

Maori and Muskets from a Pan-Polynesian Perspective¹

MILITARY HISTORY has received unprecedented attention in New Zealand historiography over the last decade. Much of this new-found prominence relates to the publication of a number of impressive studies on wars between Maori and Europeans by James Belich.² This article offers a comparative perspective on the Maori response to European weapons and coercive actions from the viewpoint of an historian of tropical Polynesian societies.³ While broadly similar patterns are detectable in the historical record, there are also significant differences between these two regions of Polynesia. This essay explores the extent to which these differences may be due to different conceptual approaches to the subject, rather than merely reflections of differing historical circumstances.

Belich first came to prominence with the publication of *The New Zealand Wars*. In it he argued for a revision of the long-accepted version of Maori military resistance to European expansion as heroic, but ill co-ordinated and sporadic. Under this perception Maori resistance was futile, as defeat was inevitable. Belich argued that Maori resistance was well planned, and highly effective. He examined the Northern War of 1845-6, the Taranaki campaign of 1860-1, the Waikato campaign of 1863-4, and the campaigns of Titokowaru and Te Kooti from 1868-1872, and concluded that the British achieved limited victory at best, and in some cases were defeated. As a small, divided agricultural population, Maori lacked the necessary infrastructure to sustain an adequate fighting force in the field for any length of time. The result was that the British forces had overwhelming numerical superiority. It was these factors, rather than Maori tactical and strategic deficiency, that denied them victory.⁴

Contemporary British accounts of battles against Maori present a distorted picture of reality because of a Victorian mindset that could not allow for the possibility of indigenous peoples out-fighting and out-thinking British regular forces. In these accounts, defeats or hollow triumphs were turned into British victories. Major Maori victories were explained in terms of temporary lapses in

1 This article was significantly improved by incorporating comments made by readers for the *New Zealand Journal of History* (NZJH). Their comments are appreciated.

2 See James Belich, *The New Zealand Wars and the Victorian Interpretation of Racial Conflict*, Auckland, 1986, and *I Shall Not Die: Titokowaru's War, New Zealand, 1868-9*, Wellington, 1989.

3 For the purposes of this article, tropical Polynesia is defined as those islands enclosed within the area bounded by Rapanui, the Hawai'ian archipelago, and Tonga. I include Tuvalu and Fiji on the western margins of this area because of their cultural heritage and interactions with communities to the east of them.

4 Belich's general thesis as outlined below is summarized in *New Zealand Wars*, chs 14, 15.

British leadership or discipline, or the overwhelming numbers of Maori opponents. In some cases, such as the victories of Titokowaru, unfathomable defeats were simply omitted from the historical record.

Belich attributes most of Maori success in battle to the development of what he terms 'modern pa'. These fortifications are portrayed as a direct response to British superiority in artillery and troop numbers, and to the tenacity with which British forces launched assaults even in the face of heavy casualties. To Belich, the modern pa was the forerunner of modern trench warfare which reached its zenith on the western front during World War I. If Belich is correct, then this system occurred first in New Zealand. Modern pa were characterized by enfilade-proof trenches and artillery-proof bunker systems, complete with false targets to draw artillery fire, and hidden firing positions to shoot down British troops once drawn into assault. Pa positions were chosen primarily for their efficacy as killing zones, and with an eye to ready escape routes. Unlike traditional pa, they were not designed to protect strategic areas or tribal assets, such as agricultural land.

These ideas have generally been well received by the New Zealand historical profession. But there have been some telling criticisms that have particular resonance for historians of Pacific Island communities. In a 1987 review article of *The New Zealand Wars*, Alan Ward suggested that greater attention could have been paid to continuity in traditional Maori fighting practices during their efforts against Europeans. He desired to know more about the relationship between traditional pa and modern pa, and the social relations between Maori commanders and their followers.⁵ Belich has also been criticized in a brief article by the military historian Chris Pugsley. After providing a number of examples to dispute Belich's claim that the modern pa predated European systems of trench warfare, Pugsley went on to counter Belich's claim that the modern pa was a response to European firepower. He pointed out that a number of the features of the modern pa were to be found in pa constructed during earlier musket wars between Maori groups.⁶

These criticisms are valid in regard to *The New Zealand Wars*, but do not adequately reflect Belich's current work. In his recent history of pre-twentieth century New Zealand, *Making Peoples*, Belich acknowledged that the pa that was adapted to counter firearms emerged well before 1845. He described the 'musket pa' in the decades before the 1840s as a transitional phase between traditional pa and the modern pa of the New Zealand wars.⁷ This transitional

5 Alan Ward, review article on *The New Zealand Wars and the Victorian Interpretation of Racial Conflict*, NZJH, 21, 2 (1987), pp.270-4. Other reviewers also noted the lack of attention to Maori perspectives. See particularly G.V. Butterworth in the *Journal of the Polynesian Society* (JPS), 99, 2 (1990), pp.211-14, especially p.214; Bronwen Douglas in the *Journal of Pacific History* (JPH), 24, 1 (1989), pp.120-2, especially p.122.

6 Chris Pugsley, 'Maori did not invent trench warfare', *New Zealand Defence Quarterly*, Spring 1998, pp.33-37, especially p.35. This article was a review of the *New Zealand Wars* television series. Belich does note that the first 'modern' pa, Kawiti's pa at Ohaeawai in 1845, did draw upon features already in existence, but his list of these features is far from complete (see *New Zealand Wars*, pp.50-53).

7 James Belich, *Making Peoples: A History of the New Zealanders From Polynesian Settlement to the End of the Nineteenth Century*, Auckland, 1996, pp.162, 211.

phase in Maori fortification had earlier been recognized by Elsdon Best in *The Pa Maori*.⁸

In *Making Peoples*, Belich briefly considered the nature of Maori warfare before 1845. He discussed inter-group conflict within the Maori world, both before and after the introduction of muskets. He then restated his thesis on the New Zealand wars.⁹ He emphasized change rather than continuity. Certainly, Maori warfare is portrayed as being driven by the competitive pursuit of mana and utu until well beyond the introduction of firearms. But Belich continued the approach of previous scholars in portraying the musket wars of the Maori as a radical departure from previous warfare in terms of their scale, intensity, and their disruptive consequences.¹⁰ More settled conditions were restored only when muskets became so widespread as to establish a balance of power. Despite the prominent influence assigned to military technology in this period, there is little discussion of its capabilities. A relative advantage in firearms is assumed to convey an advantage in battle. Belich also emphasized that Maori ability to conduct prolonged campaigns in this era was enhanced by the adoption of European potatoes as a highly productive, storable staple.¹¹

