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British Logistics
in the New Zealand Wars,
1845-66

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Richard J. Taylor

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Abstract

While military historians freely acknowledge the importance of logistics – the function of sustaining armed forces in war and peace – the study of military history has tended to focus on other components of the military art, such as strategy, tactics or command. The historiography of the New Zealand Wars reflects this phenomenon. As a result, the impact of logistics on the Wars remains largely unexplored and misunderstood.

The British superiority in numbers, materiel and technology has been one of the most consistent and enduring themes in the historiography of the New Zealand Wars. Although more recent, revisionist histories have also highlighted the impact of Maori military prowess as a factor, interpretations of the course and outcome of the Wars are still dominated by accounts which stress the numerical and technological superiority of the British Army as critical. There are several problems with this approach. At its most basic, it ignores the historical reality that small, poorly-equipped forces have occasionally defeated larger and better equipped opponents. More importantly, it fails to take into account wider British strategy in New Zealand, and events that took place off the battlefield, such as the provision of the logistical services that did much to shape the outcome. The result is a lack of balance that prohibits true assessment of the respective capabilities and performance of the two sides.

While it is acknowledged that the British had superior numbers and technology for most of the Wars, this thesis will show that the outcome of the New Zealand Wars was due more to the quality of British logistics and logistics doctrine, and the application of logistics within a coherent strategy, than to any quantitative advantage. This will be achieved by tracing the development and application of British logistics in New Zealand between 1845 and 1866.

It will be seen that the outcome of the New Zealand Wars was determined by the implementation, by the British, of a strategy that applied their greatest strength (their army's ability to fight sustained campaigns) against the critical Maori weaknesses (logistics, and an inability to fight prolonged wars). It will also be seen that the cornerstone of British strategy was strong, effective logistics.

For Alan Taylor (1928-2003),
who died while this thesis was being written.

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When I began working on this thesis, I saw myself as embarking on a journey that would end with its (hopefully successful) completion. I now realise that that journey has no end, and that the completion of the thesis merely marks a point – albeit a personally satisfying one – on its path.

There are a number of people to whom I owe personal and professional thanks. First, I am indebted to my two supervisors, Dr Danny Keenan and Professor David Thomson, for their wisdom, advice, and infinite patience throughout the gestation of the thesis. As befits a study of logistics, they always delivered appropriate rations of praise and constructive criticism in a timely manner, helped ensure that my conclusions were soundly supported, and generally did all they could to ensure that the thesis reached the ‘front line’ in the best shape possible.

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Glossary of terms used

<i>Campaign</i>	A sequence of military operations designed to achieve a strategic objective within a given time and theatre of operations.
<i>Concept of operations</i>	The line of action chosen by a commander to achieve his mission.
<i>Counter-logistics</i>	Actions taken by one side to undermine the logistical capacity of its opponent, or to deny its opponent access to supplies and other resources.
<i>Critical vulnerability</i>	A characteristic or key element of a force that if destroyed or neutralised will significantly undermine the fighting capability of the force. A critical vulnerability is not necessarily a weakness, but any source of power that is capable of being attacked or neutralised.
<i>Distribution</i>	The process of planning, organising and controlling the cost-effective flow of material and services from supplier to customer.
<i>Doctrine</i>	Fundamental principles by which military forces, or elements thereof, guide their actions. It is authoritative, but requires judgement in application.
<i>Gabion</i>	A cylindrical wicker basket, which is filled with earth or stones for use in field engineering works.
<i>General hospital system</i>	A medical system, developed in New Zealand during the early 1860s, whereby casualties were evacuated through a series of medical facilities to a general hospital, receiving more advanced treatment at each stage.
<i>Lines of communication</i>	Routes established or designated for the movement of materiel and personnel required to deploy and sustain a combat force. They include routes by sea, land, inland waterways and air, or any combination thereof.
<i>Logistics</i>	See Chapter 1, pp.1-3.
<i>Materiel</i>	All items necessary to equip, maintain, operate and support military activities.
<i>Operation</i>	An action, or series of tactical actions (battles, engagements, or strikes) conducted by combat forces, coordinated in time and place, to accomplish operational objectives, and sometimes strategic objectives in an operational area.
<i>Operational level of war</i>	The level at which campaigns and major operations are conducted and sustained to accomplish strategic objectives within theatres or areas of operations. It links the tactical employment of forces to the achievement of strategic objectives.

<i>Tactics</i>	The employment of units in combat. It includes the ordered arrangement and manoeuvre of units in relation to each other, the terrain, and the enemy to translate potential combat power into victorious battles and engagements.
<i>Tactical level of war</i>	The level at which units are employed in battles or engagements, often as part of a campaign, to ensure operational success.
<i>Sap rollers</i>	Large bundles of sticks or cane used to provide cover for the diggers at the head of a sap.
<i>Sapping</i>	The construction of entrenchments and/or covered approach routes to an opponent's defensive positions, with the objective of undermining the defensive integrity of those positions.
<i>Strategy</i>	The art and science of developing and employing armed forces and other instruments of national power in a synchronized fashion to secure national or multinational objectives.
<i>Strategic level of war</i>	The level at which a nation determines national security objectives and guidance, and develops and uses national resources to accomplish them.
<i>Theatre</i>	The geographical area in which operations and/or campaigning are undertaken.

References

<i>AJHR</i>	Appendices to the Journals of the House of Representatives.
AMIL	Auckland Museum & Institute Library.
CO	Colonial Office file.
<i>NZDQ</i>	<i>New Zealand Defence Quarterly.</i>
<i>NZPD</i>	New Zealand Parliamentary Debates.
SLNSW	State Library of New South Wales.
TAM	Te Awamutu District Museum.
TM	Taranaki Museum.
WTU	Alexander Turnbull Library.
WO	War Office file.

Introduction

The study of warfare has given rise to an extensive historiography, most of which has focused on strategy, tactics, or command. These accounts have usually given primacy to the number of troops deployed and casualties incurred, and the corresponding scale of objectives achieved. They have said little about how the armies involved were equipped and physically brought to the battlefield, how they and their means of transport were victualled, how their equipment was maintained and their ammunition supplied, and what happened to their casualties in the aftermath of battle.

The handful of writers who have sought to explain this lack of attention to logistics have highlighted its apparent lack of popular appeal as a subject. In his ground-breaking study of logistics, *Supplying War* (1977), Martin van Creveld suggested that the scientific nature of logistics lacks the human and dramatic appeal of tactics and strategy.¹ The Second World War American General Omar Bradley was more blunt: 'logistics ... is the dullest subject in the world, and no writer has ever succeeded in glamorizing it. The result is that logistics are usually either downplayed or ignored altogether.'² John A. Lynn used somewhat more benign terms in the Preface to his *Feeding Mars* (1993): 'The literature of warfare is full of the triumphs and tragedies of common soldiers and blundering of generals, but the tedious tasks of supply attract few readers.'³

Nonetheless, the literature shows clearly that those 'tedious tasks of supply' – or, more correctly, logistic concerns – have profoundly shaped the experience of both common soldiers and generals.⁴ It also suggests that logistics *does* actually have some of the human drama of strategy and tactics: it should not be seen solely as a precise military science, but rather as human an experience as war itself. This is because, ultimately, logistics involves giving the warrior the means and wherewithal to undertake the two most primal of functions: survival and killing.

It is therefore likely that a considered analysis of the logistic aspects of a given campaign – or, at the very least, an analysis which examines the campaign in its entirety, logistics included – may challenge previous interpretations of that campaign,

¹ M. Van Creveld, *Supplying War*, Cambridge: Cambridge University Press, 1977, p.2.

² O.N. Bradley & C. Blair, *A General's Life*, New York: Simon & Schuster, 1983, p.285.

³ J.A. Lynn, *Feeding Mars: Logistics in Western Warfare From the Middle Ages to the Present*, New York: Westview Press, 1993, p.VII.

and will certainly enhance our understanding of it. This thesis will undertake such an analysis of the application of British and colonial military logistics during the New Zealand Wars, over the period 1845 to 1866.

The thesis will focus on the period during which the British Army was active in New Zealand, from 1845 to 1866, when the British garrison began to be withdrawn following the introduction of the Self-Reliant Policy. The physical and practical limitations of the thesis do not allow for a detailed examination of the application of logistics by the colonial forces and kupapa who continued the wars over the period 1867 to 1872. Similarly, the thesis will not examine Maori logistics, other than when an observation needs to be made in the context of the main focus of the study. It is considered that colonial-kupapa logistics over the period 1867-72, and Maori logistics throughout the New Zealand Wars as a whole, are both significant and complex areas of study, and that each requires analysis in its own right.

The aim of the study is to add to the wider historiography of the New Zealand Wars. As such, it will not seek to re-interpret the Wars, or address such issues as their causes and consequences. Nonetheless, on occasion the study will enable specific comment to be made about previous interpretations, and it is clearly appropriate that it should do so. Such comments will be made in the context of the issue or period under examination.

The historiography of logistics in the New Zealand Wars

The historiography of the New Zealand Wars reflects the strong tactical focus traditionally favoured by military historians. The historiography of these wars can be neatly divided into three distinct and sequential genres. The first of these included the accounts dating from the period from the Wars themselves through to the publication of Lindsay Buick's *New Zealand's First War* in 1926.⁵ These accounts share a number of characteristics: the idea of the heroic and noble savage versus a heroic yet magnanimous conqueror, a heavy reliance upon first-hand accounts (as many of the writers or speakers had fought on either side), and a predominantly narrative and non-analytical style.

They included a large number of veterans' accounts, some of which were still appearing in local newspapers well into the twentieth century. Gradually, too, Maori

⁴ John Keegan and Robert Holmes' *Soldiers* includes a fine overview of how logistics shaped the human experience of war. (J. Keegan & R. Holmes, *Soldiers: A History of Men in Battle*, London: Guild Publishing, 1985.)

⁵ T.L. Buick, *New Zealand's First War*, Wellington: Government Printer, 1926.

accounts appeared, such as the Ngati-Raukawa chief Hitiri te Paerata's account of the battle of Orakau, given to the House of Representatives in 1888.⁶ In some cases – such as T.W. Gudgeon's *The Defenders of Old New Zealand* (1877),⁷ which was actually about the *invaders* – the very titles of the published works say a great deal about the ways in which their authors interpreted the events in question.

The historiography of this genre is most clearly articulated in the work of James Cowan. A prolific writer, Cowan published heavily on the New Zealand Wars and early New Zealand history. Of these, his two-volume *The New Zealand Wars* (1922)⁸ is by far the most significant work, and as shall be seen, dominated the study of the New Zealand Wars for more than half a century. Cowan was subsequently criticised by some historians for his narrative – almost adventurous – style, and lack of analysis, as evident in this piece of prose:

The Ngapuhi who – to their own amazement – hurled back assaulting columns of the finest British infantry at Ohaeawai had secret tremors at the spectacle of the forlorn hope's desperate courage; well they knew that in the end they could not hope to prevail over men of such mettle. And the soldier who saw women and even children facing death in a beleaguered redoubt of sod walls, choosing to die with their men rather than surrender, first marvelled at the devotion of such a race and then came to love them for their savage chivalry. The wars ended with a strong mutual respect, tinged with a real affection, which would never have existed but for this ordeal of battle.⁹

In his introduction to the 1983 reprint of *The New Zealand Wars*, Michael King noted some of the problems inherent in Cowan's approach, while at the same time placing the work into context:

If any books deserve to be called New Zealand classics, it is these two volumes They offered the first full account of all major armed engagements between Maori and Pakeha (and, it should be remembered, between Maori and Maori – they fought on both sides). Further, the books were researched at a time when the combatants were alive and able to tell the author what it had been like to be there It also gave the narrative a quality of vivacity that has not been equalled in other non-fictional accounts of the wars.¹⁰

The next genre, which included such works as Edgar Holt's *The Strangest War* (1962), B.J. Dalton's *War and Politics in New Zealand, 1855-1870* (1967), Ian Wards'

⁶ Hitiri te Paerata, *Description of the Battle of Orakau*, Wellington: Government Printer, 1888.

⁷ T.W. Gudgeon, *The Defenders of New Zealand*, Auckland: H. Brett, 1886.

⁸ J. Cowan, *The New Zealand Wars and the Pioneering Period*, Wellington: Government Press, 1922 & 1923 (Vols 1 & 2).

⁹ Cowan, *New Zealand Wars*, Vol 1, pp.2-3.

¹⁰ Cowan, Vol 1, p.iii.

The Shadow of the Land (1968), and Tom Gibson's *The Maori Wars* (1974),¹¹ relied heavily upon the works of Cowan and the earlier writers, although they were supplemented by greater use of official records. More importantly, they attempted to *analyse* as well as narrate. There were also attempts to analyse the impact of the Wars on the Maori, such as Harold Miller's *The Invasion of Waikato* (1964) and *Race Conflict in New Zealand* (1966).¹² The result was an improvement in the historiography, although the continued reliance upon the traditional accounts – Cowan included – meant that many of the myths were perpetuated. It is for this reason that the leader of the third genre, James Belich, has referred to the collected earlier works as the 'received version'.¹³

Belich's *The New Zealand Wars* (1986) was a watershed in the study of the Wars, and clearly deserves to be regarded as seminal. It has had real value in highlighting the earlier perpetuation of myths and presenting a fresh approach to the study of the Wars. From the outset (his Preface opened "This book is a revisionist study of the New Zealand Wars of 1845-72."¹⁴) Belich tried to redress what he saw as nearly one hundred and fifty years of misinterpretation of the Wars. Some historians have suggested that it 'demolish[ed] the received version of the course and outcome of the New Zealand Wars', to the point that 'it will be impossible for anyone to write about the New Zealand Wars again without reference to its arguments; [it is unlikely that] its conclusions will be seriously challenged.'¹⁵

Other historians were more critical, with some suggesting that he had only presented facts which supported his own case, and ignored those which did not.¹⁶ For example, Belich cites the following observation, made as recently as 1981 (just five years before *The New Zealand Wars* was published), as an example of what he sees as a flaw in the received version:

¹¹ E. Holt, *The Strangest War*, London: Putman, 1962; B.J. Dalton, *War and Politics in New Zealand, 1855-1870*, Sydney: Sydney University Press, 1967; I. Wards, *The Shadow of the Land: A Study of British Policy and Racial Conflict in New Zealand, 1832-1852*, Wellington: Department of Internal Affairs, 1968; T. Gibson, *The Maori Wars*, Wellington: Reed, 1974.

¹² H. Miller, *The Invasion of Waikato*, Dunedin: Harold Miller, 1964; H. Miller, *Race Conflict in New Zealand: 1814 - 1865*, Auckland: Blackwood & Janet Paul, 1966.

¹³ J. Belich, *The New Zealand Wars and the Victorian Interpretation of Racial Conflict*, Auckland: Penguin, 1986, p.15.

¹⁴ Belich, *New Zealand Wars*, p.11.

¹⁵ A. Parsonson, *NZ Listener*, & M. King, *Auckland Metro*. (Reviewers' comments on jacket of Belich, *New Zealand Wars*.)

¹⁶ See, for example, G.J. Clayton, 'Maori Military Engineers: Leif Erikssons of Trench Warfare?', *NZ Army Journal*, No.4, July 1987, pp.29-34.

British discipline and British artillery had proved too much for the Maori warriors, and they failed to realise the dangers of continuing to meet the British on their terms, in the field. To the grenade, the rifle, and the Armstrong gun, the sap and the redoubt, they had no ultimate answer.¹⁷

Belich then argues that the pa strategy *was* an ultimate answer. While it is clear that in certain circumstances the modern pa could provide an answer to Pakeha warfare, more considered analysis might suggest that the use by the Maori of a pa-based resistance was logistically unsustainable over a long period, as some Maori later conceded. The real power of the British lay in their ability to both out-produce and out-sustain the Maori in resources and personnel, to the point that they could lose a battle or battles yet still prevail over the wider campaign. The grenade, rifle, and Armstrong gun – together with the combat sustainability that enabled British and colonial soldiers and their Maori allies to stay in the field long enough to dig saps and man redoubts – were not so important in themselves as what they came to represent: the economic and industrial resources of the nation ranged against the Maori people. In this sense, then, it is true that the Maori ‘had no ultimate answer’.

Such a shortcoming in a major revisionist work serves to highlight a central weakness evident throughout the historiography of the New Zealand Wars. This is the way in which, without exception, published works have failed to consider fully the impact of logistics on those wars. Indeed, so consistently have logistics been ignored that the reader might assume that the warriors of either side and their beasts of burden never ate, that they were somehow transported around the theatres of conflict by means unknown, that their wounds were healed without medical treatment, that their equipment never failed, and that they had an inexhaustible supply of weapons and ammunition.

The historiography of the Waikato War of 1863-64 provides a good example of this. The Waikato War, as shall be seen, deserves to be seen as one of the best-planned and prepared campaigns in British military history, and certainly stands in stark contrast to the Crimean disaster and most of Britain’s other contemporary colonial adventures. But although its outcome was determined by the success of the victor’s and failure of the vanquished’s logistics systems, it has never been examined in logistical terms.

Sir Duncan Cameron’s later operations in the Waikato were supported by his logistics base at Ngaruawahia, the Maori King’s capital that was abandoned in the

¹⁷ A. Parsonson, ‘The Pursuit of Mana’, in *The Oxford History of New Zealand*, ed. W.H. Oliver & B.R. Williams, Auckland: Oxford University Press, 1981, p.58. (Cited in Belich, *New Zealand Wars*, p.17.)

aftermath of the battle of Rangiriri (20 November 1863). While previous accounts note that the base at Ngaruawahia included a small shipyard (complete with a smithy, a carpenter's shop, and light repair facilities), a field hospital, and a depot for temporary storage of supplies, they say nothing about how these facilities got there. Since without them the Waikato War may well have had a different outcome, it again makes sense that an examination of the process by which they were assembled, shipped, and established on site will enhance our understanding of this campaign.

Although both Cowan and Belich link the logistic supply system to Cameron's Waikato gunboat flotilla, neither really examines the nature of that logistic system itself. Cowan's assessment of Cameron's logistics system is limited to a rather general summary of the role of the Waikato flotilla in supporting the British advance:

Without this river flotilla General Cameron could not have carried on the Waikato campaign. The gunboats and the troops they carried enabled him to outflank the Maori positions at Meremere and Rangiriri, to capture Ngaruawahia unopposed, and to keep his army fed and equipped on the Waipa Plain. It was the great water-road into the heart of the country, Waikato's noble canoe highway, that gave the British troops command of the Kingite territory and prepared the way for the permanent European occupation.¹⁸

For his part, Belich notes the importance of logistics – and the gunboats – to this campaign, by pointing out that by October 1863 the overland logistic chain from Whangamarino Redoubt (north of Meremere) to Auckland was occupying no less than 80% of the total forces available to Cameron: for each soldier available to the column of attack, another four were required for convoy escort duties, counter-insurgency patrolling, and so on.¹⁹ The arrival on the Waikato River of the gunboat *Pioneer* in late October, says Belich, enabled Cameron to reduce the number of men committed to the lines of communication, and to streamline and speed up the whole supply process. His conclusion summarises briefly a number of the elements of logistics – supply, transport, and personnel services:

Auckland settlement could supply only a fraction of the army's needs, and the Waikato region even less. Most requisites had to be imported from England or Australia, and then transported up to 100 miles into the interior – a process which sometimes required a dozen changes in types of carriage. These basic problems of supply – difficulties which did not involve Maori action – were tackled by the British with complete success. Men complained about the size of the pickle ration, and at one point the Waikato Militia were reportedly left 'in a

¹⁸ Cowan, Vol 1, pp.311-12.

¹⁹ Belich, *New Zealand Wars*, p.139.

shameful state of semi-nudity', but no soldier ever starved in the Waikato, and the sick rate never exceeded five per cent.²⁰

Given the historiography's failure to give due emphasis and weight to issues of logistics, the question arises – what should we make of this? On the one hand, it is not surprising that the interpretations of the Waikato campaign have continued to focus on such tactical concerns as the ongoing controversy about the fall of Rangiriri, the tactical genius of the Maori engineers at Rangiriri and Paterangi pa, and the popular legends associated with Rewi's Last Stand at Orakau. On the other hand, the fact that both Cowan and Belich were able to make such logistical assessments – concise though they are – hints that there may be sufficient information amongst contemporary accounts and other primary material to enable the theme to be developed further.

For example, Gustavus von Tempsky's account of the campaign offers a tantalising picture of the Waikato River as a vast highway:

The Waikato at this time [late 1863] was alive with small craft. Little river steamers panted up-stream, sometimes towing barges crowded with soldiers. Slim gunboats attracted the admiring gaze of friendly natives, whose canoes filled the river, carrying stores to the British camps For miles and miles now there was an unbroken stream of soldiers, bullock-drays, artillery, packhorses and orderlies meandering over the plains and fern ridges....²¹

Another contemporary account, by a *Southern Cross* correspondent who accompanied Cameron's advance into the Waikato, notes Cameron's intention to open a second supply route from Raglan to Te Rore, supported by a sea-going steamer plying between Manukau and Raglan.²² This suggests that Cameron had plans for a relatively complex parallel supply system, which in turn has important implications for our understanding of such themes as the way in which the Waikato campaign was fought, Cameron's ability as a commander, and the popular view of British inflexibility.

The problem, then, is not one of a lack of information available in the primary material, but rather that of the historians' use of primary resources, which has reflected the historians' overwhelming tactical focus. Michael Barthorp's survey of the Northern War of 1845-46, *To Face the Daring Maoris* (1979),²³ is a good example of this focus on tactical issues. Barthorp quotes a wide range of the British participants, and places particular emphasis on Major Cyprian Bridge of the 58th Regiment. Bridge was an

²⁰ Belich, *New Zealand Wars*, p.127.

²¹ G.F. Von Tempsky, 'Memoranda of the Campaign in New Zealand in 1863 and 1864', p.26. (WTU MS-2136-2140.)

²² *Southern Cross*, 20 Feb 1864.

²³ M. Barthorp, *To Face the Daring Maoris*, London: Hodder & Stoughton, 1979.

articulate and perceptive witness to the events as they unfolded, and both the received and revisionist schools have used his diary extensively as an important primary source.

The battle of Ohaeawai (1 July 1845), at which a small Maori garrison bloodily repulsed a British attack, was a major part of Barthorp's story. In an attempt to highlight both the Maori's engineering skill and the tactical folly displayed by the British commander, Colonel Henry Despard, in ordering the fatal attack, Barthorp uses an entry made in Bridge's diary the day that the Maori abandoned Ohaeawai:

It was a remarkably strong and well defended place, very cleverly fortified with trenches inside a double row of strong palisades [sic], bombproof pits, huts with walls of stone and loopholed, embankments, & c. Some of the posts of the fences were as thick as a stout man's body. This will be a lesson to us not to make too lightly of our enemies, and show us the folly of attempting to carry such a fortification by assault, without first making a sizeable breach.²⁴

At first glance, the points are well made. Historians agree without exception that Ohaeawai was a masterpiece of field engineering, and are almost as unanimous on the incompetence of Despard. (The exception here is Belich, who presents a less-than-convincing case on behalf of Despard, perhaps in an attempt by Belich to increase the moral magnitude of the Maori victory.²⁵) None of the accounts, however, mentions even cursorily another observation made by Bridge at the same time:

The Enemy must have made a most precipitate retreat, for they left behind them all the arms, accoutrements, & c., taken off our kill'd on the 1st [July], and some of their own ammunition and guns, firelocks and tomahawks, boxes of plunder from Kororareka, and *potatoes and Indian corn enough for 6 month's consumption* [emphasis added]. After the troops and [friendly] natives had carried out all the potatoes, & c. worth taking, the Pa was set fire to in several places, and kept burning all day.²⁶

Bridge's subsequent statement that 'tons of potatoes' were left in the pa²⁷ should not be dismissed as an exaggeration, since 'ton' has several meanings: these include a measure of *weight* (2240 lbs or 1016 kgs) or *volume* (such as a freight ton, which equals 40 cubic feet or 1.13 cubic metres). It is more likely that Bridge's assessment was of volume rather than weight.

