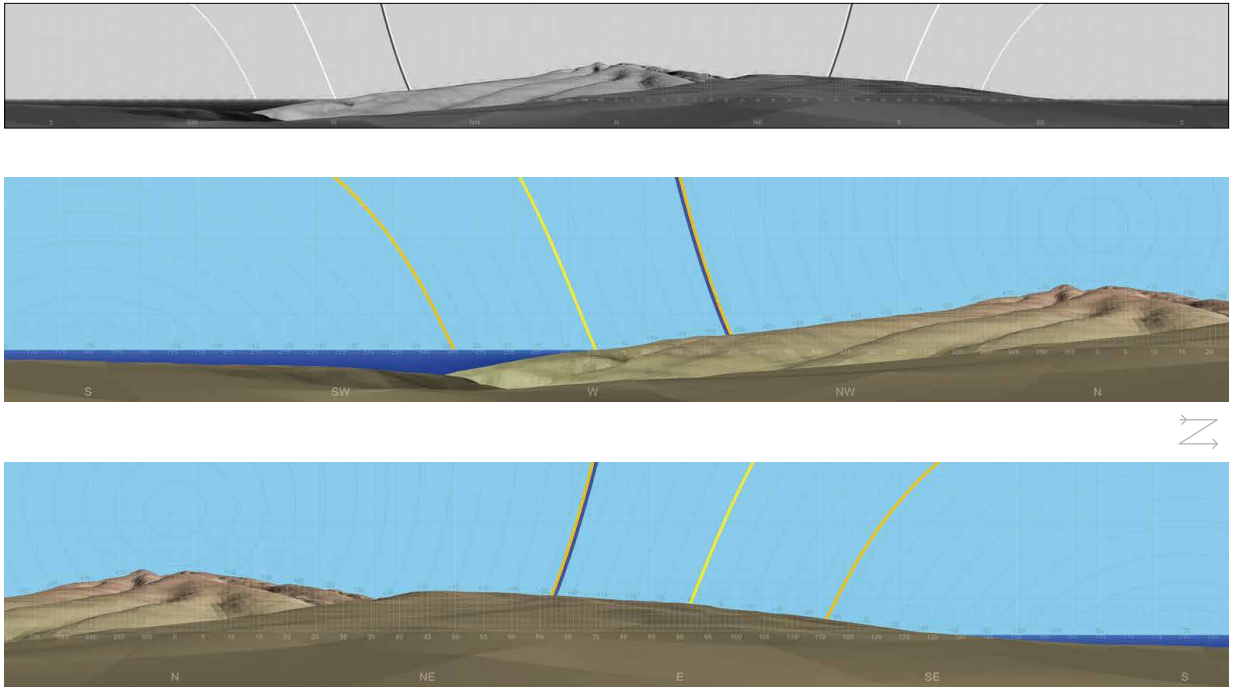

Figure 9. The distant horizon profile, generated digitally from DTM data by Andrew Smith. The darker yellow lines indicate the rising and setting paths of the sun at the solstices. The lighter yellow lines indicate the rising and setting paths of the sun at the equinoxes. The blue lines adjacent to the June solstice rising and setting lines indicate the rising and setting paths of the Pleiades. All paths are calculated for AD 1600.

trees obscure the distant horizon in most directions, but Andrew Smith of the University of Adelaide kindly generated a digital horizon profile from the 1: 24000 USGS Digital Terrain Model (DTM) data using the latest version of his program specifically developed for this purpose (e.g., Pimenta *et al*. 2009). This permitted us to visualise the visible distant horizon in the absence of tall exotic vegetation and to reliably estimate horizon altitudes in particular directions. Ground-truthing (checking or verifying) at the site established that the relevant distant profiles would not have been obscured by local areas of higher ground too small to be resolved using the DTM data. Astronomical declinations were calculated using Ruggles's GETDEC program (Ruggles 1999b: 169; see www.cliveruggles.net).

The spatial distribution of the surveyed points is shown in Figure 8, annotated with the azimuths, altitudes and declinations in potentially significant directions. The digitally generated horizon profile is shown in Figure 9.

Enclosure Alignment to the ENE

For the inner face of the NNW wall, the best-fit azimuth based on 17 measured points, well-spaced along the wall, is 66.3°/246.3°, as determined by least-squares fitting using perpendicular offsets (see http://mathworld.wolfram.com/LeastSquaresFittingPerpendicularOffsets.html). The horizon to the ENE has an altitude of +6.4° (Fig. 10), which corresponds to a declination of +24.3°. Nine measurable points were identified along the inner face of the SSE wall, yielding a best-fit azimuth of 67.6°/247.6° and a corresponding ENE declination of +23.1°. Taking the best estimate of the intended orientation as the mean of the azimuths of the two walls, i.e., 67.0°, the corresponding ENE declination is +23.6°.

The data from the outer faces of the two walls are less reliable. The outer face of the NNW wall could only be identified within c. 10 m of the WSW end; six measurable points here yield a best-fit azimuth of 65.7°, reflecting a slight convexity in the wall as a whole that is also evident from the inner face points. The outer face of the SSE wall could not be identified with certainty. Five widely spaced plausible points yield a best-fit azimuth of +67.0°, but the points on the inner face certainly provide the more reliable estimate of the intended azimuth of this wall.

The declination of the centre of the June solstice sunrise around AD 1600 was +23.5°; it has decreased very slightly, by about 0.05°, in the intervening 400 years owing to the changing tilt of the earth's axis with respect to the plane of its orbit around the sun, that is, the obliquity of the ecliptic. The apparent diameter of the sun being close to 0.5°, the path of the June solstice sun across the sky, corresponds to the strip between declinations +23.25° and

+23.75°, as can be seen in Figure 10. It is clear, then, that the enclosure was accurately aligned upon the rising sun at the June solstice.

However, this direction is also close to the rising point of the Pleiades. The seven stars in this cluster span a declination range of 0.6°, so that the apparent width of the cluster as it passes across the sky is similar to that of the sun (or moon). In AD 1500 the declination range covered by the Pleiades was +22.3° to +22.9°, but this changes significantly over the centuries owing to the changing orientation of the earth's axis with respect to the distant stars

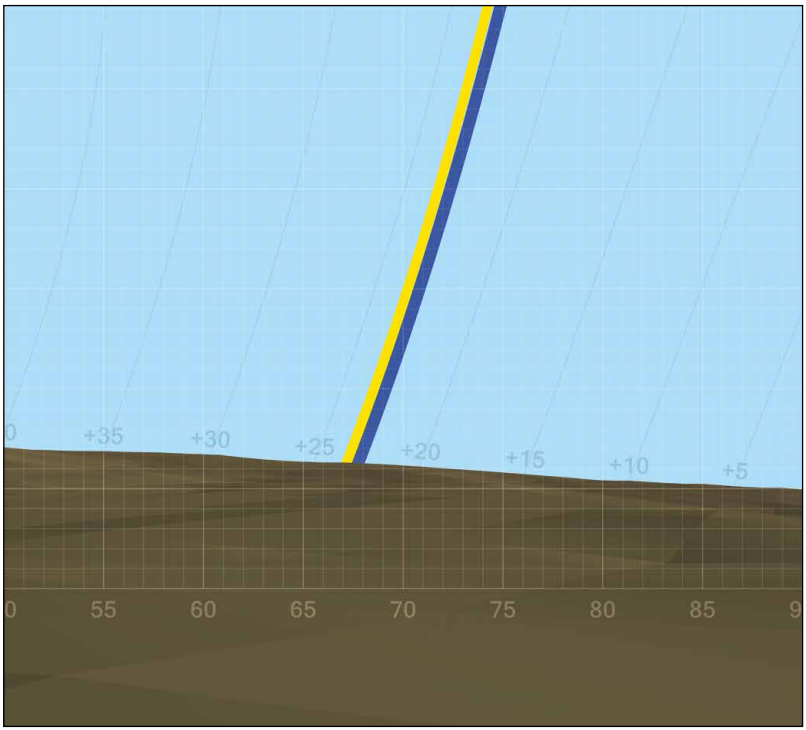

Figure 10. Magnified section of the digitally generated horizon profile, between azimuths 55° and 80°. Lines of constant azimuth, altitude and declination are visible. Vertical lines represent azimuths at 1° intervals, annotated by numbers at the bottom of the grid. Horizontal lines represent altitudes at 1° intervals, with the line at the foot of the grid representing 0°. Curved lines above the horizon represent declinations, again at 1° intervals, annotated at the horizon.

(that is, the precession of the equinoxes). By AD 1550 the Pleiades spanned the declination range +22.5° to +23.1°; by 1600 +22.6° to +23.2° and by 1650 +22.8° to +23.4°.

While the mean orientation of the enclosure to the ENE (declination +23.6°) seems to correspond more closely to the June solstice sunrise than the Pleiades, the cluster would have risen in line with the SSE wall (declination +23.1°) from about AD 1550 onwards, ceasing to do so in about AD 1720.

Other Alignments

In the opposite direction, to the WSW, the alignment misses the direction of December solstice sunset by between 1° and 2.5° in azimuth, or about 2 to 5 solar diameters (see Fig. 8 for horizon altitude and declination data). The orientations of the perpendicular walls to the NNW and SSE are well outside the solar range. Thus, the obvious astronomical potential in relation to the sun or the Pleiades is confined to the ENE direction.

As viewed from the geometrical centre of the enclosure, the top of a large outcrop boulder visible to the left of the small shrine consisting of five upright boulders described earlier (azimuth 294.5°, horizon altitude +2.0°, declination +23.4°) sits squarely at the setting position of the June solstice sun (the boulder is indicated in Figure 4, with a height of 1.7 m above ground). Also, the left-hand side of the boulder (azimuth 293.9°, horizon altitude +1.9°, declination +22.8°) was in line with the setting position of the Pleiades throughout the period AD 1500 to 1650. It has to be noted, however, that no structure has been found marking the geometrical centre of the enclosure and there is currently no independent reason to select the left-hand boulder—rather than, say, the shrine centre or the right-hand boulder—as the potential target.

In summary, the mean axis of the enclosure is accurately aligned upon the June solstice sunrise to the ENE. However, the NNW and SSE walls are not quite parallel, and the SSE wall is itself better aligned upon the rising position of the Pleiades between about AD 1550 and 1720, a range that includes the most likely date of construction of the wall. There is no obvious relationship with the solstitial sun in the opposite (WSW) direction for that time period, but as viewed from the geometrical centre of the enclosure, the large boulder to the left of the shrine is aligned with June solstice sunset and the setting position of the Pleiades.

DISCUSSION

Hawaiian ethnohistoric sources indicate the existence of special gathering places where members of an *ahupua'a* community would assemble during the Makahiki period, especially for the offering of tribute to the Lono priests and for various sports, games and other ceremonies associated with

this important ritual period. The evidence obtained from the large upland enclosure at Honouliuli is consistent with this site having been such a Makahiki assembly place. The structure is monumental in scale (requiring substantial labour to construct) and thus likely to have served an entire community, rather than just a few households. Its morphology, however, does not resemble that of typical Hawaiian *heiau* 'temples' (Kirch 1985, McAllister 1933); rather, the large open enclosure seems designed as a gathering space. The presence of branch coral is also suggestive of ritual activity. Radiocarbon dates indicate that the enclosure was most likely constructed between the late 16th to early 17th centuries, with a well-attested period of use involving the pavement of the mid-17th century; these dates correspond to the Late Expansion to Proto-Historic Periods of the Hawaiian cultural sequence (Kirch 1985).

The archaeoastronomical evidence strongly supports this conclusion. During this time interval, the enclosure is aligned upon the rising position of the Pleiades, with the SSE wall being precisely aligned upon the point on the horizon at which the star cluster first appeared above the horizon, and the axial orientation of the enclosure is only half a degree further to the left. The acronychal rise (rising at sunset) of the Pleiades each November marked the beginning of the Makahiki season.

Given that, at around AD 1600, the declination of the Pleiades is close to that of the June solstice sunrise (Ruggles 2014b), it could also be argued that the enclosure axis was solstitially aligned. However, while there is firm evidence of systematic solstitial orientations being used for calendrical regulation in Mangareva (Kirch 2004b), in Hawai'i ethnographic references to solstitial observations are very rare. Emerson (1909: 197) refers to sunrise observations being used to mark the passage of the seasons, using lava pillars at Cape Kumukahi on the Big Island (Emerson 1909: 197). A second reference is by Kamakau (1976: 14) regarding a hill called Pu'u o Kapolei, situated within Honouliuli, the same *ahupua'a* as the Pālehua enclosure (but at a lower altitude, closer to the ocean). According to Kamakau, "When the sun moved south from Pu'uokapolei—and during the season of the sun in the south—for the coming of coolness and for the sprouting of new buds on growing things—the season was called Ho'oilo" (p. 14). Although no further details are provided, this does hint at the practice of solar observation to determine the Kau (approximately summer) and Ho'oilo (broadly winter) seasons of the calendar, at least on O'ahu. While we cannot therefore discount the possibility that the solstitial alignments also were of significance in Hawai'i, the ethnographic evidence for the most part strongly favours the conclusion that it was the alignment on the rising of the Pleiades that was of paramount importance at the Honouliuli enclosure.

Our radiocarbon chronology for the enclosure—while not extremely precise—is nonetheless consistent with our astronomical findings, with enclosure construction most likely occurring during the late 16th to early 17th centuries. The early AD 1600s saw the likely peaking and stabilisation of population on O'ahu, the expansion of settlements into leeward and marginal zones, and a considerable investment in monumental architecture (Kirch and McCoy 2007). Kirch (2010) has suggested that the construction of temples relating to the worship of the god Lono and the Makahiki period, supporting the related annual extraction of taxes and tribute, were likely to have been part of a strategy of consolidation of power by an archaic state. It is noteworthy that in the Kahikinui and Kaupō districts on the island of Maui, there are over 60 small temples, of which a significant proportion are oriented within a few degrees of the rising position of the Pleiades, and have been identified as Lono temples (Kirch 2004a, Ruggles 2007). The majority of these temples have been precisely dated by U-series dating of coral offerings to the period between AD 1550–1600 (Kirch and Sharp 2005, Kirch *et al*. 2015). McCoy (2008) has documented a solstice and Pleiades-oriented *heiau* at Kalaupapa, Moloka'i Island, as well as institution of the Makahiki ritual complex there immediately after subjugation of Kalaupapa by an O'ahu chief. Archaeological evidence from the Leeward Kohala Field System on Hawai'i Island is also consistent with the notion that *heiau* were constructed for Lono-centred worship (McCoy *et. al*. 2011). The enclosure at Honouliuli thus suggests that what has been evident in the dryland areas of the eastern islands of Maui and Hawai'i (Big Island) was also occurring in the uplands of west O'ahu at around the same time.

* * *

The orientation of the enclosure in the uplands of Honouliuli, O'ahu, taken together with the radiocarbon evidence, strongly suggests that the enclosure was purposely and precisely laid out in alignment with the rising of the Pleiades, and that it was used for ceremonies in association with the Makahiki ritual season during the last one to two centuries before European contact. This research adds to our understanding of the changing ideological structures that accompanied, and helped to facilitate, the development of archaic states in the Hawaiian Islands a mere two centuries before the arrival of the Europeans.

ACKNOWLEDGEMENTS

We thank Gill Ewa Lands, LLC for access to the land and for financial support; Pacific Legacy, Inc. for the loan of excavation equipment; our research team; and Thomas Anuheali‘i and others for their cultural protocols throughout the excavations. Ruggles is grateful to Tony Gill for guidance to the site and assistance with the archaeoastronomical survey. He also thanks Jo Lynn Gunness at the Department of Anthropology at the University of Hawai‘i, Mānoa, for the loan of the Total Station. We thank Andrew Smith of the University of Adelaide for generating the digital horizon profile.

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ABSTRACT

The Hawaiian people before Western contact gathered at special places during the Makahiki period, a time that was sacred to the god Lono, and during which sports, games and other ceremonies took place. Archaeological excavation and archaeoastronomical investigation together suggest that an approximately 40 m^2 rock enclosure in the uplands of Honouliuli on the island of O‘ahu was such a special gathering place. Radiocarbon dating indicates that the enclosure was most likely constructed between the late AD 1500s and early AD 1600s, with a notable period of use during the mid-AD 1600s. The archaeoastronomical evidence supports this conclusion, in that the enclosure is precisely aligned upon the horizon rising point in AD 1600 of the Pleiades star cluster (Makali‘i in Hawaiian), whose first appearance each November marked the beginning of the four-month Makahiki "annnual harvest" period dedicated to the god Lono. That time period saw the peaking and stabilisation

of population on O'ahu, and the expansion of settlements into marginal environmental zones such as Honouliuli. A significant number of temples built around the same time on the island of Maui are oriented in a similar manner.