R.D. Crosby's *The Musket Wars*, published in 1999, was the first detailed modern study of Maori inter-iwi musket wars.¹² Crosby asserted that the introduction of firearms and potatoes led to a dramatic rise in the scale and frequency of Maori military actions in the period between 1806 and 1845. There was a corresponding increase in casualties and the disruptions caused by warfare, particularly the large-scale displacement of hapu and iwi. Firearms were the major reason for the disruption experienced in this period.¹³ Crosby did break new ground in New Zealand historiography by examining the technology involved.¹⁴ However, he did not fully reconcile the deficiencies he noted in the firearms with the devastating impact that he attributed to them throughout his narrative.¹⁵

The military historiography for tropical Polynesia differs significantly from that for Aotearoa/New Zealand in a number of respects. Pacific history would benefit from an analysis of the region's colonial wars, using the framework

8 Elsdon Best, *The Pa Maori*, Wellington, 1975 (reprint of 1927 original). See particularly pp.365–76. There is no reference to *The Pa Maori* in *The New Zealand Wars*, but it is cited in *Making Peoples*. Ranginui Walker also cites Best in his discussion of pa modifications during the musket wars in *Ka Whawhai Tonu Matou: Struggle Without End*, Auckland, 1989, pp.83–84. Archaeologists make much more use of Best. See Janet Davidson, 'The Paa Maaori Revisited', *JPS*, 96, 1 (1987), pp.7–26, for a review of the wealth of detail contained in *The Pa Maori*.

9 Belich, *Making Peoples* discusses pre-musket warfare pp.78–86, the musket wars pp.156–64, and wars against Europeans pp.204–11, 229–46.

10 See particularly D.V. Ulrich, 'The introduction and diffusion of firearms in New Zealand, 1800–1840', *JPS*, 79, 4 (1970), pp.399–410; A.P. Vayda, 'Maoris and Muskets — A Disrupted Process', in A.P. Vayda, ed., *War in Ecological Perspective*, New York, 1976; Walker, *Ka Whawhai*, pp.82–84. Potatoes undoubtedly enhanced Maori ability to conduct large-scale campaigns outside of their local territory. However, after 1845 Maori were often on the defensive against European forces. It is interesting to speculate the extent to which the need to position modern pa to defend such assets curtailed the efficiency of these pa as killing zones.

11 Belich, *Making Peoples*, p.159.

12 R.D. Crosby, *The Musket Wars. A History of Inter-Iwi Conflict 1806–45*, Auckland, 1999.

13 *ibid.*, pp.13, 17–18.

14 *ibid.*, Appendix A, 'Firearms of the Musket Wars', pp.367–72.

15 See particularly, *ibid.*, Appendix B, 'Logistics and Tactics', pp.373–7.

devised by Belich in 1986, especially in the focus he gave to the actual fighting and to colonial interpretations of the conflicts. While there are a number of works on warfare in Polynesia, most of them focus on indigenous warfare rather than on warfare between Polynesians and Europeans. One suspects that this indigenous focus is largely due to the fact that New Zealand was the only place in nineteenth-century Polynesia where Europeans came to outnumber Polynesians and to seize much of their land in the aftermath of open conflict. The three most comprehensive studies of indigenous warfare in Polynesia are those of Douglas Oliver on Tahiti, Fergus Clunie on Fiji, and Andrew Vayda on Maori in New Zealand.¹⁶

The strong influence of anthropology on Pacific history is apparent in Pacific historians' tendency to emphasize the cultural context behind acts of violence, rather than focusing on the course of military events, as Belich did so well for Aotearoa/New Zealand. The following passage from Greg Denning is typical. Writing on violence in Marquesan society, he noted that 'the context soothed the pain. It was not murder: it was a small drama about priorities in their world. That the bloodied heana¹⁷ on the beach had grown in status by being destined for Havaiki, the afterworld, might not have soothed the pain of the dying, but it soothed the pain of living. Duels and sacrifice were so clothed in particular signs and symbols that the participants saw a "real world" where the outsiders saw only death.'¹⁸

Studies of Polynesian warfare, and the literature pertaining more specifically to the impact of Western weapons on tropical Polynesian societies, have much to offer historians of Aotearoa/New Zealand. Specifically, it will be suggested that the framework used to examine Maori warfare after the introduction of firearms could be substantially enhanced by a discussion of the relative capabilities of traditional and Western weapon systems, and through greater recognition of the fact that war is a cultural act that varies in both form and function. A case can be made for a more Polynesian-centred approach that examines the impact of Western weapons both in terms of continuity in cultural approaches to warfare, as well as disruptions and adjustments to methods and attitudes towards warfare that new weapon systems, and new opponents, brought about.

Prior to the introduction of Western weapons most Polynesian warfare consisted of hand-to-hand combat with clubs, spears and daggers, occasionally preceded by an initial exchange of projectiles. The main defensive asset of combatants was their skill at dodging and parrying blows and projectiles. In February 1787, the trader Nathaniel Portlock was given an exhibition of these skills by an Hawai'ian chief on board his vessel. The chief had spears hurled at him 'with the utmost force' from only ten yards range. The first spear 'he avoided by a motion of the body, and caught it as it passed him by the middle: with the spear he parried the rest without the least apparent concern; he then returned

16 Douglas Oliver, *Ancient Tahitian Society*, 3 vols, Honolulu, 1974; Fergus Clunie, *Fijian Weapons and Warfare*, Suva, 1977; A.P. Vayda, *Maori Warfare*, Wellington, 1960.

17 Heana were human sacrifices.

18 Greg Denning, *Islands and Beaches. Discourse on a Silent Land, Marquesas 1774-1830*, Honolulu, 1980, p.215.

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the spears to his adversary, and armed himself with a Pa-ho-a;¹⁹ they were again thrown at him, and again parried with the same ease.²⁰

Single combat between champions was not an uncommon way for battles to begin. Much importance was placed upon drawing first blood, and then securing the corpse for immediate sacrifice on the field of battle. Such an achievement was seen as an indication of the gods' support, and could have a decisive effect on the morale of both sides.²¹ However, sometimes the issue was only decided by the clash of massed battle lines. Even then, unless one side dissolved rapidly, combat probably broke up into a series of personal duels. Gavin Daws vividly portrayed this type of combat when he wrote of 'a war of daggers and clubs and even bare hands', where 'life or death depended on swiftness of hand and foot, and, in the last moments spine-breaking brute strength'.²² In such fighting most casualties probably occurred when one side broke and fled, thus exposing their backs to the enemy close at hand.