There are two striking aspects to this observation. The first is that the loss of so significant a volume of materiel and food must likely have had a profound impact upon the Maori cause. In the prevailing state of martial law, the Maori could not easily

²⁴ Barthorp, p.86.

²⁵ Belich, *New Zealand Wars*, pp.48-9.

²⁶ C. Bridge, 'Journal of Events on an Expedition to New Zealand. Commencing on 4 April 1845', 11 Jul 1845. (WTU MS-0257-0258.)

²⁷ Bridge, 11 Jul 1845.

replace the weapons, equipment and food lost, especially given that in the middle of winter foodstuffs were ordinarily limited anyway. The second aspect is that until now no historian has addressed the implications of this to any significant degree, even though logic suggests that to do so may enhance our own understanding of the course of these Wars, and the ability of the Maori to mount a sustained and effective resistance to the British.

This opens the whole issue of Maori logistics. Again, using the Waikato War as an example, Cameron's masterstroke – bypassing the powerful Paterangi pa to strike against the Maori food basket at Rangiaowhia (20-21 February 1864) – has attracted little logistical analysis. Belich, for example, focuses on 'the well-known Maori belief that Rangiaowhia was the victim of a treacherous British attack.' In doing so, he overlooks the true impact that the loss of Rangiaowhia had on the Maori cause. He makes a similar error in his discussion of the battle of Rangiriri, where he concentrates on the controversy surrounding the Maori 'surrender' and the accompanying 'British duplicity', while ignoring the psychological, economic and military impact of the outcome of the battle.²⁸ Although the latter controversy is significant, and its story deserves to be told, the reality is that Rangiriri and its aftermath highlighted the fundamental Maori logistic dilemma.

The construction of three significant pa – Meremere, Rangiriri, and Paterangi – within a very short space of time placed a considerable burden on the Waikato tribes and their allies. The building of these pa was also attended by a range of logistic problems which were only partially solved by the 'shift system', a process by which war parties were rotated into, through, and out of the theatre of operations in such a way as to enable them to undertake their economic and military functions.²⁹ Indeed, the shift system probably created as many problems as it solved. The nature of Maori logistics, coupled with their apparent lack of a sustained counter-logistics strategy to overcome the British strength in this area, is as important a part of the story of the New Zealand Wars as is the story of British logistics and counter-logistics. Unfortunately, both aspects have been neglected.

As has been suggested, a solution to the problem lies in the primary material, or rather a viewing of that material from a fresh perspective. It is clear that there is information on the logistic imperatives available throughout the primary sources. It is also clear that the effective use of this information will enable us to better understand the way in which the New Zealand Wars were fought, and why they took the course they

²⁸ Belich, *New Zealand Wars*, pp.164-5.

did. This entails a logistics approach – an examination of the material and events they describe from the point of view of the logistician. Such an approach will do more than cite ration states, daily distances marched, and rates of ammunition consumption: instead, it will examine the plans and reports of commanders and chiefs and the observations of even the most junior participants in order to ascertain the *causes and effects* of logistics.

In summary, the application of a process involving consideration of logistic imperatives will significantly enhance our understanding of these wars, by providing a basis for a wider examination of the events and personalities of these wars. This thesis seeks to provide such an examination.

A logistics approach to the study of the New Zealand Wars

Prior to the late 1980s, most interpretations attributed the outcome of the Wars to the British superiority in numbers, materiel and technology.³⁰ Belich endorsed this view in his revisionist study of the Wars, although he gave greater weight than previous interpretations to Maori military prowess as a factor.³¹

However, it is considered here that the outcome of the New Zealand Wars cannot be simply explained by the numerical and technological superiority of the British Army. At its most simplistic, an argument based solely – or even largely – on quantitative and qualitative advantage ignores the reality that small, poorly-equipped forces have sometimes defeated larger, better-equipped opponents. Beyond this, it fails to link the way that the resources and materiel were provided – logistics – to such other issues as strategy and command. As a result, it prohibits a true assessment of the capabilities and performance of both sides.

The aim of this thesis is therefore to challenge this paradigm, through an examination of the development and application of British logistics in New Zealand. While it is acknowledged that the British had superior numbers and technology for most of the New Zealand Wars, the thesis will show that the outcome of the Wars owed more to the quality of British logistics and logistical doctrine, and the application of

²⁹ Belich, *New Zealand Wars*, pp.102-4, 129.

³⁰ See, for example, K. Sinclair, *The Origins of the Maori Wars*, Auckland: New Zealand University Press, 1957, p.271; P. D'Arcy, 'Maori and Muskets from a Pan-Polynesian Perspective', *New Zealand Journal of History*, 34, 1, 2000, p.117; Miller, *The Invasion of Waikato*, p.16; A. Simpson, *Te Riri Pakeha*, Martinborough: Alister Taylor, 1979, pp.135-6.

³¹ Belich, *New Zealand Wars*, p.298; J. Belich, *Making Peoples: A History of the New Zealanders From Polynesian Settlement to the End of the Nineteenth Century*, Auckland: Allen Lane, 1987, p.246; Belich, 'New Zealand Wars', in *The Oxford Companion To New Zealand Military History*, ed. I. McGibbon, Auckland: Oxford University Press, 2000, pp.383-4.

logistics within a coherent strategy. As part of this process, the thesis will trace the development of British strategy – and its supporting logistical doctrine – from the late 1840s to the mid-1860s.

The study will show that the outcome of the New Zealand Wars was determined by the implementation, by the British, of a strategy that applied their greatest strength (their army's ability to fight prolonged campaigns, provided that it could be sustained throughout) against the critical Maori weaknesses (logistics, and an inability to fight prolonged wars); and that the cornerstone of that strategy was strong, effective logistics.

The first chapter, 'Logistics in Warfare', will provide the theoretical basis for the thesis. After defining logistics, describing its component parts, and highlighting the principles of logistics, the chapter will survey the development of military logistics and logistical theory over the two-and-a-half centuries preceding the New Zealand Wars.

Chapter Two, 'The Imperial Dimension', examines the state of British military logistics at the start of the New Zealand Wars, and their more generic development during the period of the study. It will show that despite the strength of the British Empire, British logistics were hampered by a number of serious procedural and structural problems. It will be shown that the Crimean War marked a turning point in British military logistics. As such, the fact that the two periods of warfare in New Zealand – the mid-1840s and the 1860s – straddle the Crimean War makes the British Army's experience in New Zealand a unique case study in the development of its logistical services, in the context of a common operational theatre and opponent.

Chapter Three, 'The New Zealand Dimension', looks at the development of New Zealand's colonial infrastructure, and the ability of the colony to provide the resources to sustain military operations in New Zealand. It will show that the rapid growth of the colony was not reflected in its ability to support military operations. This, in turn, placed a greater burden on the British Army's logistical services, and provided a further challenge to the conduct of operations.

Chapters Four to Seven, respectively, examine the application of logistics during the Wars of the 1840s, the First Taranaki War, the Waikato War, and the Second and Third Taranaki Wars. These campaign studies will trace the development of British logistics and logistics doctrine throughout the period of the study. It will be seen, in particular, that the British secured a position of dominance when they applied a coherent strategy, based on sound logistics; that British logistics reached a high point during the Waikato War of 1863-64; and that a number of developments in New Zealand provided the basis for change throughout the British Army, and further afield.

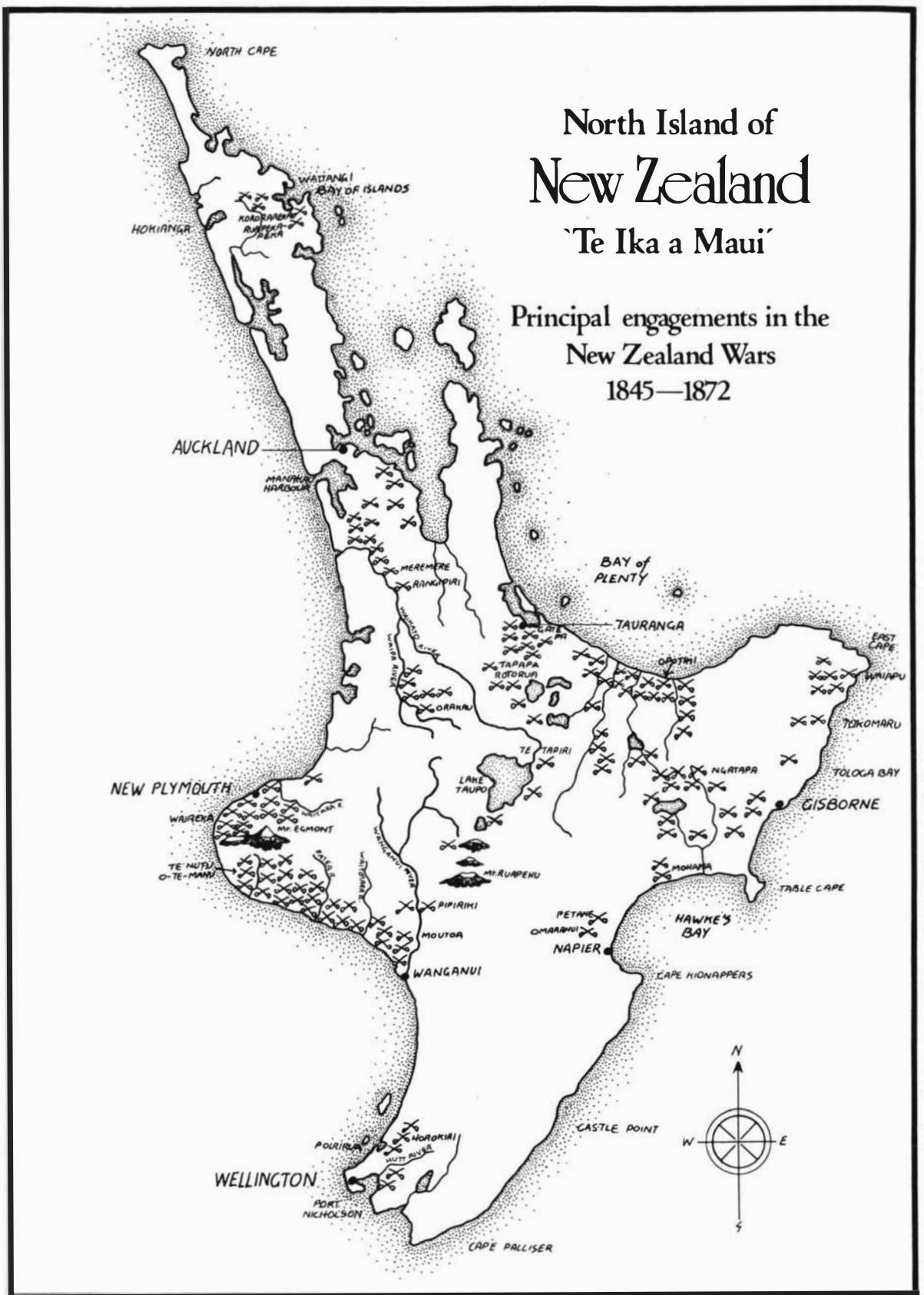
Chapter Four examines the wars of the 1840s, in the Bay of Islands, the Hutt district, and Wanganui. The campaign studies will show how attempts by the British to defeat the Maori quickly were hampered by a lack of resources, ineffective logistics networks, and totally inappropriate logistical doctrine. Indeed, the British Army's experience in New Zealand during the conflicts of the 1840s highlighted all the weaknesses of British logistics in the pre-Crimean War period. It will also be seen that these wars gave the British their first understanding of Maori warfare, and saw the genesis of the military strategy that was applied with increasing effect during the early 1860s.

Chapter Five traces the development of British logistics through the First Taranaki War (1860-61). The study will show that the weak British position at the start of this war undermined their ability to engage the Maori in the field, and that they were only able to gain the ascendancy after they had consolidated their own logistical position. Thereafter the British implemented tactics that specifically targeted Maori logistics: directly, through the destruction of Maori villages and cultivations; and indirectly, through the use of sapping to tie the Maori down for a prolonged period, while minimising British casualties. These tactics reflected the ongoing development of British strategy and logistical doctrine, based on their growing understanding of Maori warfare.

The largest and most important campaign of the New Zealand Wars, the Waikato War (1863-64), will be examined in Chapter Six. The study will show that logistics were the decisive factor in the British victory in the Waikato. These included their detailed logistical preparations for the invasion; the efficiency and effectiveness with which the British logisticians met the series of challenges they encountered during the campaign; and the targeting of Maori logistics through the destruction of the Kingite food basket, the village of Rangiaowhia. The invasion of Waikato was the 'high tide' of British logistics in New Zealand.

Chapter Seven will examine the British Army's later campaigns in Taranaki, the Second Taranaki War (1863-64) and Third Taranaki War (1865-66). It will be seen that British logistics performed effectively during the Second Taranaki War, but that there was some regression during the Third Taranaki War. It will also be seen that these wars marked the culmination of British strategic thought and logistical doctrine in New Zealand, through the implementation of counter-logistics operations to destroy the ability of the Maori to resist.

Chapter Eight will conclude the study by highlighting the major issues raised, and discussing the impact of the British experience in the New Zealand Wars on the



The North Island.

(Source: T. Ryan & B. Parham, *The Colonial New Zealand Wars*,
Auckland: Grantham House, 1986, p.220.)

wider development of British military logistics.

Sources used

The thesis has drawn heavily upon contemporary primary accounts, many of them written by participants, and official records. As will be seen in the bibliography, the largest single source of primary accounts was the Alexander Turnbull Library collection. Other sources include a number of New Zealand provincial and regional museums, the Australian War Memorial, the State Library of New South Wales, and the Royal Berkshire, Gloucester and Wiltshire Museum in Salisbury, Great Britain. The primary accounts were written by British Army and Royal Navy personnel, colonial troops, Maori from either side, missionaries, and settlers. They range in scale and detail from single, one page letters, through collections of papers (some quite extensive), to very detailed diaries and log books. Given that very few of the accounts specifically addressed logistical issues, generally the major challenge was finding the clues in the writers' words that would help trace the story of logistics in the New Zealand Wars.

The official sources included contemporary War Office and Colonial Office files, official despatches between New Zealand, Australia, and the United Kingdom, and correspondence between and amongst the military commanders and their political masters. Some of these records have been previously published, either as official compilations in their own right or within secondary accounts. Although many of these accounts specifically addressed logistical issues, others were either more generic in nature or addressed other issues. This latter group presented the same challenge as many of the primary accounts, of requiring examination from a more lateral perspective.

The thesis also drew upon a number of secondary accounts – books, articles, and unpublished theses. These were used to help provide the historical context to the events and issues under examination, and to highlight previous interpretations and historiographical themes.

Chapter One:

Logistics In Warfare

Although the word *logistics* derives from the French *Loger* (to lodge or quarter [troops]) or *logis* (lodgings),¹ it has now come to encompass more than just the provision of accommodation for soldiers. Yet there is no single clear definition of 'logistics': rather, the literature includes a range of diverse definitions. For example, the first writer to seek to define logistics, the Frenchman Baron de Jomini, initially described it as 'the art of moving armies',² before broadening his definition to include 'the order and details of marches and camps, and of quartering and supplying troops'.³ Martin van Creveld has more recently offered 'the practical art of moving armies and keeping them supplied',⁴ although this definition has attracted some criticism for overlooking naval and air logistics. The American naval historian and strategist Alfred Thayer Mahan has proposed a far more abstract definition: the support of armed forces by the economic and industrial mobilisation of a nation.⁵

In fact, the definition of 'logistics' will vary according to which of the three levels of war (the strategic, the operational, or the tactical) is under examination, and logistics can only be properly understood if viewed as an integral part of the wider framework of the three levels. This thesis will examine logistics at all three levels.

The highest level, the strategic level, involves the identification by a government of its overall strategic objectives, together with the coordination of the national strategic assets or measures required to achieve these objectives. The dominant military elements at this level are intelligence and logistics. Strategic-level logistics involves procurement, materiel management, reserve stockholding, infrastructure construction and maintenance, strategic movement, and involvement with wider national and international sources of support (including industry).⁶

Strategic-level logistics, then, might best be defined in the terms proposed by Mahan: the support of armed forces by the economic and industrial mobilisation of a nation. Mahan's definition is particularly relevant to this study, in that it reflects the

¹ J. Sinclair, *Arteries of War: A History of Military Transportation*, London: Airlife, 1992, p.1.

² Baron de Jomini, *The Art Of War*, ed. and trans. Philadelphia: J.B. Lippencott, 1868, p.12; J. Thompson, *The Lifeblood of War: Logistics in Armed Conflict*, London: Brasseys, 1991, p.5.

³ Jomini, p.69.

⁴ M. Van Creveld, *Supplying War*, Cambridge: Cambridge University Press, 1977, p.1.

⁵ Noted in Sinclair, p.1.

overarching relationship between logistics and war-making potential, from whence comes the concept that 'the military power of a nation is determined largely by its total logistic capacity.'⁷ This will provide the study with sufficient scope to analyse the application of British and colonial logistics in New Zealand in their proper context.

The next level, the operational level, involves the employment of military forces to attain the military strategic objectives within a set theatre of operations,⁸ such as the deployment of troops into the Waikato in 1863-64. The dominant military elements at the operational level are the manoeuvre of combat forces and the application of firepower. Since campaigns have often failed not from a lack of supplies, but an inability to distribute them (as occurred in the Crimea),⁹ operational-level logistics focus on establishing and sustaining an effective system of distribution.

At the lowest level, the tactical level, the four military elements come together to provide manoeuvre and firepower based upon sound intelligence and logistics,¹⁰ with the objective of destroying an opponent's military capability in the field. In modern western armies, the practical application of logistics at the tactical level is generally referred to as Combat Service Support (CSS). CSS involves

providing the right thing at the right time, in the right quantity and in the right order in order to ensure that nobody starves, nobody dies through lack of water, forces are refuelled and provided with sufficient ammunition to meet their task, forces are moved, equipment is kept battleworthy and the commander's tactical plan is never limited by a lack of CSS.¹¹

As the study moves into the operational and tactical levels, then, logistics would be more appropriately defined along the terms proposed by Jomini and van Creveld. At these levels, logistics entails the movement, maintenance, and sustainment of materiel and personnel, and the provision of associated support systems, into and throughout a theatre of operations. Ideally, the transition of logistics through the three levels of war – from the strategic to the tactical – should be a seamless continuum. The aim should be to place a well provisioned and equipped force on the battlefield at the precise point at which it is able to deliver the decisive blow, and to sustain it for the duration of its operations.

⁶ Australian Army, 'Land Warfare Doctrine 1: The Fundamentals of Land Warfare', 1998, p.3.

⁷ D.M. Mueller, 'Logistic Support For Land Warfare In The 21st Century', *Combat Service Support*, 2, 1996, p.3.

⁸ 'Land Warfare Doctrine 1', pp.2-13.

⁹ 'Land Warfare Doctrine 1', p.5.

¹⁰ 'Land Warfare Doctrine 1', p.3.

Notwithstanding the lack of a clear definition of 'logistics', there is at least general agreement throughout the literature as to its component parts. In his *The Art Of War*, Jomini listed eighteen aspects of the military art as falling within the gamut of 'logistics', although in fact no more than half of these reflect any modern understanding or usage of the word. These are: the preparation of materiel prior to a campaign; security of stores depots and lines of communications; planning and coordinating marches; provisioning guards and detached bodies; coordinating the movement of supply columns; distribution of supplies; establishing camps; establishing and coordinating lines of communication and supply, to the rear and between detached troops; and hospitals, casualty evacuation, and equipment repair facilities.¹²

The 1974 *Encyclopedia Britannica* describes logistics as being

concerned not only with the movement and maintenance of forces, and the evacuation and hospitalisation of personnel, but also with the design, development, acquisition, storage and distribution of materiel: in other words, the procurement of weapons, their associated systems, and all other materials of war.¹³

The Logistics Doctrine of the Royal Air Force treats logistics as a spectrum

ranging from production logistics (design, development and manufacture), through consumer logistics (reception, storage, maintenance and disposal), to logistics for operations (movement, support and withdrawal of forces and materiel into, within, and out of a theatre of operations).¹⁴

These definitions suggest that logistics involves four major components: distribution (transport and supply), materiel support (equipment procurement and repair), infrastructural development (quartering, warehousing and resupply networks, and support engineering), and personnel support (health services, casualty treatment and evacuation, and welfare). To these might be added such administrative functions as logistics-related intelligence and logistics finance. These components will form the basis of the analysis.

The evolution of logistics as a military science has led to the identification of a series of key principles and planning concepts. Modern logistics' doctrine provides an appropriate model in this context. The logistics doctrine of the North Atlantic Treaty Organisation (NATO) includes five principles: Foresight, Economy, Flexibility,

¹¹ Land Command NZ, Publication G-4/001/99, 'Concepts Of Combat Service Support', Apr 1999, p.V.

¹² Jomini, pp.254-57.

¹³ Cited in Sinclair, p.2.

Simplicity, and Cooperation.¹⁵ The New Zealand Army's CSS doctrine recognises these principles, as well as a sixth, Security. Although it is clear that Maori and Pakeha planners of the mid-nineteenth century did not recognise such formalised principles, the principles themselves reflect timeless concepts, and as such are appropriate for a study of this nature.

Foresight has its basis in effective logistics intelligence and the identification of clear operational objectives. It ensures that the required logistical support can be delivered at the precise place and point in time that it is needed. *Economy* seeks to ensure that the logistic support is provided without wastage or over-expenditure of either resources or effort. *Flexibility* requires that the logistics plan be capable of dealing with changing circumstances and unexpected contingencies, such as one's own army changing its axis of advance to exploit an enemy weakness, or the implementation of counter-logistics measures by one's opponent. *Simplicity* is self-explanatory: given that the level of risk in an operational plan is directly proportional to (amongst other factors) the complexity of the logistics systems set in place to support that plan, simplicity seeks to reduce the overall risk factor in operational planning. *Cooperation* involves measures taken between units, formations, and allied forces to reduce duplication of logistic effort, such as the centralisation or sharing of transport or medical resources. *Security* involves measures taken to protect supply and distribution networks, and conceal logistical preparations from the enemy.

These principles provide the theoretical basis upon which the application of logistics during the New Zealand Wars will be analysed.

The development of logistics as a military science: 1600-1850

Although the concept of logistics as a military science only dates back to the post-Reformation era, logistics is as old as warfare itself. An examination of any of the armies of antiquity reveals a number of the elements of logistics which dominated warfare for thousands of years, and have shaped modern land force logistics. For example, the Romans created baggage trains to carry food, ammunition, and specialist equipment; developed roads and waterways; and established base camps and depots along their lines of march. Charlemagne subsequently developed these concepts to create a rudimentary form of the magazine system, involving the use of standing supply depots to feed an army on the march.

¹⁴Royal Air Force, 'Air Operations', Air Warfare Centre: RAF Bentley Priory, 1996, para 8.11.1.