Keywords: Archaeoastronomy, Hawaiian religion, monumental architecture, Hawaiian archaeology, Polynesian religion

CITATION AND AUTHOR CONTACT DETAILS

Gill,[1] Timothy M., Patrick V. Kirch,[2] Clive Ruggles[3] and Alexander Baer,[4] 2015. Ideology, ceremony and calendar in pre-contact Hawai'i: Astronomical alignment of a stone enclosure on O'ahu suggests ceremonial use during the Makahiki season. *Journal of the Polynesian Society* 124(3): 243-268; DOI: http://dx.doi.org/10.15286/jps.124.3.243-268

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MONUMENTAL IDEOLOGY: A GIS SPATIAL ANALYSIS OF INTERIOR FEATURES OF MATAKAWAU PĀ, AHUAHU (STINGRAY POINT PĀ, GREAT MERCURY ISLAND), NEW ZEALAND

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Humans construct and ascribe meaning to their environments through action informed by spatial logics. As such, "space is both a medium for and the outcome of human activity" (Knapp and Ashmore 1999: 8). Materialisation of social difference is a powerful mechanism of hierarchical naturalisation, whereby individuals internalise their social positions based on embodiment in their physical surroundings. Therefore, spatial distributions of archaeological features hold important clues relating to socio-spatial organisations in past human communities and how these contributed to structuring daily life.

These ideas are explored here using *pā* 'defended or fortified places' created and used by New Zealand Māori from as early as the 16th century AD (Schmidt 1996). The presence of terraces, ditch-and-bank earthworks, scarps, fences and palisades indeed attest to the defensive function of *pā*. However, archaeologists in New Zealand often elevate their military importance, with economic explanations of why they occur, over understandings of their semiotic importance within past Māori society (for example, see Davidson 1984, 1987, Groube 1970, Irwin 1985, 2013, McIvor and Ladefoged in press, Pearce and Pearce 2010). In this article, I argue that interior divisions and connections of space within *pā* have potential to highlight aspects of past Māori spatial logics and how these complexes served to promote and maintain social hierarchies from within, and display communal solidarity to the outside.

The analysis of Matakawau Pā (Tl0/169) is based on a terrestrial laser scanner "point cloud", a three-dimensional digital map or image of the headland and its culturally modified components. The point cloud is used to isolate platforms and terraces where people lived; pathways, which enabled movement and interaction between different living spaces; and scarps, which acted as barriers to block and redirect movement and spatial experience (Fig. 1). My analysis tests hypotheses based on Sutton's (1990, 1991, Sutton (ed.) 1993) observations of peripheral *pā* at Pouerua (Northland, New Zealand) and ethnohistoric accounts from the 18th and 19th centuries, namely that the highest features on residential *pā* were associated with chiefs, and their morphologies were consistently different from surrounding

Journal of the Polynesian Society, 2015, 124 (3):269-302;
DOI: http://dx.doi.org/10.15286/jps.124.3.269-302

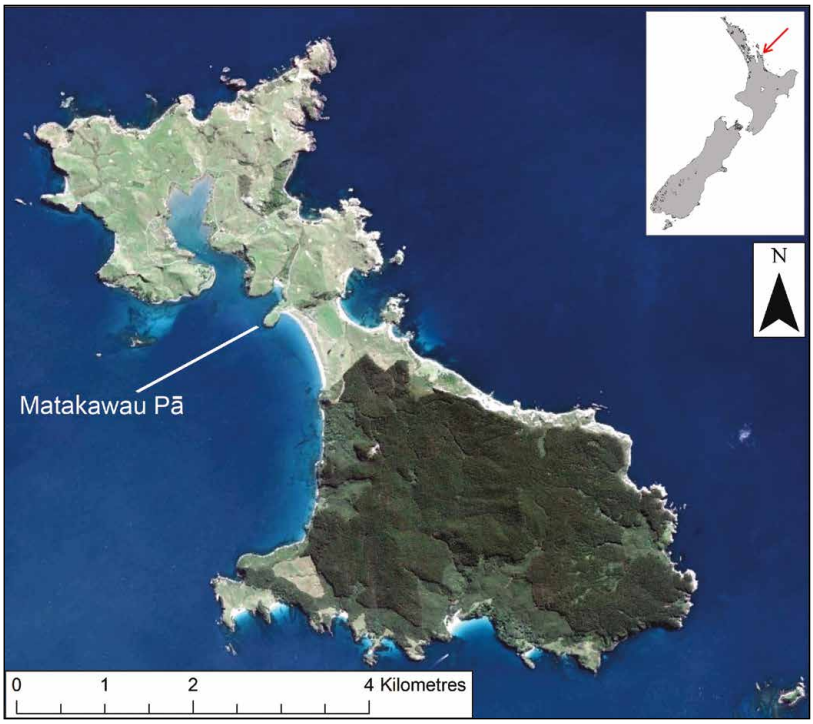

Figure 1. Map of Ahuahu (Great Mercury Island) with location of Matakawau Pā.

features (usually terraces) where lower status members of society lived. Using least cost path (LCP) network analysis, I also explore how open spaces and pathways connected, while scarps inhibited, movement between different areas of the *pā*. I test whether spatial logics were imprinted on the constructed layout of space within Matakawau against Best's (1927) and Groube's (1970) observations that *pā* form followed local topography.

SPACE IDEOLOGY AND CONSTRUCTED LANDSCAPES

Spatial perceptions are socio-historically contingent and guide how people conceive of their own existence in relation to their surrounding landscape, interact with other individuals and order their cultural materials and activities (Ashmore 2004, 2014, 2015, Bender 1993, Bradley 2000, Giddens 1984, Knapp and Ashmore 1999, Llobera 1996, Morton *et al.* 2012, Tilley 1994).

Through the intentional construction of barriers and pathways, and by repeatedly acting within spaces, people ascribe meaning to their physical environments in a way that creates order. In turn, meaning associated with different spaces is internalised through embodiment in relation to spatial order, while action further creates and associates meaning to those spaces (Kealhofer 1999: 61, Knapp and Ashmore 1999: 16).

DeMarrais, Castillo and Earle (1996) argue that ideologies can be promoted and maintained through the manipulation of spatial logics. Ideology warps or naturalises one's perception of the reality of one's social, political and economic condition (Cohen 1969). This is done through masking, rationalising, or accentuating social frictions, inequalities and frustrations (Leone *et al.* 1987: 284). By materialising ideologies in the form of monuments, ceremonies, physical objects and writing systems the intended message can be physically experienced, internalised and naturalised through action. Ideologies can be further strengthened through exposure to vast audiences on a daily basis and over long periods of time (DeMarrais *et al.* 1996, Earle 2001: 107).

In particular, monuments and constructed environments can be powerful mechanisms that manipulate spatial organisational structures to promote and maintain ideologies of social inequality. Trigger (1990: 119) defines monumental architecture as a structure with "scale and elaboration [that] exceed the requirements of any practical functions that a building is intended to perform". DeMarrais *et al.* (1996: 18-9) argue that these often highly visible constructions communicate an idea of centralised control over labour and materials by an influential party, whereby the structure makes power visible and therefore is power (Wilson 1988: 148). The building, reformation and maintenance of monumental architecture upholds that power and convinces people of the reality of that power (p. 179).

At the same time, the presence, size and elaboration of monumental architecture does not necessarily reflect dominance and social stratification (Burley 1994, Gibson 2004: 258, Kolb 1994, Rosenswig and Burger (eds) 2012). This is because monument construction occurs within societies of low social stratification as well as within highly stratified societies, while serving non-hierarchical purposes (Rosenswig and Burger 2012: 6). Sassaman and Randall (2012) propose that monumental architecture should not be viewed so much as a consequence of increasing socio-political complexity, but as an instrument in structuring culture change. Therefore, making the initial assumption that monuments relate directly to socio-political centralisation and stratification homogenises meaning and de-contextualises monuments from "local cultural understandings as sites or places that connect the seen and the unseen, the tangible and the intangible" (Ballard and Wilson 2014: 84).

Trigger's definition of monumental architecture is specific to "buildings"; however, the same effect is true for other constructed environments. Clark and Martinsson-Wallin (2007: 30) extend the conception of the monumental to include the surrounding landscape within which structures are situated. These constructed environments are created through cultural practice and in turn constrain the possibilities of practice (Smith 2003: 72). Entire settlement layouts reflect and maintain spatial logics that may be implicit within a community, such as by way of pathway and building orientations (e.g., Landau 2015, Richards-Rissetto and Landau 2014), boundary formation between different spaces (e.g., Kosiba and Bauer 2013), the location of status and ritual architecture (e.g., Kahn and Kirch 2011, McCoy, Ladefoged *et al.* 2011, Quintus and Clarke 2012) and spatial relationships between houses (e.g., Kahn 2007, 2014, Sutton 1994). At the cost of extra labour in constructing and elaborating these environments, variable ideologies, such as social inequality and communal solidarity, are internalised by human actors. Addressing these themes, however, must be situated within local contexts of cultural understanding and practice, rather than assuming that monuments have the same symbolic functions worldwide (Ballard and Wilson 2014, Rosenswig and Burger 2012).

PĀ AS SPATIALLY CONSTRUCTED LANDSCAPES

Polynesians built monumental architecture for residential, ritual and fortified purposes, structures that are often associated with the rise of social hierarchies, socio-political centralisation and economic control (e.g., Clark and Reepmeyer 2014, Kahn and Kirch 2011, Kirch 1990, Kolb 1994, Martinsson-Wallin and Thomas 2014, Quintus and Clarke 2012). In New Zealand, Māori built *pā,* which are perhaps the most visible and widely studied form of archaeological remains in the New Zealand archaeological landscape. *Pā* were constructed from as early as 1500 AD and continued to be used after European contact and into the 19th century (Schmidt 1996). They were defended by constructing wooden palisades, along with terraces, ditches and banks, as well as by taking advantage of natural topography, such as cliff faces. Over 6,700 individual *pā* have been located throughout New Zealand, although they are most concentrated around areas with marine access and in the warmer areas of the North Island where horticulture was most viable (Anderson 2014, Barber 1996, Irwin 2013, Pearce and Pearce 2010).

Pā form and function varied considerably between individual complexes and over time (Sutton *et al.* 2003). This is partly because they were created in many short term events over long time periods (Holdaway 2004). *Pā* have been variably argued to serve as symbols of communal *mana* 'authority, prestige, power' (Fox 1976: 44-9, Groube 1964: 210-11, Sutton (ed.) 1993, Sutton *et al.* 2003), food stores (e.g., Law and Green 1972), citadels (Davidson

1987: 168, Orchiston 1979) and defended settlements (Sutton (ed.) 1993). Their common marker, however, is their defences. Nonetheless this does not limit their symbolic importance; by intensively restructuring local landscapes and then acting within them—regardless of whether or not the intention was there—people negotiate and materialise their social logics and ideologies.

Spatial proxemics in the New Zealand archaeological record have been explored, to some extent, by Sutton (1990, 1991, Sutton (ed.) 1993, 1994) who compared the orientations, dimensions and spatial relationships between houses in *kainga* 'undefended settlements' with terraces (flat surfaces with culturally modified scarps on one to three sides) and platforms (flat surfaces with scarps on all four sides) on peripheral volcanic cone *pā* at Pouerua. Sutton argued that *tihi* (the most elevated flat surface) in *pā* were the structural equivalent of the chief's dwelling in *kainga. Tihi* are commonly rectangular with scarps on all sides (morphologically a platform in archaeological terminology), and were often associated with the chief, sometimes with a dwelling on top (Fox 1976: 45-6). Sutton compared the *tihi* of four *pā* with eight excavated "Type 1 dwellings", the largest, most elevated and uniformly built houses in the Pouerua *kainga*. Both Type 1 dwellings and *tihi* were situated in the most elevated areas of the settlement and had length:width ratios of approximately 1.3:1. *Tihi* were oriented within 40˚ of north, while Type 1 dwellings consistently had 27˚ orientations. Other terraces in *pā* and dwellings in *kainga* had variable dimensions. Sutton (1993) also observed they radiate out "circumferentially ... around *tihi*" (p. 101) and Type I houses, and are "oriented to all points of the compass" (p. 103). In other words, terrace width axes were qualitatively observed to be in line with the position of the *tihi*. Sutton argued that both the Type 1 dwellings and *tihi* were representations of the chief's elite social status, but that internal spatial divisions were accentuated in the development from *kainga* to *pā* over time. Ditches, scarps, palisades and differential elevations between spaces symbolised the *mana* of the inhabitants and the *pā* itself (Marshall 1987, Sutton 1990, 1991: 546, 1993: 101-03).

However, Sutton's conclusions about terrace and platform morphologies in relation to spatial logics are problematic. Specifically, on headlands or volcanic cones *tihi* platforms are almost always going to be the most elevated feature on *pā*. Similarly, in elevated *pā*, terraces are predominantly cut into the hillslope with width axes necessarily running parallel to aspect. Thus terraces built on conical hillsides will surround and appear to circumferentially radiate out from any feature at the top of the hill (in this case the platform). Related to this, Best (1927: 34) and Groube (1970: 142) commented that *pā* morphology often conformed to local topography. To evaluate how spatial differences may reflect past social differences, we must first understand the relationship between slope and aspect on modified or constructed landscapes.

Ethnohistoric accounts also describe spatial organisation within *pā* that reflect materialised spatial logics and influenced the actions of inhabitants. Best (1927: 147-51) described the ritual of lifting *tapu* 'sacred or ritual restriction' from *pā* by Māori in the 19th century—an inauguration process to clear the sacredness of the complex so that it could be lived in. He described that *pā* were initially built with only one prominent house (the largest). After the lifting of the *tapu*, others asked the chief's permission as to where they could build their houses in relation to the first. Furthermore, Best (1927: 127; see also Skinner 1911: 74) described examples where the "principal chiefs of a hill fort [*pā*] would reside in the uppermost area, the *tihi*", while other accounts by Europeans in the 18th and 19th centuries described how separate family units occupied individual terraces that were spatially bounded by scarps, fences and/or palisades and connected by pathways in neat arrangements (Beaglehole 1962 [I]: 432-33, 1968: 198-200, Best 1927: 32, 286, Fox 1976: 45, Nicholas 1817 [I]: 174-75, Skinner 1911: 74, Yate 1835: 123). Open areas (*marae*) were documented at the centre of *pā* and used for formal meetings and general communal interaction (e.g., Angus 1847: Plate 15, Best 1927: 129, Crozet 1891: 32, Firth 1959: 91-104). Such observations of open spaces have been documented archaeologically at Mangakaware Pā (Bellwood 1978) and in *pā* along the Waihou River (Phillips 2000: 154-55), while Sutton (1990) and Fox (1976: 44-9) linked the *tihi* themselves to *marae*. Although these accounts indicate certain organisations of space within *pā*, they are 18th and 19th-century observations and do not necessarily apply to the use, meaning and construction of space as far back as the 16th century AD—when *pā* were first constructed. Nor should one generalise spatial logics across all of New Zealand as meaning and the organisation of space is likely to be regionally variable as individuals negotiate their own local contexts.

The above archaeological research and ethnohistoric information highlight the potential for more archaeological investigation into *pā* as constructed landscapes that both reflected and maintained spatial logics and ideologies. Using GIS and undertaking a spatial analysis of terrestrial laser scanning data from Matakawau Pā, I explore the hypothesis that differences between the *tihi* and other terraces show a materialised social hierarchy of different living areas. I test whether or not terraces "radiate out" in arcs around the *tihi* and if terrace morphologies are consistently different from that of the *tihi*. Through the use of least cost path (LCP) networks, I also explore where earthworks constrain, and open spaces encourage, movement and social interaction within Matakawau to address where potential communal areas may be located and how different living areas are connected to one another through pathways. I evaluate these ideas against the null hypothesis that feature morphology and layout conform to local topography.

CASE STUDY: MATAKAWAU PĀ, AHUAHU

Ahuahu (Great Mercury Island) is the largest (1740 ha) of the Mercury Islands, 13 km from the east coast of the Coromandel Peninsula (Fig. 1). The island, along with the adjacent mainland, was first settled by descendants of the Te Arawa canoe in the 13th century AD. The local area was preferable for early settlement due to the wealth of marine resources, the local climate for horticultural activity, the proximity to high quality stone resources for tool manufacture (Tahanga basalt and Tuhua/Mayor Island obsidian), the presence of large fauna and its location as a stopping-off point for travellers along the east coast of the North Island (Furey 2000, 2009: 13). The size of human populations on Ahuahu fluctuated both seasonally and inter-annually according to changes in local ecological and social environments through time (McIvor and Ladefoged in press). In the 18th and 19th centuries—before and after the visit of Captain James Cook and the *Endeavour* to Mercury Bay in 1769—Marutuahu (Hauraki) and Ngāpuhi (Northland) groups repeatedly raided and settled along the Coromandel's eastern coast. These incursions led to loss of land, population decline and the temporary abandonment of territories by local communities (Beaglehole 1962 [I]: 417, Buchanan 1937, Davidson 1987: 168, Johnston 2000: 6-11, Parkinson 1972: 98, Salmond 1991: 210-11, Smith 1910: 426-29, White 1888: 212-13). McIvor and Ladefoged (in press) suggested that during this time, social stress promoted localised communal solidarity in the form of *pā* construction (such as Matakawau, Tamewhera and Motutaupiri on Ahuahu, as well as Wharetaewa and Whitianga in Mercury Bay) over intermittent episodes of occupation according to competition and external incursions by other groups.