All adult males were potentially eligible for military service. But in most societies, it appears that the brunt of any fighting fell upon a relatively small cadre, occasionally supplemented by levied forces. The most skilled warriors were often the leading chiefs. They figure prominently in traditional accounts of battles, with the death of an important chief often cited as the turning point in a battle. In the more hierarchical societies of tropical Polynesia, any chief of standing gathered around him a retinue, including many who constantly trained in the use of weaponry. These chiefly retinues formed the nearest equivalent that the Polynesians had to standing armies. Relatives were an important part of any chiefly retinue.²³ They were also bolstered from further afield. According to the Hawai'ian historian David Malo, training exercises were used in part 'to show the chiefs beforehand who among the people were warriors, so that they might be trained and brought up as soldiers'.²⁴ Elsewhere Malo refers to 'commoners' who lived with the chief and did not desert him in battle. Such men were called *Kanaka-no-lua-kaua*, men for 'the pit of battle'.²⁵

Chiefs and leading warriors had much to motivate them to risk their lives in the 'pit of battle'. Status mattered in Polynesia. Much of that status centred on the ability to demonstrate that gods and ancestors favoured one. Success in a range of human endeavours was an indication of this favour. Misfortunes such as defeat in battle and natural disasters on the land were seen as indications of the gods' withdrawal of support.²⁶ It was in battle that the status of rival chiefs, warriors and kin groups was put to the test. Notable acts in battle might enhance

19 *Pahoa* were hardwood daggers up to 60 cm in length.

20 Nathaniel Portlock, *A Voyage Round the World; But more particularly to the North-west coast of America, performed in 1785, 1786, 1787 and 1788*, New York, 1968, pp.188–9.

21 Two of the best descriptions of this come from Tahiti. See William Ellis, *Polynesian Researches*, Tokyo, 1967 (reprint of second edition 1859), I, pp.284–7, and Teuira Henry, *Ancient Tahiti*, Honolulu, 1928, p.305, pp.310–11.

22 Gavin Daws, *Shoal of Time: A History of the Hawaiian Islands*, Honolulu, 1968, p.31.

23 For example see David Malo, *Hawaiian Antiquities*, Honolulu, 1951, pp.59, 191, 194, 196, and John Papa Ii, *Fragments of Hawaiian History*, Honolulu, 1959, p.66.

24 Malo, *Antiquities*, p.66.

25 *ibid.*, p.61.

26 This discussion of mana is based mainly on Valerio Valeri, *Kingship and Sacrifice Ritual and Society in Ancient Hawaii* (trans. Paula Wissing), Chicago, 1985, pp.99–100.

an individual's status within the retinue. All would be aware of how past warriors had won immortality through their acts of courage and skill being included in the traditions which served to inspire each new generation of young warriors. The fear of being seen to back away from the challenges of battle in front of one's comrades, many of whom were kin, acted as another powerful incentive to warriors' bravery and group coherence.²⁷ Warfare in Polynesia was as much about the advancement and assertion of social status as it was about the pursuit of political power or economic assets. Besides, the importance of individual displays of prowess in battle for enhancing one's status, entrenched local kin-based power, and economies geared to the needs of essentially dispersed populations all worked against the concentration of power. Such power was needed to enable lasting control over new lands and inhabitants conquered in battle.

It was into this culture of war that Western weaponry was introduced. Initially, Pacific historians asserted that the new technology won out over existing cultural patterns. Muskets, like other introduced goods, Western diseases and new ideas overwhelmed Pacific Island societies. Polynesian communities were unable to adjust. They could neither control nor incorporate the new items into their existing culture.²⁸ By the 1970s a number of scholars began to challenge this so-called 'fatal impact' viewpoint in regard to the impact of firearms on Pacific Island societies. Dorothy Shineberg argued convincingly that the impact of firearms must be judged within the specific context in which they were used. She pointed out that until the middle of the nineteenth century, firearms were relatively inaccurate, slow to reload, and prone to misfire or being unable to fire if dampness prevented their gunpowder charges from igniting. Although their unseen projectiles, noise and smoke could be initially intimidating, Pacific Islanders soon learnt to exploit the limitations of firearms. In particular, they learnt to anticipate the discharges from the preliminary ignition of the external charge. Shineberg concluded that an initial advantage in firearms did not outweigh the benefits of superior numbers and home terrain.²⁹

Shineberg also noted that the use of muskets differed between islands, prompting her to call for more case studies.³⁰ In 1974, Kerry Howe produced such a study for the Loyalty Islands, where he argued that Europeans and their weapons did not substantially change tactics. The technological disadvantages of firearms, combined with the continuity of traditional hit-and-run tactics and limited war aims served to reduce the impact of firearms.³¹ In his 1984 survey of Polynesian and Melanesian history, *Where the Waves Fall*, Howe consistently maintained that firearms were not as disruptive as some earlier scholars claimed.³²

27 The key features behind small-unit cohesiveness in battle are discussed in John Keegan, *The Face of Battle*, London, 1976, p.51; Gwynne Dyer, *War*, New York, 1985, p.13.

28 Most clearly articulated in Alan Moorehead, *The Fatal Impact: An Account of the Invasion of the South Pacific 1767-1840*, London, 1968.

29 Dorothy Shineberg, 'Guns and Men in Melanesia', *JPH*, 6 (1971), pp.61-82, especially pp.61-62.

30 Dorothy Shineberg, 'The Sandalwood Trade in Melanesian Economics 1841-65', *JPH*, 1 (1966), pp.129-46, especially pp.137-8.

31 K.R. Howe, 'Firearms and Indigenous Warfare: A case study', *JPH*, 9 (1974), pp.21-38, in particular p.38.

32 K.R. Howe, *Where the Waves Fall. A New South Sea Islands history from first settlement to colonial rule*, Sydney, 1984.

More often than not firearms were used to suit existing aims, rather than indigenous patterns of behaviour changing significantly because of firearms. Elsewhere, Nicholas Thomas asserted that the Marquesan chief Iotete gained more influence from using muskets as items of ceremonial exchange rather than as weapons.³³

Why then the persistence of New Zealand historians in asserting that muskets had a great impact upon Maori indigenous warfare in the period from about 1817 until the middle of the 1830s? Is the difference one of fact or interpretation? Howe includes a chapter on Aotearoa/New Zealand in *Where the Waves Fall*, in which he questions many of the assumptions of New Zealand historians. He notes that ascertaining the number of people killed during these wars is problematic. Yet New Zealand scholars continue to cite figures in the tens of thousands. Belich has urged some caution, opting for a figure of 20,000 killed.³⁴ While this is at the lower end of the various estimates produced for Maori deaths, it is still high by tropical Polynesian standards.