¹⁵Mueller, pp.3-8.

The development of logistics as a complex discipline owed much to the massive growth in the size and complexity of armies which began about 1600. While the pre-eminent European power of the late 1500s, Spain, was able to dominate western Europe with an army of 40,000 men, during the Thirty Years War (1618-1648) Gustavus Adolphus and Wallenstein each raised armies of over 100,000 men. Within fifty years, these were in turn dwarfed by the 400,000-strong army raised by Louis XIV.¹⁶ The wars which followed the French Revolution a century later increased the size of Europe's armies still further: between early 1793 and mid-1794, the French Army grew from 300,000 to three-quarters of a million men.¹⁷ The net result of these changes was that the dominant army of the late 1700s – the French – was *twenty times* larger than the dominant army of the late 1500s.

It is significant that the population of Europe itself did not increase significantly over the same period: indeed, the population in 1700 was not much greater than in 1600, largely because of the losses incurred during the Thirty Years War. Thus, while methods of state administration and infrastructure improved – which made it possible to raise and organise larger armies – the ability to move and feed these armies did not grow in tandem. Therein lay the crux of the problem.

This study need not concern itself with the reasons for these increases in size. What is significant, however, is the way in which they affected military logistics during the pre-Victorian era. As has often been the case with military history, the development of logistics was not always simple: theories had to be tried, discarded, and re-tried, and lessons frequently had to be re-learnt – often at great cost to those involved.

The major problem areas to be addressed, transport and supply, were inextricably linked. In what was to become a recurring theme for commanders, the supply needs of the army increased the requirements for transport, which in turn increased the supply problems. These problems were exacerbated as armies developed appendages of their own, in the form of sutlers (accompanying merchants who purchased food locally to sell to the soldiers), tradesmen, and the soldiers' wives and families, all of whom drew heavily upon the resources of the army. The numbers of these 'camp followers' varied in size between 50% and 150% of the size of the army itself.¹⁸

¹⁶ B.L. Montgomery, *A Concise History of Warfare*, London: Collins, 1972, p.161.

¹⁷ Montgomery, p.216.

¹⁸ Van Creveld, p.6.

Paradoxically, armies began to concentrate in heavily populated areas, since they alone could provide the food supplies required by the soldiers. This led one French writer, Guibert, to suggest that the aim of warfare was to 'subsist at the enemy's expense.'¹⁹ The great Prussian theorist, Clausewitz, developed the concept further:

It follows that war, with its numerous tentacles, prefers to suck nourishment from main roads, populous towns, fertile valleys traversed by rivers, and busy coastal areas. All this would indicate the general influence that questions of supply can exert on the form and direction of operations, as well as the choice of a theater of war and the lines of communication.²⁰

In such an environment, Clausewitz concluded, 'the quarter-master-general becomes the supreme commander, and the conduct of war consists of organising the wagon trains.'²¹

A number of writers have attempted to quantify the scale of the problem of feeding man and beast. This example, based on an eighteenth century army, is typical:

An army of 60,000 men needed forty-five tons of bread – the baking of which required thirty-five tons of grain and 200 wagon-loads of fuel – each day. The grain needed milling, and as mills were often attacked by an enemy who was well aware of their importance, milling equipment had to be carried. Each of the army's sixty bread-ovens had to be dismantled and put on a cart when the army moved, and setting up a new bakery was the work of several days. The army's 40,000 horses – mounts for the cavalry and senior officers and draught horses for the artillery and baggage train – devoured 500 tons of fodder a day in the summer season, and 250 tons of oats and straw every day in winter quarters.²²

The picture which thus emerges is less that of a formidable machine of war than of a locust, which literally ate its way across the countryside.

The first modern national army to be raised, paid, fed and equipped by the state was Gustavus Adolphus' Swedish army. An extremely capable tactician, Gustavus died at the peak of his powers in 1632 (during the Thirty Years War), but not before introducing a number of significant developments in the field of logistics. Indeed, he is generally acknowledged as the founder of modern military organisation.²³ He raised his army by a system of conscription, although significantly those in 'reserved

¹⁹ Van Creveld, p.32.

²⁰ K. von Clausewitz, *On War*, trans. London: Everyman's Library, 1993, p.405.

²¹ Clausewitz, p.405.

²² J. Keegan & R. Holmes, *Soldiers: A History of Men in Battle*, London: Guild Publishing, 1985, p.225.

²³ Montgomery, p.171.

occupations', such as transport and munitions manufacture, avoided the draft.²⁴ His soldiers received grants of land or tax remissions, were victualled through a system of requisitioning (supported by the establishment of food depots throughout Sweden), and were quartered in fortified camps. He even appointed a surgeon to each regiment. Although in practice his soldiers sometimes had to rely upon pillage and forced billeting abroad, his reforms cut down wastage, meant that soldiers would not have to forage for themselves at home, and reduced the number of camp followers.

As his style of warfare emphasised firepower and mobility, he abandoned massive siege guns in favour of field guns, reduced and standardised their calibres, and developed a local armaments-manufacturing capability. These developments all had important ramifications for supply, movement, and infrastructural development. Yet they were enormously expensive: under Gustavus, half of Sweden's budget went on defence.²⁵ While these measures may have been fiscally expensive, the alternative – simply allowing the army to forage from its own people on any terms less than negotiated or controlled requisition – would have been equally devastating.

The Thirty Years War caused eight million deaths from starvation (due to the foraging of armies) and atrocities (such as the massacre of 30,000 at Magdeburg). It devastated the German states and principalities, and left France, which had modernised its army over the period from 1643 to 1648, as the dominant power in Europe. The heavy cost of the war prompted a number of soldiers and bureaucrats to attempt to apply scientific logic to the problems of supply in war. The first of these was Le Tellier, Louis XIV's Minister of War. Le Tellier refined and improved the rudimentary, centuries-old magazine system to create a series of depots.²⁶ These complemented specialist transport services (*équipage des vivres*) to accompany armies on the march as a mobile magazine, together with sutlers and merchants contracted by the Government to set up magazines along the army's route of march.²⁷

These measures were further refined by Le Tellier's son, Louvois. Louvois established a system of permanent magazines throughout France, and clearly established the principle that a soldier should receive a daily ration, free of charge. Louvois also introduced a rudimentary system of logistical calculation to forecast consumption during a campaign: from a base assumption that a campaign would last 180 days (over the six months of summer), he was able to estimate costs, and draw

²⁴ Montgomery, pp.163-4.

²⁵ Montgomery, p.161.

²⁶ Thompson, p.18.

upon state credit as the basis for contracts.²⁸ Another important development during this period was the concept of parallel routes, whereby armies would deploy in several columns over a wider area in order to ease the load of foraging and subsistence.

The early eighteenth century saw the rise of a great logistician, the British general John Churchill, the Duke of Marlborough. Marlborough's march to the Danube in 1704 – which culminated in the decisive battle of Blenheim – was a masterpiece of logistics planning. The Blenheim campaign illustrates how logistics successes might be translated into operational and strategic success, and also highlights the concept of logistics as a force multiplier.

Marlborough started this campaign with 30,000 men, and gained another 10,000 on the way. The campaign relied heavily upon a carefully planned logistic chain stretching back to the Netherlands, involving land transport and craft on the Rhine River. His troops benefitted from the *étapes* system,²⁹ whereby they drew their food from local markets or depots along the way. Local merchants received full payment for the food purchased. By contrast, his opponent Marshall Tallard's poorly-supplied army of 90,000 men was so out-manoeuvred by Marlborough's much smaller and better-provisioned army that, facing starvation, it eventually had to engage him at Blenheim, where it was decisively defeated.

Marlborough's manoeuvring (and that of Tallard's Franco-Bavarian army) had so stripped the theatre of operations of food that he was forced to break his army into smaller detachments before it could begin its pursuit of Tallard's army in the aftermath of Blenheim. That was standard for the era, however, and in fact provided that he stayed on the move, Marlborough was able to feed his army without excessive difficulty.³⁰ The real success of his logistics planning, then, was that his sutlers were able to ensure that food was available in advance of the army, while his accountants ensured that money was available to pay for it.³¹ Marlborough also enforced strict discipline within his army, dealing as firmly with looters and pillagers as with deserters and those guilty of insubordination.

Marlborough's Lille campaign (August to December 1708) was also decided by logistics, although this time without a major battle. Whereas Marlborough was well

²⁷ Van Creveld, pp.18-19.

²⁸ Van Creveld, pp.20-21.

²⁹ J.A. Lynn, *Feeding Mars: Logistics in Western Warfare from the Middle Ages to the Present*, New York: Westview Press, 1993, p.18.

³⁰ Lynn, p.33.

³¹ Lynn, p.18.

supplied from the port of Ostend, the French had to try to break his lines to supply the beleaguered Lille garrison. Their failure to do so forced Lille's surrender. The following winter, Marlborough captured the fortresses of Ghent and Bruges, thereby gaining control of Flanders and seriously weakening the French position. On this occasion, careful logistics planning enabled Marlborough to fight outside the traditional campaign season, and thereby surprise his opponents.³²

Marlborough aside, it must be said that commanders of the eighteenth century – Frederick the Great included – had little more success than their predecessors in overcoming the logistical challenges they faced. In his *The Art Of Warfare In The Age Of Marlborough* (1990), David Chandler examined the development of mass armies during the eighteenth century, the impact of these changes on logistics, and the sheer enormity of the logistical problems which faced commanders of the era. He concludes that:

the most significant limitation on the fighting of wars was bound up with logistics In one vital respect, however, the powers failed to rise to the challenges they set themselves: they never proved capable of solving the basic problem of supplying their armies effectively whilst in the field.³³

The dominant military figure of the nineteenth century, the Emperor Napoleon I, might be best described as an enigma. While tactically he was the master of his contemporaries, he cared little for logistics. His remark 'Let no one speak to me of provisions' (*qu'on ne me parle pas des vivres*)³⁴ reflected his belief that an army should march on its stomach: that soldiers should expect, and be expected, to endure such privations as hunger.

Van Creveld notes that during his successful 1805 campaign in Austria Napoleon did without magazines and supply trains 'because there was insufficient time to set them up', and instead simply channelled his advance through richer areas of countryside, just as Gustavus Adolphus and Wallenstein had done. He then contrasts this haphazard venture with Napoleon's disastrous 1812 campaign in Russia, which was supported by a strong and well-planned logistics system, including a specialist supply train which 'exceeded everything Louvois ever dreamt of.'³⁵

This conclusion – and the reasoning process by which it was reached – is not entirely supported by the evidence. When Napoleon invaded Austria in 1805, his army

³² K. Macksey, *For Want of a Nail: The Impact of War on Logistics and Communications*, London: Brassey's, 1989, pp.7-8.

³³ D. Chandler, *The Art of Warfare in the Age of Marlborough*, London: Batsford, 1990. p.13.

³⁴ Thompson, p.3.

took 150 wagons from Boulogne, hiring another 4500 to support the operation. In the event, the system broke down when the Boulogne wagons were delivered to the wrong place, and the arrangements for the hireage of the additional wagons fell through. Napoleon subsequently tried to use water transport, with mixed success, and formed a baggage train which by the time of the invasion of Russia in 1811 had grown to 26 battalions, equipped with a total of 10,200 wagons. These components were simply too large, and had too many horses to be fed, for a campaign through the Russian winter. With insufficient fodder, the horses starved, the transport system broke down, and the campaign failed disastrously.³⁶

By contrast, Napoleon's eventual nemesis, Sir Arthur Wellesley (the Duke of Wellington) was an outstanding logistician. During the Peninsular Campaign of 1808-1814, 'Wellington's achievements in logistics were every bit as admirable as his renowned battlefield triumphs of Salamanca and Vitoria, despite [his] being outnumbered three to one.'³⁷ This was in part due to his highly efficient staff system, which included the Commissary General, the Adjutant General, and an Inspector-General of Hospitals.³⁸ Wellington enjoyed a particularly close relationship with his Quartermaster General, Murray, and included him in all aspects of operational and strategic planning.

Wellington developed a supply system of such sophistication that his army (including his Spanish and Portuguese allies) was fed with grain from America, potatoes from Ireland, and peas, beans and oil from the Eastern Mediterranean. As he advanced from Portugal through Spain and into France in 1812-1813, he changed his supply ports progressively from Oporto (Portugal), through a series of ports in northern Spain, to Bordeaux. By doing so he kept his supply lines as short as possible, and parallel to the line of advance.³⁹ During some six years in Spain, Wellington never encountered a single critical shortage. As a result, he 'achieved a remarkable and unbroken series of victories which were based not only on tactics and strategy of a high order, but on a whole series of lesser innovations from tin camp kettles, special adaptors on ox-carts and tents to base hospitals.'⁴⁰ Like Marlborough before him, Wellington emphasised strict discipline to prevent looting and foraging, and used the

³⁵ Van Creveld, pp.71-2.

³⁶ Sinclair, p.4.

³⁷ J. Weller, *On Wellington: The Duke and His Art of War*, London: Greenhill, 1998, p.61.

³⁸ Montgomery, p.231.

³⁹ Weller, pp.65-6.

⁴⁰ Weller, p.69.

étapes system to feed his army. So successful were his measures that even when his army entered southern France, the French population willingly provided food and other supplies.

The post-Napoleonic era spawned a number of military treatises. The best known of these, Clausewitz's *On War*, remains a milestone in the development of military theory. The book reflected the significant advances in warfare over a period of 250 years, and although still emphasising strategic and tactical issues, at least attempted to address the role of logistics within the wider context of military theory. Indeed, Clausewitz used the corollary of a sword to link tactical and logistic issues: 'the engagement is the edge of the sword, and time out of action⁴¹ is its reverse edge. The whole is so thoroughly welded together that it is not possible to distinguish where the steel starts and the iron ends.'⁴²

Clausewitz was the first major military theorist to specifically identify the logistician's dilemma: the paradox by which measures taken to solve one logistic problem may actually create another. For example, while the practice of dividing an army into a number of corps might alleviate problems in feeding and quartering, it would cause other problems with communications and transport. Clausewitz also noted the impact of logistics on the morale of the army:

The ability to endure privation is one of the soldier's finest qualities: without it an army cannot be filled with a genuine fighting spirit. But privation must be temporary; it must be imposed by circumstances and not by an inefficient system or niggardly abstract calculation of the smallest ration that will keep a man alive.⁴³

The greatest significance of Clausewitz's observations on logistics is the way in which they were discussed within the wider contexts of strategy and tactics. This contrasts with the treatment given by his contemporary, Baron de Jomini, a former staff officer to Napoleon. In *The Art Of War*, Jomini divided warfare into five pure military branches: Strategy, Grand Tactics, Logistics, Engineering, and Tactics.⁴⁴ Although Jomini devoted a whole chapter to 'Logistics, or the practical art of moving armies', many of the areas discussed in the chapter are not components of logistics *per se*.

⁴¹ 'Time out of action' refers to logistical issues.

⁴² Clausewitz, p.354.

⁴³ Clausewitz, p.396.

⁴⁴ Jomini, p.13.

These problems have caused some practitioners to compare Jomini's observations on logistics unfavourably with those of Clausewitz.⁴⁵ This is not entirely fair, as many of his observations still feature in logistics planning. For example, he proposed the use of echelon systems (a series of supply depots and logistical services to the rear of the force being supported) and parallel lines of communication for resupply, and sought to apply more humane systems of procurement (for both the army and the local population) of food, fodder, and shelter.

Neither Clausewitz nor Jomini could have foreseen the changes that would occur during the century and a half which followed the Napoleonic Wars. The Industrial Revolution, advances in science, technology and medicine, the growth of extensive economic and political empires, and a series of civil and nation-forming wars during the nineteenth century, together with two bloody world wars during the twentieth, would revolutionise warfare. These developments would impact heavily upon logistics and support services, to the point that by 1945 front-line soldiers, sailors, and airmen would find themselves dependent upon long and weighty logistical 'tails'. Again, however, most of the contemporary or early accounts of the major conflicts of this period focussed upon their political, strategic and tactical aspects.

Only the Crimean War (1854-56) was subjected to rigorous and critical logistics' analysis by contemporary observers. From the outset, the accounts of the war highlighted the disastrous failures of the Allied armies' logistics and command (the *Observer* newspaper, for example, noted that 'The Crimean War touched the nadir of stupidity.'⁴⁶) and led to immediate and significant changes in the British Army. Many of these changes were in the field of logistics.

The position that the Crimean War occupies within the spectrum of nineteenth century military history is crucial to this thesis. That the two chronological phases of the New Zealand Wars, 1845-47 and 1860-72, fall neatly within a few years either side of the Crimean War will enable us to examine the logistics of the British Army in New Zealand against the watershed of that army's greatest logistics disaster of the nineteenth century.

Lest it be assumed that large, European-style wars were the only conflicts to be subject to military analysis last century, special reference should be made to C.E. Callwell's *Small Wars* (1896, and revised in 1906).⁴⁷ *Small Wars* was an attempt to

⁴⁵ See, for example, Thompson, p.6.

⁴⁶ N. Dixon, *On the Psychology of Military Incompetence*, London: Jonathan Cape, 1976, p.36.

⁴⁷ C.E. Callwell, *Small Wars*, 3rd edition, Lincoln: University of Nebraska Press, 1996. (Reprint of 1906 edition).

analyse the lessons of the European experience of small colonial wars during the nineteenth century, and in its way could be said to have been as significant as the earlier works of Jomini and Clausewitz. Like the earlier theorists, Callwell focussed heavily on tactics, rather than logistics: of the book's nearly 500 pages of text, just 14 are dedicated to logistical concerns. Nonetheless, his observations are of value to this study.

Callwell noted that, in general, small wars are wars against time and nature rather than hostile armies: time, in that the European force usually had to locate and engage the enemy force and recover before either its own supplies ran out or the cost of maintaining the army in the field outweighed any advantages that might accrue from its success; and nature, in that many of the small wars were fought in harsh climatic or monsoonal conditions, which limited the effectiveness of European armies.⁴⁸ As a consequence, armies in small wars were required to be more self-sufficient, using wagon trains and pack animals rather than the system of standing magazines which were a feature of continental warfare: 'It is not a question of pushing forward the men, or the horse, or the gun, that has to be taken into account, so much as that of the provision of the necessaries of life for the troops when they have been pushed forward.' Callwell concludes by suggesting that this had two major ramifications for logistics: in small wars armies tended to be reduced 'to the lowest possible strength consistent with safety', and they stayed away from their base of supply for the shortest time possible.⁴⁹

Although it is difficult to separate materiel support and infrastructural development entirely from distribution, there are a number of observations which might be made about each in its own right. The Industrial Revolution, which coincided loosely with the New Zealand Wars, had important effects for military logistics: in the context of this study, it was a major factor in Britain's ability to mount and sustain military operations abroad. Nowhere was this more apparent than in the area of weapons manufacture, where the development of new metallurgical techniques and the advent of mass production revolutionised the quality of artillery and small arms. In particular, the muzzle-loading smoothbore of the 1840s was replaced by the muzzle-loaded rifle, and then by the breech-loaded rifle during the 1850s. The new weapons, together with the ammunition they used, were far more efficient and reliable than

⁴⁸ Callwell, pp.57-69.

⁴⁹ Callwell, pp.57-60.

those they replaced.⁵⁰ James Belich has noted that this revolution in firepower was a significant feature of the New Zealand Wars.⁵¹

At the same time, the practice of state patronage of the military-industrial complex introduced by Gustavus Adolphus continued in Europe. For example, when British hydraulics manufacturer William Armstrong developed a new artillery piece after the Crimean War, he received government subsidies on a scale which enabled him to build 1600 guns between 1857 and 1861. The Government also encouraged and subsidised his competitor, Whitworth.

The development of such land-based logistics infrastructure as magazines, barracks, and communications links by Gustavus, Le Tillier and Louvois has already been noted. Impressive though some of the developments might have been, however, they paled in comparison with the development of maritime logistics over the same period. Quite simply, naval logistics brought an entirely new dimension to warfare, primarily in terms of scale. For example, when William the Conqueror had crossed the English Channel in 1066, his force of less than 10,000 men and their horses and equipment was carried in 180 ships. By contrast, the Spanish Armada of 1588 had fifty fewer ships, but carried 30,000 men, together with their horses and equipment. Thereafter, as shipping improved in size, capacity, and range, it required more substantial support facilities: shipbuilding yards, docking and loading facilities, warehousing for military equipment and cargo, and the production of more and larger ships' cannon.

The other major logistic effects of the Industrial Revolution were in the introduction of railways (although these were not extensively laid in New Zealand until after the Wars) and telegraph lines (which were used here from the mid-1860s).

The physical wellbeing of an army is another critical aspect of logistics. Like the other aspects, however, the development of effective personnel services (which, prior to the New Zealand Wars at least, was largely restricted to health and the treatment of casualties) was also a drawn-out process. The problems which faced commanders generally fell into two areas, the first and most obvious of which was the treatment of battle casualties. Until the mid-nineteenth century at least, a wounded soldier could only expect rudimentary medical treatment at best. Treatment in field conditions usually involved either the removal of musket shot or shell fragments from the body or the amputation of shattered limbs, procedures invariably carried out in filthy

⁵⁰ Keegan & Holmes, p.311.

⁵¹ J. Belich, *The New Zealand Wars and the Victorian Interpretation of Racial Conflict*, Auckland: Penguin, 1986, pp.21-22.

conditions, and with unsterilised equipment. Although alcohol served as an anaesthetic when it was available, more often than not the rust on the surgeon's saw proved fatal anyway.

The situation did not start to improve until the latter half of the nineteenth century. Doctors in Britain and the United States began trials with anaesthetic during the 1840s, and in 1847 chloroform entered service as an anaesthetic.⁵² By the time of the American Civil War (1861-65), anaesthetic was in general use in military hospitals. While this eased the suffering of the wounded soldier and lessened the chances of his succumbing to shock on the operating table, it still left the problem of post-operative infection. This remained the most common form of death until the start of the twentieth century.⁵³

The work of Florence Nightingale and her team of nurses at the Scutari Hospital during the Crimean War offered a partial solution. Nightingale arrived in November 1854, to find a hospital which had been built for 1000 men overflowing with more than twice that number. There were no beds, blankets, or furniture, and inadequate medicine and medical supplies. Amputations took place in the wards, and the sick and wounded lay on floors awash with the overflow of the latrines.⁵⁴ Nightingale effected improvements in the hospital's catering (causing one senior officer to complain 'Soldiers don't require such good messes as these while campaigning. You will improve the cook but spoil the soldier.'⁵⁵), improved hygiene standards, and successfully demanded more medical supplies. Largely as a result of her efforts, the death rate at Scutari fell from 44% to just 2.2% within six months.⁵⁶

The other part of the solution lay in improvements in the means of combatting infection. During the 1860s and 1870s, British surgeon Joseph Lister conducted experiments on sterilisation of medical equipment and the use of antiseptic for cleaning wounds. His findings helped reduce the death rate from post-operative infection. Yet it was not until the Boer War (1899-1902) that an amputee had more chance of living than dying from his treatment.⁵⁷

Those maimed in battle were actually in the minority in terms of the overall casualty figures, as in fact the greatest proportion of deaths resulted from disease and

⁵² Keegan & Holmes, p.150.

⁵³ Keegan & Holmes. p.150.

⁵⁴ I. Knight, *Go to Your God Like a Soldier*, London: Greenhill Books, 1996, p.194.

⁵⁵ Cited in Dixon, pp.46-7.

⁵⁶ Knight, p.194.