Matakawau is situated on a partly welded ignimbrite headland attached to the isthmus between the northern and southern ends of the island (Hayward 1976: 10) (Figs 1 and 2). The promontory lies between two bays and overlooks the entrance to the large Hurihi Harbour 500 m to the northwest. The *pā* is approximately 200 by 100 m and has an area of c. 19,000 m^2 behind the outer transverse ditch earthworks. The outer defences display at least two different fortification events in the past. These consist of an outer ditch, which has an elevation of up to 2 m lower than the top of the adjacent bank behind it, and an inner triple ditch (double bank) arrangement, where the deepest ditch is up to 5 m lower than the top of the adjacent bank. Based on the premise that older earthworks have been subject to more erosional and depositional processes over time, the shallower and smoother outer ditch may be older. Different orientations between the two sets of defences support the idea of at least two different construction events.

Golson (1955) excavated two storage pits on the southeastern side of Matakawau, which he interpreted to have had at least four different phases

of construction, expansion and/or infilling. Because there is no absolute chronology for the site, it is yet unclear whether a sequence was created over multiple phases of occupation for specific events when defence was required, or if the terrace was used over a longer period with changing spatial organisation through time. Nevertheless, Matakawau provides a good example for analysis of the spatial logics and materialised ideologies within *pā* due to the neat layout of the terraces, the considerable energy put into building the defensive earthworks and the size of the headland.

DATA AND METHODS

The surface archaeological record on Matakawau has been and continues to be subject to a range of erosional and depositional processes. These include wind, rain, waves, livestock movement, soil creep, archaeological excavations and the construction of fences and pathways as part of farm management. Ahuahu has been intermittently grazed by sheep and cattle since transferral from Māori to European ownership between 1858 and 1863 (Mizen 1998, Turton 1877). The length of time that sheep and cattle were farmed on the *pā* itself is unclear. Erosion from stock movement has caused the smoothing of scarp and bank edges; the infilling of terraces, pits and ditches; and the creation of sheep paths cutting through various earthwork areas. These erosional and depositional processes contributed to a large section of the cliff falling into the sea. Two other slumps have occurred on the western and southern ends of the *pā*. These mass movements have caused nearby terraces to reduce in size, while some archaeological features may have been lost altogether.

A 90 m pathway was bulldozed through the northwestern end of the ditch-and-bank defences in the 20th century. A fence line has also been built across the southeastern end of the ditch-and-bank features furthest from the mainland, as well as through the centre of the ditch towards the mainland. Additionally, the 19.5 by 1.8 m trench excavated by Golson (1955) has permanently disturbed terrace morphology on the southeastern side of the *pā*. It is difficult to infer the shape and size of terraces prior to these alterations. However, despite the range of processes that have acted and continue to act on archaeological record at Matakawau, the vast majority of the *pā* has not been dramatically altered by recent land use. While the contemporary landscape surface is by no means the same as it was when the headland was last occupied, the clear slope contrasts between flattened areas and scarps still isolate terrace and platform features, making this spatial analysis possible.

Raster Creation and Feature Identification

The landscape surface was surveyed by Tim Mackrell during a University of Auckland field school directed by Simon Holdaway in February, 2013, using a Leica C-10 terrestrial laser scanner with ±1 mm accuracy. The scanner

sends out millions of laser beams which rebound off of and thereby record point locations on physical surfaces (e.g., the ground surface, grass, trees and rocks). Each point of rebound in the landscape is recorded with an x, y and z value in relation to the position of the scanner (Pflipsen 2006: 14). The resulting collection of points provides a three-dimensional model of the landscape surface which is referred to as a "point cloud". From this 3D digital map or model it is possible to measure distances, elevations, angles and volumes. The raw point cloud of Matakawau consisted of 85 million points, which was reduced to just over 3 million points with a 10 cm average point spacing in Cyclone 8.1.[1] This made the dataset more manageable in ESRI ArcGIS 10.1, where I carried out the subsequent analyses.

The point cloud was converted into a DEM (Digital Elevation Model) raster, which is a pixellated landscape surface representation, where each cell contains a value of elevation in metres. The point cloud was interpolated to a 10 cm cell size using the Kriging method (see O'Sullivan and Unwin 2010: 293-310). This method estimates elevation values for the spaces not directly recorded in the point cloud, based on the elevation values of measured points. After interpolation, every location in the DEM has an estimated elevation value (a continuously pixelated surface), while in the point cloud only the points contain information. From this DEM, I created a slope raster, which displays the maximum rate of elevation change between each cell in the DEM and its surrounding eight cells. Slope is calculated in degrees, flat surfaces have values near to 0º, while steep slopes have values approaching 90º. The slope raster enables the isolation of terraces and platforms based on change in slope values through space.

The terraces and platform on Matakawau had slopes ranging from 0 to 12º, while scarps that defined the boundaries of these surface features were as small as 10º (Fig. 3). This slope overlap meant that different slope values had to be used to define terrace and platform boundaries throughout the *pā*. Figure 3 shows two examples of flat areas defined by slopes from 0-6º and 0-16º. Both examples define some terrace boundaries accurately, while others do not. Terraces on the flatter contours of the headland centre generally had lower sloped scarps (better defined by a low slope contrast), while terraces in steeper areas (e.g., northwest and southwest) had much steeper scarps (better defined by high slope contrasts). As such, terrace and platform features could not be isolated by an automated algorithm based on uniform slope contrasts, as has been applied elsewhere in the Pacific (e.g., McCoy, Asner *et al.* 2011, Quintus *et al.* 2015).

To circumvent this issue, I manually digitised features based on a series of slope contrast rasters, where flat surfaces were defined by slopes from 0-4º, up to 0-16º with 2º slope intervals. To account for the variability in terrace and platform surface morphology, I created two sets of feature

boundaries. The first defines 24 large flat areas that were identified at high slope contrasts (>12º, Fig. 4). The second defines 42 smaller features at low slope contrasts (<12º, Fig. 4), within the above larger features. I analysed morphological feature characteristics of the second feature set, as these smaller divisions of space enabled a more detailed analysis of past spatial

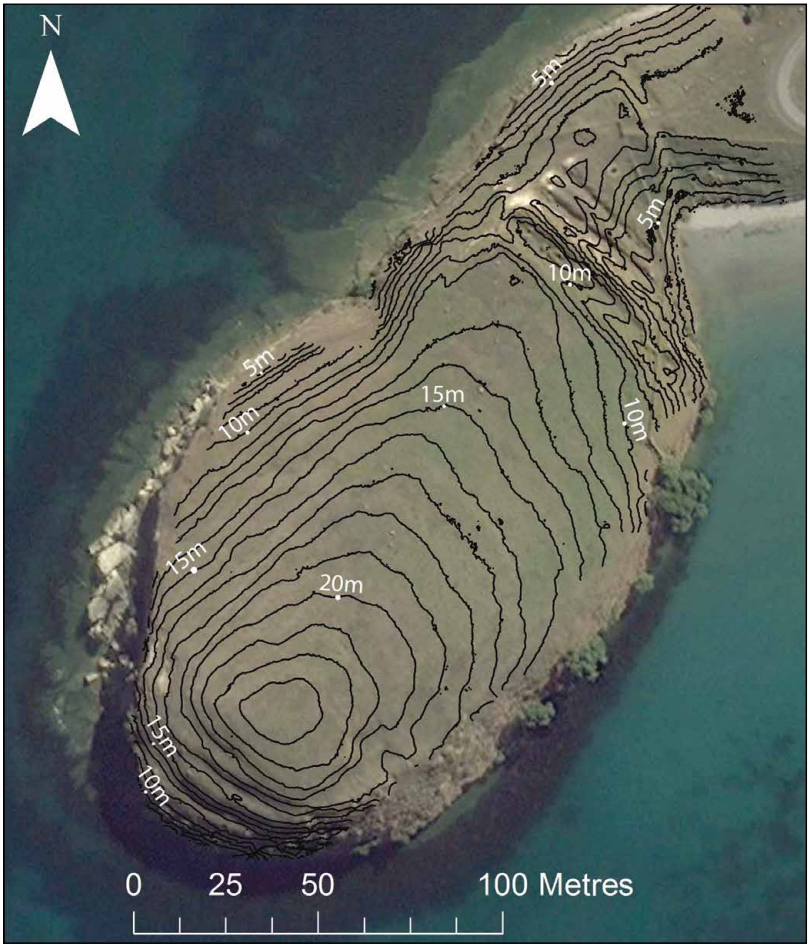

Figure 2. Satellite image of Matakawau Pā with 1 m contours, labelled at 5 m intervals.

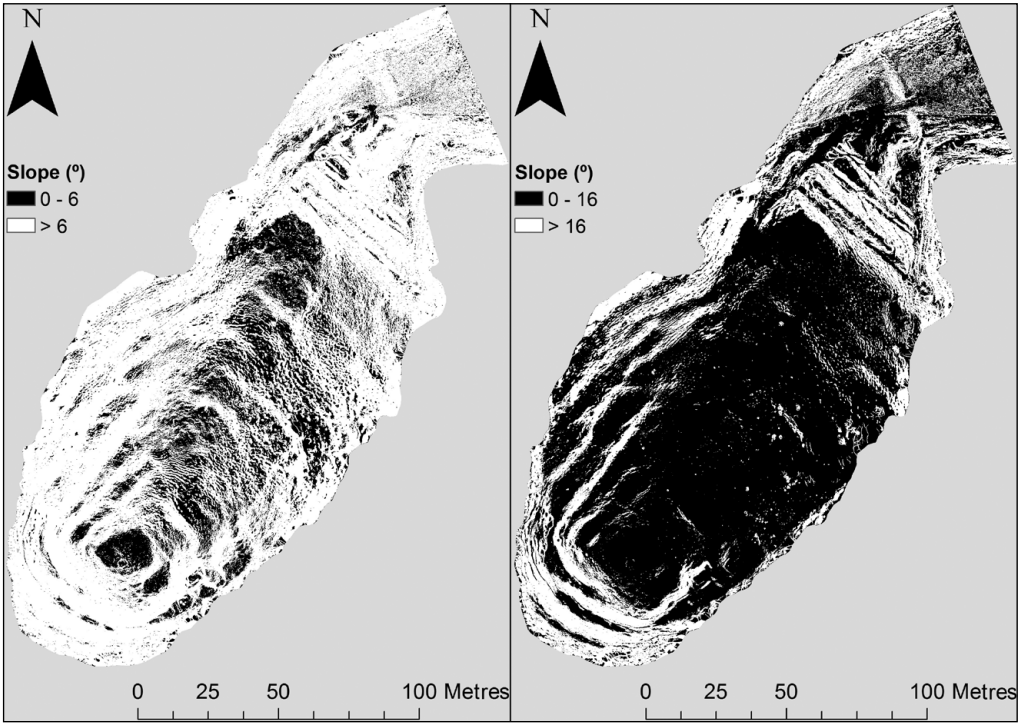

Figure 3. Matakawau Pā slope contrast maps. On the left is a low slope contrast example, where flat areas are defined between 0 and 6° of slope (black), while scarps, defensive banks and natural slopes are greater than 6° (white). On the right is a high slope contrast example, flat areas are defined between 0 and 16°. Low slope contrasts isolate features bound by small scarps, while high slope contrasts define features bound by steeper scarps.

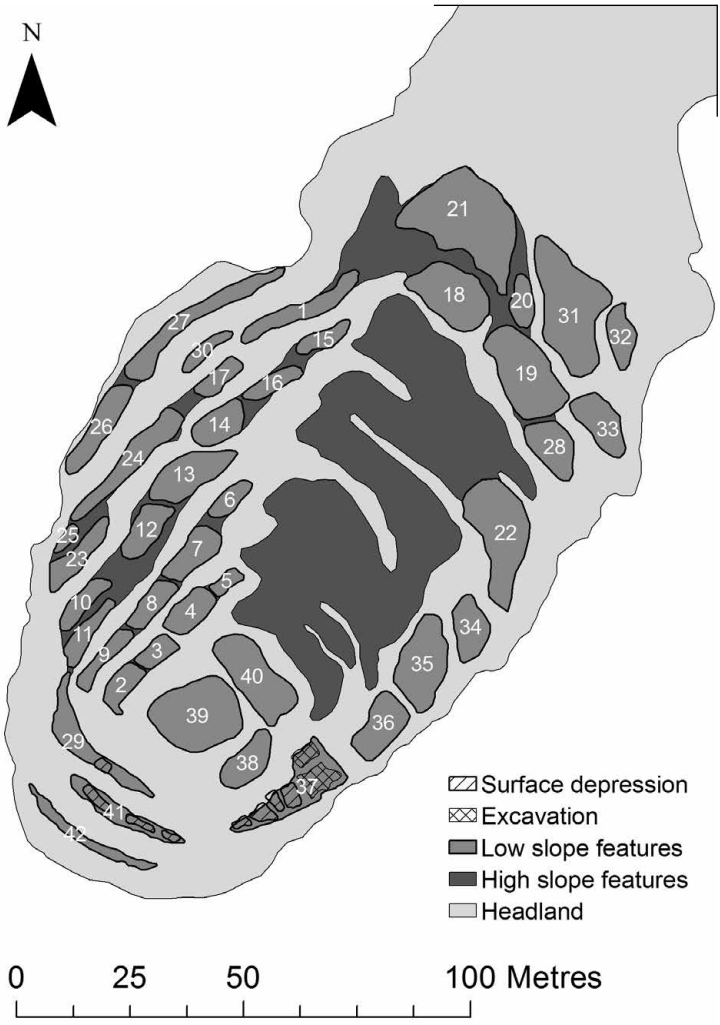

Figure 4. Two sets of feature boundaries based on high and low slope contrasts. Features defined by low slope contrasts were either equal to or smaller than those defined by high slope contrasts. Surface depressions were also located through slope contrast analysis.

logics. The second dataset highlights both how erosional processes have smoothed scarps over time and how shallow-sloped pathways may have connected different areas of the *pā*.

In addition to the terraces and platform, I located rectangular surface depressions in the slope raster (Fig. 4). These all occur on terraces at the southern end of the *pā.* The two largest, on terrace 37, are remnants of storage pits that Golson (1955) excavated, which were identified by their rectangular form and the presence of post moulds and drains lining their floors. The other surface depressions on terraces 37, 29 and 41 may also have been storage pits or, alternatively, sunken house floors built to insulate against the wind (e.g., Marshall 1994). The depressions on terraces 29 and 41 are particularly amorphous in shape, which may indicate they have complex histories, similar to those that Golson excavated.

Morphological Feature Characteristics

In his study at Pouerua, Sutton (1991: 546) compared the shapes of volcanic cone *tihi* and Type 1 houses, which had mean length-to-width ratios of 1.3:1. Other terraces and living areas had irregular shapes and construction patterns compared to the *tihi*. Length-to-width measures of spatial dimensions are helpful in describing rectangular shapes; however, they do not account for irregularity in other feature shapes nor how axes should be defined. To account for this, I developed a shape index based on characteristics of minimum bounding rectangles (MBR) (Fig. 5). A rectangle was created around each feature with the smallest possible width, and from this length and width dimensions were calculated. The equation below creates a shape index based on the difference of a feature's actual shape from that of its MBR:

$$\frac{MBR\ Width}{MBR\ Length} \times \frac{Feature\ Area}{MBR\ Width \times MBR\ Length}$$

The MBR width-to-length ratio indicates how well a feature fits to the dimensions of a square. The measured width and length may not be represented in any section of a particular feature, because none of the surveyed features are true rectangles. To account for this, the MBR width-to-length ratio was multiplied by the ratio of the actual feature area to MBR area. The final calculated shape index ranges from 0.01 (a feature that is elongated or of an irregular shape) to 1 (a square feature with parallel sides).