Even if these figures are accepted it is clear that muskets were only an indirect cause of the casualty count. The Nga Puhī chief Hongi Hika's acquisition of large numbers of muskets on an overseas trip attracted an abnormally large number of warriors to join his expeditions in the early 1820s. Howe pointed out that Hongi's opponents were not only confronting muskets but also an unusually large, and intimidating, host. Most of those who died in fighting were not shot. Howe argued that many opponents of musket-armed taua were killed at close quarters with traditional weapons in the confusion that ensued as they tried to flee over the palisades and ditches of their pa.³⁵

Hongi's musket campaigns were by no means foregone conclusions. Although large numbers of his enemies were killed or captured, many of these were non-combatants sheltering in besieged pa. Despite usually having overwhelming numerical superiority in both combatants and muskets, there were a number of occasions where Nga Puhī had much difficulty in securing victory. In December 1821, for example, a large Nga Puhī expedition failed to take the Ngati Maru pa of Te Totara after two days. This was despite the fact that there was only one musket in the pa, and a number of Ngati Maru were at Matamata, or away on an expedition to the south. As it was, Nga Puhī only succeeded in taking the pa by subterfuge. After promising an end to hostilities, they pretended to withdraw, only to return secretly by night. The pa was stormed, and many of its occupants killed.³⁶

Just how effective were handguns and artillery in this period? Were they capable of inflicting the damage that some modern authors claim? Was there anything particular to the Polynesian context that needs to be taken into account?

33 Nicholas Thomas, "'Le Roi de Tahuata': Iotete and the transformation of south Marquesan politics, 1826-1842', *JPH*, 21, 1 (1986), pp. 3-20.

34 Belich, *Making Peoples*, p.157.

35 Howe, *Where the Waves Fall*, pp.214-22, especially p.219. For example see S. Percy Smith, *Maori Wars of the Nineteenth Century: The Struggle of the Northern Against the Southern Maori Tribes Prior to the Colonisation of New Zealand in 1840*, Christchurch, 1910, pp.228-9 on Hongi's taking of Matakītaki pa in 1822. Belich, *Making Peoples*, pp.161-2, notes that muskets enabled Hongi to cobble together much larger taua than usual, but does not make the connection between numerical superiority and victory as explicitly as Howe.

36 Smith, *Maori Wars*, pp.191-6.

These issues must be addressed if we are to resolve the apparent conflict in the interpretations. Most of the muskets that found their way to Polynesia came from vessels operating out of ports on the east coast of the United States, or from ports connected with Britain. The flintlock musket was the main military firearm in use in Europe and North America during this time. Flintlock muskets remained the predominant military issue firearm in tropical Polynesia until well into the 1860s. The following discussion will therefore be limited to flintlock muskets.

The gun industry on both sides of the Atlantic in the early nineteenth century consisted of decentralized, specialist artisans, producing similar finished products. There is a strong possibility that many of the firearms introduced into Polynesia were not standard military-issue flintlock muskets. Studies of the gun trade with West Africa distinguish between army-issue 'Tower' muskets and trade muskets. Tower muskets were smooth-bore flintlocks that had been tested with charges of powder by government inspectors at the Tower of London, and thus had a minimum guaranteed standard barrel strength. Until the establishment of commercial proof-houses for testing trade guns towards the end of the Napoleonic Wars, trade guns carried no guarantee that they would not burst if fired. Most of these trade guns were manufactured for West Africa, and often had not been fired by their manufacturers to check for imperfections. Trade muskets were cheaper, lighter and less mechanically complicated than Tower muskets. They were not intended for rapid firing nor for the rigours of campaigning. Their use in West Africa was often more as symbols of power and hunting weapons than as tools of coercion.³⁷

Trade muskets continued to be of dubious quality after the establishment of commercial testing houses. Many gun barrels made of substandard iron still passed through the tests, and many barrels were thinned down after they had passed the proofing tests. The counterfeiting of proof marks flourished.³⁸ Exploding gun barrels may also have resulted from improper gunpowder charges. The higher the saltpetre component of gunpowder the greater its explosive force. Obviously the strength of the gunpowder should match the strength of the gun barrel. It was common to increase profits by diluting gunpowder through mixing it with charcoal or other substances that could not be distinguished in the mix. This resulted in powder of varying quality and strength, so that charges could not be gauged with any consistency. Powder could also be damaged en route by exposure to dampness. Failure to turn the powder barrels regularly resulted in the powder clogging, and the saltpetre accumulating at the bottom of the barrel, so that the powder adopted an uneven consistency. Humidity and high rainfall added to the deterioration of firearms and gunpowder.³⁹

Even military-issue firearms from this period did not necessarily confer an

37 The whole issue of the *Journal of African History* (JAH), 12, 2 (1971) deals with firearms in Africa. For the export of firearms out of Britain see Gavin White, 'Firearms in Africa: An Introduction', JAH 12, 2 (1971), pp.175-82. Another interesting insight into the gun industry around this time is found in Barbara M.D. Smith, 'The Galtons of Birmingham: Quaker Gun Merchants and Bankers', *Business History*, 9, 2 (1967), pp.132-50.

38 See White, 'Firearms', p.181.

39 For general discussions of gunpowder see White, 'Firearms', pp.174-5; Clunie, *Fijian Weapons*, p.79; R.A. Kea, 'Firearms and Warfare on the Gold and Slave Coasts from the sixteenth to the nineteenth centuries', JAH, 12, 2 (1971), pp.185-213, particularly pp.204-5.

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advantage to their possessors over opponents armed with traditional Polynesian weapons. Although traditional projectile weapons travelled much more slowly than musket balls and, therefore, generally did less damage when they struck, they were more reliable and accurate than muskets within each weapon's effective range.⁴⁰ The flintlock musket was unreliable at any range over 100 yards and was preferably used at ranges of 50 to 70 yards, or less, against massed targets. Tests conducted by the Prussian army in the late eighteenth century bear witness to this fact. In the tests, an infantry battalion fired volleys into a canvas target 100 feet long and six feet tall, which was the average height and frontage of an infantry unit. At 225 yards only 25% of the musket balls fired hit the target, at 150 yards 50% hit, while at 75 yards 60% of the shots found their mark.⁴¹ Such strike rates required the enemy to be tightly packed together, which was often not the case in Polynesian warfare.