⁵⁷ Keegan & Holmes, p.150.

illness. For example, the American Army which invaded Mexico during the Mexican War (1846-7) suffered six times as many deaths from disease as from enemy action.⁵⁸ During the Crimean War, 4285 British soldiers died in battle or of wounds, while 16,422 died of disease or exposure. In the American Civil War, the Union Army lost 96,000 men killed in battle, but nearly twice that number from disease. The most common diseases were cholera, typhoid, dysentery, and malnutrition⁵⁹, and complications arising from exposure. In some regions, such as the West Coast of Africa ('the White Man's Grave') and the West Indies ('the Fever Islands') malaria was also a factor.

Soldiers suffered dietary diseases such as scurvy due to a common lack of fresh food (especially fresh fruit and vegetables) in their diets. The resulting debility made it harder to fight off epidemics. Despite the important developments in food preservation (including the introduction of canned meat in 1845, dried milk powder in 1855, evaporated milk in 1860, and margarine during the 1860s⁶⁰), the fact remained that an army which had access to fresh produce and a varied diet had a significant advantage over one with more limited resources.

These developments in military logistics offered both challenges and possibilities for armies and navies of the mid-nineteenth century. In the case of Britain, which had to maintain a global empire, the major challenges were infrastructural and organisational. Likewise, the military requirements of army and naval units on foreign service had major infrastructural implications for the colonies in which they were stationed. The development of the British Empire's and New Zealand's logistics' infrastructure and services up to and throughout the New Zealand Wars period will be examined more fully in the next chapters.

⁵⁸ R.D. Paulus, 'Pack Mules and Surf Boats: Logistics in the Mexican War', *Army Logician*, Nov-Dec 1997, pp.7-10.

⁵⁹ Keegan & Holmes, p.143.

⁶⁰ J. Keegan, *A History of Warfare*, New York: Alfred A Knopf, 1993, p.305.

Chapter Two: The Imperial Dimension

The New Zealand Wars pitted the Maori people against the world's foremost industrial, economic, and military imperial power: indeed, some historians have highlighted the disparity between the two sides as the major reason for the eventual Maori defeat.¹ It is therefore appropriate that the study commence with an examination of the state of imperial and colonial logistics and infrastructure, and their impact upon the New Zealand Wars. Such an analysis will help contextualise the main study, and will show that while the strength of the British Empire's strategic-level logistics would clearly pose major problems for the Maori, the process by which those logistics were developed and applied presented a range of challenges to the British themselves. It will also show that the New Zealand Wars occurred at a time of profound change for imperial logistics.

In this chapter, the term 'imperial logistics' is taken to cover the British Empire's military logistics, logistics' infrastructure, and materiel resources outside New Zealand; together with the logistical requirements and resources of the units and ships of the British Army and Royal Navy that were deployed to New Zealand.

By 1850, the British Empire had a total land area of eight million square miles, and a population of 170 million, of whom just 27 million lived in Great Britain itself.² Most of Britain's possessions were administered by the Colonial Office, an understaffed and poorly resourced agency which had been established in 1812 as an adjunct to the War Office.³

The logistical hub of the British Empire was the naval dockyard and military arsenal at Woolwich, on the banks of the Thames, down river from London. Woolwich had been established as a royal dockyard in 1512-13, and remained the Royal Navy's

¹ See, for example, J. Belich, *The New Zealand Wars and the Victorian Interpretation of Racial Conflict*, Auckland: Penguin, 1986, p.209; K. Sinclair, *The Origins of the Maori Wars*, Auckland: New Zealand University Press, 1957, p.271; P. D'Arcy, 'Maori and Muskets from a Pan-Polynesian Perspective', *New Zealand Journal of History*, 34, 1, 2000, p.117; H. Miller, *The Invasion of Waikato*, Dunedin: Harold Miller, 1964, p.16; A. Simpson, *Te Riri Pakeha*, Martinborough: Alister Taylor, 1979, pp.135-6.

² G.St J. Barclay, *The Empire is Marching*, London: Wiedenfeld & Nicolson, 1976, p.1.

³ P.J. Marshall (ed.), *The Cambridge Illustrated History of the British Empire*, Cambridge: Cambridge University Press, 1996, p.24.

chief dockyard until the introduction of ironclad ships made it necessary to establish new and more extensive facilities. The dockyard was closed in 1869.

Woolwich included a number of land-based establishments as well: the Royal Laboratory, which was built on Woolwich Warren in 1694; the Brass Foundry, opened in 1717, at which artillery pieces were manufactured; the two oldest regiments of artillery, which had been established at the Arsenal in 1716, but moved to Woolwich in 1802; and the Royal Military Academy, which opened in the Arsenal in 1721, and shifted to Woolwich in 1808. In 1805, these establishments were collectively renamed the Royal Arsenal.

Most of the artillery and many of the small arms used during the New Zealand Wars came from the Woolwich arsenal. The artillery included muzzle-loaded cannon and carronades – weapons which were heavy, ponderous, and of limited accuracy at any significant range – mortars, and the more technologically-advanced breech-loading guns of the 1850s. All of the artillery used during the wars of the 1840s was of the muzzle-loading, smooth-bore type, the basic design of which had changed little for over two centuries.⁴ Following the Crimean War, however, William Armstrong developed an artillery piece which featured a rifled barrel for accuracy, and a screw-lock breech system for speed of firing. Armstrong was awarded a government contract to produce the guns, and after surrendering his patents to the Crown was appointed Superintendent of the Royal Gun Factory at Woolwich, to oversee the production of the new guns.⁵ Between 1857 and 1861, Woolwich produced 1600 Armstrong guns of varying sizes for the Army and the Navy.⁶ The Armstrong gun revolutionised artillery: during tests in 1858, it was found to be seven times more accurate at 1000 metres than a standard smooth-bore muzzle-loaded gun, and fifty-seven times more accurate at 3000 metres.⁷ Its effectiveness was enhanced by developments in munitions, including shaped projectiles with time fuzes and concussion detonators.

The Armstrong guns used in New Zealand included 6, 12, 18, 40 and 110-pounders. Although the gunners experienced a number of design-related problems during operations in New Zealand (mostly involving the breech-blocks, which would

⁴ T. Ryan & W. Parham, *The Colonial New Zealand Wars*, Auckland: Grantham House, 1986, p.69; I.V. Hogg, *The Illustrated Encyclopedia of Artillery*, London: Quarto Publishing, 1988, pp.18-19.

⁵ J. Batchelor & I.V. Hogg, *Artillery*, London: MacDonald, 1972, p.10.

⁶ J. Keegan, *A History Of Warfare*: New York: Alfred A. Knopf, 1993, p.311.

⁷ K. Macksey, *Encyclopaedia of Weapons and Military Technology*, London: Penguin, 1995, pp.34, 47.

occasionally blow out of the barrels),⁸ the combination of increased accuracy and improved munitions proved decisive on a number of occasions during the 1860s, especially at Te Arei (1861), Meremere (1863) and Otapawa (1866). The British artillery's only failure in New Zealand in the 1860s was at Gate Pa (1864), primarily due to the wet, muddy conditions which caused the shells to ricochet without exploding and to the poor location of the firing positions in relation to the Maori entrenchments.⁹

Woolwich also produced the Congreve rockets used in New Zealand. The Congreve rocket was a cylindrical device, filled with high explosive. It had originally been developed as an anti-shiping weapon – to be fired across the decks and into the rigging of other ships – but was also used as an anti-personnel weapon. Congreve rockets were used by naval detachments ashore during the 1840s, and again in Taranaki in the early 1860s. They had little real effect, and apparently 'amused rather than terrorised' the Maori.¹⁰

There were also a number of important developments in infantry weapons during the New Zealand Wars period. Between 1730 and the late 1840s, the standard infantry weapon in the British Army was the 'Brown Bess' flintlock musket. The process by which this weapon was manufactured reflects British military logistics over that period: the locks, stocks and barrels were produced under contract by separate gunsmiths, and were assembled into the final product at the Tower of London armoury.¹¹ Although it was 'a simple, well-made weapon',¹² the inherent problems of flintlock technology – slow burning powder, susceptibility to wet conditions, and the sheet of flame which immediately preceded firing – and its limited accuracy made the Brown Bess obsolete by 1845.

The advent of new percussion firing mechanisms in the late 1830s and 1840s, and new rifled weapons in the 1840s, heralded a new revolution in military small arms, and the Brown Bess was officially replaced by new percussion-capped, muzzle-loaded rifles during the 1850s. In 1851 the British Army introduced a rifle designed by the French manufacturer Minié, a weapon later used with telling effect during the Crimean War. In 1853, the Board of Ordnance approved the issue of the new Enfield rifle. The 1853 Pattern Enfield was based on the Minié design: it was sighted to 1200 yards, and

⁸ Hogg, p.24.

⁹ G. Mair, *The Story of Gate Pa*, Tauranga: Bay of Plenty Times, 1937, p.9.

¹⁰ Ryan & Parham, p.20.

¹¹ F. Myatt, *The Illustrated Encyclopedia of 19th Century Firearms*, London: Salamander, 1979, p.16.

¹² F. Wilkinson, *Arms and Armour*, London: Hamlyn, 1978, p.98.

fired a .577-inch bullet. Each round came in its own sealed paper cartridge, which the soldier would tear open, before he poured the powder down the barrel and rammed home the bullet.¹³

At the same time, the practice of contracting out the manufacture of parts was abandoned in favour of contracting the entire process to individual manufacturers. As part of this change, the Royal Small Arms Factory was established at Enfield Lock, Middlesex, in 1856.¹⁴ This single factory produced the bulk of the weapons used by the imperial forces in New Zealand throughout the 1860s. The colonial forces also used the Enfield during the 1860s, although they changed to the Snider conversion (an Enfield adapted through the installation of an opening breech, a process subsequently applied to other muzzle-loaded small arms as well) and the Westley Richards carbine during the latter stages of the wars.¹⁵ The advantages offered by these developments – shorter barrels, breech-loading mechanisms, and enclosed cartridge cases – made the new weapons more suitable for bush warfare.

The British Army

Between 1840 and the early 1860s, the British Army grew from about 130,000 to 200,000 men. It was spread throughout the Empire, with the largest single garrison in India.¹⁶

The mainstay of the imperial land forces that served in New Zealand were the infantry regiments, sent from Australia, India, Burma and Great Britain. The standard British regiment had an establishment strength of 1118 officers and other ranks. It was divided into ten companies: No.1 Company (the Grenadier or Right Flank Company), No. 10 Company (the Light or Left Flank Company), and eight line companies. The Grenadier and Light Companies specialised in skirmishing (fighting in open order to protect the flanks of the regiment, or to clear its line of advance), although by the 1860s all infantry were trained in skirmishing.¹⁷

The infantry regiments were supported by detachments of Royal Artillery, Royal Engineers, the Commissariat, the Royal Military Train, and medical personnel. In addition to their war service, the imperial troops did much to develop the

¹³ I. Knight, *Go to Your God Like a Soldier*, London: Greenhill Books, 1996, pp.155-6.

¹⁴ Hogg, p.142.

¹⁵ Myatt, p.76.

¹⁶ Marshall, p.29; and L.H. Barber and others, *Sergeant, Sinner, Saint and Spy: The Taranaki War Diary of Sergeant William Marjouram, R.A.*, Auckland: Random Century, 1990, p.1.

¹⁷ R.J. Taylor, *Tribe of the War God*, Napier: Cosmos, 1996, p.12; Knight, p.128.

infrastructure that is so crucial to this study, building blockhouses, barracks and warehouses, and developing roads and port facilities. The conditions of service of the time provided for soldiers who had completed sixteen years service to retire with a pension equal to six months' pay.¹⁸ Many of those who completed their service whilst in New Zealand elected to remain here, and subsequently served in either the militia or the Armed Constabulary.

Like the legionnaire of ancient Rome and the infantryman in Flanders in 1916, the British soldier carried the bulk of his requirements on his person. His load of weapon, bayonet, webbing and cartouche belt, sixty rounds of ammunition, pannikin, blanket, rations, and (often) a cannon or mortar shell totalled about seventy pounds – a weight similar to that carried by infantrymen today. During the campaigns of the 1840s, he carried his personal effects in or strapped to a canvas, box-like haversack which was only issued during operations, and his ammunition in two 30-round cartouche boxes, one on each hip.¹⁹ Individual digging implements were not issued. W. Tyrone Power, the Deputy Assistant Quartermaster-General (DAQMG) in New Zealand during the Hutt and Wanganui Wars, has left this image of the British soldier of the late 1840s in New Zealand:

A more helpless object than a fully equipped soldier in the bush can scarcely be imagined. Hampered with a long musket, bayonet sheath, cartouche box and knapsack, with innumerable straps, he is every moment tripped up, caught in the supple-jacks, and entangled in the most complicated and unhappy manner. In the open country, where the ground is broken and rugged, he staggers along rather than runs, overbalanced by the ill-adjusted weights he carries; while both hands have more than enough to do, between his musket, the cap, which pertinaciously insists on coming off, and the heavy, lumbering cartouche box, which bangs about at every jump, and will not be kept in its place. But all this is nothing to his tribulation when he is compelled to crawl on his belly through low brushwood and fern; where he is continually tying himself up in inextricable knots among the roots and creepers, in the vain supposition that he is in pursuit of the Maori, who is gliding along through the maze with the silence, rapidity, and ease of a serpent.²⁰

The soldiers' accoutrements underwent a number of changes from 1856, when the haversack became standard issue, the 60-round cartouche box was replaced by smaller 40- and 20-round cases, and special pouches for percussion caps were added to the front of the belt. During the campaigns of 1860-66, the British Army in New Zealand used dark blue jackets and frocks made to the same pattern as the standard

¹⁸ Taylor, p.13.

¹⁹ Knight, pp.132-33.

²⁰ W.T. Power, *Sketches In New Zealand*, London: Longman Brown, 1849, pp.106-107.

issue scarlet frocks. Likewise, knapsacks were rarely used in New Zealand during this period: instead, soldiers would roll their possessions up in their blanket, which they would wear *en bandorole* over one shoulder.²¹

A soldier's official daily ration scale included 1¼ lb of bread, 1 lb of meat, ¼ pint of rum, 1/6 oz of tea, 1/6 oz coffee, ¼ oz sugar, and a grain of pepper and salt.²² Poor though these provisions might seem, they reflected the quality and quantity of the diet of the social classes from whence the soldiers came: indeed, the mere fact that they were fed at all meant that soldiers were sometimes better off than many of their civilian counterparts.²³ Although the Commissariat issued vegetables when it could, in practice the soldiers usually purchased their own directly from Maori and Pakeha traders. During the Waikato War, however, steps were taken to ensure that vegetables were issued regularly, as an integral part of the soldier's daily ration. Regimental cooks began to appear after the Crimean War, although initially they only performed this function in barracks. Thus, during the wars of the 1840s and while on operations in the 1860s the soldiers cooked their own meals, a process which usually simply involved boiling the meat until it was tender.

The soldier was paid a shilling a day, from which:

almost everything he used in army life was deducted. In 1837, as much as half of it would be 'stopped' before he received it, to cover the cost of his food, and from the rest he was required to pay for such barrack services as tailoring, laundering and the barber. If he was sick the cost of his medical treatment was deducted, and when his unit was transferred he was expected to contribute towards the cost of repairing any damage ... to the barracks.²⁴

Even his initial kit purchase was funded by the 'Queen's Shilling' he received on enlistment, while he paid for its ongoing maintenance out of his pay. The regulations required that he receive at least one penny per day, and in fact this was often all that was left after all 'stoppages' had been met.²⁵

Like the Empire itself, the Army's greatest weakness was the quality of its administration and logistical support. The most problematic areas in this regard were transport and supply, and health services.

²¹ Knight, pp.135-36, 139-40.

²² N. Bartlett, 'Their Promised Land: Australia and the Maori Wars, 1840-1870', AWM, MSS 1048.

²³ V. Neuberg, *Gone for a Soldier*, London: Cassell, 1992, p.40.

²⁴ Knight, p.18.

²⁵ M. Barthorp, *To Face the Daring Maoris*, London: Hodder & Stoughton, 1979, p.28; Knight, p.18.

Until the mid-1850s, two departments shared responsibility for transport and the supply of ammunition, materiel, food, clothing, and fodder. The first of these, the Board of Ordnance, was responsible for supplying weapons, ammunition, and other items of equipment to the Army and Navy.²⁶ The Ordnance was under direct governmental control,²⁷ and was generally reasonably efficient.

The second, the Commissariat, was a branch of the Treasury. It was responsible for land and inland water transport and non-military supplies (including food for soldiers and fodder for animals), and administering the Military Chest, a source of funds for military and other specified government purposes in foreign stations.²⁸ It was staffed entirely by civilians who were not under direct army control, but were expected to 'cooperate' with the forces they were supporting. These men were appointed by Royal Warrant, and charged with 'inspect[ing] the buying and delivery of Stores, provisions and Forage for the use of our said forces.'²⁹ Their task was not always an easy one, especially in more isolated outposts. In 1842, for example, the three regiments 'stationed' in New South Wales were actually serving as a series of detachments in New Zealand (100 men), Norfolk Island (300 men), Adelaide (100 men), and some fifteen other locations, while the 96th Regiment had two companies serving on the Swan River in Western Australia, and 12 other detachments spread throughout Tasmania.³⁰ Like the Colonial Office, then, the Commissariat was under-resourced for the tasks it was expected to perform, to the point that when the Crimean War broke out in 1854 there were only 178 Commissariat officials serving throughout the Empire.³¹

Much of the blame for this can be attributed to the dominant British military figure of the early nineteenth century, the Duke of Wellington. Although Wellington had retired from field service in 1815, subsequent political, administrative, and military appointments (including service as Master-General of the Ordnance (1818-27) and Commander-in-Chief of the British Army (1827-28 and from 1842 until his death in 1852)) meant that his military philosophy profoundly influenced the British Army up

²⁶ Wilkinson, p.107.

²⁷ G. Regan, *Someone had blundered...: A Historical Survey of Military Incompetence*, London: Batsford, 1987, p.192.

²⁸ B. Farwell, *Queen Victoria's Little Wars*, London: Wordsworth Publications, 1999, pp.70-1.

²⁹ From a Warrant appointing John Drake 'Commissary General of Stores Provisions and Forage to Our Forces', 30 Aug 1833. (SLNSW.)

³⁰ I. Wards, *The Shadow of the Land: A Study of British Policy and Racial Conflict in New Zealand, 1832-1852*, Wellington: Department of Internal Affairs, 1968, p.78.

³¹ Regan, p.193.

to and into the period covered by this study. Although there is little dispute about his performance as a logistician during the Peninsular campaign, there is also little doubt that his longevity and later opposition to change curtailed any further development of the British Army, its logistics systems included.³²

The inadequacies of the British Army's administration and logistics were brutally exposed by the nature and magnitude of the disaster which befell the British Army in the Crimea between 1854 and 1856. The British experience during the Crimean War was catastrophic, and their logistical failures were considerable.³³ Although the British Army's initial deployment to the Crimea numbered over 20,000 men, only 44 Commissariat officials accompanied the force.³⁴ (By contrast, when the imperial and colonial forces in New Zealand peaked at 18,000 in the mid-1860s, they were directly supported by over 1500 Commissariat personnel, as well as indirectly by several hundred others on a number of steamers and smaller craft.³⁵) During the resulting logistics disaster, soldiers starved while food rotted in ships in Balaclava harbour, froze while greatcoats went unissued, and died of disease in the foetid squalor of Scutari hospital. For every British soldier who died as a result of Russian action, another four perished because of the ineptitude of British officials.³⁶

The major problem in the Crimea was not one of *lack of supplies* (as the ships in Balaclava harbour were full of food, clothing, and other stores), but rather of *distribution*. During the Napoleonic Wars, the British Army's distribution and transport needs had been met first by the Royal Waggoners (established in 1794), and from 1799 by the Royal Waggon Corps and Train. When this organisation was disbanded in 1833,³⁷ the Commissariat assumed responsibility for the provision of transport, with the expectation that it would requisition or hire wagons and beasts of burden as required, in-theatre if necessary. In 1854, however, most of the baggage animals were left in Bulgaria when the British expeditionary force stopped there *en route* to the Crimea. The few draft animals and wagons which made it to the theatre operated on a six-mile track between Balaclava and the British lines before Sevastapol, in conditions which meant a twelve-hour round trip. Worse, there were neither

³² Knight, p.12.

³³ See, for example, Regan; and N. Dixon, *On the Psychology of Military Incompetence*, London: Jonathan Cape, 1976.

³⁴ Regan, p.193.

³⁵ Belich, p.15.

³⁶ J. Keegan & R. Holmes, *Soldiers: A History of Men in Battle*, London: Guild Publishing, 1985, p.143.

replacement animals nor fodder available on the scale required in the theatre itself. The failure of the Commissariat has been attributed to a number of causes: the incompetence of the Commissary-General, William Filder, who had filled the same post on Wellington's staff forty years earlier; the inflexibility of the junior officials and the archaic regulations by which they worked; the appointment of too few Commissariat officials to support such a large force; and the widespread corruption and vice which saw premium prices paid for inferior produce.

The Crimean War proved a watershed in British logistics. In 1855, by which time thousands of troops had died of starvation and disease, a Land Transport Corps was established. The Land Transport Corps eventually comprised 14,000 men and 28,000 beasts. It was disestablished following the war, to be replaced in 1857 by a Military Train (which was actually only capable of supporting a division) and a Commissariat Staff Corps.³⁸ The Army's supply and transport functions would not be formally combined into a single military entity until the formation of the Army Service Corps in 1869 – two years after the majority of the British regular units had left New Zealand – although in fact they operated as a single entity in New Zealand from 1861 to 1867.

Sections of the Commissariat Staff Corps served in New Zealand throughout the period 1861 to 1870.³⁹ During their first campaign, the First Taranaki War (1860-61), it became clear that there was a requirement for a specialist transport agency. Without any Military Train personnel available in New Zealand, the Commissariat Staff Corps took it upon itself to solve the problem, and in a memorandum of 4 July 1861 advised Cameron that:

There being no organised transport establishment in this Command the nucleus of a transport corps, capable of extension to provide for the wants of the public service, was felt to be indispensable; and in pursuance of this necessity [it has been decided] to organise and train such a corps⁴⁰

After the reorganisation, the Commissariat Staff Corps included a Deputy Commissary General (DCG) in Auckland; three Assistant Commissaries General (ACG), one responsible for coordinating transport; eight Deputy Assistant Commissaries General (DACG), four in Auckland, and one each in New Plymouth, Wanganui, Wellington, and Dunedin. The Staff Corps was assisted by ten non-commissioned officers and

³⁷ E.M. Nevins, *Forces of the British Empire, 1914*, Arlington: Vandemere Press, 1992, pp.82, 85.