Lastly, I calculated feature orientations to test Sutton's (1993: 102-3) hypothesis that *tihi* orientations on peripheral *pā* at Pouerua were ± 40º of magnetic north, while surrounding terraces radiate out circumferentially from the *tihi*, i.e., they have width orientations in line with the position of the *tihi.*

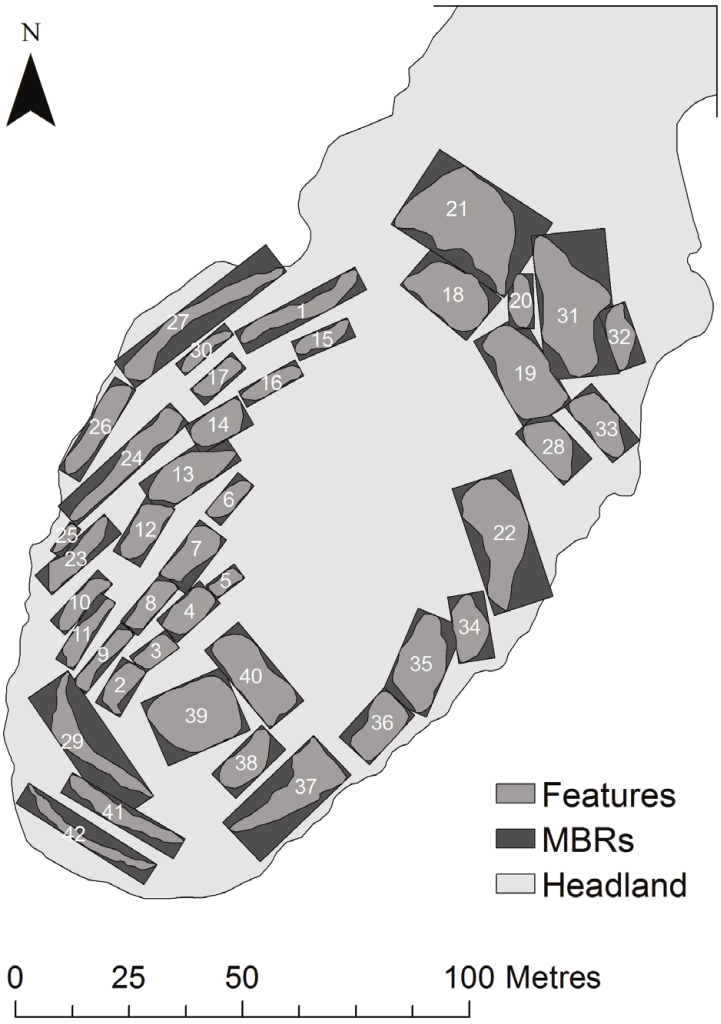

Figure 5. Minimum bounding rectangles (MBRs) around all 42 features identified by low slope contrast analysis. MBRs were used to calculate feature shapes, dimensions and orientations.

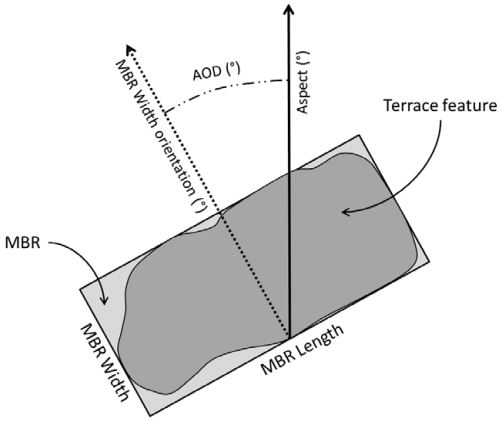

Figure 6. Illustration of how MBR (minimum bounding rectangle) width, length and orientations are calculated, which enabled calculation of the AOD (aspect-orientation difference).

Sutton interpreted this as the structural representation of the chief's eminent social status within the local community. I calculated feature orientations according to length and width axes of their MBRs (Fig. 6); this ensures orientation axes are calculated consistently and not subject to observer error.

Least Cost Path Networks

Ethnohistoric accounts of *pā* interiors often describe central open areas or *marae,* where the community gathered to interact and partake in ritual and communal ceremonies (e.g., Angus 1847: Plate 15, Best 1927: 129, Crozet 1891: 32, Firth 1959: 91-104). Additionally, individual terraces are often described as having been occupied by individual or collections of family units that were cut off from one another via steps, scarps, fences and palisades, but connected via pathways. Physical divisions in constructed environments both symbolise and reproduce social differences, while connections and open spaces promote community interaction and the continued association of meaning to the landscape through action.

Least cost path (LCP) analysis is a method of defining optimal routes between two or more locations based on distance and the cost of moving over the landscape surface (Surface-Evans and White 2012: 2). In the case of this research, pathways were modelled between platform and terrace centre points, while slope defined the cost of moving from A to B.[2] As such,

the LCP algorithm created pathways along the shortest possible route, while targeting the flattest areas to move through. The aim was not to quantify the economic or labour costs of walking around the headland, but to isolate pathways that would have linked adjacent terraces and, therefore, directed movement of individuals and in turn social interaction. I hypothesised that pathways would converge in centralised open spaces, where communal interaction likely took place. Further, my expectation was that the highest residential feature would be isolated from other terraces and not associated with the convergence of pathways, given the *tapu* nature of chiefly activities and those of associated individuals.

The first step was to increase the cell size of the slope raster from 10 cm to 50 cm to limit the effects that micro-topographical variation in the original point cloud had on calculated LCPs (e.g., from surface vegetation and livestock tracks). One pathway was created between each of the 42 features, which made for 861 individual pathways. Each 50 cm cell that a pathway passed through was given a value of one (other cells had no value). These 861 individual pathway rasters were then overlaid onto one another to create a single raster layer containing each individual pathway. Cell values in the final LCP raster layer described the number of pathways that passed through that cell. It was therefore possible to see which areas of Matakawau would have had the most foot-traffic and social interaction, assuming that all features were contemporaneously occupied.

Headland Topography

To assess topographic relations, I worked with the null hypothesis that feature morphology was dependent on local headland topography. In this way, one would expect local slope to determine terrace shape, whereby areas of high slope would restrict terraces to long and thin morphologies. Similarly, areas of high slope would encourage feature MBR width orientations to be consistent with the local hill aspect. The difference between a feature's MBR width orientation and aspect is denoted as AOD (aspect-orientation difference) (Fig. 6). If the null hypothesis were true, one would expect feature shape indices and AOD to be smallest in high slope areas. To calculate local slope and aspect, I reduced the resolution of the DEM from 10 cm to 5 m cells, so that values were less affected by the terraces and scarps. Although the result is still a product of the current ground surface, including the earthworks, the averaging function across different raster cells smoothes micro-topographical variation in surface elevations so that general trends of slope and aspect can be derived. I then calculated the mean slope and aspect of the 5 m cell centre points within each feature.

ANALYSIS AND RESULTS

Feature 39 (see Fig. 5), the sole platform, had the highest elevation above sea level (23.2 m) of all 42 features because it was at the summit of the hill. It had a plan area of 247.5 m^2 and a length-to-width ratio of 1.3:1. This platform also had a shape index of 0.6—the highest of all the features on Matakawau. As this feature is at the headland's summit, its orientation was not constrained by aspect. Therefore, unlike other features in the *pā,* its orientation (MBR length orientation: 66.3˚) is the best indicator of past spatial logics. These morphological characteristics of the platform are different from all other features, which are terraces.

Terraces range in size from 16.3 to 383.1 m^2 with length-to-width ratios of 1.5 to 6.4. Shape indices range from 0.1 to 0.5, while MBR width orientations appear to face outward with aspect—they give the impression of radiating out from the platform because the slopes face away from the headland summit. The high variability of terrace morphology follows Sutton's observations that terraces are irregular in form and orientation in relation to the more structured form of the *tihi*. However, these observations do not highlight spatial distributions of feature morphologies in terraces.

To calculate where statistically significant ($p < 0.05$) clusters of shape and AOD values occurred between the different terrace and platform features on Matakawau, I used Moran's I cluster analysis. This statistic calculates the spatial clustering or dispersion of values "based on the difference between a feature's value and the mean value of its neighbourhood"[3] (O'Sullivan and Unwin 2010: 222-23; Fig. 7). Output values range from -1 (indicating perfect dispersion of values) to 1 (perfect spatial correlation or clustering of values), which are then displayed as z-scores,[4] where values greater than 1.96 or smaller than -1.96 describe statistically significant clusters or dispersions of values at the 95% confidence level. There was a statistically significant cluster of high shape values centred at the platform (feature 39, $p < 0.001$), while there was also a cluster (p-values between 0.039 and < 0.001) of low shape values in terraces 29, 41 and 42, which are long and thin (shape indices: 0.1) and have locally high slope (17.4 to 29.3˚). This supports the notion that slope heavily influences feature shape and that the platform and immediately adjacent terraces are built in the most rectangular form of all terraces in the entire *pā*.

There is also statistically significant clustering (p-values between 0.019 and < 0.001) of terrace AOD values directly north from the platform, in terraces 4, 5, 7 and 8, with AOD values from 16.1 to 25.1˚ (Fig. 7). These terraces have MBR width orientations towards NW (307.0 to 322.8˚) with local aspects of NNW (330.6 to 342.5˚). Furthermore, the terraces directly adjacent to the platform, on its northeastern and southeastern sides, are perpendicular

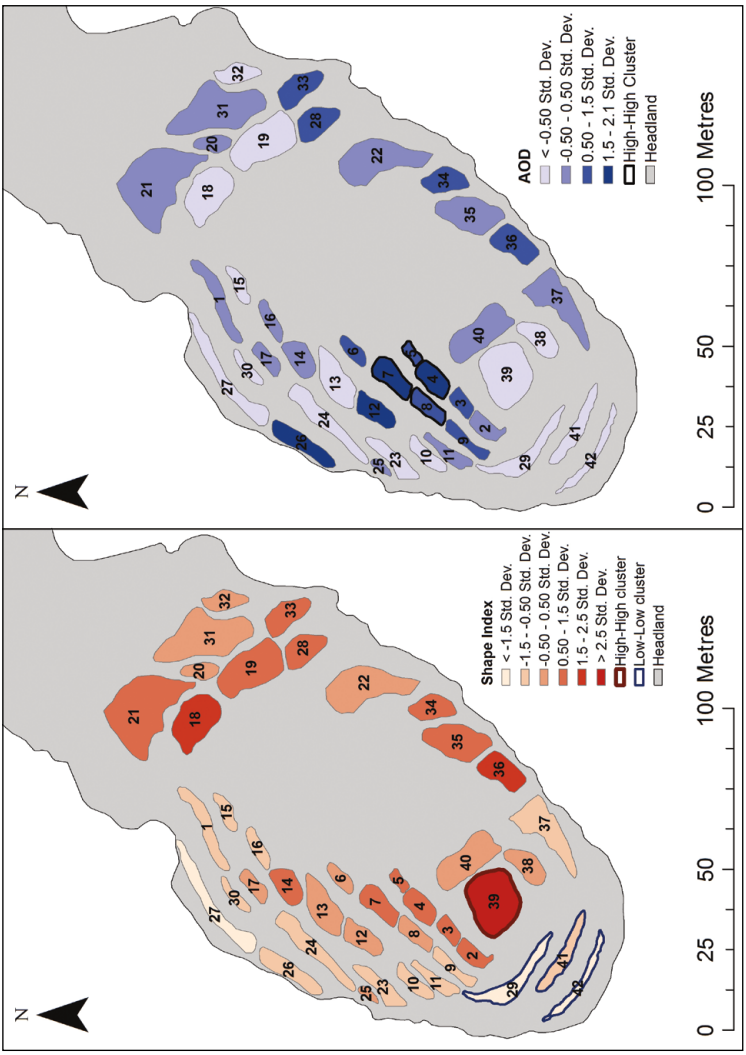

Figure 7. Maps showing the results of Moran's I cluster analysis for shape index and AOD (aspect-orientation difference) values between features. Bold outlines describe significant value clustering, while fill colours describe standard deviations away from the mean.

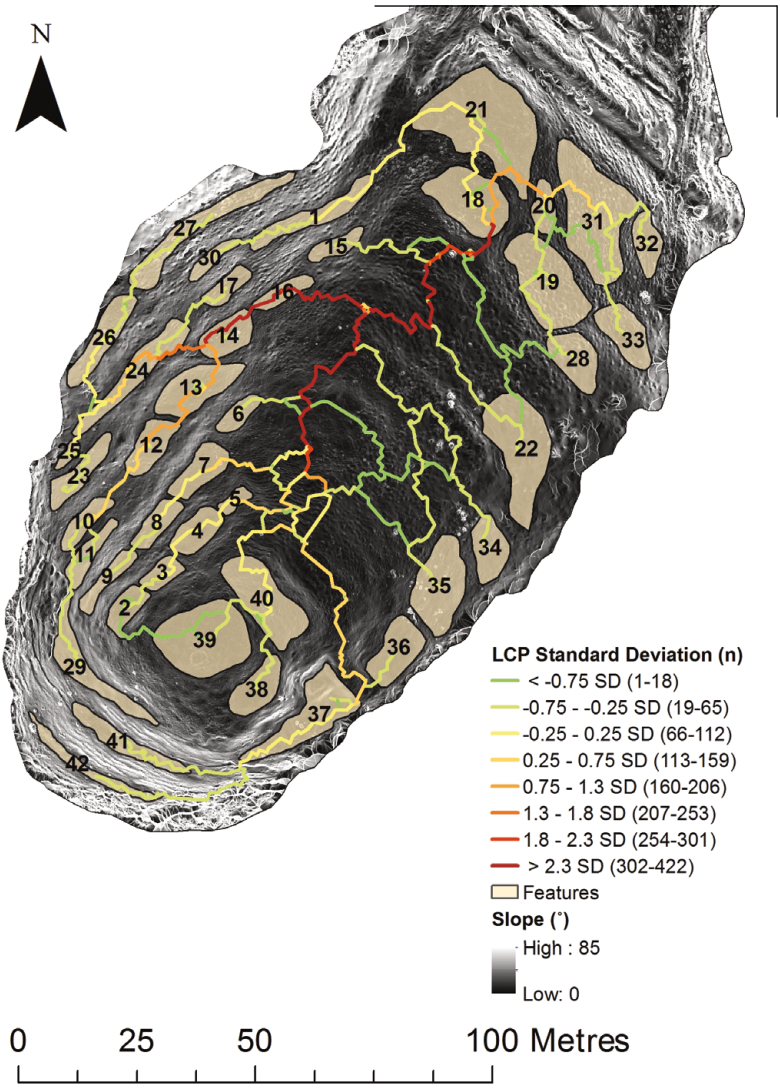

Figure 8. Least cost path (LCP) network analysis between all features defined by low slope contrasts on Matakawau Pā. LCP colour groups were defined by 1/2 standard deviations away from the mean.

and parallel to its adjacent northwestern terraces, respectively. High AOD values in these terraces indicate that they were oriented in relation to one another, rather than aspect. However, despite their proximity to the platform, the platform has a consistently different MBR length orientation of 66.3˚.

The LCP (least cost path) network highlights clear pathway arterials through the centre of the *pā*, where at one stage 422 of the total 861 LCPs overlap (Fig. 8, shown in red). The patterning of these pathways follow low slope connections between adjacent features and, therefore, explain why a single arbitrary slope contrast raster could not define terrace and platform boundaries—especially through the centre of the *pā*. Terrace features 18, 20, 21, 31 and 32, at the northeastern end of the *pā*, are connected to the rest of the complex by a small causeway at the southern end of feature 18 and onto a series of large open areas in the centre of the headland. A major pathway (with 381 overlapping paths) diverts to the northwest, through features 14 and 16, from the central arterial. Pathways follow these five to six northwestern facing terrace levels horizontally to meet the central arterials in the large open areas at the centre and connect with other areas of the *pā*. In contrast, terrace features 22, 34 and 35 on the southeastern slopes were less constrained by scarps and therefore connect up to the main arterial pathway individually. The most isolated areas of the *pā* (those that have the least connected pathways) are at the peripheries, such as features 37, 41 and 42, some with surface depressions, and the platform itself (feature 39).

Micro-topographical variation had limited effects on the LCPs because terraces on Matakawau are large with clear flat pathways between the majority of them. However, in the southern area of the *pā,* terraces 41 and 42 have scarps on all sides. As a result, their associated pathways follow livestock tracks east towards terrace 37, while LCPs connecting to terrace 37 follow the slope of what appears to be the soil heap from Golson's excavation in 1954–1955. Although the associated LCPs do not reflect pathways from when these areas were last used by Māori, they are relatively isolated from other terraces and therefore have limited effects on the LCP patterning in the rest of the *pā*.