Although trained marksmen could fire up to four or five times a minute under test conditions, the average soldier usually loaded and fired at a rate of only twice a minute. The residue of the powder burnt to propel the musket ball tended to clog the musket barrel after prolonged use. The faster the rate of fire the more prone the barrel was to fouling. Tests conducted by the British army in 1834 showed that, although flintlocks could be loaded and fired every 20 seconds, the rate of misfires at this speed was one in every six and a half shots. In the field the rate of misfires increased significantly. Damp powder prevented the musket from firing. The powder on the open priming pan was particularly prone to wind and rain.

When a flint became chipped or blunted it was less likely to generate sufficient sparks into the priming pan to ignite the charge. Flints could last up to 60 shots but most had a much shorter lifetime. United States army regulations stated that a flint should be replaced after 20 rounds. It was not easy to change a flint in mid-battle, and the musketeer was extremely vulnerable until the new flint was installed. Without a local manufacturing industry, gun maintenance was also a problem, particularly for worn-out firing mechanisms and defective metal gun barrels. Maintenance was only possible because the guns were handmade. Surrogates for flints and musket balls could be used but these would diminish the consistency of ignition and the accuracy of fire.⁴²

Muskets acquired by Polynesians were often initially in poor condition, and soon deteriorated further in the humid climate of the tropics or the damp climate of New Zealand, especially if not properly cleaned and maintained.⁴³ Polynesian

40 The following discussion of the technical capabilities of flintlock muskets is based primarily on the following sources: H.C.B. Rogers, *Weapons of the British Soldier*, London, 1960, pp.154–63; H.L. Blackmore, *British Military Firearms 1650–1850*, London, 1961, p.45; T.H. McGuffie, 'Musket and Rifle', *History Today*, 7, 7 (1957), pp. 473–9; Clunie, *Fijian Weapons*, p.83.

41 David Chandler, *The Campaigns of Napoleon*, London, 1966, p.342, cit. Dyer, *War*, p.62.

42 The British Army's adoption of the percussion musket, with its enclosed ignition system, in the 1840s alleviated many of the problems associated with the exposed ignition mechanism of the flintlock musket. However, the precision of the new mechanized manufacturing processes adopted later in the nineteenth century considerably reduced the effectiveness of less precise manual repairs by Polynesians.

43 A British army officer who visited Northland in 1820 noted that the damp nature of Maori dwellings contributed to the deterioration of muskets — see R.A. Cruise, *Journal of a Ten Month's Residence in New Zealand*, Christchurch, 1974 (reprint of 1824 ed.), p.282.

musketeers were also vulnerable because of the general failure to adopt the bayonet. In fighting at close quarters, an unloaded musket without a bayonet was of little use. There are examples all over the Pacific of musketeers being overcome when their opponents anticipated their musket discharges and rushed in while the guns were being reloaded.⁴⁴

We should not overstate the degree of change that the adoption of firearms would necessarily force upon combatants with hand-held weapons. In the fascinating comparison of the battle of Waterloo in 1815 and Alexander the Great's victory at Gaugamela in 331BC, John Keegan pointed out that edged-weapon fighting and battles in the flintlock era had much in common. The effective range of firearms meant that the decisive fighting in eighteenth-century European warfare still took place at close range and depended on the steadiness of the combatants. Keegan noted that, because of the close proximity of the antagonists in both modes of fighting, battles were 'noisy, physically fatiguing, nervously exhausting and, in consequence of that physical and nervous strain they imposed, narrowly compressed in time'.⁴⁵ In both cases, each side attempted to extend its line of battle to maximize the number of weapons that could be brought to bear against the enemy, without the risk of overextending themselves. Each side either sought to outflank the other or, failing that, to break some point of the enemy's line by 'superior savagery',⁴⁶ where the issue would be decided at speaking, if not spitting, distance.

Artillery was less commonly adopted by Polynesians. Almost all of the artillery-pieces obtained by Polynesians in this period were naval guns. Naval artillery was generally much heavier than artillery used on land, as its tactical function required hitting power rather than mobility. Naval warfare in this period was based on the manoeuvring of sail-powered warships to deliver broadsides, or cannon barrages from cannon lining either side of the ship, against the sturdy timber of opposing vessels. Cannon were classified by the weight of the shot they fired. For example, a three-pounder cannon fired a three-pound shot. While battlefield artillery ranged from three- to 12-pounders, naval cannon generally consisted of 12-, 16-, 24- and 32-pounders designed for stationary firing positions.

In the latter part of the eighteenth century, the Royal Navy introduced a lighter, smaller cannon known as the carronade. It had a short, stubby barrel and thinner barrel walls than existing naval cannon, which meant that it was easier to handle. Although the barrel thickness limited the size of the powder charge that could be safely used, the carronade could still fire a bigger shot than most guns of its size and weight. Smaller powder charges meant shorter effective range, but within its range the carronade was much more destructive than the larger and heavier long cannon. The carronade was ideal for smaller vessels, both naval and commercial.

An even smaller naval artillery piece was the swivel gun. This was light and

44 Such tactics were known and used by Maori as early as 1820. See Cruise, *Journal*, p.68; Smith, *Maori Wars*, p.144; Lesson in C.A. Sharp, ed., *Duperrey's visit to New Zealand in 1824*, Wellington, 1971, p.61; Samuel Marsden in J.R. Elder, ed., *The Letters and Journals of Samuel Marsden, 1765-1838*, Dunedin, 1932, p.284.

45 John Keegan, *The Mask of Command*, London, 1987, p.115.

46 Keegan, *Mask*, p.116.

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could be mounted on row-boats. It fired a shot up to half a pound in weight.⁴⁷

Cannon were certainly capable of inflicting great damage, even against troops in open formation. They could fire either heavy solid iron balls or masses of small projectiles. The former ploughed their way through whatever got in the way until they lost their momentum. Although the ball's momentum declined markedly at distances over a kilometre, it was still capable of shattering limbs at this range. Cannon packed with smaller projectiles had an effect similar to that of a sawn-off shotgun. Upon leaving the cannon barrel the projectiles spewed out over a wide arc along the line of trajectory. Each projectile was capable of killing or disabling a person. Cannon could only fire such ammunition up to ranges of 400 metres.⁴⁸

The robust nature of cannon meant that supplies of ammunition were less of a problem than for muskets. If conventional ammunition was unavailable, local substitutes could be used. In particular, almost any small object could be used for close-range scatter shots. But the substitution of rounded boulders for round shot reduced accuracy and range. Prolonged use might also damage the barrel, and imported gunpowder was still needed as the igniting agent.⁴⁹ The loading and firing of cannon required skill and time. As well as having a slow rate of fire, cannon were relatively immobile. Yet Polynesian warfare was often characterized by great mobility. It is worth noting that even the three-pounder field gun of the late eighteenth century still weighed around 350 kilograms.⁵⁰ Without beasts of burden, Polynesians were dependent on human muscle and relatively dry and unimpeded terrain for the movement of artillery overland.