³⁸ K. Macksey, *For Want of a Nail: The Impact of War on Logistics and Communications*, London: Brasseys, 1989, p.13; Nevins, pp.82-85

³⁹ Ryan & Parham, p.162.

soldiers.⁴¹ The Commissariat Transport Corps was organised into two companies, whose personnel included butchers, bakers and labourers drawn from elsewhere in the imperial forces and the colonial militia. It was formally established in December 1861, and spent the next eighteen months conveying incoming troops to their posts and materials to south Auckland for the construction of the Great South Road.⁴² Thereafter the Commissariat Staff Corps served in the Waikato and Taranaki. At its peak, the Commissariat Staff Corps and its transport component numbered 41 officers, 125 non-commissioned officers, 1341 men, 1516 horses and 729 bullocks, as well as a number of steamers and smaller boats.⁴³

When the 4th Battalion of the Military Train arrived in Auckland from India in 1864, its Commanding Officer immediately proposed taking over the Commissariat's transport functions. After the Commissariat objected to this – arguing that it would be better for a single agency to supply the troops in the field – Lieutenant General Duncan Cameron, the General Officer Commanding, decided to retain the *status quo*. Thereafter the Military Train personnel were used primarily as cavalrymen and scouts, roles they had previously undertaken during the Indian Mutiny.⁴⁴ They remained in New Zealand for three years.⁴⁵

The other important logistical developments in the post-Crimea period involved health services. Until the mid-1850s, each regiment had had its own surgeon, a civilian doctor hired by the regiment and paid for from regimental funds. The Army Medical Department itself was not under direct Army control, but rather reported to the Secretary for War.⁴⁶ A series of specialist corps appeared during and after the Crimean War: the Hospital Conveyance Corps (for stretcher bearers and orderlies) in 1854, the Medical Staff Corps (for officers) in 1855, and the Army Hospital Corps (comprising other ranks) in 1857.⁴⁷

Detachments of the Army Hospital Corps served in New Zealand between 1861 and 1870, establishing military hospitals in Auckland, New Plymouth, Napier and

⁴⁰ WO 33/17A, 4 Jul 1861.

⁴¹ WO 33/17A.

⁴² J. Millen, *Salute to Service: A History of the Royal New Zealand Corps of Transport and its Predecessors, 1860-1996*, Wellington: Victoria University Press, 1997, p.27.

⁴³ WO 33/17A.

⁴⁴ J.W. Fortescue, *A History of the British Army*, Vol XIII, London: MacMillan, 1930, pp.517-18.

⁴⁵ Ryan & Parham, pp.162-63.

⁴⁶ Farwell, pp.70-1.

⁴⁷ Nevins, pp.82-85.

Wanganui. Two aspects of the British Army's medical arrangements in New Zealand during the early 1860s are particularly notable: the introduction of a general hospital system in preference to the regimental medical system used previously, and an increased emphasis on environmental health.⁴⁸ Both aspects warrant further examination here.

The general hospital system was developed in the early 1860s, as a means of improving the casualty evacuation process. During the First Taranaki War (1860-61), casualties were cared for initially by regimental surgeons, before being evacuated to the military hospital in Auckland. In a review of the medical services during that war, Surgeon-General Mouat, the officer responsible for operational medical services between 1861 and 1864, found that the evacuation arrangements were 'tardy and unsatisfactory', and that the facilities at the hospital in Auckland were also wholly inadequate. After highlighting the poor ventilation, over-crowding (which had resulted in a number of the wounded having to be moved to another building), and dirty and soiled linen and bedclothes, he noted:

I point to the fact that out of two really serious injuries, viz: an Amputation of the Foot, the patient died of tetanus with the wound in a sloughy condition, and the other a compound fracture of the femur, the patient ... had to be removed from the Hospital atmosphere to save his life.

While acknowledging that other minor wounds had done well, he suggested that this was as much due to the 'extreme salubrity of the climate' as the care of the medical personnel.⁴⁹

Mouat's report identified a range of factors impacting on the provision of medical services: the potential theatres of war were isolated from the major population centres; transport problems and bush-covered terrain restricted the amount of equipment which could be carried; and there was greater reliance upon pack mules than in many other theatres. Recognising that these factors made the extant regimental hospital system unsuitable, Mouat reformed the process by collectivising the regimental medical personnel and developing a staged hospital-evacuation process. Essentially, the practice followed in New Zealand from the start of the Waikato campaign (July 1863) was for wounded personnel to be left in protected bivouacs, from where they would be taken by light horse-drawn ambulances to small mobile field hospitals to the rear. Thereafter they would be taken back progressively to a general

⁴⁸ N. Cantlie, *A History of the Army Medical Department*, Vol 2, Edinburgh: Churchill Livingstone, 1973, p.261; Ryan & Parham, p.162.

⁴⁹ Mouat to Staff Surgeon-Major J.S. Smith, 30 Apr 1861. (WTU, Mouat Papers, MS-0913.)

field hospital and - if required - a general hospital for longer-term recovery. During the Waikato campaign, general field hospitals were established at Camp Otahuhu and the Queen's Redoubt (Pokeno) prior to the invasion, and thereafter at Ngaruawahia and Te Awamutu as the army advanced south. The general hospital for this campaign was located in Auckland.⁵⁰

The evacuation process appears to have worked well throughout the Waikato War. It was only seriously disrupted in the immediate aftermath of the battle of Rangiriri (20 November 1863), when it took two days to move the British casualties by steamer and ambulance from the battlefield to Queen's Redoubt, 22 miles to the rear: on that occasion, however, the delay was caused by flooding on the river.⁵¹

During the British Army's subsequent campaigns in Taranaki, general hospitals were established at New Plymouth and Wanganui, and general field hospitals were established at Waitotara and Patea.⁵² From 1864, the practice was for two light horse-drawn ambulance wagons, two light wagons or drays carrying bedding for twenty patients, and canteens carrying reserve dressings and medicines, four bell tents and five shelter tents, and a staff of orderlies and purveyors to accompany the advance as far as the roads would allow. A mobile field hospital would be established at the roadstead, while the troops continued the advance. Wounded soldiers were evacuated to the mobile field hospital by bandsmen and pack mules, and thereafter taken to the rear. In coastal areas, such as South Taranaki, steamers were used to assist with evacuation.⁵³ This system of staged evacuation, which has remained essentially the same since, was the genesis of the 'general hospital system' still used by modern armies. It should therefore be seen as one of the most significant – and lasting – logistical developments of the New Zealand Wars.

The recognition of the importance of environmental health was an army-wide development, which saw the appointment of dedicated Sanitary Officers on higher headquarters to advise senior commanders on aspects of environmental health and sanitation. In 1863, a senior medical officer, Dr A.W. McKinnon, was appointed as Sanitary Officer on the staff of the General Officer Commanding in New Zealand,

⁵⁰ Cantlie, p.257.

⁵¹ R.E. Wright-St Clair, 'Medical Services In The Waikato War', *Auckland-Waikato Historical Journal*, 43, September 1983, p.32.

⁵² Army Medical Department, 'The New Zealand War, 1866-67', pp.558-9. (WO files.)

⁵³ Cantlie, pp.258.

Lieutenant General Sir Duncan Cameron. McKinnon held the post until 1866, and later became Director-General of Medical Services in the British Army.⁵⁴

One of MacKinnon's early initiatives was to set up a Commission to report on the construction of barracks and hospitals in New Zealand, with particular reference to health issues. The Commission's report was issued in August 1863, and recommended that barrack huts should contain 20 to 25 men, with 400-500 cubic feet per man; should be set at least twelve inches off the ground to allow air flow beneath the floorboards; and should be set apart a distance of twice their height from floor to ridge, with paving between the blocks to improve surface drainage. It further recommended that hospital huts should contain no more than 20 patients; provide 600 cubic feet – or 50 to 60 square feet of floor space – per man, with five to six feet from foot to foot of opposite beds; have a window placed between each bed for light and ventilation; be set 15 to 18 inches off the ground; have an open fire with a brick chimney, in preference to an iron stove; and have a verandah, with chairs, on the sunny side to aid patient convalescence.⁵⁵

It should be noted that the positive effects of improved barrack accommodation had already been demonstrated in New Zealand. A survey conducted in the 1850s by Dr A.S. Thompson, the 58th Regiment's surgeon, found that the mortality rate per 1000 soldiers was lower in New Zealand than in any other major garrison post in the British Empire. While Thompson attributed this partly to the climate, he suggested the main reason was the quality of the troops' accommodation:

...assuming the [comparative] returns to show correctly the comparative healthiness of our troops in Great Britain, and at the various foreign stations, it does not necessarily follow that they correctly exhibit the comparative salubrity of the climates of the countries to which they relate, so far at least as regards the community at large: and for this reason, that our troops are for the most part lodged in barracks; and that the health of the men is influenced by the manner in which they are lodged, as well as by the climate in which they may be stationed; and that barracks vary considerably in the several important particulars of size, ventilation, construction, and position. This result, therefore, might easily follow - that men stationed in a bad climate, but lodged in barracks erected on a well chosen site, spacious, dry, well ventilated, well drained, and supplied with good water, may have fewer hospital diseases and

⁵⁴ R. Drew (ed), *Commissioned Officers in the Medical Services of the British Army*, Vol 1, London: Wellcome Historical Medical Library, 1968, p.359; Cantlie, p.258.

⁵⁵ 'Suggestions drawn up by the Barrack and Hospital Improvement Commission for the Construction of Barracks and Hospitals in New Zealand, August 1863', pp.2-4. (WO 33/12, Paper 148.

less mortality, than men stationed in a good climate, but lodged in barracks in a bad situation, close, confined, ill drained, and badly constructed.⁵⁶

MacKinnon also made a series of other hygiene-related suggestions. He recommended that sanitary 'police' be appointed in every camp; that incinerators be used to burn camp waste; that every soldier be issued with a toothbrush; that rum only be issued in special conditions of exposure, and then only on the orders of a medical officer; that salt meat be abolished and replaced by preserved meat and tinned soup; that fresh vegetables, butter, and cheese be issued by the Commissariat; and that combatant officers be given lectures on hygiene. There was some resistance to his ideas by the combatant officers – understandably, perhaps, as this was only the second time the British Army had appointed a Sanitary Officer – to the point that Cameron had to order his Commanding Officers to cooperate.⁵⁷ Cameron's interest in, and willingness to intervene over, these issues are important in assessing his own performance as a logistician.

Official figures for hospital admissions due to sickness during MacKinnon's tenure as Sanitary Officer attest to the success of the initiatives taken to improve environmental health:

<i>Statistic</i>	<i>1864</i>	<i>1865</i>	<i>1866</i>
<i>Constantly sick (per 1000 of strength)</i>	42.56	35.64	27.51
<i>Admissions (per 1000 of strength)</i>	721	532	448
<i>Deaths (per 1000 of strength)</i>	23.02	13.94	12.86

Interestingly, the Deputy Inspector-General of Hospitals (DIGH) and Principal Medical Officer (PMO), Surgeon-General James Mouat, suggested that half the total admissions in New Zealand were due to intemperance. Of the remainder, bowel disorders accounted for 58.4 admissions per 1000 of strength, followed by fever at 45 per 1000.⁵⁸

In addition to these local developments in casualty evacuation and environmental health, British soldiers serving in New Zealand benefited from a

⁵⁶ Cited in W. Swainson, *New Zealand and its Colonisation*, London: Smith, Elder & Co, 1859, pp.51-2.

⁵⁷ Cantlie, p.258.

⁵⁸ Cantlie, p.258.

number of advances in military medicine. During the wars of the 1840s, amputation and cauterisation were still the most common treatments for shattered limbs, alcohol was the only anaesthetic, and conditions were spartan. One officer recalled that after the battle of Ohaeawai (1 July 1845):

The two [Regimental] surgeons were employed more than half the night attending to the wounded. Many were very severe and several operations were performed. I went round the tents, in all of which there were 2 or more wounded men, to see if I could be of any use, whilst the doctors were engaged with the most serious cases.⁵⁹

The medical arrangements at Ohaeawai – and, indeed, throughout the Northern War – were appalling. In addition to the primitive surgical techniques, there was a shortage of tentage and drays to evacuate the wounded, to the extent that it took the British seven days to evacuate 70 wounded soldiers six miles to their rear base at Waimate Mission Station.⁶⁰

Not only were the medical facilities available in the 1860s much better than those of the 1840s, but surgical techniques had improved as well. While the findings of Joseph Lister's work on antisepsis were not published until 1867, during the early 1860s the British and colonial military surgeons used simple antiseptics such as Condy's fluid, and were more aware of the need for cleanliness. In a major report on the provision of medical services over the period 1863-65, Surgeon-General Mouat highlighted the significant advances that had been made in New Zealand:

The Men treated in the general field hospital huts in the Crimea had only 260 cubic feet of air each; in our field hospital at Queen's Redoubt [at Pokeno] we allowed to each wounded man in huts 670 cubic feet. The hygienic condition of the hospital was excellent, and at no time was there perceptible about it any of that peculiar hospital odour which indicates an impure atmosphere, and from the presence of which hospital poisoning arises The use of a solution of Condy's disinfecting fluid was followed by excellent results....Great attention was paid to keeping the hands of both medical officers and orderlies from carrying disease from one patient to another, by frequent washing.

No case of pyaemia, of erysipelas, of hospital gangrene, or of tetanus, or secondary haemorrhage occurred. The most formidable wounds healed readily, and some injuries, reckoned elsewhere the despair of surgery, did well here Hospital materials of every kind were abundant, and more than all, there is something peculiarly healthy in New Zealand's climate.

During the war there was one place at which, for a short time, the wounds did not do so well – at Tauranga [where t]he wounded had been placed in a very comfortable house, where plastered walls and ceilings effectively prevented the

⁵⁹ C. Bridge, 'Journal of Events on an Expedition to New Zealand. Commencing on 4 April 1845', 1 Jul 1845. (WTU, Bridge Papers, MS-0257-0258.)

⁶⁰ Bridge, 8 Jul 1845.

irregular ventilation which was so beneficial in its effects at Queen's Redoubt Hospital The patients were most of them removed from this house, placed in marquees, and at once everything was changed; the most unpromising wounds did well, and no more satisfactory cures could have been achieved anywhere.⁶¹

Mouat cited as an example eight cases of gunshot wounds to the thigh, which at the time were regarded as being almost untreatable. Seven of the eight recovered without amputation being necessary (four of them with 'very useful legs'), while the only fatality had been shot through both legs, and would therefore have been unlikely to have recovered anyway. The medical journal *The Lancet* referred to these results as 'a marked feature in the surgical history of the war in New Zealand.'⁶²

The New Zealand Wars saw a number of instances of ships being used as hospital ships. During the Northern War, the troopship *Slains Castle* was pressed into short-term service to evacuate the wounded from the Bay of Islands to Auckland,⁶³ while during the Tauranga campaign of 1864 the corvette *Miranda* served as a floating hospital in Tauranga harbour. *Miranda's* hospital was located on her second deck, where there were large scuttles to admit light and air, and to dispose of excreta and dressings into the harbour. Despite the shortage of space and cramped conditions, the best use was made of the facilities available. The worst cases were placed in hammocks along the side of the ship, adjacent to portholes, while less serious cases were placed in hammocks in the centre. Henry Slade, *Miranda's* surgeon and the Senior Medical Officer to the Naval Brigade, described the operating conditions thus:

It is not easy to find a convenient and well lighted place to perform the larger operations in a ship, particularly in a small vessel. It may interest naval medical readers to know that in the *Miranda* we found the square of a hatchway on the lower deck answered very well. The gratings were put on, a midshipman's chest placed on the top, and mess tables laid on it to the required height and position, forming a very fair operation-table for amputations or exploring deep wounds, as the light fell from above on the patient. We selected a time for operating – when the officers and men had gone to the burial of their unfortunate ship mates who were killed, and we were thus left in comparative quiet.⁶⁴

It took somewhat longer for these practical developments to be reflected in any improvement in the status of the medical staff themselves. The seemingly lowly status of surgeons – who were effectively outranked in the regimental 'pecking order' by the most junior line officer – created some ill-feeling in medical circles and elsewhere. For

⁶¹ Army Medical Report, 1865, 7, pp.473-526.

⁶² *The Lancet*, 1867, 2, p.565.

⁶³ H. Despard, 'Narrative of an Expedition into the Interior of New Zealand, During the Months of June and July 1845', *United Services Magazine*, 215, Oct 1846, p.235.

⁶⁴ *The Lancet*, 1868, 1, pp.44-5 and 83-85.

example, in 1861 Mouat complained to his superiors that he was the only senior officer not to have been decorated for service in the First Taranaki War.⁶⁵ Two years later, General Cameron praised 'the intrepidity and skill of Surgeon-Major Carte' during the engagement at Koheroa (17 July 1863), prompting the *Medical Times and Gazette* to note that 'it is not merely ungenerous on the part of the War Office authorities, it is in the highest degree unjust that the medical officers should be placed below combatant officers in the matter of military rank and honours.' The *British Medical Journal* and the *Australian Medical Journal* expressed similar sentiments.⁶⁶

In the event, two of the fourteen Victoria Crosses won by imperial personnel during the New Zealand Wars were awarded to medical personnel, Assistant-Surgeons William Temple and William Manley, at Rangiriri (20 November 1863) and Gate Pa (29 April 1864) respectively.⁶⁷

In summary, the individual British soldier in New Zealand was generally adequately equipped, accoutred, clothed and fed, and capable of fulfilling his military functions in the New Zealand environment. While he was hampered by inadequate logistical support systems – particularly with regard to supply, distribution, and personnel services – during the 1840s, these shortcomings began to be addressed in the aftermath of the Crimean War.

The Royal Navy

The Royal Navy had a strength of 45,000 men in 1847,⁶⁸ and only grew slightly through the New Zealand Wars period.⁶⁹ While it was considerably smaller than the Army, it was nonetheless the British Empire's pre-eminent military factor, reflecting the fact that Britain was first and foremost a maritime power with a global empire.

The Royal Navy also led the Army in terms of administration and logistics, for the first part of the New Zealand Wars period at least. Following a major reorganisation by the First Lord of the Admiralty, Sir James Graham, in 1832, the Navy's administration was handled by five civil branches: the Surveyor-General; the Accountant-General; the Storekeeper-General (responsible for all naval stores, other than food); the Controller of Victualling (foodstuffs and transportation), and the

⁶⁵ Mouat to Cameron, 7 May 1862. (Mouat Papers, WTU MS-Papers-0913.)

⁶⁶ *Medical Times and Gazette*, 1863, 2, p.452; *British Medical Journal*, 1864, 2, p.93; *Australian Medical Journal*, 1864, 9, p.127; *The Lancet*, 1865, 1, p.101.

⁶⁷ Ryan & Parham, pp.209-11.

⁶⁸ P.M. Kennedy, *The Rise and Fall of British Naval Mastery*, London: Ashfield Press, 1976, p.172.

Physician-General.⁷⁰ The naval scale of rations was similar to that of the army, especially after 1823 when the rum ration was reduced from ½ pint to ¼ pint per day. The financial savings from this change meant the men could have meat every day of the week (whereas previously they had gone without two days per week), and an extra two shillings per month pay.⁷¹

The introduction of steam technology during the Industrial Revolution had a major impact upon the Royal Navy and its logistics. The East India Company steamer *Diana* served as a troopship during the Burma War of 1824-25, and in 1827-28 Greek sailors used the British-built steamer *Karteria* with great effect in their rebellion against the Turks.⁷² The Royal Navy laid down its first three paddle-steamers in 1831, and by 1838 had 46 paddle-steamers in service.⁷³ Although these vessels were tactically superior to sailing ships, the size and positioning of their paddles limited the armament they could carry. This problem was partially solved by the construction of the Royal Navy's first screw vessel, HMS *Rattler*, in 1843,⁷⁴ and the introduction of the screw to general service two years later. When Queen Victoria reviewed the Royal Navy's home fleet after the Crimean War, it included 24 steam liners, 19 screw steamers, 18 paddle cruisers, 4 armoured batteries, 120 gunboats, 590 mortar vessels, and a floating foundry.⁷⁵ Steam-powered ships were generally faster and more efficient than those which relied entirely on sail, and as a result improved communications throughout the Empire. In addition, their need for wood and coal led to the development of fueling stations, which in turn became crucial elements of the imperial logistical infrastructure.

While the ships that served in New Zealand in the 1840s came from the East Indies, China, and Pacific squadrons, the New Zealand Wars provided a catalyst for the decision to establish an Australian Station as well. After war broke out in 1845, the Australian authorities appealed to the East Indies and Pacific stations for ships, while the senior naval officer in Sydney detained ships passing through on other duties, and

⁶⁹ J. Bach, *The Australia Station*, Kensington: New South Wales University Press, 1986, p.5.

⁷⁰ W.L.C. Clowes, *The Royal Navy: A History from the Earliest Times to the Present*, Vol 6, London: Sampson Low, 1901, pp.185-86.

⁷¹ Clowes, p.208.

⁷² E. Grove, 'Steam: A Revolution in Naval Affairs', in *Half A World Away: Proceedings of Auckland Maritime Museum Conference, 1997*, eds. D. Johnson & P. Dennerly, RNZN Museum, Auckland, 1998, p.62; D.K. Brown, *Before The Ironclad*, London: Conway Maritime Press, 1990, p.61.

⁷³ Grove, p.63.

⁷⁴ Clowes, p.197.

sent duplicate copies of his letters to the East Indies Station direct to the Admiralty. Once the Commander-in-Chief became aware of the special problems of the Australasian colonies, he directed in 1847 that a force from the East Indies Station be detailed to serve in Australia. This squadron remained a part of the East Indies Station until the formal separation and establishment of the Australia Station, under the command of a second-class commodore, in 1859.⁷⁶

The Royal Navy played an important role in the New Zealand Wars. In addition to its work in direct support of land operations – which included bombardment of Maori coastal positions and, on occasion, providing marines and sailors to invest and assault pa – naval vessels were used to move personnel, equipment and stores to New Zealand from abroad, and subsequently into the various theatres of war. Further, naval personnel provided most of the technical expertise, and much of the muscle, that drove the riverine and coastal logistical networks that supported operations in the Waikato and south Taranaki between 1863 and 1866.

India and the Australian colonies

The two most significant imperial possessions in the context of this study were India and the Australian colonies. Britain's most populous colony, India, was administered by the English East India Company, a private trading company established by Royal Charter in September 1600, with monopoly rights over all British trade between Cape Horn and the Straits of Magellan.⁷⁷ Over the next two hundred years it raised its own Navy and Army, and expanded its holdings in the sub-continent and in South East Asia, mainly at the expense of the French East India Company during the Seven Years War (1756-63). In addition to its Indian holdings, the East India Company's infrastructure included ports in Singapore, Penang, Sarawak, and St Helena.

While at its peak the East India Company was the largest trading organisation the world had ever seen, during the early 1800s it declined as an economic and political entity. By the 1840s it was a shadow of its past glory, and following the Indian Mutiny of 1857-8 the British Crown took over full responsibility for the government and administration of India, together with the Company's burgeoning debts.⁷⁸ Despite its

⁷⁵ Brown, pp.135-60.

⁷⁶ Bach, pp.17-18.

⁷⁷ R.M. Younger, *Australia and the Australians*, Sydney: Hutchinson, 1970, p.61.