I used Pearson's correlation coefficient, a measure of the strength of a linear relationship between two variables, to assess correlations between slope and both feature shape and AOD. There was a strong negative linear relationship between local slope and terrace shape indices ($r = -0.792$, p-value < 0.001, Fig. 9). More rectangular terraces with low length-to-width ratios were located in areas of lower slope, while higher slopes influenced the construction of longer and narrower terraces. This is likely the result of more effort required in cutting into greater slopes to make wider terraces. There was a weak negative relationship between slope and terrace AOD ($r = -0.318$, p-value $= 0.043$, Fig. 10). Higher slopes vastly confined terrace orientations; however, there is

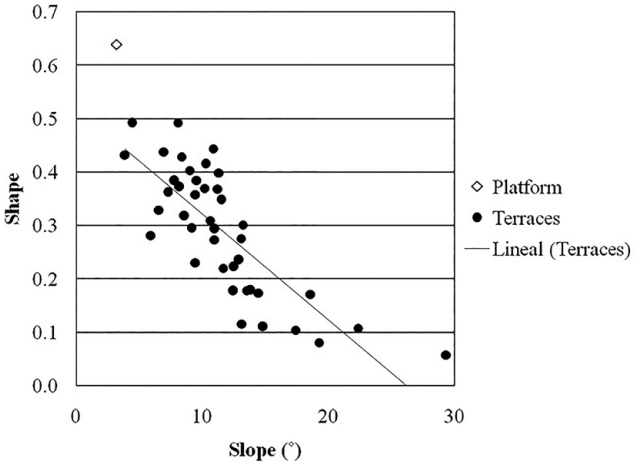

Figure 9. Scatterplot showing the relationship between feature slope (°) and shape index values ($r = -0.792$, $r^2 = 0.628$, p-value < 0.001).

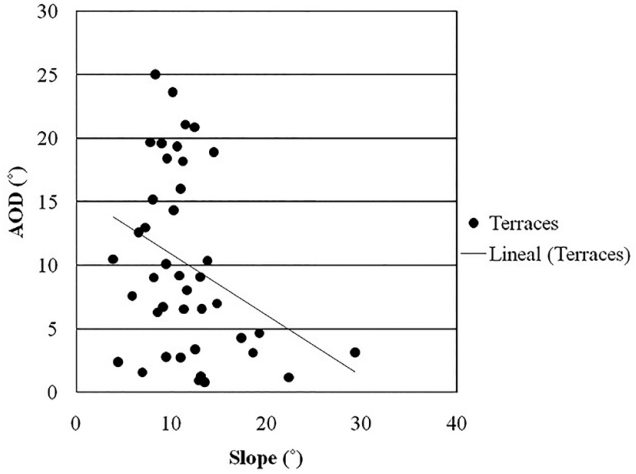

Figure 10. Scatterplot showing the relationship between terrace slope (°) and AOD (aspect-orientation difference) (°) ($r = -0.318$, $r^2 = 0.101$, p-value = 0.043).

a slope threshold around 15˚, below which slope has no observable effect on terrace orientation. In these locations, terraces were built according to certain orientations at the expense of more effort in working against slope aspect.

In summary, the platform of Matakawau (feature 39) is morphologically different from all other features. It has the highest shape index, with a width-to-length ratio the same as platform features on peripheral *pā* at Pouerua, and is directly adjacent to terraces that also have high shape indices. Clusters of AOD values highlight how terraces adjacent to the platform are oriented parallel and perpendicular to one another, in a grid-like layout around the platform. At the same time, the platform is consistently oriented differently from all of them. The LCP network highlights areas on Matakawau with the most potential communal interaction, which also intersect with large open spaces. Similarly, confined pathways indicate where scarps limited movement vertically and less connected features indicate isolation from the rest of the *pā*. There is a strong negative correlation between slope and terrace shape indices, which indicates that terrace morphology was greatly influenced by local topography. There is also a weak negative relationship between slope and AOD. Below slopes of 15˚, however, AOD values were highly variable (minimum: 0.8˚, maximum: 25.1˚, mean: 11.1˚, SD: 7.1˚).

DISCUSSION

The surface archaeological record on Matakawau has been created by multiple constructive, erosional and depositional processes—not all directly related to human behaviour in the past. Livestock erosion, fence line construction, bulldozing, slumping, fluvial erosion and soil creep are processes that have changed and continue to change the headland topography, as well as the morphology of surface archaeological features. The 10 cm resolution slope raster, for example, captures mass erosional events on the southern end of the headland and smaller areas of soil creep and minor erosion in and around terrace boundaries. The recorded feature morphologies are not pristine versions of terraces and platforms as they were last occupied or created. However, this analysis has clearly defined locations of more recent landscape changes and also indicates that features are still preserved well enough to define their boundaries based on changes in slope.

There is yet uncertainty regarding the contemporaneity of feature construction and use. This may appear to be a limitation for understanding past human behaviours; however, it may also be considered useful, as it allows archaeologists to view patterns that accumulated over the long-term (Bailey 2008, Binford 1981: 197). The time-averaged nature of archaeological phenomena does not necessarily provide an ethnographic snapshot of human behaviour in the past, but is instead a palimpsest of variable land use practices

through time. The archaeologist, therefore, has the ability to assess long-term averages of spatial logics as they are materialised in spatial distributions of archaeological records. In this way, the spatial patterning and morphological characteristics of the terraces and platform on Matakawau Pā may be the result of and therefore reflect spatial organisational semiotics in development from the first occupation of the headland.

Indeed, archaeologists have documented complex occupational histories for *pā* involving short-term events of undefended occupation, terrace remodelling, fortification, abandonment and rebuilding (Holdaway 2004, Sutton *et al.* 2003: 231-32). Irwin (2013: 313-14) argued that defences—natural or culturally modified—usually completely protected internal areas of *pā.* Therefore, horizontally adjacent defences were often contemporary. Similarly, a terrace was unlikely to be built next to another terrace if the first terrace was not being used in some way. Yet terrace and platform morphology may not be the same today as when first constructed, due to remodelling through time. As such, at some point in Matakawau's occupational history, at least the majority of terraces would have been used contemporaneously, while their current morphologies are indications of spatial organisational semiotics during most recent occupations. The situation may be different for the sprawling terraced landscapes on the central volcanic cone at Pouerua (Sutton *et al.* 2003) and those in Auckland (Davidson 1993, 2011, Fox 1980, Fox and Green 1982, Green 1983, Shawcross 1962), where terraces and evidence of occupation are not necessarily bounded by defensive earthworks. However, terraces within headland *pā* and others with greater occupational evidence behind and in association with defensive earthworks, were likely to have been occupied contemporaneously at some point in their use-histories if not at the time of last use. The spatial organisation of terraces, platform, pathways and scarps on Matakawau, as demonstrated in this study, further attest to a large portion of the site being occupied contemporaneously at some point in its history.

Sutton (1990, 1993) argued that *tihi* platforms on peripheral volcanic cone *pā* at Pouerua were the structural equivalent of the Type 1 house found in *kainga*—the dwellings of chiefs and associated family members. *Tihi* platforms were rectangular with length-to-width ratios of 1.3:1, they were the most elevated areas within *pā* and they were consistently oriented within 40º of north. Other terraces had less rectangular shapes and were distributed in arcs radiating out from the *tihi*. On Matakawau, the single platform (feature 39) fits with Sutton's description of platforms at Pouerua. It is also rectangular in form with a length-to-width ratio of 1.3:1 and has the highest shape index of all features behind the defences. The platform has a MBR orientation of 66.3˚, which diverges from those at Pouerua; however, the

orientation is consistently different from the surrounding, directly adjacent terraces. As the platform is at the summit of the hill, its orientation is not confined to aspect. Therefore, the builders consciously oriented the platform away from its surrounding features or vice versa—in either case argued here to be a material expression of social difference. Furthermore, the terraces surrounding the platform had high AOD, suggesting that they were oriented to some extent against the natural aspect at greater effort and costs to maintain this spatial logic.

High shape indices of the terraces directly adjacent to the platform also suggest that these living areas were occupied by families of high status or close association to the chief. Individual and community identity in Māori society is strongly linked to *whakapapa* 'genealogy', whereby the *tuākana* 'eldest male' lineage tracing back to iconic ancestors inherits elements of ancestral *mana* (Kawharu 1977). Family members that have close *whakapapa* ties to the chiefly or *tuākana* line hold heightened *mana*. At Matakawau this appears to be materialised in terraces most proximate to the platform, with additional effort put into their orientations and rectangular forms, compared to terraces in other areas of the *pā*.

Ethnohistorical accounts of settlement layout in the 18th and 19th centuries support the notion that the different living areas were materialisations of social hierarchies. Best's (1927: 147-51) depiction of the prominent house being built first in *pā,* followed by others being built in relation to it, attests to the importance of spatial semiotics within *pā* as heavily constructed environments. Best (1927: 127) also described examples of chiefs living on the *tihi.* Other accounts by Europeans in the 18th and 19th centuries described family units occupying individual terraces within *pā,* which supports the analysis of terraces as materialisations of social units, which were in turn spatially organised with the use of scarps, fences, palisades and pathways (Beaglehole 1962 [I]: 432-33, 1968: 198-200, Best 1927: 32, 286, Fox 1976: 45, Nicholas 1817 [I]: 174-75, Skinner 1911: 74, Yate 1835: 123).

The LCP network based on the 50 cm^2 resolution slope raster of Matakawau highlights areas of potential high social interaction between individuals and groups of people living in different areas of the *pā*. Barriers in space inhibited movement and confined experiences, while pathways and open spaces promoted movement and interaction between individuals. Defensive earthworks, such as palisades, ditches and banks, created stark boundaries between inside and outside, defenders and aggressors, the local community and others in the surrounding landscape (Mihaljevic 1973). At the same time, internal divisions, by way of scarps and accompanying fences and palisades, are cognitive maps made physical in the constructed environment. At Matakawau these areas of high interaction occurred in open spaces in the

centre of the *pā*, which mirror ethnographic accounts of open areas (*marae*) being the central location of communal interaction and formal ceremonies (e.g., Angus 1847: Plate 15, Best 1927: 129, Crozet 1891: 32, Firth 1959: 91-104). In contrast, more isolated areas, such as peripheral terraces, storage areas and the platform (feature 39), may be locations of private housing, high *tapu* or specialised activities. Scarps that create the different levels of terracing—especially on the northwestern hill face—also inhibited vertical movement through the *pā*. Scarps were potentially lined with palisades and fences, which would have further restrained people from walking directly up them. Pathways redirected movement horizontally to the open communal areas at the *pā*'s centre, from where other areas of the *pā* could be accessed. These areas of more communal interaction would have facilitated identification with the *pā* and solidification of the community (Morton *et al.* 2012: 390, Peponis and Wineman 2002: 271).

Best (1927) and Groube (1970) suggested that *pā* morphology predominantly followed the topography of the landscape. To some extent this is true for Matakawau—the strong positive linear relationship between slope and feature shape indicates this. High slopes require more effort in making wider terraces. As a result, terraces become long and narrow, and follow aspect. On the other hand, where local slope is between 0 and 15˚, terraces were built in relation to one another in parallel layouts. This is especially true for terraces near the platform and on the northwestern hill face. Although local topography influences feature morphology, past inhabitants reformed their environment to reflect their spatial logics and reproduce ideologies of social difference.

This analysis of the spatial patterning of archaeological spaces represents the first step in understanding past spatial semiotics. Although constructed environments may materialise ideological structures, they do not have inherent meaning. Instead, it is the relationships between humans, things and spaces, which have meaning (Hodder 2012: 9-14). As such, the next step to investigating the spatial semiotics of past Māori constructed environments would be to analyse the spatial contexts of material culture. Future excavations may test the discussed models of human behavioural patterning on Matakawau by documenting the spatial distribution of prestige goods and housing forms in relation to the terraces and platform upon which they are found. Spatial semiotics may also be explored in other archaeological contexts through terrestrial laser scanning, LiDAR, legacy surveys, aerial photography and satellite imagery (see McCoy and Ladefoged 2009 for a review of spatial technologies and archaeology).

This investigation into the materialisation of a monumental ideology at Matakawau also should not be considered in isolation. Matakawau is one of

15 *pā* on Ahuahu, which vary in size and number of visible surface features. It is one of the three largest *pā* on the island, along with Tamewhera and Motutaupiri, both of which are heavily terraced headlands with surface evidence of large storage pits. Analyses of the spatial organisation of surface features, similar to those of this case study, could usefully be applied to these *pā* in conjunction with laser scanning. In addition, a chronology of both earthwork defences (using methods outlined by Irwin 2013) and internal features will tell us how early these headland *pā* were occupied and how their form may have changed during different occupations through time.

* * *

The case study of Matakawau Pā is an example of how spatial principles of organisation influence the spatial distribution of archaeological features. *Pā* form and function are often explained in environmental and defensive terms (e.g., Davidson 1984, Groube 1970, Irwin 1985, 2013, McIvor and Ladefoged in press, Pearce and Pearce 2010). Local environments and the purpose of *pā* as defensive structures are important; however, the semiotics behind spatial distributions of features requires more attention (Barber 1996, Crosby 2004, Marshall 1987, Mihaljevic 1973, Sutton 1990, 1991, Sutton (ed.) 1993). Following Crosby (2004: 122), "the importance of the interlaced concepts of *tapu, noa* (mundane, non-sacred, opposition to *tapu*) and *mana* for Maori life cannot be overestimated, as they provided the ideological framework by which Maori viewed the world." In this sense, *pā* are intensively constructed environments within which Māori lived in the past; their spatial layouts hold important clues as to the importance of these complexes within Māori society and what role they played in affirming and maintaining social organisational structures and ontologies.

Consistent with Sutton's findings for peripheral volcanic cone *pā* at Pouerua, the platform on Matakawau had a rectangular shape and an orientation dissimilar from other terraces. Terraces directly adjacent also had rectangular shapes and were oriented in relation to one another, around the central position of the platform, instead of aspect. Boundaries and pathways within the *pā* confined and redirected movement laterally to open communal areas and away from the platform at the summit of the hill. These heavily constructed environments, as they exist today, are time-averaged imprints or last use reflections of past spatial logics, which in turn structured how individuals interacted with others and conceived their own existence within society. Material manifestations of social status were reproductions of an individual's or family's *whakapapa*, their *mana* within their community through inheritance or prowess, and their associations with leading individuals.

Figure 11. The southeastern side of Matakawau Pā, as seen from Oneroa Beach, with visitors assembled on the *tihi* (image courtesy of Tim Mackrell).

The large earthworks, together with fences and palisades, would have been an impressive symbol to outsiders of the *mana* of the local community (Marshall 1987, Sutton (ed.) 1993, Sutton *et al.* 2003, Fig. 11). However, internal spatial divisions and connections made this external impression possible. The constant physical experience of one's social status helped to solidify the chief's position and encourage communal engagement in fortification construction and centralised storing of resources. At the same time, spaces of community integration promoted social identification with place and reaffirmed community membership. This would have been particularly important during times of resource competition on Ahuahu and the adjacent mainland, as well as during incursions from groups from outside the Coromandel as late as the 19th century.

ACKNOWLEDGEMENTS

The archaeological research project on Ahuahu is a collaboration between Ngāti Hei, the Fay and Richwhite families, the University of Auckland and the Auckland War Memorial Museum. The data for this research was collected during the 2013 University of Auckland archaeological field school by Tim Mackrell and Simon Holdaway. This

article is an adaptation of my BA Honours dissertation, so I thank Thegn Ladefoged in particular for his reviews and comments, as well as Louise Furey, Simon Holdaway, Rebecca Phillips, Alex Jorgensen, Rod Wallace and Josh Emmit for their support and Tim Mackrell for Figure 11. Sir Michael Fay and David Richwhite have been extremely generous with their support of the project and I am most grateful. I am also very thankful towards Peter Matai Johnson and the late Peter Tiki Johnson, who welcomed us to Ahuahu and taught us much about the island.

NOTES

1. The entire point cloud was created from 22 scans which were unified in Cyclone 8.1. Excess points, such as those from vegetation, surfaces outside the study area and fence lines were manually deleted.
2. The slope cost surface was given an exponential function $b = a^a$, where a is the original slope cell value and b is the exponential slope value cell output. For example, slope values of 3 and 45 become 9 and 2025, respectively. As a result, LCPs follow flatter surfaces for longer distances rather than going over scarps. The default ArcGIS 10.1 least cost path algorithm was used for this analysis.
3. Spatial neighbourhoods were defined by inverse distance, so that closer feature values had more weight in calculating local spatial autocorrelation than more distant feature values.
4. Z-scores were calculated using the equation: $z = \dfrac{(score - mean)}{standard\ deviation}$

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ABSTRACT

The physical and symbolic organisation of space in constructed environments both reflects and influences human action. With the case study of Matakawau Pā (Tl0/169), Ahuahu (Stingray Point Pā, Great Mercury Island), New Zealand, I analyse a terrestrial laser scan point cloud to address how archaeological feature morphologies and spatial relationships reflect spatial logics of the last inhabitants of this Māori headland *pā* (fortified or defended place). Feature shape and location in relation to other features, slope and aspect are considered, along with a least cost path analysis of likely routes of movement between features. Materialised ideologies relating to social hierarchy are argued to be apparent in the orientation and shape of the constructed features, a platform and adjacent terraces. Boundaries and pathways within the *pā* confined and redirected movement laterally to open communal areas.