My research suggests that in almost all Polynesia an initial psychological fear of firearms and cannon soon gave way to an acute awareness of both their potential and their limitations.⁵¹ Some groups used monopolies in firearms to advance themselves, but such monopolies were usually short-lived, and brought few lasting rewards, because of the political and logistical limitations of Polynesian warfare. This even appears to have been the case among Maori as early as 1820. While musket-armed Nga Puhi secured an easy victory in 1819 by terrifying their Whanganui opponents with their new weapons, the same Nga Puhi taua was mauled by its former victims a short time later, as it passed through their territory on its way back north. Muskets proved to be no match for superior numbers once Nga Puhi had been lured in to combat at close quarters.⁵²

47 For accounts of European naval tactics and weaponry in this period, see John Keegan, *The Price of Admiralty: War at Sea from Man-of-War to Submarine*, London, 1988, pp.60–73; Field Marshall Viscount Bernard Law Montgomery of Alamein, *A Concise History of Warfare*, London, 1972, pp.211–16; Clunie, *Fijian Warfare*, p.79; Michael Howard, *War in European History*, Oxford, 1976, pp.62–64; William Reid, 'Carronades', *War Monthly*, 8 (1974), pp.44–48.

48 Keegan, *Face of Battle*, pp.160–1; Robert Leckie, *Warfare*, New York, 1970, pp.115–17; P. Griffith, *Forward into Battle — Fighting Tactics from Waterloo to Vietnam*, Chichester, 1981, p.145, discuss the effectiveness of artillery.

49 On the effectiveness of local substitutes for ammunition see Robert S. Smith, *Warfare and Diplomacy in Pre-Colonial West Africa*, Norwich, 1976, pp.110ff.

50 Clunie, *Fijian Weapons*, p.78.

51 In particular, Paul D'Arcy, 'The Impact of Firearms on Polynesian Warfare', BA Hons Long Essay, University of Otago, Dunedin, 1984.

52 Smith, *Maori Warfare*, pp.121–4; T.L. Buick, *An Old New Zealander, or Te Rauparaha*, Christchurch, 1976 (reprint of 1911 original), p.52.

Maori also made limited use of naval artillery in the 1820s and 1830s. Artillery was mainly used to strengthen the defences of pa, with mixed results. Naval artillery was a significant factor behind Te Atiawa's successful defence of Nga Motu pa against a numerically superior Waikato taua in 1832. Four years later, another Waikato taua stormed Maketu pa, despite the inclusion of artillery in its defences.⁵³ Artillery was much less suited to mobile operations. A Nga Pui taua accompanied by artillery was surprised on Motiti Island in 1831, and routed before they could bring their artillery into action.⁵⁴ Artillery was also used in open battle in Hawai'i in the 1790s. At the battle of Paauhau, enemy warriors neutralized the only artillery piece in use by capturing it while it was being reloaded. Artillery seems to have been more effective in the battles of Iao and Nu'uanu, where it was used against enemies hemmed into steep-sided valleys. However, traditions suggest that the issue had already been decided by then through more traditional combat. For example, the battle of Iao was preceded by days of hand-to-hand fighting, including a duel between the two opposing commanders at Kokomo.⁵⁵

In other words, the adoption of Western weapons did not necessarily mean the adoption of Western attitudes towards warfare. Evidence that traditional Polynesian conventions concerning warfare might overrule the potential tactical advantages of cannon is found in the beachcomber William Mariner's detailed eye-witness account of wars in Tonga during the first decade of the nineteenth century.⁵⁶ After using four artillery pieces mounted on mobile carriages to overwhelm the defenders of the palisaded fortress of Nuku'alofa, the Tongan chief, Finau 'Ulukalala II, moved against his enemies on the island of Vava'u. When the Vava'uans sallied forth from their artillery-proof fortress at Feletoa, Finau would not allow his artillery to be used against them because he wanted a fair and honourable fight. The result was a hard-fought, but indecisive mêlée. A warrior boldly advanced to within 16 yards of Mariner's carronade during one of the Vava'uans' sorties, and brandished his spear in defiance. Mariner discharged the cannon, but the warrior nimbly ducked and avoided the projectile. The warrior then advanced to within ten paces of the carronade and threw his spear at the carronade rather than at Mariner. His act of defiance accomplished, he returned jubilantly to his own lines. Victory, it would seem, was not merely a matter of body counts.

The nature of warfare began to change as European trade expanded and the number of firearms increased. Across most of Polynesia, warfare between indigenous groups became increasingly indecisive as confrontations deteriorated into musket duels well out of effective range. The increasing use of fortifications incorporating earthworks served to reduce further the potential killing power of firearms and cannon. This process was noticeable in New Zealand in the 1830s,

53 On Maori utilization of artillery see Trevor Bentley, 'Acculturating Heavy Metal: The Role of the Tribal Artillery in the New Zealand Musket Wars', *New Zealand Legacy*, 7, 2 (1996), pp.14-17. (The sieges referred to above are discussed on p.14.)

54 *ibid.*, p.16.

55 See Samuel Kamakau, *Ruling Chiefs of Hawaii*, Honolulu, 1961, pp.147-8 (Kokomo and Iao), p.151 (Paauhau), p.172 (Nu'uanu).

56 John Martin, *Tonga Islands, William Mariner's Account* (2 vols), 4th ed., Vava'u, Tonga, 1981, pp.122-4.

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Tonga in the 1840s and 1850s, and in Samoa in the 1840s, 1850s and 1860s.⁵⁷

These developments were not solely due to the restoration of a balance of weapons between competing groups. Consideration of status also played a role. Individual status produced a system of warfare that favoured individual duels between skilled combatants. But the status of prominent individuals had to be balanced against the antagonistic, competitive atmosphere that often existed between groups. The result was the adoption of weapons that promised to convey an advantage against rivals, but also threatened the social order. The tactical emasculation of these weapons that followed was driven, in part, by an attempt to preserve the old order.