⁷⁸ Younger, p.98; R. Miller, *The East Indiamen*, Amsterdam: Time-Life Books, 1980, pp.9-10, 17, 106-8, 169-70.

problems, however, the East India Company did play a part in the imperial logistics network which supported the war effort in New Zealand. One East Indiaman, HEIC *Elphinstone*, was chartered by the British Government as a troop carrier and supply ship in New Zealand during the Northern War of 1845-46, and provided artillery and gun crews during the final campaign of that war. At a wider level, the ports and other logistical infrastructure established by the Company were used by the Royal Navy's East India squadron, a number of ships from which served in New Zealand waters.⁷⁹

The Australian colonies had a greater impact on the war effort in New Zealand. While the colonies' large garrisons and stocks of weapons, ammunition, and other materiel made them New Zealand's immediate arsenal (at least until the implementation of the Self Reliant Policy in 1865), the Australian maritime and agricultural industries were also very important.⁸⁰

The Australian maritime industry had developed initially to meet the needs of local whalers and sealers, and had grown quickly to include the full range of maritime trades: shipbuilding, cooperage, lumberjacking, sail and rope making, and eventually engineering. The first Australian-built steamer was launched in Sydney in 1831, even though steam propulsion itself was still in its infancy. Other industries which were significant in the context of this study included tanneries, breweries, and foundries.⁸¹ These industries collectively provided a logistical arsenal which produced a range of materiel for the New Zealand Wars, ranging in size and complexity from mortars and gun carriages⁸² through to the armoured gunboats *Pioneer* (built in Sydney by the Australasian Steam Navigation Company) and *Koheroa* and *Rangiriri* (P.N. Russell & Co., Sydney).⁸³ The colony of Victoria placed the steam sloop *Victoria* at the disposal of Major General Thomas Pratt during the First Taranaki War, and throughout that conflict it was used to transport troops in support of land operations.⁸⁴ Australia also

⁷⁹ J. Milne, *The Romance of a Proconsul*, London: Chatto and Windus, 1899, p.87; Clowes, p.347.

⁸⁰ M. Roe, 'Roe, 1830-50', in *A New History of Australia*, ed. F. Crowley, Melbourne: William Heinemann, 1974, p.103.

⁸¹ Roe, p.106.

⁸² Gipps to Stanley, 13 Jan 1846. (*Historical Record of Australia, Series I, Governor's Despatches to and from England*, Vol XXIV, Oct 1844 - Mar 1846.)

⁸³ R.D. Campbell, *Captain Cadell and the Waikato Flotilla*, Wellington: Maritime Publications, 1985, p.9.

⁸⁴ R. Carey, *Narrative of the Late War in New Zealand*, London: Richard Bentley, 1863, p.20.

provided coal,⁸⁵ at least until the Waikato had been captured and its coalfields brought into production.

Australian agricultural producers also provided flour and meat,⁸⁶ although the demand for these resources dried up when the British troops left New Zealand. The campaigns of the period 1867-1872 (beyond the period of the study) were fought by smaller units of colonial personnel and kupapa, whose bulk requirements were correspondingly smaller, and as a consequence were able to be met by New Zealand-produced resources.

By the mid-nineteenth century, Britain was the world's leading economic and military power. Such was the strength of the British Empire's strategic-level infrastructural framework that it might be said that Britain's power owed as much to its capacity to develop roads, ports and warehouses as it did to the guns of her warships and the bayonets of her soldiers.

Nonetheless, the Crimean War brought the logistical shortcomings of the British Army and Royal Navy into sharp relief, and provided a catalyst for a series of sweeping changes. These included improvements to supply, distribution and transport, and personnel and health services. The effects of these changes would be seen in the British Army's and Royal Navy's commitments in the late 1850s and beyond – including the campaigns in New Zealand during the 1860s.

⁸⁵ See, for example, Despatch to Cochrane of 2 Apr 1846. (Charles Graham Papers, WTU MS-0763.)

⁸⁶ W. Fox, *The War In New Zealand*, London: Smith, Elder & Co, 1866, p.13.

Chapter Three:

The Colonial Dimension

The development and application of British military logistics during the New Zealand Wars was further influenced by a range of local factors. These factors can be divided into three groups: the physical (including topography, climate, geography, natural resources and population distribution), the political (including the impact of colonial politics on the ability of the colony to support military operations), and the economic. This chapter will examine each of these, and thereafter trace the development of colonial logistics infrastructure over the period.

In the context of this study, the word 'colonial' is taken to mean *in or of New Zealand*. In this regard, it includes the colony of New Zealand, its government, the settlers, and the local military forces.

Physical factors

Other than the skirmish at Wairau in June 1843, all the fighting during the New Zealand Wars took place in the North Island. The North Island lies in the temperate zone, between 37°S and 42°S. Half its landmass lies within 400 metres of sea level, and more than 95% lies under 1000 metres from sea level. The central North Island is marked by a series of ranges, some of which are of such height or configuration as to seriously challenge movement by person, horse, cart, or gun carriage. There are a large number of streams, most of which can be crossed on foot in all but very bad weather, and a few more significant rivers, some of which (the Waikato, Waipa, Mokau, Rangitaiki and Wanganui) were large enough in the mid-1800s to allow passage by larger vessels. These larger waterways are of particular significance to this study. Very few of these streams or rivers ever failed, even during the dry season, which meant that water shortages never affected field operations.¹

The most difficult topographical features, insofar as the British forces were concerned, were the extensive tracts of native bush covering the North Island. Every theatre of operations encountered by the British Army during these wars was covered, in whole or part, by dense bush. In addition to providing the troops with a new and challenging environment, this hampered the movement of supplies and the development of tactical distribution networks.

¹ C. Heaphy, *Narrative of a Residence in Various Parts of New Zealand*, London: Smith, Elder & Co, 1842, p.24.

On the other hand, the New Zealand climate was generally favourable for military operations by British troops. The temperature was cooler and the humidity range less than in the sub-Asiatic, African, Caribbean or Australian stations. The mean daytime temperature ranged between 18° and 24° Celsius during the summer months, and rarely fell below 4° during the winter months.² There were no monsoon seasons and no hurricanes, although there was heavier rainfall than today. There was little snow anywhere other than the central plateau region south of Lake Taupo and the Urewera Ranges, and even then, ordinarily only in mid-winter. The climatic conditions and temperature range were such that grass could grow in most areas throughout the year,³ a significant consideration given the importance of draft animals and horses to the type of military operations undertaken here. Some contemporary observers compared the climate to that of England.⁴

New Zealand provided a range of natural resources that supported either or both sides during the wars. The most important mineral resources in the context of this study were coal and sulphur: there were large coal deposits along the Waikato and Wanganui Rivers, at Mokau and Blind Bay, and on the Canterbury Plains, while sulphur – which as an ingredient of gunpowder was of great value to the Maori – could be found around Lake Taupo and Rotorua.⁵ The native vegetation included toi toi and raupo, which were used to make the thatched roofs and walls of huts, and a range of wood-types which could be used for timber.

Most communication between the Pakeha settlements during the wars was by sea, partly because the Maori dominated the hinterland, but also because the configuration of the settlements themselves was such that sea travel provided the best option, especially where it involved the rapid transfer of large quantities of stores and men. One problem which was never fully overcome during the wars period was the nature of the Tasman Sea. The Tasman is a difficult stretch of water to cross, and sailing vessels typically took between ten and fourteen days to sail between Sydney and Auckland, although the advent of steam vessels reduced the length of the voyage and

² Heaphy, p.23. Heaphy suggests that the New Zealand summer lasts for eight months, which would have the effect of lowering the mean summer temperatures. In fact, in parts of New Zealand (especially around the northern coastal regions), occasional temperature highs of 28-30° are not uncommon.

³ W. Swainson, *Auckland: The Capital of New Zealand*, London: Smith, Elder & Co., 1853, p.54.

⁴ W.T. Power, *Sketches in New Zealand*, London: Longman Brown, 1849, p.37. See also Heaphy, pp.23-4.

⁵ H.W. Petre, *The Settlements of the New Zealand Company*, London: Smith, Elder & Co., 1842, pp.74-5; T.B. Collinson, *Papers on Subjects Connected with the Duties of the Corps of Royal*

improved the reliability of the service. Whereas the average rise of tides was six feet on the east coast, it averaged ten feet on the west coast and twelve feet in New Plymouth and Blind Bay (Wanganui).⁶ These conditions explain some of the problems vessels encountered supporting operations through the west coast ports throughout the wars. Weather was another factor: on one occasion during the Hutt War, a supply ship sent from Wellington to Paremata Barracks at the mouth of the Porirua inlet (80 kilometres away by sea) took six weeks to get there after being caught up in a storm.⁷ Access to the ports at New Plymouth and Wanganui and the Manukau Harbour was difficult at any time, and impossible in very poor weather.

Much of the overland movement throughout the wars was by cart track. These had usually been developed to meet the economic needs of their communities (primarily to move produce to market in summer and autumn), and so were of varying quality. In practice, few were suitable in bad weather or for prolonged use by heavy bullock-drawn carts. The exceptions were those that were developed for military purposes, such as the Great South Road built to support the invasion of the Waikato.

Maori had their own communication routes, some of which had been used for generations. For example, the Kingite war parties which travelled to Taranaki to fight at Puketekauere and Mahoetahi in 1860 took the same route – down the Mokau River by canoe, and then along the beach to Waitara – as that used by Te Wherowhero in 1822 and 1831.

The relative sizes and distribution of the populations from which both sides drew their resources affected their logistics. A range of contemporary estimates by explorers, missionaries, the New Zealand Company, and official agencies between 1779 and 1855 placed the Maori population between 180,000 and 56,000 at various times.⁸ Modern research, however, suggests that it stood at 57,049 in 1857-58, and 47,940 in 1874, reaching a low of 42,113 in 1896. There is clear evidence that the Maori population declined between the 1770s and the early 1840s due to disease, social dislocation, and the advent of the musket, and that the rate of decline decreased from about 1840. In 1858, the Maori and non-Maori populations were almost equal, but by 1874 Maori comprised just 14% of the total population of New Zealand. Ian Pool has

Engineers, Vol 3, London: John Weale, 1853, pp.27-30; M. Long (ed.), *Waikato – Northern King Country Historical Guide*, Wellington: New Zealand Historic Places Trust, 1985, p.14.

⁶ Collinson, p.39.

⁷ Power, pp.21-22.

⁸ See, for example, J.M.R. Owens, 'New Zealand Before Annexation', in *The Oxford History of New Zealand*, ed. W.H. Oliver, Auckland: Oxford University Press, 1981, p.49; Despatch from

estimated that the Maori population declined at a rate of 1.5% per annum over the period 1840 to 1874 - essentially, over the period covered by the Wars.⁹

By contrast, the Pakeha population grew exponentially over the same period. While it numbered just a few thousand in early 1840, the post-Treaty influx saw it grow to 11,000 in 1842, 26,000 in 1851, 59,000 in 1858, 99,000 in 1861, and 165,000 in 1863.¹⁰ The Maori position in this changing population balance becomes even more unfavourable when two other factors are taken into account: the Maori figure included tribes who either remained neutral or supported the Government throughout the wars of the 1860s, while the Pakeha figure does not include the large number of imperial troops who did the bulk of the fighting until 1866. The degree to which the resulting population ratio favoured the Pakeha is reflected in the economic dimension of the logistics of both sides.

The geographical distribution of the two races is also significant. It has been estimated that 80% of the Maori population lived in the upper half of the North Island, and the littoral regions of Taranaki and Hawkes Bay. By contrast, the Europeans were dispersed throughout a series of coastal settlements. The overwhelming majority of immigrants during the 1840s ignored the existing settlements in the Bay of Islands (Kororareka and Hokianga) and Akaroa in favour of new settlements at Wellington, New Plymouth, Nelson, Auckland, Wanganui, Otago and Canterbury. By 1861, the six major centres each had between 2000 and 8000 people, and Wanganui, Napier and Invercargill each had approximately 1000.¹¹ This meant that even when Pakeha significantly outnumbered Maori across the country as a whole, their numerical superiority was not necessarily reflected at the local level.

In summary, while New Zealand was still a relatively benign environment, it nonetheless offered a number of physical challenges to the conduct of the style of military operations with which British troops were familiar. The relative isolation of the various theatres, and the fact that many could only be accessed by sea, would make moving troops into and through the various theatres of war, and the accompanying development of tactical distribution networks, particularly difficult.

Grey to Secretary of State for Colonies, 30 Aug 1851 (CO 209/93, pp.10-11); D.I. Pool, *The Maori Population of New Zealand*, Auckland: Auckland University Press, 1977, pp.55, 234-5.

⁹ Pool, *Maori Population*, pp.55, 234-237; D.I. Pool, *Te Iwi Maori: A New Zealand Population, Past, Present, & Projected*, Auckland: Auckland University Press, 1991, pp.75-6, 245.

¹⁰ A.S. Thompson, *The Story of New Zealand*, Vol 2, London: John Murray, 1859, p.329.

¹¹ J. Belich, *Making Peoples: A History of the New Zealanders From Polynesian Settlement to the End of the Nineteenth Century*, Auckland: Allen Lane, 1997, p.189.

Political factors

As noted above, the pattern of Pakeha settlement had created a series of isolated, coastal population centres. In a letter to the Secretary of State for Colonies in 1851 outlining the case for a form of provincial government as part of a New Zealand constitution, Governor Grey highlighted the military implications of the situation which had developed:

The wide intervals between these European colonies are occupied by a native race, estimated to consist of one hundred and twenty thousand (120,000) souls, a very large proportion of whom are males, capable of bearing arms. These Natives are generally armed with rifles or double barrelled guns; they are skilled in the use of their weapons, and take great care of them; they are addicted to war; have repeatedly, in encounters with our troops, been reported by our own officers to be equal to any European troops; and are such good tacticians that we have never yet succeeded in bringing them to a decisive encounter, they having always availed themselves of the advantage afforded by their wilds and fastnesses. Their armed bodies move without any baggage, and are attended by the women, who carry potatoes on their backs for the warriors, or subsist them by digging fernroot, so that they are wholly independent of supplies, and can move and subsist their forces in countries [sic] where our troops cannot live

These natives, from the positions which they occupy between all the settlements, can choose their own point of attack, and ... can move their forces with rapidity and secrecy from one point of the country to another; whilst, from the general absence of roads, the impassable nature of the country, and the utter lack of supplies, it is impossible (except in the case of some of the settlements where good roads have been constructed) to move a European force more than a few miles into the interior from any settlement.

The natives, moreover, present no point at which they can be attacked, or against which operations can be carried on. Finding now that we can readily destroy their pas or fortifications, they no longer construct them, but live in scattered villages, round which they have their cultivations, and these they can abandon without difficulty or serious loss, being readily received by any friendly tribe to whom they might repair.

Grey concluded that what the colonies needed most of all were political structures that could direct their own economic and infrastructural development. Provincialism, he suggested, would strengthen all of the settlements by developing links between them, and improve the ability of the government to police and defend the whole country. At the same time, the Maori would contribute to, and benefit from, this development through the provision of paid labour and trade.¹²

Grey's proposals for a provincial system were implemented under the 1852 Constitution. The new constitution had important ramifications for the development of national infrastructure, in that it made the provincial governments responsible for

¹² Grey to Secretary of State for Colonies, 30 Aug 1851. (CO 209/93, pp.10-11.)

the development and maintenance of their own harbours, and roads and bridges within their boundaries. The respective responsibilities of the central and provincial governments were set out in the '1856 Compact'. Under the terms of the Compact, the provinces became responsible for 'what might be termed all the Constructive work of the Colony, immigration, public works, the Survey and Sale of Land, as well as with the organisation and control of the Police, and other social regime of the community.'¹³ The provinces were responsible for collecting customs duties, land sales, post office and court fees, and registrations on behalf of the central government. Once provision was made for paying off the New Zealand Company's debts, purchasing Maori land, and meeting its own administrative expenses, the central government would reallocate the remaining revenue amongst the provinces.¹⁴

This, however, only increased the rivalry between the settlements, and reduced national politics to "'a disgraceful scramble" - "a gigantic scramble" - for public money.'¹⁵ While the reasons for this rivalry are beyond the scope of this study, its effects are crucial to it. The net result was that little was done to develop the infrastructure required to support military operations. While infrastructural development for military purposes might be expected to take a lower priority than other expenditure in any circumstances, the situation was made worse by a depression in agricultural prices and land prices during the late 1850s.¹⁶ The few roads that were developed were to serve the needs of hinterland settlers only, and tended to be 'broken in' by the constant movement of bullock drays rather than being properly laid out.¹⁷ When Colonel Robert Carey surveyed the situation during the First Taranaki War (1860-61) he found:

The colonists were scattered over the face of the island without the slightest regard, either in the choice of their land, or of sites for their houses, to military or even to mutual defence. The country itself was a network of gullies, ravines, marshes, and impenetrable forest; and, except in the neighbourhood of the townships, destitute of roads; and even those near towns were hardly better than cart-tracks, impassable in winter.¹⁸

¹³ Memorandum from William Fox to Colonial Office, 18 Oct 1860. (CO 209/164, pp.60-63.)

¹⁴ NZPD, 1856-58, pp.138, 184, 248-9.

¹⁵ K. Sinclair, *A History of New Zealand*, Auckland: Penguin, 1980 (revised edition), p.109. See also Thompson, p.246.

¹⁶ Sinclair, p.125.

¹⁷ A.M. Gray, *Aotearoa and New Zealand: A Historical Geography*, Christchurch: Canterbury University Press, 1996, p.169.

¹⁸ R. Carey, *Narrative of the Late War in New Zealand*, London: Richard Bentley, 1863, pp.4-5.

Despite Grey's intentions, then, the major developments in military communications' infrastructure were not carried out by the provincial governments, but rather by the imperial forces themselves, either during or immediately before their campaigns. It is important to note here that ultimately the development of strategic assets – such as significant logistics infrastructure – requires the sponsorship of a strategic-level authority. This did not really occur until 1861, when Grey and Cameron began the strategic planning for the Waikato campaign. Until then, the colonial settlements developed almost entirely independently of each other. The consequences of this will be seen during the campaign studies in the following chapters.

Economic factors

The development of the colony's logistical capacity and infrastructure was also closely linked to its economic development. Wages were generally high during the colony's formative years, although they declined slightly during a period of depression in the late 1840s and early 1850s. Tradesmen's wages were highest in Auckland and Wellington, and lowest in Nelson and New Plymouth.¹⁹ The high wages reflected the heavy demand for labour during the early stages of settlement, a situation which disrupted the economy and caused some interesting problems. For example, when the seat of government was being established in Auckland during the mid-1840s:

there were not labourers sufficient even to put up the Governor's house; and the abstraction of a few mechanics from Port Nicholson for this purpose raised a storm of indignation among the southern settlers, at whose expense they had been brought out.²⁰

Maori labour provided a partial solution, especially where the nature of the work itself was likely to be unpopular amongst Pakeha, or funding was limited (conditions which usually applied where the work was for military purposes). In an 1847 letter to the Chief Engineer, the Clerk of Works noted that 147 Maori had been employed in Auckland during the previous twelve months on such tasks as ferrying stores and materials building the capital's new barracks. He also highlighted their good work habits: in twelve months, there had been no absenteeism, and just one instance of drunkenness.²¹ Likewise, following the Hutt War Maori labourers built a

¹⁹ M.F.L. Prichard, *An Economic History of New Zealand to 1939*, Auckland: Collins, 1970, pp.62-3.

²⁰ Letter from T.M. Fitzgerald to the Superintendent of Wellington, 1 Jul 1847 (Cited in Power, p.xxxi).

²¹ Letter from G. Grahame, Clerk of Works, to Colonel Bolton, RE, 23 Nov 1847. (Cited in Power, pp.283-4.)

road from Wellington north to Pai-tu-mokai (a distance of 50 kilometres), at a total cost of £14,000.²² Here, again, the Maori input was critical:

The amount of labour may not equal that which the same number of *expert* European workmen would have accomplished, but I consider it *exceeds* what the *same number* of soldiers would have performed in the time, while the wages paid the natives *have been little more than half* of those of European workmen.²³

Such arrangements were equally beneficial for those Maori who chose to engage with the authorities: by the end of 1848, for example, some Wellington chiefs had bank accounts in Wellington, with balances of up to £300.²⁴

The growth of the British military commitment to New Zealand contributed to the development of the local economy. When Hobson concluded the Treaty of Waitangi in early 1840, the total military resources available to him comprised 'a dozen drunken police constables'²⁵ and a small warship. Thereafter, however, the 'Red Tribe' grew more quickly than even the most pessimistic of the Maori chiefs could have foreseen. At the start of 1845 (prior to the Northern War) there were about 150 imperial troops in New Zealand, but by the end of the year this number had increased to 1000, and to 2000 by the end of 1846. It remained at about this level until 1857, when it was reduced to 1000, where it remained until the outbreak of war in Taranaki in 1860. It thereafter increased rapidly, to 4000 by early 1861, and over 10,000 – more than there were in the United Kingdom – by late 1863.²⁶ Thus, there were sixty-six times as many British soldiers in New Zealand in 1863 as there had been at the start of 1845. It remained at this level until 1866, when it began to be reduced under the Self Reliant Policy. Most had left New Zealand by the end of 1867, and the very last departed in February 1870.²⁷

While these personnel were not counted in the colonial population statistics, their economic impact on the colony itself was enormous. Between 1845 and 1857, the imperial garrison in New Zealand cost the British Government an average of £180,000

²² Letter from T.M. Fitzgerald to the Superintendent of Wellington, 1 Jul 1847. (Cited in Power, p.xxxi).

²³ Letter from Capt Russell, 58th Regiment, Surveyor of Military Roads, to Governor Grey, 24 Jun 1847. (Cited in Power, pp.285-6).

²⁴ Power, p.180.

²⁵ Belich, *Making Peoples*, p.181.

²⁶ Belich, *Making Peoples*, p.181.

²⁷ E. Holt, *The Strangest War*, London: Putman, 1962, p.253.

per year, most of which was spent in the Colony.²⁸ As they had done in Australia, the troops built barracks, roads and bridges, erected and manned blockhouses and redoubts, ate local meat and produce, and drank in local taverns. Many elected to take their discharge in New Zealand. For example, when the 58th Regiment completed its thirteen-year service in New Zealand in 1858, only 16 officers and 194 men actually left, while another 300 all ranks who had completed their enlistment elected to stay in New Zealand: in all, over 1000 officers and men from 58th took their discharge in New Zealand during their Regiment's period of service here.²⁹

While infrastructural developments were largely driven by strategic necessity, they inevitably caused some friction between the settlements. In 1851, for example, William Fox, the New Zealand Company's Cook Strait Settlements' agent (and later Premier), dismissed Auckland's development in caustic terms:

The town of Auckland is the largest and most compact in the colony. It has one or two very good streets, but the lower parts are as filthy as Deptford and Wapping, navy-building towns In short, the settlement was a mere section of the town of Sydney transplanted to the shores of New Zealand, filled with tradesmen who were reaping a rich harvest from the expenditure of a regiment of soldiers, a parliamentary grant, missionary funds, and native trade. As an instance of colonization, it was altogether rotten, delusive, and Algerine.

... If the government expenditure [in Auckland] had ceased, and the troops been removed at that time, I believe Auckland would have melted away like a dream.³⁰

Notwithstanding Fox's obvious jealousy, his observations had some validity. The British garrisons did provide a new and hungry market for New Zealand's food producers, and indeed Commissariat funds were to save from collapse the settlements of Wanganui (in 1847-48) and New Plymouth (in the aftermath of the First Taranaki War), and provide a welcome financial injection for all the others – especially as prices tended to increase whenever the troops arrived.³¹ Ultimately, imperial military expenditure was to be as important to the viability of New Zealand as it had been to Australia.

At its peak, it cost Britain over £500,000 per year to maintain imperial forces in New Zealand, a sum equal to 30% of the colony's total annual public revenue at the

²⁸ Collinson, p.22.

²⁹ M. Barthorp, *To Face the Daring Maoris*, London: Hodder & Stoughton, 1979, p.190.

³⁰ W. Fox, *The Six Colonies of New Zealand*, London: Smith, Elder & Co, 1851, pp.40-3.