Keywords: terrestrial laser scanner, New Zealand archaeology, *pā* 'fortified or defended places', least cost path analysis, Māori spatial proxemics, monumental ideology

CITATION AND AUTHOR DETAILS

McIvor,[1] Isaac H., 2015. Monumental ideology: A GIS spatial analysis of interior features of Matakawau Pā, Ahuahu (Stingray Point Pā, Great Mercury Island), New Zealand. *Journal of the Polynesian Society* 124(3): 269-302; DOI: http://dx.doi.org/10.15286/jps.124.3.269-302

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SHORTER COMMUNICATION

NOTES ON A MARQUESAN *TIKI*-HEADED *KE'A TUKI POPOI* (BREADFRUIT POUNDER) IN THE FOUNDING COLLECTION OF THE PITT RIVERS MUSEUM

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The stone food pounder is a widespread and familiar item of Polynesian material culture. Used in the preparation of breadfruit and other foodstuffs, many pounders are both functional objects and expertly crafted works. As such, they are familiar items in museum collections around the world and in publications about Pacific art. Polynesian pounders have yet to be the subject of a comprehensive study; indeed, perhaps the most useful general survey remains the four pages that Peter Buck [Te Rangi Hiroa] devoted to the subject in his *Arts and Crafts of the Cook Islands* (Buck 1944: 417-20; see also Suggs 1961: 102-3). As Buck (1944: 417) explains, historically "stone food pounders were used extensively in Polynesia" though not in Rapa Nui, New Zealand or Samoa, with the form differing from one island group to another. Broadly, according to Buck, a "tall, narrow, pestle form" was used in the Cook Islands (except Mangaia) and Mangareva, a "short, thick, medium form" in Mangaia and the Austral Islands, and a "large, flared" form in Hawai'i, the Society Islands, and the Marquesas (p. 418) .

Here I am concerned with one particular example of a very recognisable type of Marquesan pounder, or *ke'a tuki popoi*, in the founding collection of the University of Oxford's Pitt Rivers Museum (hereafter PRM; 1884.128.78; Figs 1-4). It is of a typically flared form with a rounded base and, most distinctively, the finial is carved with a pair of back-to-back (Janus-like) "*tiki*" heads. The type is well-known, with a number of examples having been featured in publications on Pacific art in general and of Marquesan art in particular (see below). Surprisingly, however, few examples can be shown to have been collected before the 20th century. In an extended entry in the catalogue of the exhibition *Adorning the World: Art of the Marquesas Islands*, Eric Kjellgren notes (2005: 106) that "few, if any, appear to have been collected before the late nineteenth century".[1] In another extended entry in the catalogue of the *Gauguin Polynesia* exhibition, Carol S. Ivory (2011a: 387) notes that "few pounders were collected before the end of the 19th century, when they began to appear regularly in museum accessions".

Journal of the Polynesian Society, 2015, 124 (3):303-315;
DOI: http://dx.doi.org/10.15286/jps.124.3.303-315

Figure 1. Marquesan food pounder, *ke‘a tuki popoi*; stone; 140 mm high, 105 mm in diameter (maximum), 310 in circumference (maximum), 90 mm in circumference (minimum); 797 gm; acquired by Augustus Henry Lane Fox (later Pitt-Rivers) by 25 January 1870; part of the founding collection of the Pitt Rivers Museum, University of Oxford (1884.128.78). Courtesy and copyright, Pitt Rivers Museum, University of Oxford.

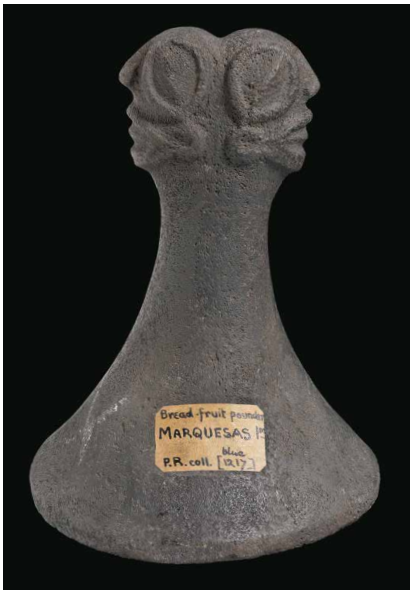

Figure 2. (*adjacent*) Another view of the *ke'a tuki popoi* illustrated in Figure 1. (It is not known who marked the *ke'a tuki popoi* with a white cross, nor when, nor why.)

Figure 3. (*below left*) Detailed view of one of the heads of the *ke'a tuki popoi* illustrated in Figure 1.

Figure 4. (*below right*) Detailed view of the other head of the *ke'a tuki popoi* illustrated in Figure 1.

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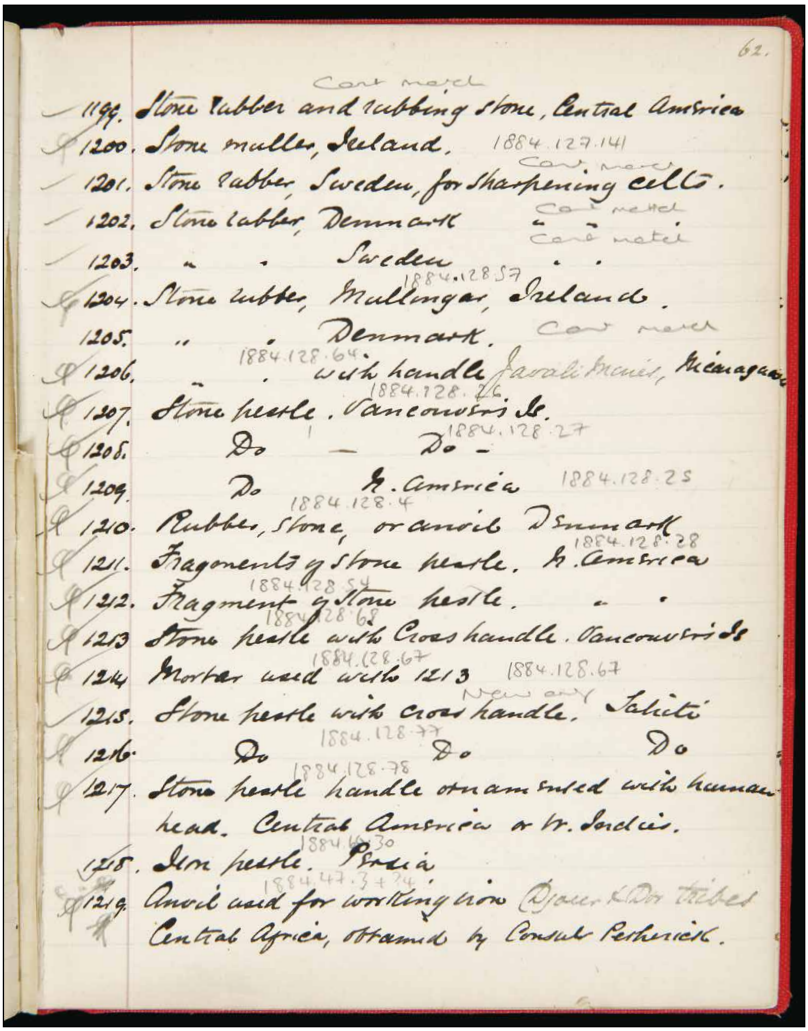
Both Kjellgren and Ivory draw particular attention to the early date of a *tiki*-headed *ke‘a tuki popoi* in the collections of the University of Pennsylvania Museum of Archaeology and Anthropology (Penn Museum). Giving it a date of “about 1874”, Kjellgren (2005: 106, n. 6) notes that it is “among the earliest pounders with known collection dates”. Also giving it a date of “around 1874”, Ivory claims that it is “the first with a documented historical collection date” (Ivory 2011b: 330).[2] There are in fact *three* Marquesan pounders in the collections of Penn Museum, all of which were collected by Californian naturalist Charles David Voy (1841/1842–1895) during a 1874–75 voyage “from Honolulu through Polynesia to Sydney, New South Wales, Australia”, with visits to “the Marquesas, Society Islands, Rurutu Island of the Austral Group, etc.” (Pilsbry and Vanatta 1905: 291).[3] Two of the pounders are “tiki-headed” (18011, 18012), the third being “plain” (18013).[4]

In June 2014, I had occasion to review the documentation of the sole example of a *tiki*-headed *ke‘a tuki popoi* in the collections of the PRM.[5] This review has convinced me that it was in London by 25 January 1870 at the latest, thus making *it* the example with the oldest attested date. Moreover, even though it has been on public display for long periods of time, it has not been published before now. Given the prospective interest of this under-researched member of what is a small corpus of *tiki*-headed *ke‘a tuki popoi* of secure early date, I provide a brief account of it here. My focus is on the documentable history of one particular Marquesan pounder. Authoritative accounts of what is known about *tiki*-headed *ke‘a tuki popoi* in general, their production, use and significance are provided by Kjellgren (2005) and Ivory (2011a, 2011b: 330), both of whom draw on the earlier work of Ralph Linton (1923), E.S. Craighill Handy (1923), and Karl von den Steinen (1925–1928).

The pounder at the PRM is part of the museum’s founding collection; that is, it is one of more than 26,000 objects given to the University of Oxford in 1884 by General A.H.L.F. Pitt-Rivers (1827–1900; known until 1880 as Lane Fox). As is well known, Pitt-Rivers’s collection had previously been exhibited by South Kensington Museum (later the Victoria and Albert Museum), first at its Bethnal Green branch from 1874 to 1878 and then at South Kensington itself from 1878 to 1884.[6] As can be seen in Figure 1, the object itself bears a numbered label ‘1217’, which identifies it with an entry in the “Blue Book”, one of three small volumes in which the objects that Pitt-Rivers loaned to the South Kensington Museum in 1874 were listed.[7] We thus know that it was in Pitt-Rivers’s possession by 1874 at the latest. As is clear from the entry in the “Blue Book” (Fig. 5), there was some confusion at the time about the object’s origins. The entry reads: “1217. Stone pestle handle ornamented with human head. Central America or W[est]. Indies”. Given how little was known about Pacific art at the time, it is hardly surprising that Pitt-Rivers did not


62.

1199. Stone rubber and rubbing stone, Central America
1200. Stone muller, Ireland. 1884.127.141
1201. Stone rubber, Sweden, for sharpening celts.
1202. Stone rubber, Denmark
1203. " " Sweden
1204. Stone rubber, Mullingar, Ireland.
1205. " " Denmark.
1206. " " with handle Javali Manis, Nicaragua
1207. Stone pestle. Vancouvers Is.
1208. Do — Do —
1209. Do N. America
1210. Rubber, Stone, or amole Denmark
1211. Fragments of Stone pestle. N. America
1212. Fragment of Stone pestle. " "
1213 Stone pestle with Cross handle. Vancouvers Is
1214 Mortar used with 1213
1215. Stone pestle with cross handle. Tahiti
1216. Do Do Do
1217. Stone pestle handle ornamented with human head. Central America or W. Indies.
1218. Iron pestle. Persia
1219. Amole used for working iron Djour & Dar tribes Central Africa, obtained by Consul Petherick.

Figure 5. Page 62 in the "Blue Book", containing the entry "1217. Stone pestle handle ornamented with human head. Central America or W. Indies" (University of Oxford, Pitt Rivers Museum, Catalogues). Courtesy and copyright, Pitt Rivers Museum, University of Oxford.

recognise it as being of Polynesian, let alone Marquesan, origin. Presumably, it was the superficial resemblance between the representation of the heads on the pounder with those on the stone sculptures of the Arawak-speaking Taíno of the Caribbean (for illustrations, see, for example, Bercht *et al.* 1997) that led Pitt-Rivers to suggest a Central American/West Indian provenance.

Though inaccurate, the “Blue Book” entry is in fact extremely helpful for establishing the object’s history, as it enables me to assert with almost complete confidence that the *ke‘a tuki popoi* was one of the “two stone mullers, one from Tahiti, and the other from the West Indies” that Pitt-Rivers exhibited at an “ordinary meeting” of the Ethnological Society of London on 25 January 1870.[8] The Tahitian “muller” can be identified with one or other of two Tahitian “pestles” recorded on the same page of the “Blue Book” (numbers 1215 and 1216). These are both described as having a “cross-handle”, which may be taken to refer to the well-known Tahitian form, described by Buck (1944: 419) as having the “head projected laterally with two side ridges very high” and by Suggs (1961: 102) as having “winged transverse bar handles”.[9]

The “other from the West Indies” must be the *ke‘a tuki popoi.* There is no other object in the PRM’s founding collection that is a conceivable candidate and, given that we know that the *ke‘a tuki popoi* was thought by Pitt-Rivers in 1874 to be from Central America or the West Indies, I think it is virtually certain that it was as a muller from the West Indies that he exhibited it in London in early 1870.

Unfortunately, I have not yet been able to discover anything about when, where, how or from whom Pitt-Rivers acquired the *ke‘a tuki popoi*. My hunch would be that he had acquired it not long before he exhibited it at the Ethnological Society, which raises the interesting possibility that it had been brought back by one of the participants on the Pacific voyage of HMS *Topaze* in 1865–1869, which is well known for its visit to Rapa Nui and, in particular, for bringing Hoa Hakananai‘a to London in August 1869 (see, for example, Van Tilburg 2004, 2014). The *Topaze* was in the Marquesas from June to September 1868 and objects were certainly collected there.[10]

If the *ke‘a tuki popoi* had reached London so recently, however, it would be surprising for its Marquesan provenance to have been forgotten so quickly. It thus seems to me more likely that Pitt-Rivers acquired the pounder from another source, with no information as to its origins or history. There are in fact more than thirty objects from the Marquesas in the PRM’s founding collection, and it may be that further research into the histories of these other objects—and others in other 19th-century collections, including those known to have been collected on the voyage of the *Topaze*—will add to the little we know about the history of this particular *ke‘a tuki popoi*. For the moment,

however, its known history begins with its exhibition at the meeting of the Ethnological Society in London on 25 January 1870.

* * *

That I have been able to argue here that the *ke'a tuki popoi* in Oxford was collected at least four years before the *ke'a tuki popoi* in Philadelphia may not seem of any great significance. Given the very limited data available for building and refining a Marquesan art history, however, every additional piece of information may be of importance. This is especially so as the scholarly record for attested examples of *tiki*-headed *ke'a tuki popoi* is sketchy.

Robert C. Suggs (1961), though recognising that tiki-headed pounders "are rarely found in excavations but are well represented in ethnographic collections" (p. 100) claims that "the highly polished, aesthetically pleasing, tiki-headed poi pounders are one of the artistic tours de force" of what he terms the "Classic Period, 1400 to 1790 A.D." in the Marquesas (p. 187). From my reading of his report on the archaeology of Nuka Hiva, Suggs excavated three examples (p. 100, Table 10), though none is illustrated.[11] Thus, the known art history of Marquesan *tiki*-headed pounders begins with three excavated—but, as yet, apparently unpublished—examples that can be dated to the 18th century at the latest.[12] As the above discussion makes clear, there is then a gap in the historical record until 1870 when the example now in the PRM was exhibited in London.

It is not clear why so few Marquesan pounders were collected before the 20th century. In her master's thesis on the Marquesan collection at the British Museum, Natasha McKinney (2012: 115) suggests that "domestic objects, such as *ke'a tuki popoi* … became available as islanders embraced a wider range of food types and became willing to trade older objects in their possession in difficult economic times". As she reports elsewhere, however, even as late as January 1925 James Hornell was unable to persuade an elderly man on Tahuata to sell him an old pounder (p. 60, n. 50), suggesting that other factors may have been in play. Von den Steinen reported (1928: 45; see also Suggs 1961: 102) that *tiki*-headed pounders were prestige items that generally belonged to chiefs, which might explain their relatively rarity. Whatever the case, there are very few examples in museum collections with attested 19th-century dates and it thus appears that few were collected before the 20th century. Thus, any opportunity to provide a precise date, such as that given here, should be taken.

In conclusion, two further, potentially complicating factors must be mentioned. First, there is the fact that carvers on the Marquesan island of Ua Huka are reported to have "mass-produced" pounders for a German trading company (Ivory 2011b: 331, Kjellgren 2005: 106; n. 6; Linton 1923: 366).