Warfare in Polynesia was not only a vehicle for the pursuit of political power and economic resources. It was also a stage for the maintenance and advancement of social status. By substituting the chemical energy of exploding gunpowder for physical strength, firearms threatened to diminish the importance of traditional fighting skills. Individually, many muskets may have been poor weapons, but en masse they threatened established ways. The indiscriminate hail of lead that characterized battles involving firearms was no respecter of rank or prowess; it knew no code of conduct, and feared no sanctions for breaking social norms. Although the flash of the priming pan's ignition forewarned the wary eye of an impending projectile, that projectile was still invisible to the naked eye. As with any projectile weapons, the more that were used in battle the greater the chance of being struck by an unseen missile.

The means of enhancing and asserting status through battle was being eroded. As the missionary Thomas Williams noted in Fiji: 'The fact that bullets are so promiscuous in their work, striking a Chief as well as commoner men, makes the people less disposed than ever to come to fighting, while their faith in the diviner qualities of their commanders is much shaken.'⁵⁸ W.T. Pritchard, the British consul in Samoa, observed a battle in the 1840s where a small force of musketeers broke up a charge by a numerically superior force. Samoan warriors complained to Pritchard that since the introduction of firearms a youth just barely tattooed could shoot the strongest and most fearless of warriors.⁵⁹ Similarly, in 1835 at the siege of Te Horo pa in the Waikato, Maori chiefs told the missionary Henry Williams that they were angered by the fact that they might be shot by slaves from the opponents' ranks.⁶⁰

These apparent attempts to restrict the impact of projectile weapons were not new to Polynesia. Prior to the introduction of firearms into Polynesia, hand-to-hand combat was occasionally preceded by an exchange of projectiles. On at least one known occasion a heavy barrage of projectiles was sufficient to cause

57 For New Zealand examples, see the descriptions of battles at Tauranga in 1831 and 1833 between Nga Puhī and Ngai Te Rangī in H. Carleton, *The Life of Henry Williams, Archdeacon of Waimate*, Auckland, 1874, pp.119–25, 130–2. Tongan wars during this phase are described in S.S. Farmer, *Tonga and the Friendly Islands, with a sketch of their Missionary History*, London, 1855, pp.402–7; T. West, *Ten Years in South-Central Polynesia*, London, 1865, pp.304–28. Musket warfare in Samoa is described by W.T. Pritchard, *Polynesian Reminiscences*, London, 1866, pp.53–77.

58 Thomas Williams, *The Islands and their Inhabitants*, (Vol. I, *Fiji and the Fijians*), G.S. Rowe, ed., London, 1860, p.53.

59 Pritchard, *Polynesian Reminiscences*, pp.59–61, 65–66.

60 Carleton, *Henry Williams*, pp.177–9.

an opposing force to break and flee.⁶¹ Skilled warriors were proficient at dodging or parrying spears and sling-stones. Bows and arrows were another proposition altogether; propelling their missiles at much greater velocity. While Tongans only adopted the bow as a weapon late in their history, Hawai'ians and Tahitians restricted the use of bows to chiefly sport.⁶² Like musket balls, fast-moving arrows posed a serious threat to a fighting system based on individual prowess of a select, influential few at close quarters.

The traditional attitudes towards warfare described above occurred well after firearms had led to tactical changes. Indeed, the modification of fortifications to nullify firearms and artillery usually occurred soon after firearms were encountered. For example, in Tonga artillery-proof fortifications arose only a few years after cannon had levelled the wooden palisades of Nuku'alofa, along with hundreds of its hapless defenders. About two years later the same cannon failed to make any impact on the defences of Feletoa in a seven-hour bombardment. The fortress was sited inland on steep rising ground. A reed fence surrounded the village, and beyond this were two clay banks made from earth excavated from trenches behind these banks. The defenders sheltered in the trenches. Steps cut into the rear of the banks allowed the defenders to fire arrows over the banks without exposing themselves to enemy fire.⁶³

These two Tongan sieges occurred in the first decade of the nineteenth century. Firearms were also introduced into neighbouring Fiji during this decade as a result of the sandalwood trade. Most settlements in Fiji soon adapted their defences to meet the threat of firepower. Before the introduction of firearms most Fijian villages were defended by a palisade with a ditch in front to obstruct any assault. The usual response to firearms was to incorporate embankments and trenches behind the palisade.⁶⁴ But other devices were observed. A European beachcomber, Jackson, saw a strong position on a flat-topped crag with a loop-holed stone wall to protect its defenders from enemy fire. Not all adaptations were defensive. Some allowed defenders to utilize Western firepower against attackers. As early as 1827 fortified settlements like Lakeba had incorporated artillery into their defensive perimeters.⁶⁵ A number of fortresses included bastions to allow defenders to direct fire into the flanks of their assailants.⁶⁶

The most complete adaptation to Western weaponry in Polynesia occurred

61 Kamakau, *Ruling Chiefs*, p.87.

62 When Captain Cook's expeditions visited Tonga in the 1770s, various members noted that, although the Tongans possessed bows, they were only used by chiefs to shoot pigeons. Thirty years later Mariner saw them used in battle. On Tongan bows, see J.C. Beaglehole, *The Journals of Captain James Cook on his Voyages of Discovery*, 4 vols, Cambridge, 1955-67, II, pp.762, 809, III:1, p.174, III:2, p.941. See also Mariner in Martin, *Tonga*, pp.162-4. For Tahiti, see Beaglehole, *Journals*, I, p.126, II, p.401; James Morrison, *The Journal of James Morrison*, London, 1935, p.38. For Hawai'i, see Beaglehole, *Journals*, III:2, p.1182.

63 Mariner was present at both actions. See Martin, *Tonga*, pp.81-83 for Nuku'alofa, pp.120-7 for Feletoa.

64 Williams, *The Islands*, pp.48-49; C. Wilkes, *Narrative of the United States' Exploring Expedition during the years 1838 to 1842*, 3 vols, Philadelphia, 1845, III, pp.80, 277.

65 Clunie, *Fijian Weapons*, p.76.

66 Jackson's narrative is included as an appendix in J.E. Erskine, *Journal of a Cruise Among the Islands of the Western Pacific in HMS Havannah*, London, 1967 (reprint of 1853 ed.), pp.411-77, especially pp.429-30. See also Erskine, *Journal of a Cruise*, p.168; Wilkes, *Narrative*, III, pp.80-81.