³¹ I. Wards, *The Shadow of the Land: A Study of British Policy and Racial Conflict in New Zealand, 1832-1852*, Wellington: Department of Internal Affairs, 1968, p.327.

time.³² The imperial garrison's costs were a major causal factor in the tension between the imperial and colonial governments, culminating in the implementation of the Self Reliant Policy. Some British authorities felt that the wars had been used to secure British expenditure in New Zealand: in 1846, for example, the recently recalled Governor FitzRoy claimed that the Wellington settlers might have provoked the local Maori into conflict in order to get more troops sent to their settlement,³³ while in 1865 one imperial officer wrote of the road being built between Wanganui and New Plymouth:

it is a Colonial government job to keep the troops at Taranaki to spend money. I am told that Auckland is in a bad way since the bulk of the troops went south. Several business failures are taking place amongst the store keepers and business is very dull. That fully accounts for their anxiety to carry on war and keep the troops in the country.³⁴

General Cameron also suggested that the wars had been 'got up for the sake of military expenditure', an allegation 'at once indignantly denied by Governor Grey, who told him [Cameron] that his object in fighting was to punish persons guilty of great atrocities.'³⁵ William Fox – by now the Colonial Secretary – countered Cameron's allegations by claiming that:

The charge is very absurd. One hears of large fortunes made in England by contracts for victualling and clothing her Majesty's forces, and furnishing other supplies for the public service; but military expenditure is to the bulk of the population of New Zealand a thing never thought of, or wished for. Indeed if the colonists had been more anxious for it than they were, they would have been very much disappointed; for great part of the supplies were got from other countries by the commissariat.³⁶

Fox further noted that during the Waikato War the Commissariat acquired flour from Adelaide, horses from Sydney, meat from Gipps Land, and hay ('much of it worthless') and corn from England.³⁷ This was forced onto the Commissariat by necessity, however, since the mobilisation of the Militia brought economic life in Auckland almost to a standstill during the Waikato War.³⁸ In such circumstances, the needs of

³² Belich, *Making Peoples*, p.181.

³³ R. FitzRoy, *Remarks on New Zealand*, London: W. & M. White, 1846, pp.17-18.

³⁴ A.T. Carbery Journal, Apr 1865, p.30. (WTU, Carbery Papers, MS-2310-1.)

³⁵ Cited in W. Fox, *The War in New Zealand*, London, Smith, Elder & Co., 1866, pp.12-13.

³⁶ Fox, *War in New Zealand*, pp.12-13.

³⁷ Fox, *War in New Zealand*, p.13.

³⁸ E. Stokes, *A History of Tauranga County*, Palmerston North: Dunmore Press, 1982, p.86.

the Commissariat could not have been met from Auckland, and so it was hardly surprising that it would have looked further afield.

While in theory the colony could have supplied the needs of the war effort by itself, in practice it proved impossible for it to do so until the final stages. Even then, it took some significant – almost revolutionary – changes to the agricultural economy for this to occur. The amount of land under cultivation increased five-fold during the 1860s, and more than doubled between 1870 and 1876.³⁹ While the major productions at the start of the 1860s were wheat, oats and barley, by the end of the decade artificial grass (including that planted for hay) occupied 72% of cultivated land, while oats, wheat and barley occupied just 24%. The major cause for the change was the new emphasis on livestock farming.⁴⁰ The largest increases in the arable acreage, together with the increases in livestock production, occurred in the South Island, far away from the theatres of conflict in Taranaki, Waikato, and the central North Island. Thus, even though food production was increasing, the food often had to be moved into the theatre, a process which usually entailed considerable difficulty.

This, of course, reflected the colony's weaknesses in land-based communications. Other than the roads built specifically to facilitate military operations in Taranaki and Waikato, there was little development in communications into and immediately around the centres of conflict in the North Island throughout the 1860s. The North Island's first section of railway was constructed between Auckland and Drury in 1863, initially with the sole purpose of moving supplies on the first stage of their journey into the Waikato, although at the same time railways were being developed as parts of public works programmes in Otago and Canterbury. As a consequence, rail played a limited role in these wars. In the early 1870s, as the wars neared their end, Colonial Treasurer Julius Vogel undertook an extensive – and expensive – infrastructural development programme. The public works programme included massive expenditure on railways, assisted immigration, the purchase of Native land, roads for the North Island, telegraph, lighthouses, and goldfields waterworks. It was funded through a mix of borrowing, capitation levies on the provinces, and the resale of Native land.⁴¹ Due to delays in starting the programme, the

³⁹ Prichard, p.107.

⁴⁰ Gray, pp.210-13.

⁴¹ Prichard, pp.122-7.

only aspects that significantly affected the New Zealand Wars were the roads constructed between Tauranga and Taupo, and Taupo and Napier.⁴²

One piece of technology that did arrive in time to play a significant role was telegraph. New Zealand's first telegraph was set up between Auckland and the Queen's Redoubt at Pokeno in 1863, and it was by this means that first news of the battle of Rangiriri (20 November 1863) was conveyed to Government House in Auckland, and in a fraction of the time a despatch rider would have taken.⁴³ By 1866, there were 1120 kilometres of telegraph lines in New Zealand, and over 3800 kilometres by the end of the wars. Telegraph was a crucial factor in the later campaigns fought under the Self-Reliant Policy in the central North Island. For example, the success of the Te Porere campaign undertaken by a combined Armed Constabulary and *kupapa* force in September and October 1869 owed much to the telegraph wire between Tauranga, Taupo, and Napier, which made it possible for the government force to concentrate south of Lake Taupo for the decisive engagement.⁴⁴

In summary, the development of British military and logistical capacity in New Zealand was closely linked to the development of the local economy: indeed, the relationship between the two was one of mutual interdependence. Throughout the wars, the greatest demands would be for food and fodder, transportation resources (including carts and draught animals), coal, and light industry. Although the colonial economy initially struggled to meet these demands, by the 1860s virtually all the British forces' logistical requirements were able to be met locally.

Infrastructural development - Auckland

At the start of 1840, Kororareka was New Zealand's largest Pakeha settlement and de facto 'capital', a role for which the newly arrived Lieutenant Governor Hobson and his staff felt it was totally unsuitable. It was:

a miserable place, composed of some twenty houses and native huts, standing on a narrow shingly bank which separates the beach from a morass forming the background of the 'town' as it is called; immediately behind which the hills rise

⁴² Preece to MacLean, 31 Dec 1870, 10 Feb 1871, and 18 Mar 1871, in *Papers Relating to Captain G.A. Preece: Part One, Correspondence With Sir Donald MacLean*, ed. H.G. Bull, Maungaturoto: Tortoise, 1998; Prichard, p.126.

⁴³ *New Zealand Gazette*, No 61, 21 Nov 1863.

⁴⁴ P. Maxwell, 'Frontier Fighting: The Armed Constabulary Storms Te Porere Ridge', *New Zealand Guns*, Mar/Apr 1992, p.42.

steep and abrupt, clothed with coarse fern and dwarf cyprus shrub. The soil is very sterile, and the whole appearance of the place wretched in the extreme.⁴⁵

On 31 January 1840 – a week before the signing of the Treaty of Waitangi – Hobson met with the missionary Henry Williams, and amongst other issues discussed potential sites for a new colonial capital. Williams, a former naval officer, recommended the Waitemata isthmus. Hobson visited the site in October, and on finding it suitable began negotiations with the Ngati Whatua tribe. A deed of purchase for the land was signed on 20 October, and it was formally taken over the following month. In a despatch to the Colonial Office, Hobson highlighted Auckland's topographical and geopolitical advantages:

In the choice I have thus made, I have been informed by a combination of circumstances: 1st, by its central location; 2ndly, by the great facility of internal water communication by the Kaipara and its branches to the northward, and the Manukau and Waikato to the southward; 3rdly, from the facility and safety of its port, and the proximity of several smaller ports abounding with the most valuable timber; and finally, by the fertility of the soil....⁴⁶

Auckland formally became the colonial capital in 1844, a status it retained until January 1865, when the seat of government was transferred to Wellington.

Despite Hobson's glowing appraisal of Auckland's harbour – a view endorsed by his successor, Robert FitzRoy⁴⁷ – the harbour was actually the factor which most restricted the development of Auckland as a settlement and a military base. The Royal Navy preferred the shallow waters off Sandspit (modern-day Devonport) to the anchorage adjacent to Auckland itself, and began to develop facilities at Sandspit in 1841, including a wooden weatherboard boatshed and a magazine.⁴⁸ This left the port facilities at the main settlement on the isthmus to be used almost exclusively by settlers and traders, who seemed to simply accept the problems rather than address them.

When war broke out in the Bay of Islands in 1845, Waitemata harbour naturally became the staging post for most of the naval traffic en route to the theatre of war. Whereas Sandspit had previously been adequate for the limited numbers of naval vessels visiting the Waitemata, the arrival of troop and cargo ships and influx of personnel who could only be accommodated in Auckland highlighted Waitemata Harbour's shortcomings:

⁴⁵ Cited in T.L. Buick, *New Zealand's First War*, Wellington: Government Printer, 1926, pp.4-5.

⁴⁶ Great Britain Parliamentary Papers, 1841, xvii, 311, pp.113-4.

⁴⁷ FitzRoy, p.15.

⁴⁸ J.O.C. Ross, *The White Ensign In Early New Zealand*, Wellington: Reed, 1967, p.19.

Our port is our disgrace: it is a mere anchorage, however excellent its holding ground. There is no facility for the landing of goods: on the contrary, serious expense and frequent damage occur to merchandise in its transit from the vessel to the warehouse of the merchant. Auckland, with very great natural capabilities, has notoriously the worst shipping accommodation of any port in the Australian seas. As for watering, there exists no means of supplying the necessities of the pettiest sloop: ships of war have to proceed elsewhere; and merchantmen fritter away their time, venting blessings on a spot where apathy is the dominant feature.⁴⁹

Larger warships and troopships were unable to get close enough to the shore, and so had to take on water from Waiheke Island.⁵⁰

British army and naval personnel who used the port were universally scathing about its unsuitability for military purposes.⁵¹ When Assistant Commissary-General Tyrone Power arrived in 1846, he found:

no wharf or landing-place but the muddy beach had to wade my way up to the barracks through a sea of mud the whole town had a slatternly and neglected look, that reminded me of some of the ill-selected and deserted locations in the backwoods of America.⁵²

Lieutenant C.J. Ewen had similar problems when he arrived with a large detachment of the 96th Regiment the following year. As there was no wharf available, the men had to be unloaded from their troopship in rowboats, a process that took all afternoon. When Ewen's boat was about 100 metres from shore, it became stuck in the mud:

What was to be done? I immediately ordered the men to pull off shoes and stockings and trousers if they liked and wade it, setting the example myself by mounting the back of one of the sailors. But oh! the rascal! Whether by accident as he affirmed or not, I had not gone 3 steps when in I went, to the great delight of all the lookers on and found myself up rather more than knee deep. However I made the best of my way out very soon and got the men all ready for marching, and we started off for camp.⁵³

The problems remained throughout the 1840s and into the 1850s:

Ships arriving in Auckland with cargoes, anchored out in the stream and were discharged by cargo boats: One might see rows of laden boats run up on the

⁴⁹ From an Auckland newspaper, cited in H.F. McKillop, *Reminiscences of Twelve Months' Service in New Zealand*, London: Richard Bentley, 1849, p.151.

⁵⁰ McKillop, pp.155-6.

⁵¹ See, for example, Collinson, p.17.

⁵² Power, pp.3-4.

⁵³ Ewen Journal, pp.14-15. (WTU, Ewen Papers, QMS-0705.)

beach four or five hundred yards towards the sea which was very flat shallows ... and carts would go out to unload them, the horses up to their girths in water.⁵⁴

When Captain Mercer's battery of new Armstrong guns, together with a number of 8- and 10-inch mortars, arrived in Auckland on the *Norwood* in early March 1861, it took one week to unload the guns and their stores – in all, 700 tons of cargo. As the ship was unable to get close enough to the wharf to discharge, lighters had to be used.⁵⁵ The guns were then shipped by steamer to Taranaki, where they were used with effect during the final days of the First Taranaki War.

By 1852, more than 700 vessels of varying sizes and 2000 canoes were entering Waitemata Harbour each year.⁵⁶ Despite the increasing importance of the Waitemata, however, the local and colonial authorities were clearly reluctant to invest resources to develop naval facilities. As a consequence the Navy continued to develop its own facilities at Sandspit, in isolation from the civil and commercial facilities in Auckland. By the end of the 1850s, Sandspit had increased in size and capacity to include a blacksmith's shop, a slipway, limited storage facilities, and accommodation for the small staff. The passing of the 1858 Militia Act and subsequent establishment of an Auckland Naval Volunteers' unit at Sandspit led to a further expansion. In February 1864, the Commander of the Australian Squadron, Commodore William Wiseman, applied to the Colonial Government for the transfer of the Sandspit Reserve to Royal Naval control. Although the Admiralty 'was not in the least enchanted' with the idea of a naval base in Auckland, Grey and Wiseman worked quickly – taking advantage of the communications delay between Auckland and London – and the transfer was formally announced on 24 February 1864.⁵⁷ Within a few months, the crew of the frigate *Curacao* had built a two-storied barracks on the site, space had been allocated for stores and a workshop, and a poultry farm had been established nearby to provide the station with eggs.⁵⁸

Auckland's second harbour, the Manukau, was inferior to the Waitemata, primarily because of the dangerous bar across its mouth. The Manukau Bar claimed a number of ships during the wars period, notably the warship *Orpheus*, lost with 189 lives in early 1863 while transporting troops to New Zealand for the Waikato campaign.

⁵⁴ W.B. White, cited in U. Platts, *The Lively Capital: Auckland, 1840-1865*, Christchurch: Avon Fine Prints, 1971, p.160; Collinson, p.17. ('There is a public landing building, without which the landing is very bad.')

⁵⁵ J.E. Alexander, *Incidents of the Maori War*, London: Richard Bentley, 1863, p.416.

⁵⁶ Swainson, *Auckland*, p.42.

⁵⁷ *New Zealand Gazette*, 24 Feb 1864.

Despite its inherent problems, Manukau did play an important role in the wars: as well as being the closest port to the Australian colonies, it was also the shortest route from Auckland to New Plymouth, Wanganui, and Wellington. The isthmus between the Manukau and Waitemata Harbours was 11 kilometres wide at its narrowest point.⁵⁹

A number of significant infrastructural and maritime capabilities were developed in Auckland as commercial enterprises during the period under review. The most important of these was a ship building yard established at Onehunga, on the west coast of the isthmus, at which the iron steamers *Avon* and *Pioneer* were modified and a number of smaller boats were fitted with armour plate in preparation for service in the Waikato in 1863 and 1864.⁶⁰ Other significant local industries included boat building, rope making, saw milling and brick making.⁶¹

Fewer difficulties were encountered in the development of Auckland's land-based infrastructure. In 1840, soon after the first detachment of troops from the 80th Regiment reached New Zealand, a Royal Engineer officer called Lieutenant Ligard arrived in the colony to begin surveying sites for barracks and blockhouses. Ligard built his first blockhouse at Kororareka – which, owing to the 'paucity of means' was a 'rustic', non-bullet-proof structure⁶² – before moving to the capital to commence work on a barracks there. The new barracks were constructed on Britomart Point, a headland separating Official and Commercial Bays, between 1841 and 1843. Fort Britomart initially formed two sides of a square, with one side (of two storeys) being loopholed and capable of holding 200 men. Maori labourers subsequently constructed a stone wall around the barracks and their outbuildings.⁶³

By the outbreak of the Northern War in March 1845, Auckland's land-based infrastructure had been further developed to include warehousing, armouries and magazines, and a hospital. Auckland served as the rear logistical base for operations in the Bay of Islands during the war. It also accommodated much of the British force, albeit with some difficulty, as the influx of refugees from Kororareka had swamped Auckland's limited accommodation capacity well before the hundreds of army and navy reinforcements arrived in the town. The shortfall in accommodation was solved by the

⁵⁸ Ross, p.19.

⁵⁹ W. Swainson, *New Zealand and its Colonisation*, London: Smith, Elder & Co., 1859, p.17; Collinson, p.17.

⁶⁰ R.J. Taylor, 'Matelots In Maoriland: The Waikato Flotilla and the Waikato War', *MSI Occasional Papers Series*, 1, 2000, pp.9-10.

⁶¹ Platts, p.92; Swainson, *New Zealand*, p.28.

⁶² Collinson, p.46.

construction of a temporary barracks on Albert Hill for 150 men, the housing of another 400 in the courthouse, and the distribution of the remainder in the four existing blockhouses and amongst the ships in the harbour, although there was a further setback in July when a major gale blew over the partially complete barracks 'like a pack of cards'. Local industry provided such support as light engineering and the construction of carriages for the artillery, while local food producers – including the Waikato Maori – provided victuals for the Army and Navy.⁶⁴

After the Northern War, Fort Britomart and the Albert Hill Barracks were completed to provide accommodation for 1000 men. A contemporary writer described the two complexes as:

square, heavy looking, and unsightly. Albert Barracks are the larger of the two barracks, and are built upon the same ridge but about a quarter of a mile inland. They include stores, a hospital, a magazine, and Commissariat offices which are built of scoria and they also include a parade ground. The various buildings together with their parade ground occupy several acres and the whole of which are surrounded by a strong scoria wall, about 10 or 12 feet high, loopholed and with flanking angles. The Auckland Barracks are described as being much more extensive than those in Wellington, but not having the same neat, cheerful and compact appearance. They are not particularly well sited, being commanded by rising ground to the rear and being within view of ships in the harbour and therefore within range of their shot and shell, but at the same time it is acknowledged that as the town grows in size the sites currently occupied by the barracks will be allowed to be taken over for further development by the town itself.⁶⁵

The implementation of the Fencibles scheme in 1847 brought further developments for Auckland's military infrastructure. The Fencibles were settler-soldiers brought to New Zealand at Government expense, to be settled south of Auckland to protect the town from attack. In return for a seven-year commitment to turn out for service if required, these men received free passage to New Zealand for themselves and their families, an acre of land with a two-bedroom cottage, and payment of one shilling and threepence a day. The first Fencibles arrived in August 1847, and the end of the year 800 men and more than 1200 women and children had settled under the scheme.⁶⁶ The Fencibles established settlements at Howick,

⁶³ Clerk of Works to CRE, Auckland, 23 Nov 1847. (Cited in Power, pp.283-4.)

⁶⁴ Wards, p.148; Platts, p.174; H. Despard, 'Narrative of an Expedition into the Interior of New Zealand, During the Months of June and July 1845', *United Services Magazine*, 215, Oct 1846, p.253.

⁶⁵ Swainson, *Auckland*, pp.31-2.

⁶⁶ A. Mackrell, 'From Ireland To Auckland', *NZ Historic Places*, 70, September 1998, pp.30-1; A. Garran (ed.), *Picturesque Atlas of Australasia*, Vol 3, Sydney: Picturesque Publishing Company, 1886, p.26.

Panmure, Onehunga and Otahuhu. The Commissariat met their logistical requirements under a special arrangement between the Colonial Office, the Treasury, and Governor Grey, for which the Colonial Government reimbursed the Crown.⁶⁷

A fifth, Maori, Fencible settlement was established at Mangere in 1849. It was settled by 80 Ngati Mahuta warriors and their families, under similar conditions of service to those that applied to the Pakeha Fencibles.⁶⁸

Although the Fencibles were only ever called out once (in April 1851, to counter a Ngati Paoa war party, a crisis that ended without bloodshed after the Ngati Whatua intervened⁶⁹), their work in developing an economic base and communications links to the south of Auckland is of particular importance to this study. In the absence of any other local employment, they grew wheat and potatoes and produced butter and cheese, which they sent along muddy tracks to the market in Auckland. By 1853, the road between Onehunga and Auckland had been improved, and in addition to servicing the Fencibles' requirements was used by Waikato Maori to move produce to Auckland. In 1854, John Bycroft established a flour mill at Onehunga to grind the military settlers' wheat, and a biscuit factory shortly thereafter.⁷⁰

The major beneficiaries of these infrastructural developments were the settlers and their Maori neighbours, who gained improved communications and markets for produce. By the end of the 1840s, the Bay of Plenty and Waikato Maori were exporting vegetables, pigs and poultry to Auckland, and fleets of up to 40 canoes were common sights in the harbour. This in turn stimulated the development of agriculture in the Waikato and Bay of Plenty through the 1850s and early 1860s.⁷¹

Although there were no imperial troops left in Auckland by the end of the 1850s (the 1000-strong imperial garrison was concentrated in New Plymouth), the outbreak of war in Taranaki in March 1860 saw an influx of reinforcements into the town. While most of these were redeployed to Taranaki, others were kept in Auckland to protect it from attack from the south. A major encampment was established at Otahuhu, on the narrowest part of the Auckland isthmus, and this later served as the base for the

⁶⁷ Treasury Minute enclosed with Earl Grey to Sir Charles FitzRoy, Military No. 3, 30 Nov 1846. (*Historical Records of Australia, Series I, Governor's Despatches To And From England*, Vol XXV, pp.279-80.); Collinson, p.22.

⁶⁸ J. Cowan, 'Old Mangere: Story of the "Maori Fencibles"', *Auckland Star*, 8 Jun 1929.

⁶⁹ R.J. Taylor, *Tribe of the War God*, Napier: Cosmos, 1996, p.13.

⁷⁰ Swainson, *Auckland*, p.17; Mackrell, p.30.

⁷¹ *New Zealander*, Editorial, 14 Sep 1848; Swainson, *Auckland*, pp.17, 34, 141-2; Petre, p.58; *New Zealander*, 14 Jun 1848; J.E. Gorst, *The Maori King*, London; MacMillan, 1864, p.30; L.H.

preparations for the invasion of Waikato in 1863. Upon the conclusion of the First Taranaki War in March 1861, most of the British troops were withdrawn from Taranaki to Otahuhu. During the next two years, they were responsible for the improvement of communications from Onehunga south, the construction of the Great South Road from Onehunga to the Mangatawhiri Stream, and the establishment of the Queen's Redoubt at Pokeno, all in preparation for the invasion of Waikato in July 1863.

Wellington

Wellington was established as a New Zealand Company settlement in 1840, and within a few years had developed an extensive civilian infrastructure. Although Robert FitzRoy described Wellington's harbour as 'too large to be sheltered, even from the prevailing winds ... [with] a long narrow entrance from the open sea, between threatening and really dangerous rocks ...',⁷² its anchorage and wharf facilities were actually better than those of Auckland:

There are some good substantial brick buildings, the bricks being made on the spot. The principal mercantile houses are all on the beach. There are also numerous roomy stores and commodious shops, many of them having wooden wharfs attached, running out into ten or twelve feet water, allowing small vessels to come alongside and take in or discharge cargo. The town also boasts of a steam and a wind flour-mill, a strong gaol, a bank, four chapels of various sizes ... [and] rather too many public-houses for the size of the place.⁷³

Following the Wairau incident in 1843, the authorities began to pay some attention to Wellington's military infrastructure as well, measures which were given impetus by the outbreak of hostilities in the north in 1845. The Royal Engineers constructed a fortified barracks on Thorndon Flat, at the northern end of the settlement, in stages between in 1843 and 1845, at a cost of £148.⁷⁴ Fort Thorndon was strengthened in 1846 through the installation of two ships' guns. Two other positions, Forts Te Aro and Richmond, were established during 1845. Fort Te Aro was a simple complex, comprising two entrenchments and breastworks set out at right angles to each other, with houses opposite the earthworks and capable of defence completing a square. The construction of the earthworks and provision of additional protection for

Barber, *The View From Pirongia: the History of Waipa County*, Auckland: Ray Richards Publishing, 1978, p.9.