Kjellgren suggests that this was in the early 20th century, while Ivory seems to suggest that production may have begun at the end of the 19th century. Thus it may well be that a number of the *tiki*-headed pounders in museum collections were made for trade, though it seems clear that the example discussed here predates this development.

Secondly, I am not sure what to make of the fact that it is not possible to describe the pounder that is the focus of this Shorter Communication in the same terms as those used to describe such pounders elsewhere in the literature. For example, Suggs (1961: 100) reports that “the material is generally of a denser, softer type of stone in contrast to a more porous, but somewhat harder stone” used for other types of Marquesan pounders, and that “this type of poi pounder is usually highly polished”. Similarly, Kjellgren (2005: 104-5) notes that “in former times” at least, they were “fashioned from close-grained volcanic rock” and “commonly received a final polish...to impart a dark lustrous sheen to the surface”. Although it may not be clear from the images published here, the present pounder is carved from a block of what can only be described as a hard, coarse-grained stone with little evidence of a “high” polish.

In this Shorter Communication I have added to the limited corpus of *tiki*-headed Marquesan pounders with attested early dates an example that has what are apparently distinctive physical qualities. That this particular *tiki*-headed *ke‘a tuki popoi* was in London by 25 January 1870 is thus of more than passing interest.

ACKNOWLEDGEMENTS

This note draws on research carried out by my colleague Alison Petch and myself during the “Rethinking Pitt-Rivers” project (2009–2013) funded by a grant from The Leverhulme Trust, whose support is gratefully acknowledged again here (for further information and a wealth of digitized resources, go to <http://web.prm.ox.ac.uk/rpr/>). For their help with retrieving, documenting, and photographing the *ke‘a tuki popoi* in the Pitt Rivers Museum Collection I am grateful to my colleagues Faye Belsey, Madeleine Ding, Andrew Hughes and Malcolm Osman. For generously sharing information about C. D. Voy and his surviving collections, I am grateful to Adria Katz (Fassitt/Fuller Keeper of Collections, University of Pennsylvania Museum of Archaeology and Anthropology) and Russell Hartman (formerly Senior Collections Manager, Department of Anthropology, California Academy of Sciences). For advice and comments, I am grateful to Carol Ivory and Natasha McKinney. For helpful comments and for drawing my attention to the *ke‘a tuki popoi* in Cherbourg illustrated by Von den Steinen (see Note 2), I am grateful to an anonymous referee. For information about the collections in Cherbourg, I am grateful to Eliane Paysant.

NOTES

1. The heads on one of the pounders Kjellgren illustrates (2005: 106, Fig. 73) are stylistically very similar to those on the example that is the subject of this Shorter Communication. This may suggest that it was made around the same time, and/or in the same place, and/or by the same person or persons. Now in the Mark and Carolyn Blackburn Collection, it is said to have formed part of the estate of Paul Gauguin at the time of his death in 1903 (Kaeppler 2010: 393, cat. no. 306) but is otherwise undocumented.
2. As the referee for this Shorter Communication pointed out, one of the *tiki*-headed *ke'a tuki popoi* Von den Steinen illustrates is captioned "CHERBOURG. 16 cm. Tricot 1842" (von den Steinen 1928: 157). This would seem to suggest that it was given to the Musée d'Histoire naturelle (now Muséum Emmanuel Liais) in Cherbourg, France, in 1842 by someone named Tricot, or to have been collected by someone of that name in 1842. In either case, if so, it would be the oldest attested *ke'a tuki popoi* to have been collected. Confirming the current whereabouts of this *ke'a tuki popoi* and its documentable history, however, has proven difficult. A likely candidate for "Tricot" is Alexandre Tricot, who is listed as a *sous-lieutenant* stationed at Cherbourg from 8 October 1840 in the *premier régiment* of the *infanterie de marine* (see *Annales Maritimes et Coloniales*, 27e année, 3e serie, partie officielle, p. 178), but I am told by Eliane Paysant (Responsable Scientifique, Muséum Emmanuel Liais) that there is no record of anyone named Tricot having given the Cherbourg museum a *ke'a tuki popoi* or anything else. In her account of the Polynesian collections at Cherbourg, Anne Lavondès (1976: 193) lists two *ke'a tuki popoi* (3109–810A, 3109–810B), but provenances these to a donor named Houel with an acquisition date of 1889. From information and images provided by Paysant, and from the records in the online resource "Joconde: Portail des collection des musées de France" (accessible at <http://www.culture.gouv.fr/documentation/joconde/fr/pres.htm>), it appears that the *ke'a tuki popoi* illustrated by Von den Steinen is in fact one of those donated by Houel in 1889 (MEL 2006.0.298; 3109; 810 B), the other (MEL 2006.0.297; 3109; 810 A) being illustrated by Lavondès (Fig. 12). To add to the potential confusion, the English-language abstract of Lavondès' article (p. 202) suggests that "two head decorated pounders" are among "the Marquesan collections brought back by Commandant Jouan" from his "two stays in the Marquesas Islands between 1850 and 1856". This is certainly not what Lavondès says, and not what the available records show, as both the pounders in the collection are recorded as having been donated by Houel in 1889.
3. For the record, in addition to the Voy Collection at Penn Museum there are at least four Pacific objects collected by Voy—including a canoe model (CAS 0270–0001) and a feast bowl (CAS 0270–0004) from the Marquesas—in the collections of the California Academy of Sciences in San Francisco, while others may have been destroyed in the 1906 earthquake (for the relevant records, go to <http://researcharchive.calacademy.org/research/ anthropology/collections/index.asp>). Voy does not appear to have published an account of his Pacific voyage, and

the whereabouts of any surviving records are unknown (though for images of a Marquesan man and a Māori woman drawn “from photographs obtained among the natives by C. D. Voy, Esq., of Oakland”, see Hamilton 1881: 241). For “the elusive C. D. Voy”, see Tee 2010.

4. For the online records, visit the Collections Database page on Penn Museum’s website at <http://www.penn.museum/collections/index.php>.
5. For further information and images, see the entry for the pounder in the online version of the PRM’s database at <http://www.prm.ox.ac.uk/databases.html>; or go directly to <http://objects.prm.ox.ac.uk/pages/PRMUID135213.html>.
6. See, for example, Petch 2001; see also the relevant pages of the website of the “Rethinking Pitt-Rivers” project—that is, go to <http://web.prm.ox.ac.uk/rpr/> and follow the links.
7. University of Oxford, Pitt Rivers Museum, Catalogues etc., “Blue Book”, p. 62. The fact that the pounder is listed here means that Pitt-Rivers sent it to Bethnal Green before the exhibition opened in July 1874.
8. See the proceedings of the ordinary meeting of the Ethnological Society of London; *Journal of the Ethnological Society of London*, new series, Vol. 2 (1870), p. 121. In the Society’s annual report, this is included in a list of papers “communicated to the Society” as “On some Stone Mullers of similar form from various Localities. By Col. Lane Fox, Hon. Sec.” (see *Journal of the Ethnological Society of London*, n.s., Vol. 2 (1870), p. xi). Oddly, Dan Hicks and Jago Cooper (2013: 401) suggest that the “stone muller” from “the West Indies” may be one of the stone *axes* from the Caribbean in the PRM’s founding collection.
9. Both 1215 and 1216 are described as “Stone pestle with cross-handle, Tahiti”. The latter (1216) survives at the PRM (1884.128.77; <http://objects.prm.ox.ac.uk/pages/PRMUID135212.html>). The present whereabouts of the former (1215) are unknown. There is no record of it having arrived in Oxford with the founding collection. Pitt-Rivers may perhaps have used it in an exchange with a fellow collector or museum. Or he could have retained it for his private collection, in which case it *could* be the damaged example sold at Sotheby’s on 26 November 1979 as “The Property of Mrs Stella Pitt Rivers from The Pitt Rivers Museum, Dorset” (Sotheby’s 1979: 24, 28–29, lot 49). This latter pounder is not recorded in the manuscript catalogue of General Pitt-Rivers’s “second” collection (Cambridge University Library, Department of Manuscripts and University Archives, MS Add. 9455; illustrated database available online at <http://web.prm.ox.ac.uk/rpr/index.php/databases.html>), so it may have formed part of his “first” collection but not been passed to Oxford (because it was damaged, or for some other reason). As for the “drawing of a similar muller from New York”, I can find no record of any surviving drawing—nor have I have been able to identify a likely candidate for the original object. As for the point Pitt-Rivers was making by exhibiting these three items together—two “mullers” and a drawing of one—it was presumably to do with his belief, expressed in a paper delivered at the previous meeting of the society on 11 January 1870 that “the evidence afforded by the study of weapons and implements will eventually prove to be of the utmost value as a means of tracing back the connexion of races and the

sources of early culture" (Pitt-Rivers 1870: 109; see Chapman 1982: 332-3). It is nicely ironic that part of the "connexion" in this case—between the Tahitian and Marquesan pounders—turns out to be less remarkable than Pitt-Rivers thought.

10. The British Museum holds a container for tattooing powder (Oc.6348.a–b) and two cylindrical ornaments of human bone (Oc.6366, Oc.6337; a third is recorded as "missing"), donated by the *Topaze*'s surgeon John Linton Palmer on 18 April 1870 (McKinney 2012: 52). It has been suggested elsewhere (Hicks *et al.* 2013: 564-5) that some of the objects from Rapa Nui in the PRM's founding collection may have come from Palmer, and the same argument could be applied to the Marquesan material. The sole grounds for Hicks *et al*.'s suggestion that "this is particularly likely", however, appear to be that the Ethnological Society of London, of which Pitt-Rivers had been a member since 1861, published a letter from Palmer about "the Inhabitants and the Antiquities of Easter Island" (see Palmer 1869). Although Palmer *may* have been the source, this "connexion" is insufficient evidence on which to suggest that a supposed provenance is "particularly likely".
11. The example Suggs illustrates (1961: 101, Fig. 30b; see also p. 201) is not one of the excavated pounders but an example in the collection of the American Museum of Natural History (AMNH) in New York (80.1/ 709), formerly in the collection of dealer and amateur archaeologist Walter C. Wynam (died 1927), which was donated by Mrs William M. Ivins Jr, in 1946. In the relevant entry in the AMNH database (http://www.amnh.org/our-research/anthropology/) it is recorded as "early 20th century".
12. Citing a personal communication from 2004, Kjellgren (2005: 106) reports that "Robert Suggs...believes the earliest *tiki*-head pounders may date from the mid-eighteenth century".

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ABSTRACT

Until now a *tiki*-headed *ke'a tuki popoi* (Marquesan breadfruit pounder) in the collections of the University of Pennsylvania Museum of Archaeology and Anthropology has been thought to be the earliest attested example to have been collected, in 1874. It is shown that a *tiki*-headed *ke'a tuki popoi* in the founding collection of the University of Oxford's Pitt Rivers Museum was exhibited in London on 25 January 1870, making it the earliest attested example to have been collected. Some of the implications of this finding for the art history of such pounders are discussed.

Keywords: Marquesas Islands, Polynesian food pounders, ethnographic collections, museums.

CITATION AND AUTHOR CONTACT DETAILS

Coote,[1] Jeremy. 2015. Notes on a Marquesan *tiki*-headed *ke'a tuki popoi* (breadfruit) pounder) in the founding collection of the Pitt Rivers Museum. *Journal of the Polynesian Society* 124(3): 303-315; DOI: http://dx.doi.org/10.15286/jps.124.3.303-315

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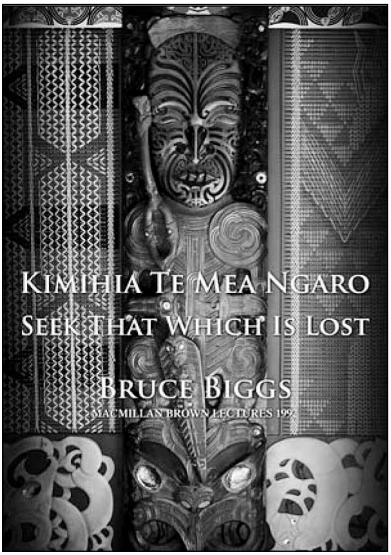
Kimihia Te Mea Ngaro
Seek That Which Is Lost



Bruce Grandison Biggs was the most influential figure in academic Māori studies in the 20th century, and is widely recognised as one of the founders of modern Oceanic descriptive and historical linguistics. In these 1992 Macmillan Brown Lectures the author draws upon his deep knowledge of Māori language and culture, and his studies in Oceanic linguistics to explore "the inner culture of the pre-19th century Maori". This work is an exquisite example of Bruce Biggs's unique and wide-ranging scholarship and the singular flavour of his expression.

Published by The Polynesian Society in association with
The Macmillan Brown Centre for Pacific Studies, University of Canterbury

Available from The Polynesian Society, c/- Māori Studies, The University of Auckland, Private Bag 92019 Auckland. Email: jps@auckland.ac.nz
$NZ30 / $NZ24 for Polynesian Society members (plus postage and packing)

REVIEWS

Martinsson-Wallin, Helene and Timothy Thomas (eds): *Monuments and People in the Pacific*. Studies in Global Archaeology, No. 20. Uppsala: Uppsala University, 2014. 374 pp, illustrations, maps.

GUILLAUME MOLLE
University of French Polynesia, UMR7041 ArScAN

This new volume of the Studies in Global Archaeology series published by Uppsala University brings together 12 contributions dealing with the question of monumentalism in the Pacific. Some of these papers were presented at the eponymous session during the 8th Easter Island and Pacific Conference held in Santa Rosa, California in 2012. This session was chaired by Martinsson-Wallin, one of the co-editors of this book with Thomas, and they present the main topics in an introductory chapter focussing on epistemological considerations.

Both the introduction and the article by Ballard and Wilson put into perspective the classical Western conception of monumentalism within the Pacific context. For someone unfamiliar with the cultures of the Pacific, no site in Oceania (except for maybe Nan Madol and the *ahu moai* 'shrine statues' of Easter Island) would rival the massive architecture in Egypt, Greece, Mesopotamia or South America for majesty and visual impression. However, by returning to the definition of a monument—architecture designed or serving to celebrate or commemorate a person or events—there is indeed an abundance of monumental remains in the Pacific. Identifying the variable and often multiple functions of these structures requires a fine-grained analysis of complex archaeological datasets and ethnological information, encompassing oral traditions and "social memory".

The strength of this volume is to gather a series of case studies that relate to a wide range of social and ritual behaviours, and explore multi-layered relationships between monuments and people. They include, among others, the questions of socio-political complexification paired with the development of a centralised authority, funerary practices associated with high-ranked status, and material expressions of religious identity and beliefs. As such, the reading of this book turns out to be a necessary reminder of how informative monuments are in reconstructing historical trajectories. As noted in the introductory chapter, these papers also promote reconsideration of architectural structures within extended "cultural landscapes", a notion that has recently gained popularity in the context of cultural heritage management and appears quite useful for tackling the idea of places as monuments. The articles are grouped following the three classical divisions of Oceania: Melanesia (two papers), Micronesia (four papers) and Polynesia (six papers). These groups are justified by differences in research traditions of these regions, but greater discussion of the reasons for these groups would be welcome.

For Melanesia the paper by Ballard and Wilson discusses monumentalism using two recently nominated sites on the World Heritage List (Kuk in Papua New Guinea and

the Roi Mata Burial in Vanuatu). In another chapter, Thomas poses pertinent questions about the practice of shrine construction and its evolution in the Solomon Islands.

In Micronesia, the attention of archaeologists has long been centred on the impressive examples of monumentalism that have no equivalent in the rest of the Pacific. The stone-built cities of Nan Madol on Pohnpei and Leluh on Kosrae, the massive earthworks of Babeldaob on Palau, alongside the Yapese stone money and the Latte architecture in the Marianas all captured the imagination of the first Western explorers who encountered them. Without surprise, the articles presented in this book concern these major sites. Liston focusses on the ritual and ideological functions of the Palau earthworks that became symbols of emerging elite. Ayres and Seikel offer a very fine synthesis of mortuary practices identified in the stone tombs of Nan Madol, called *lolong*, and highlight differences of increasing status over time. In a second article on Nan Madol, Esteban discusses the meaning of the tombs of Nan Madol in the framework of Pohnpeian cosmology. This archaeo-astronomical contribution is important as it reveals another aspect of monumental studies in the Pacific that has long been neglected, except for a few examples in French Polynesia and Hawai‘i. Finally, Beardsley presents her work on the Menka sites on Kosrae Island where she identified an architectural ensemble of two temples associated with a sacred landscape, which is interpreted in the light of the traditional belief system orchestrated around the deity figure of Sinlaku, the goddess of breadfruit.