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in the kingdom of Hawai'i, an area with a limited indigenous tradition of fortifications. After unifying the Hawai'ian archipelago, the Hawai'ian chief Kamehameha transformed his military forces along Western lines. A centralized, musket-armed standing army replaced the old system of chiefly retainers, and a European-style navy was built locally in the first two decades of the nineteenth century.⁶⁷ By 1819 he had a large number of cannon in fortified positions for coastal defence. The fort protecting Honolulu contained 50 artillery pieces.⁶⁸

None of these fortifications were subjected to the kind of bombardments that Maori endured at the hands of European forces in the 1840s and 1860s. It is apparent that fortifications suited to the age of firearms arose early in Polynesia, often independent of European examples or coercive pressure. My research suggests that this was also the case in the Maori world. By the late 1820s Hongi Hika's pa at Kororipo consisted of a chain of rifle pits behind two lines of palisades. More pits and palisaded ways provided shelter inside the pa, at least from musket fire.⁶⁹ In the 1830s most pa for which we have descriptions incorporated a double line of loopholed palisades, with rifle pits or trenches behind them. A number also made use of raised earthen banks, while some interior dwellings were covered with earth to shield them from musket balls.⁷⁰ Onawe pa on Banks Peninsula had a covered trench, protected by palisades on either side to give its defenders access to an external water source.⁷¹

The transition from indecisive musket exchanges between Polynesians to more lethal tactics against Europeans occurred rapidly, a matter of weeks in the case of the Northern War, 1845-6.⁷² Maori, Tahitians and Samoans were the only Polynesian societies that had major confrontations with European military forces.⁷³ Confronted by a foe that did not adhere to their conventions of warfare, these Polynesians were forced to adjust their tactics and approaches to warfare. All three peoples had made the transition to tactically restricted inter-group musket warfare with few casualties by the time the European threat became manifest. Yet within weeks they adjusted their tactics in response to the European challenge. While Maori relied on fortifications, Tahitians and Samoans resorted largely to fighting in the bush-clad and mountainous interiors of their islands to maximize the advantage of their local knowledge, and to nullify the European

67 Otto von Kotzebue, *Voyage of Discovery in the South Sea, and to Behring's Straits, undertaken in the years 1815, 1816, 1817, 1818* (Part One), London, 1821, p.84.

68 Descriptions of these forts are found in Kotzebue, *Voyage*, p.99; M. Kelly, ed., *Hawaii in 1819: A Narrative Account by Louis Claude de Saules de Freycinet*, Honolulu, 1978, pp.90-91.

69 G. Clarke, *Notes on Early Life in New Zealand*, Hobart, 1903, pp.10-11; Best, *Pa Maori*, pp.365, 367, 369, 373.

70 *ibid.*, pp.29-30, 102-3, 371, 389-91.

71 Buick, *Te Rauparaha*, pp.182-3, also mentioned in Best, *Pa Maori*, p.382.

72 James Cowan, *The New Zealand Wars*, Wellington, 1922, I, pp.36, 42-44, 381.

73 Fighting between the French and Tahitians took place in the 1840s. A good overview of this war is found in Colin Newbury's 'Resistance and Collaboration in French Polynesia: The Tahitian War: 1844-7', *JPS*, 82 (1973), pp.5-27. Newbury noted that this article developed from a comparative paper on resistance and adaptation in Pacific Island societies discussed in the London University Institute of Commonwealth Studies Seminar, March 1972. Our respective sub-disciplines would benefit from some comparative study between this conflict and the Northern War of 1845-6. In Samoa, fighting broke out between German forces and Samoans in the late 1880s. Modern rifles were used instead of muskets. The fighting is elegantly outlined in Robert Louis Stevenson, *A Footnote to History — 8 Years of Trouble in Samoa*, London, 1892, pp. 212-16.

advantage in naval guns. These were essentially defensive reactions, which alone could not secure victory. In the end the Europeans were able to play on internal rivalries within their Polynesian opponents' ranks to gain victories that were by no means decisive.

Did the military tactics and political aims underlying European warfare persuade or force Polynesians to abandon their own cultural attitudes to warfare? No one has yet addressed this issue comprehensively, nor even asked the question. Was the definition of victory the same for both sides? Perhaps what European combatants described as 'chivalrous'⁷⁴ actions by Polynesians, constituted 'victory' for Polynesians. Why, for example, did Samoans allow defeated and surrounded German marines, whose ammunition was almost exhausted, to retire unhindered to the coast?⁷⁵

In *Islands of History*, Marshall Sahlins argued that throughout the Northern War of 1845-6 the root cause of the fighting remained the flagpole at Kororareka. It was not the British flag that mattered to Nga Puhī, but the pole that it was hoisted on. The pole was seen as a tuahu, the poles that embodied the ancient claims to tribal lands. Such lands objectified the mana of the kin group. At Kororareka the British were erecting their own tuahu.⁷⁶ Such issues of cultural meaning are fraught with difficulties of interpretation. In a thoughtful review of *Islands of History*, Judith Binney challenged Sahlins' analysis by arguing that Hone Heke understood the meaning of the British flag at Kororareka. Why else did he suggest that the flag of the northern iwi fly alongside that of the British in keeping with the sentiment of the Treaty of Waitangi?⁷⁷ Sahlins' Heke is totally influenced by a cultural outlook dominated by past traditions, while to Binney, Heke's perspective has been modified by changing circumstances. It is through exchanges like this that we may begin to move towards a Polynesian perspective, and thus further counteract the European bias that Belich seeks to expose through examining inconsistencies in Western sources. Further exchanges between New Zealand and Pacific Island historians over the issue of change and continuity in Polynesia can only be beneficial.

This article has argued that historians should not underestimate the persistence of cultural patterns in Polynesian military actions after the introduction of firearms technology. European attitudes also lagged behind the reality of new weapons, as demonstrated by the continued use of close-packed ranks against modern firepower in the American Civil War. The muskets that were used in Polynesia were not modern rifles. They were not markedly superior to Polynesian weapons until the mid-1860s. In some cases they were more of a liability than an asset. Belich and others justly praise the Maori military effort against Europeans. But perhaps now it is time to ask how to praise them in their own terms.

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⁷⁴ Belich, *New Zealand Wars*, p.316, notes this tendency in European descriptions.

⁷⁵ Stevenson, *Footnote*, pp.213-15.

⁷⁶ Marshall Sahlins, 'Other Times, Other Customs: The Anthropology of History', in *Islands of History*, Chicago, 1985, pp.32-72, especially pp.60-61, 70.

⁷⁷ Judith Binney, review of *Islands of History*, JPS, 95, 4 (1986), pp.527-30.