Turning towards Polynesia, Clark discusses the concept of "social memory" through the case of the royal tombs (*langi*) of the Tu‘i Tonga chiefdom at Lapaha and shows how together archaeology and traditional history can contribute to a better understanding of the Tongan trajectory in late prehistory and after European contact. Martinsson-Wallin also questions the social memory of people in Samoa in relation to the large prehistoric mounds whose existence and functions have now been forgotten.

Finally, four articles are related to the development of the *ahu marae* 'temples, shrines' complex in Eastern Polynesia, which has been a primary subject of interest since the beginning of research in the region, especially for the archaeologists of the Bernice P. Bishop Museum, who conducted the first surveys of temple sites on the islands of Hawai‘i and French Polynesia. In a particularly challenging article, Anderson brings a new perspective to the virtual absence of independent *ahu-marae* sites in New Zealand and out-lying archipelagos. By reviewing ethnohistorical and archaeological data, he argues that religious activities may have been entirely transferred to the fortified sites known as *pa* that combined multiple functions. Wallin builds on the concept of "fashion" to explain the development of Oro-dedicated *marae* sites in the Society Islands. On Easter Island, Martinsson-Wallin and Wallin propose a new statistical analysis of *ahu* structures and places to investigate expression of power between groups. Finally, Ayres and colleagues reconsider the life cycle of Rapa Nui image *ahu*, thanks to a detailed investigation of *moai* statues associated with the site of Ura Uranga.

Most of these articles illuminate the nature and functions of monuments by bringing together different kinds of large datasets: traditional names, physical features, astronomical orientations, connections to landscapes and chronology. As a result, we have at our disposal a series of texts that serve as synthesis of regional monumentalism, while also introducing some innovative and fresh reflections on concepts that help

better define the specifics of monumentalism in Oceania. Therefore this volume will be of great interest to both scholars and students involved in Pacific research, as well as to a broader audience looking for a stimulating entrance into Pacific cultures.

O'Malley, Vincent: *Beyond the Imperial Frontier: The Contest for Colonial New Zealand*, Wellington: Bridget Williams Books, 2015. 280 pp., bib., endnotes, maps, index. NZ$49.99.

HAZEL PETRIE
University of Auckland

The 1985 extension of the Waitangi Tribunal's jurisdiction to include retrospective claims back to 1840 generated a vast quantity of historical research with the capacity to enrich New Zealanders' knowledge of their nation's history and deepen their understanding of race relations today. Unfortunately, most of that work has remained under the public radar but Vincent O'Malley's new book draws on several facets of that historiography to place some key events under a sharper light.

The frontier, perceptions of which have changed from late 19th century visions of brave white settlers conquering savagery to encompass the more complex and dynamic concepts of recent scholarship, provides a "loose organising theme" for this collection of 13 essays. Just over half have been published in earlier forms in various academic journals. Here, in roughly chronological progression, they explore some of the legal, social, judicial, military and political instruments employed by the Crown to extend its areas of influence, setting those against Māori strategies developed in response.

Following the Introduction, Chapter 2 offers an overview of cultural encounters up to 1840. Then "Manufacturing Chiefly Consent?" details some of James Busby's efforts to shift Māori authority away from rule by consent to chiefly rule or something more akin to Western-style aristocracy.

As the author notes, historiography is a reflection of its time and O'Malley's long career in Tribunal history is reflected in his book. So, in Chapter 4, "Beyond Waitangi: Post-1840 Agreements between Māori and the Crown", he laments the more conservative approach taken as a consequence of sustained academic critique and public hostility, which peaked in Don Brash's 2004 speech to the Orewa Rotary Club. Here, he makes the important point that labelling those many agreements (some of which he suggests might be better recognised as treaties) as simple real estate deals is "a travesty of history". The small immediate recompense for the land transferred was not intended to be the full and final payment but a forerunner to the provision of schools, hospitals and other amenities, including the economic benefits of locally-established settler communities. Although this is a key aspect of our contested history, it is still not well recognised by New Zealand's wider public.

Therefore there are many good reasons for bringing these histories into the public arena. However, some of the essays presume a level of prior knowledge on the reader's part which may not always be present. As non-New Zealand readers may not be familiar with Brash's 2004 speech, the non-specialist may not comprehend Chapter 4's subheading "Ngāi Tahu and the 'Nine Tall Trees'", a term used to represent the nine

parts of their 1990s claim presented before the Tribunal. Similarly, the significance of Chapter 8's references to the cattle killing movement and its impact on the Xhosa in British Kaffraria might be elusive to readers unfamiliar with the history of resistance movements in other parts of the Empire.

Because the essays have their origins in distinct journal articles there is some, perhaps inevitable, repetition of information. That is particularly noticeable in Chapter 5, "English Law and the Māori Response", and Chapter 6, "Reinventing Tribal Mechanisms of Government". Some material, such as details of Governor Grey's proposals for a district *rūnanga* system (pp. 81, 103), is repeated almost word for word. The point that government was unable to impose British law to the extent they had hoped, and the idea that *rūnanga* 'governing councils' and *komiti* 'committees' in their various incarnations are examples of government-favoured institutions subverted to Māori purposes become oft-repeated points. So, too, does the democratic nature of Māori politics which required consensus rather than rulings from chiefly authority. Despite being derived from three previous articles, these two might have worked better as a single chapter.

For readers already familiar with the previously published work, Chapter 7 is more exciting. "Te Riri ki Waikato: The Invasion of Waikato and its Aftermath", supports the view that Grey sought to take the Waikato "by hook or by crook[ed]" means. It also reminds us, perhaps a little too subtly, that not everyone's sense of identity began with the First World War. Taking a new approach to estimating casualty figures, O'Malley suggests that the Waikato tribes may have suffered greater losses on a per capita basis than New Zealand as a whole in the 1914–1918 war. War in the Waikato "was not simply a sequence of brief frontier skirmishes, but a deadly and devastating affair" for those tribes caught up in it. That assessment highlights the anomaly in the vast sums of money and attention lavished on commemorating the First World War's centennial, while the 50th anniversary of the invasion of the Waikato passed with barely a murmur. If that war and, especially, the Gallipoli campaign, represent the genesis of a national identity, as is often claimed, it must be assumed that New Zealand still has two histories: one Māori and one Pākehā, or that a tendency to historical amnesia remains alive and well.

The theme of Grey's intent to acquire the Waikato recurs, if quietly, in Chapter 8, reminding us that land confiscations under the New Zealand Settlements Act of 1863 were less about punishing "rebels" than acquiring land for settlers. Chapter 9 builds on that theme by examining the complex mix of personal, commercial and government interests behind an 1860s battle for oil-bearing land on the East Coast. Although a coveted asset even then, extracting the oil eventually proved unviable. This detailed account reveals not only that alienating Māori land for Pākehā interests was far from a simple procedure whereby government and settlers were united in their support for confiscation, but also that "government" was not immune to manipulation by insiders.

In their 2014 book, *The History Manifesto*, Jo Guldi and David Armitage, controversially argued for historians to give greater attention to macrohistory, the grand overview. Thankfully, O'Malley has taken a different stance. Blurring regional and tribal differences in favour of homogenised national histories does less to enhance our understanding. Microstudies such as his ensure that history is not reduced to an easily-digested mess of pottage.

MINUTES OF THE 124th ANNUAL GENERAL MEETING OF THE POLYNESIAN SOCIETY (INC.), 29 JULY 2015, DEPARTMENT OF MĀORI STUDIES, UNIVERSITY OF AUCKLAND.

Present: Dr Richard Benton in the chair and ten members.

Apologies: Ethan Cochrane, Peter Sheppard, Dame Joan Metge, Ben Davies, Michael Goldsmith, Sean Mallon.

Benton/Carter: "That the apologies be sustained." Agreed.

Minutes of 2014 AGM: Carter/Allen: "That the Minutes be received as a true account of the meeting." Carried.

Presentation and Adoption of the Council's Report

The Hon. President presented and spoke to the Council's Annual Report

- The membership has decreased slightly which could be a result of online availability. Even though membership is declining, readership is going up. The Society relies heavily on the Institutional Subscriptions and these have markedly decreased which could be attributed to the Agents' bundling of journals and that a major distribution agent (SWETS) has gone into liquidation. Payment from online providers helps with income revenue and prevented increases in subscriptions rates this year, which in this environment would be unwise. 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.
- The Society's website and *Facebook* page are maintained by a designated Council member who posts *Journal* contents and information regarding membership, submission of manuscripts, etc. Contents and information regarding membership are also sent to several appropriate newsletters and websites. Publicity also comes from having the *Journal* online.
- The Society and its members benefit from the support of the University of Auckland that allows the Society to keep costs down. Specifically, the Department of Māori Studies provides the Society with its office and storage space, as well as access to office equipment; likewise, the Anthropology Department provides for the Hon. Editors and the *JPS*. These arrangements are not only economical but also very convenient and congenial.

Benton/Huntsman: "That the Report of Council be adopted." Carried.

Annual Accounts have been completed for 2014 and were presented for information by the Treasurer Rangimarie Rawiri.
The Reviewers' report was attached to the Annual Accounts and the Treasurer noted:

- On p. 4 of the Finance Report it is noted in Income, Copyright and Royalty that $995 received. This is incorrect. $6588.38 received from JSTOR has been reflected in Sundry Income on p. 5.
- 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 but the decline in membership is a problem.
- The 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 compensates for any income decline.

Rawiri/Allen: "That the 2014 Accounts be accepted." Carried.

Honoraria

Benton/Reilly: "That the honoraria for the year 2015 be at the same rate as 2014, and that they be paid." Carried.

Presentation and Adoption of the Editor's Report

The Hon. Editors's report was presented and the following matters were highlighted.

- Over the last year Melinda Allen and Judith Huntsman have continued as Co-Editors, supported by the editorial team, including Lyn Carter and Ethan Cochrane as Book Review Editors, and Dorothy Brown as Assistant Editor. Arrangements with Hamish Macdonald, Production Manager, continue to be extremely satisfactory. Ben Davies has continued as webmaster, managing our *Facebook* page and assisting Hamish with management of the website as appropriate. We thank our fellow staff and the Council for their support throughout the year. The many referees who have given generously of their time and provided valuable feedback to the authors are crucial partners in maintaining the quality of the *Journal*; we extend our deep gratitude to them on behalf of the Officers and Council.
- Members may have noticed that beginning with the September 2014 issue we have been using a new type of paper, one which allows for higher quality reproductions of photographs and line drawings. Also of note Hamish is now making electronic versions of each issue available in advance of the print copy; this helps with issue timeliness and frees us from constraints related to the printing company's production schedules.
- We continue to actively solicit special issues on particular themes with guest editors, given our recent successes in this area. The most recent special issue (June 2014) was *Extraordinary Polynesian Women: Writing their Stories*, with Guest Editor Phyllis Herda. We remind members that special issues can be individually purchased by friends and colleagues outside the Society for only $15 each.

- Finally, this year has seen a significant increase in our *Facebook* audience. We now have 632 "likes", more than double the number of followers relative to the start of this year. Our posts are averaging around 100 views a piece. A recent highlight was a message from New Zealand actress Rena Owen (of *Once Were Warriors* fame) letting us know that we're doing a great job. We encourage Society members to visit the *Facebook* page every now and then, as Ben posts items of general interest semi-regularly.

Huntsman/Benton: "That the Hon. Editors Report be adopted." Carried.

Election of Officers

Having been duly nominated and seconded, the following were elected to hold office until the year 2016 AGM:

President: Richard Benton
Hon. Secretary: Rangimarie Rawiri
Hon. Treasurer: Rangimarie Rawiri
Hon. Co-Editors: Judith Huntsman and 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: Lyn Carter, Hamish Macdonald, Marama Muru-Lanning, Michael Reilly.

Election of Reviewers

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

General Business

To approve minor modifications in the Rules of the Society as approved by Council in order to update them to current practice.
The following Resolution was moved.
Rawiri/Huntsman: "That Council approve the Change to Rule 6 and Rule 11 of the Society"

6. Every application for membership shall be made in writing setting out the name and full postal address of the applicant OR by payment online with details provided. Any new member may receive on request a copy of the Rules of the Society.
11. There shall be a register of members maintained in which shall be recorded the name and address or email address of each member together with such other particulars as the Council may from time to time require.

Carried.

The President Dr Richard Benton thanked the Council and members for their support during the year.

There being no more business, the President thanked members for their attendance and declared the 2015 AGM meeting closed at 6:00pm

Following the AGM: the Elsdon Best Memorial Medal was presented to Prof. Emeritus Keith Sorrenson, after which Prof. Sorrenson gave an address entitled 'The Lore of the Judges: Native Land Court Judges' Interpretations of Māori Custom Law'

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PUBLICATIONS OF THE POLYNESIAN SOCIETY

The publications listed below are available to members of the Polynesian Society (at a 20 percent 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. All prices are in NZ$.

Some Memoirs are also available from: The University Press of Hawai'i, 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. 192pp., 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. 268pp., including 138 plates. 2004. Price $35.
37. DE BRES, Pieter H., *Religion in Atene: Religious Associations and the Urban Maori*. 95pp. 1971. Price $4.10.
38. MEAD, S.M., Lawrence BIRKS, Helen BIRKS, and Elizabeth SHAW, *The Lapita Pottery Style of Fiji and Its Associations*. 98pp. 1975. Price $7.00.
39. FINNEY, Ben R. (comp.), *Pacific Navigation and Voyaging*. 148pp. 1975. Price $8.00.

41. McLEAN, Mervyn,. *An Annotated Bibliography of Oceanic Music and Dance*. 252pp. 1977, with 74pp. 1981 Supplement. Price $12.30.

43. BLUST, Robert, *The Proto-Oceanic Palatals*. 183+x pp. 1978. Price $12.00.

45. HOOPER, Antony and Judith HUNTSMAN (eds), *Transformations of Polynesian Culture*. 226+viii pp. 1985. Price $35.00.

47. SIIKALA, Jukka. *'Akatokamanāva. Myth, History and Society in the South Cook Islands*. 153+xi pp. 1991. Price $29.95.

49. SORRENSON, M. P. K., *Manifest Duty: The Polynesian Society Over 100 Years*. 160pp. 1992. Price $32.50.

50. BROWN, DOROTHY (comp.), *Centennial Index 1892-1991*. 279pp. 1993. Price $30.00.

51. TE ARIKI TARA 'ARE, *History and Traditions of Rarotonga.* Translated by S.Percy Smith. Edited by Richard Walter and Rangi Moeka'a. 216pp., genealogies and song texts. 2000. Price $70.00.

52. REILLY, Michael P.J., *War and Succession in Mangaia—from Mamae's Texts.* 112pp., geneaologies and maps. 2003. Price $20.00.

53. BIGGS, Bruce Grandison, *Kimihia te Mea Ngaro: Seek That Which is Lost.* 80pp. figs. 2006. Price $30.00.

54. REILLY, Michael P.J., *Ancestral Voices from Mangaia: A History of the Ancient Gods and Chiefs*. xiv + 330 pp., maps, drawings, genealogies, index. 2009. Price $40.00.

55. TE HURINUI, Pei, *King Pōtatau: An Account of the Life of Pōtatau Te Wherowhero the First Māori King*. 303 + xiv pp., figs, genealogies, indexes, maps. 2010. (Available to members of the Society only at $40.00.)

56. McRAE, Jane, *Ngā Mōteatea: An Introduction / He Kupu Arataki*. Māori translation by Hēni Jacobs. 158 pp., biblio., figs, notes, song texts. 2011. (Available to members of the Society only at $28.00.)

MISCELLANEOUS PUBLICATIONS

TOKELAU DICTIONARY. lii + 503 pp. Price: $35.00.

INCEST PROHIBITIONS IN MICRONESIA AND POLYNESIA: Special Issue, June 1976. 155pp. Price $12.00.

FUTURE DIRECTIONS IN THE STUDY OF THE ARTS OF OCEANIA: from *Special Issue*, June 1981. 70pp. Price $4.00.

BIOLOGICAL ANTHROPOLOGY IN THE PACIFIC: Special Issue, March 1994. 108pp. Price $12.50.

KIE HINGOA *'NAMED MATS'*, 'IE TŌGA *'FINE MATS' AND OTHER TREASURED TEXTILES OF SAMOA & TONGA: Special Issue*, June 1999. 120pp. Price $15.00.

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POLYNESIAN ART: HISTORIES AND MEANINGS IN CULTURAL CONTEXT: Special Issue, June 2007. 192 pp. Price $30.00.

COLONIAL GRIEVANCES, JUSTICE AND RECONCILIATION: Special Issue, June 2012. 116 pp. Price $15.00.

TABUA *AND* TAPUA: *WHALE TEETH IN FIJI AND TONGA. Special Issue*, June 2013. 127 pp. Price $15.00.

EXTRAORDINARY POLYNESIAN WOMEN: WRITING THEIR STORIES. Special Issue, June 2014. 230 pp. Price $15.00.

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