⁷² FitzRoy, pp.15-16. FitzRoy had previously praised Auckland harbour.

⁷³ McKillop, pp.172-3.

⁷⁴ A.R. Currie, 'Thorndon Barracks', 1949, pp.1-2. (WTU, QMS-0591.)

the houses cost £52.⁷⁵ Fort Richmond was a more substantial complex, built on the east bank of the Hutt River and a few kilometres from its mouth. Fort Richmond included a stockade, kitchen facilities, a hospital and store, and magazine, and cost £150.⁷⁶ These positions were manned by the Wellington militia until early 1846, to free up the imperial troops for active service in the north.

The approach of war in Wellington in early 1846 gave new impetus to the development of infrastructure in and around the settlement. These developments were directed by the new Governor, George Grey, an advocate of 'the Cæsar-like mode of conquest – roadmaking.'⁷⁷ By 1842, roads had been developed from Wellington to Petone and up the Hutt Valley, and plans were in hand for another road through the bush over the Ngauranga hills to Jackson's Ferry, on the Porirua Arm. In 1846 Grey sought to develop these roads further, for both military and agricultural purposes.⁷⁸ In April he ordered that the rough bridle path between Wellington and Porirua be developed into a proper road linking Wellington and Paremata, and capable of handling movement by heavy carts and artillery. The road would thereafter be extended to six miles north of Paremata, to open up the southern entrance to the Manawatu. The Wellington to Porirua section was completed over the next three months by soldiers and friendly Maori, at an estimated cost of £500, while soldiers and settlers established a series of stockades along the road to secure the route and prevent a move against Wellington.⁷⁹

At the same time, Grey ordered the development of a barracks and logistics base at Paremata, a strategically-important position which would both protect Wellington and support further Pakeha expansion to the north. The position was occupied in June 1846, and the first stage of development was completed by mid-July. In September 1846, by which time the Hutt War was over, construction began of a major barracks at Paremata. The building was completed the following August, at a cost of nearly £1500. It was a two-storeyed, self-contained structure, made from locally acquired stone, and with the capacity to hold large quantities of ammunition and powder, and three

⁷⁵ J. Waters, cited in J. Cowan, *The New Zealand Wars and the Pioneering Period*, Vol 1, Wellington: Whitcombe and Tombs, 1922, p.92.; Wards, p.234.

⁷⁶ FitzRoy to Stanley, 3 Nov 1845, WO 1/433, pp.552-3; Wards, pp.232-3.

⁷⁷ J. Miller, *Early Victorian New Zealand*, Oxford: Oxford University Press, 1958, p.95.

⁷⁸ Heaphy, p.78; Power, p.XIV. Power further notes that roads and fortifications were being constructed in Auckland at the same time.

⁷⁹ Grey to Stanley, 16 Apr 1846, G30/9, pp.734-8. (Cited in Wards, p.256.); Power, p.180.

months' salt rations for 150 men.⁸⁰ Although a substantial structure, it included a number of significant design and construction flaws. The most obvious of these was the location of the gunpowder store immediately behind the kitchen fire place, a situation which almost had disastrous results in August 1847 when, with the adjacent powder store full of gunpowder, rockets and shells, the kitchen fire got out of control. Fortunately the fire was extinguished before it could ignite the powder. The other major problem was the poor construction of the building itself.⁸¹

The Paremata Barracks were occupied by imperial troops until October 1848, when an earthquake caused extensive structural damage. It was then used as a powder store until 1852, when the last of the troops were withdrawn and the building was transferred from the Ordnance Department to the Colonial Government. The building was levelled in a major earthquake in 1855, and was thereafter unusable. By this stage, however, it had fulfilled its original purpose of opening up the area north of Wellington.⁸²

The infrastructural development programme in Wellington itself was completed with the construction of a further set of barracks on Mount Cook, on the site of the town gaol, during 1847. These barracks accommodated the troops, while their officers were quartered in hotels in town. The Ordnance and Commissariat stores were also housed in hired buildings in town.⁸³ Although peace had been restored throughout the colony by that stage, a letter by the senior Royal Engineer officer in Wellington during the latter stages of the development programme painted a more pessimistic picture of its future prospects:

I believe that the war with the natives is only in its infancy, and that the 2000 soldiers, which the Government expect will not be required for more than 3 or 4 years, will never be reduced; and in pursuance of this order, I have recommended that the barracks for 500 men I have been ordered to build in Wellington be made to last 15 or 20 years, instead of 4 or 5 as the instructions from home would indicate; and that they be placed in a position strong enough to withstand the attack of any native force armed with musketry only.⁸⁴

Wanganui

In the aftermath of the Hutt War, military attention focussed on the isolated outpost of Wanganui. Wanganui had been established as a New Zealand Company

⁸⁰ R.I.M. Burnett, *The Paremata Barracks*, Wellington: Government Printer, 1963, p.22.

⁸¹ Ewen, p.45.

⁸² Burnett, pp.17-23.

⁸³ Collinson, p.40.

⁸⁴ Letter from T.B. Collinson to H. Collinson, 13 Feb 1848. (WTU, Collinson Papers, MS-1038.)

settlement in 1841, and by 1846 had about 60 acres under cultivation. The major products were pigs and potatoes, which were traded with friendly local Maori or exported to Wellington, producing an income of £1200 in 1846.⁸⁵ The main township lay on the western bank of the Wanganui River and a few miles from its mouth, while a number of farms had been established further inland and across the Wanganui River. The Wanganui flows 100 miles from Mount Tongariro southwest to the South Taranaki Bight, and was navigable by steamers for the first 15 miles from the coast, and a further 55 miles by canoe.⁸⁶

While highlighting its 'beautiful and fertile countryside' and describing the climate as 'perhaps the most equable and temperate in the Northern Island, or in the world', Assistant Commissary-General Tyrone Power was still able to identify a fundamental weakness:

the truth is now apparent, that it is twenty years, at least, before its time. It is too isolated, too unprotected; has nothing to fall back upon, but must stand or fall by itself, and is open to the attack of all the worst and strongest tribes of New Zealand....⁸⁷

Notwithstanding Wanganui's advantages as a military post, the surrounding terrain militated against offensive military operations of types in which the imperial regulars might expect to enjoy any advantage: the hinterland was 'densely-wooded and mountainous ... [with] no provisions or means of communications.'⁸⁸ Communications with the other colonies were also difficult, due to the bar outside the river mouth which restricted entry at high tide to shipping drawing less than fourteen feet, and curtailed entry altogether at low tide. These disadvantages had so limited development that by 1846 the European population numbered just 200, and the town itself was economically stagnant.

Between late 1846 and mid-1847, a large British garrison was sent to Wanganui to counter a threatened attack from the north.⁸⁹ A series of four stockades was built around the settlement: Rutland Stockade, 'Middle' or 'York' Stockade, 'Gunboat' Stockade, and 'Lower' Stockade. In the aftermath of the war the Lower and Gunboat stockades were removed, and the Rutland and York stockades were used to

⁸⁵ Barthorp, p.172; P. Hodge, 'Wellington's Frontier', *NZ Historic Places*, 46, Mar 1994, p.44.

⁸⁶ Power, p.141; Heaphy, p.91.

⁸⁷ Power, p.96.

⁸⁸ Octavius Hadfield letter, 18 May 1847. (Cited in Miller, p.96.)

⁸⁹ Wards, pp.322-3; Power, p.67; M.J.G. Smart & A.P. Bates, *The Wanganui Story*, Wanganui: Wanganui Newspapers, 1972, pp.67-8.

accommodate the single men of the garrison left in the town.⁹⁰ Married men, including those with children, were expected to find their own accommodation, for which they were given an allowance. As the sudden influx of military personnel caused a housing shortage, the directive proved harder to implement than the authorities might have foreseen, and a large number of raupo whares had to be constructed for the married soldiers and their families. This contravened the Raupo House Ordinance Act of 1842 – which forbade the use of raupo huts for permanent accommodation in built-up areas – and so a special amendment to the Act had to be passed in 1853 to exempt the Wanganui whares, with the provision that they were only used for soldiers' accommodation.⁹¹

During 1848 and 1849, a military hospital was established at the Rutland Stockade, initially in tents, but subsequently in more permanent surroundings. The missionary Richard Taylor's diary includes a series of references to conducting services in the hospital over the period, and an entry from September 1849 ('Gave a service in the new Military Hospital, only just finished'⁹²) suggests that it was an establishment of some substance. It was subsequently used during the wars of the 1860s.

Wanganui remained an important garrison town throughout the New Zealand Wars, and in fact was the last town to be garrisoned by imperial troops following the implementation of the Self Reliant Policy and the staged withdrawal of the British garrisons. (The last imperial regiment to leave New Zealand, the 18th (Royal Irish) Regiment, was stationed in Wanganui until 1870.) The town itself played an important role in the conflicts of the mid- to late 1860s in South Taranaki, and as a consequence the garrison facilities were gradually improved and extended throughout the period.

New Plymouth

New Plymouth was established as a New Zealand Company settlement in 1841. It lay 300 kilometres by sea from Wellington, 240 kilometres from Nelson, and 190 kilometres from Manukau Harbour. The settlement had initially developed quickly, and by 1848 included four churches, two taverns, a police barracks and gaol, three flour mills, two breweries, two whaling stations and a tannery, and had a native

⁹⁰ Collinson, p.40.

⁹¹ Smart & Bates, p.78.

⁹² Richard Taylor Diary, 14 Aug 1846, 6 Sep 1846, 20 Sep 1849. (WTU, Taylor Papers, QMS-1984-1999.)

hospital under construction.⁹³ There was, however, less development of infrastructure than elsewhere during the period: a total of £1200 was spent on public works in New Plymouth over the period 1840 to 1847, whereas in 1846 alone £6000 was spent in Wellington and a similar amount in Auckland.⁹⁴ During the late 1840s and 1850s, New Plymouth was beset by economic depression, which so affected growth that by May 1860 the province had a civilian population of just 2650 – 1000 of whom lived in New Plymouth itself – and only 13,000 acres of farmland under cultivation. The major products were bacon, butter, onions, potatoes and oats.⁹⁵

Like Wanganui, New Plymouth's major weakness was the quality of its harbour, which was exposed and difficult to access in bad weather, and had a poor anchorage and docking facilities. A better location lay further up the coast at the mouth of the Waitara River, a situation which would both contribute to the outbreak of the First Taranaki War (1860-61) and save the British position during it.⁹⁶ The main communications route linking New Plymouth to Waitara and the farms between them was the Devon Road, a track that had been developed to meet the economic needs of the local farmers and merchants. Chief Engineer Colonel Mould's description of the state of the road at the time highlights its unsuitability for military purposes:

The road is not metalled, and the soil being a light clay, mixed with sand or volcanic dust, it becomes in winter a mass of mud, in which carts and drays sink up to their axles, whilst in summer it is a fine impalpable dust. This dust being blown away by high winds causes a hollow in the centre of the road, which again become a bed for rain water and mud, and the operations, thus alternately repeated, render the road all but useless in winter, hence land communication is excessively difficult and at times almost impracticable.⁹⁷

It was only in the mid-1850s – during a period of intra-tribal friction between local Maori over land sales – that any serious attention was paid to the development of military infrastructure in New Plymouth. The first major development was the construction of a barracks on Marsland Hill in late 1855, to house detachments of the

⁹³ C. Hursthouse, *An Account of the Settlement of New Plymouth*, London: Smith, Elder & Co, 1849, pp.3-5, 62-4.

⁹⁴ Hursthouse, pp.74-5.

⁹⁵ L.H. Barber & others (eds), *Sergeant, Sinner, Saint and Spy: The Taranaki War Diary of Sergeant William Marjouram, R.A.*, Auckland: Random Century, 1990, pp.5-6; G.A. Butt, *Poem in Stone: History of St Mary's Anglican Church, 1846-1971*, New Plymouth: St Mary's Anglican Parish, 1978, p.8; N. Prickett, 'An Inconclusive War', *NZ Historic Places*, 28, March, 1990, p.43; N.A. Elliott-Hogg, 'The Taranaki Refugees, 1860', Unpublished MA thesis, University of Waikato, 1999, p.11.

⁹⁶ FitzRoy, p.30; Collinson, p.21; Sewell Journal, 8 Apr 1860. (NSWSL, Sewell Papers.)

⁹⁷ T.R. Mould, *Engineer Operations in New Zealand During the War in 1860-61*, London: Royal Engineers, 1863, p.95.

58th and 65th Regiments which had been sent to the town in August. The iron-clad barracks were prefabricated in Australia and shipped to New Zealand. After the troops had levelled off the top of Marsland Hill – which had previously been ‘as sharp as Paritutu’ (the rocky outcrop in New Plymouth harbour) – the barracks were erected and a stockade was thrown up around them.⁹⁸ By 1860 the facilities on Marsland Hill had been developed to include a kitchen and separate officers quarters. A small hospital was established on the site during the initial stages of the First Taranaki War, and after the war a more substantial two-storeyed military hospital was built adjacent to the barracks.⁹⁹

Napier

The last of the major North Island settlements, Napier, was surveyed in the early 1850s, and formal settlement began in 1855. Although the settlers’ initial contact with local Maori was friendly, friction between factions of the local tribe – culminating in armed conflict at Whakatu in August 1857 – led to calls for an imperial presence in the town.¹⁰⁰ The following February a detachment of the 65th Regiment arrived, and shortly thereafter barracks were constructed the high ground overlooking the harbour (Barracks Hill). Over the next decade, Napier was garrisoned by detachments of the 14th, 70th, and 12th Regiments. The settlement grew quickly, and by the early 1860s had three banks, well-established port facilities, and a range of mercantile services.¹⁰¹ Although Napier was never directly attacked, it proved an important base for colonial and *kupapa* operations into the Waikaremoana and Urewera districts during the latter stages of the Wars.

The settlements of Nelson, Canterbury and Otago had little direct affect on the New Zealand Wars (in the context of this study, at least), primarily because of their isolation from the major theatres, and their location relative to the ports of Australia through which most of the external assistance came. All three southern settlements provided food and other resources to the northern settlements during the wars, while Nelson provided a haven for many of the refugees from New Plymouth during the First Taranaki War, and sponsored a steamer, *Tasmanian Maid*. *Tasmanian Maid* played

⁹⁸ Butt, p.17.

⁹⁹ Jane Maria Atkinson Journal, 3 Jul 1860. (*Richmond-Atkinson Papers*, Vol 1, ed. G.M. Schofield, Wellington, Government printer, 1960, p.604.); Mouat to Director-General of Hospitals, 22 May 1861. (WTU, Mouat Papers, MS-0913.)

¹⁰⁰ *Hawkes Bay Herald*, 24 Sep 1857.

¹⁰¹ M.D.N. Campbell, *The Story of Napier, 1874-1974*, Napier: Napier City Council, 1975, pp.7-9.

an important role during that war, taking personnel, equipment and stores into New Plymouth and evacuees out of it.¹⁰²

In the previous chapters, it was noted that the New Zealand Wars coincided with a series of developments in British military administration and organisation, technological and industrial development and communications; and that these developments either directly involved or had implications for British military logistics. The logistical aspects of the British military experience in New Zealand were further influenced by developments within the colony of New Zealand itself. These included the physical characteristics of the New Zealand environment, the political and economic development of the colony, and the construction of logistics infrastructure. The ability – or otherwise – of the British military authorities to overcome the challenges and seize the opportunities presented by the changes will be seen in the analysis of the application of logistics at the tactical level during the campaign studies to follow.

¹⁰² Marjouram, 6 Aug 1860. (Cited in Barber, p.61.)

Chapter Four:

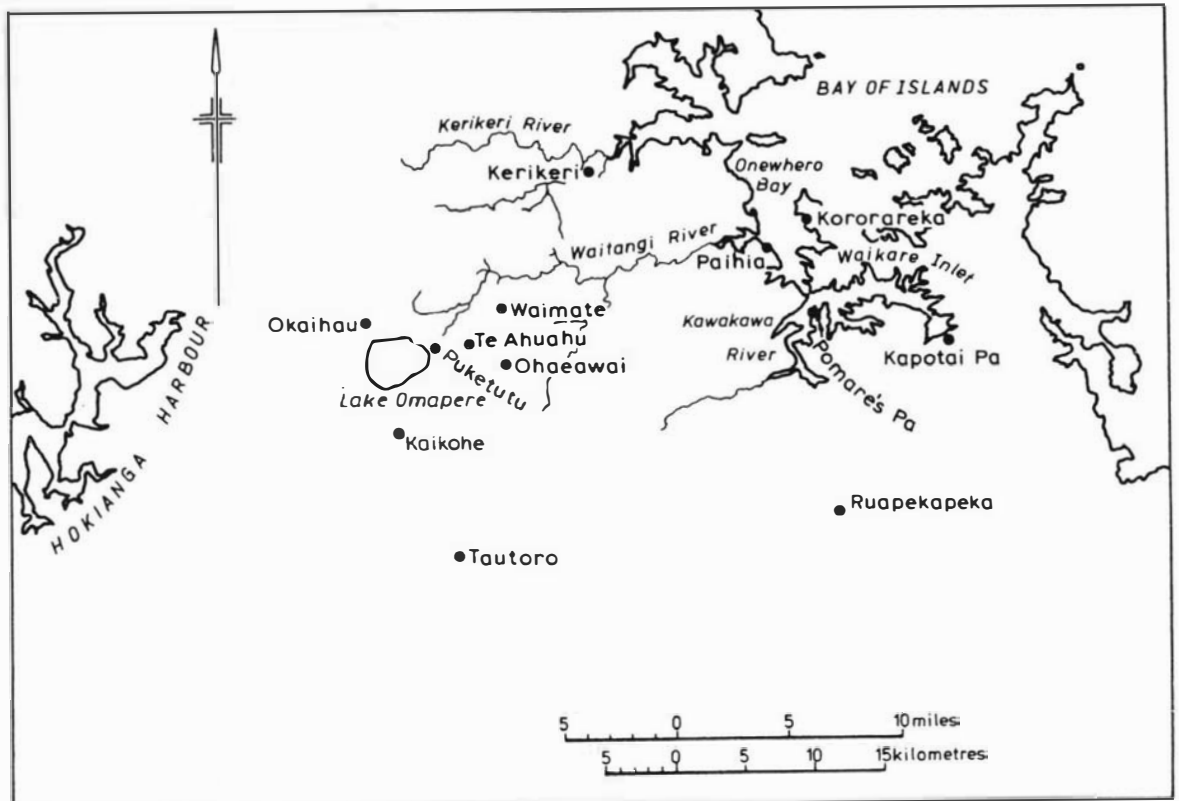
The Wars of the 1840s

The wars of the 1840s in the Bay of Islands, the Hutt Valley, and Wanganui were the first major conflicts between Maori and the Crown, and resulted in the first significant commitment of imperial military and naval forces to New Zealand, some of whom remained as a permanent presence afterwards. These wars highlight the fundamental weaknesses of British logistics in the decade immediately preceding the watershed of the Crimea: lack of planning and logistics intelligence; ad hoc arrangements for supply, distribution, and casualty evacuation and treatment procedures; and inadequate resource allocation. They also mark the appearance of a number of themes that are central to this study: the potential of British military logistics, provided that their doctrinal weaknesses could be overcome; the impact of Maori allies, as both contributors to and drawers upon logistics and resources; and the genesis of a logistics-focussed strategy to overcome the Maori. This chapter will examine the application of logistics during this first phase of conflict of the New Zealand Wars, and explore these themes further. The three wars will be dealt with sequentially, in order to help trace the development of logistics over the period.

The Northern War

The Northern War began on 11 March 1845, when a force under the chiefs Hone Heke and Kawiti attacked the settlement of Kororareka, and lasted ten months. It ended with the capture of Ruapekapeka pa on the morning of Sunday 11 January 1846, ostensibly while the bulk of its garrison was at divine worship at the rear. The British conducted three campaigns against Maori pa during the war: the inconclusive action against Puketutu in May; the bitter and costly siege of Ohaeawai during June and July; and the decisive investment of Ruapekapeka between December 1845 and January 1846.

Before they could engage the Maori in this war, the British had to overcome a range of practical difficulties in the theatre itself. The first of these was the lack of infrastructure. The economic stagnation which had followed the transfer of the seat of government to Auckland in 1842 had restricted the development of the infrastructure required to support military operations in the area, a problem which became evident when the first force sent from Australia in August 1844 had to sleep under canvas at



The Bay of Islands: 1845-46

(Source: J. Belich, *The New Zealand Wars and the Victorian Interpretation of Racial Conflict*, Auckland: Penguin, 1986, p.31.)

Matauwahi Bay due to a lack of accommodation in Kororareka.¹ Notwithstanding these deficiencies, Kororareka's destruction at the outbreak of the war was a far more serious blow than most accounts have recognised. The only elements of European infrastructure left in the theatre afterwards were the mission stations at Kerikeri, Paihia and Waimate, a barely satisfactory situation for the British commanders, and one that placed them at a significant disadvantage during the early stages of the war. Military and civilian authorities rightly identified this lack of local infrastructure as having been a major contributing factor in the failure of the Puketutu and Ohaeawai campaigns.²

The problem was only addressed in the aftermath of the Ohaeawai campaign, when Governor FitzRoy directed the senior British officer, Colonel Henry Despard, to establish a post in the theatre. Despard chose Okiato, which would dominate the entrance to the Kawakawa and Waikare inlets, deny the rebels access to fishing, and provide better access to the next likely theatre of operations in the Tapuaecharuru ranges to the south. Construction commenced in October,³ but when FitzRoy's replacement as Governor, George Grey, visited the Bay the following month and pointed out Okiato's relative isolation and general unsuitability,⁴ the base was transferred to Kororareka (which the Maori had not occupied after attack on 11 March), which thus became the main British base in theatre for the rest of the war. (A garrison post, which included earthworks, barracks and stores buildings, was established at Okiato after the war,⁵ although it was abandoned in favour of rented accommodation in Kororareka as the civilian population returned to the town.⁶)

There were critical shortages of such basic military stores as artillery, powder, ammunition and tentage at the time of the attack on Kororareka: 'There were not four

¹ C. Orange, *The Treaty of Waitangi*, Wellington: Bridget Williams Books, 1987, p.118; R. Burrows, *Extracts From a Diary Kept During Heke's War in the North in 1845*, Auckland: Upton & Co., 1886, p.7.

² See, for example, H. Despard, 'Narrative of an Expedition into the Interior of New Zealand, During the Months of June and July 1845', *United Services Magazine*, 215, Oct 1846, p.263; and T.B. Collinson, *Papers on Subjects Connected With the Duties of the Corps of Royal Engineers*, Vol III, London: John Weale, 1853, pp.60-65.

³ FitzRoy to Despard, 11 Oct 1845. (*Governor's Despatches: New Zealand*, Despatch 337, No 69, Encl 15, 1845.); FitzRoy to Despard, 17 Oct 1845. (*Governor's Despatches: New Zealand*, Despatch 337, No 69, Encl 16, 1845.); Despard to FitzRoy, 23 Oct 1845. (*Governor's Despatches: New Zealand*, Despatch 337, No 69, Encl 17, 1845.)

⁴ Grey to Stanley, 24 Nov 1845. (G30/8, pp.1208-16.) (Cited in I. Wards, *The Shadow of the Land: A Study of British Policy and Racial Conflict in New Zealand, 1832-1852*, Wellington: Department of Internal Affairs, 1968, p.192.)

⁵ C. Bridge, 'Journal of Events on an Expedition to New Zealand, Commencing on 4 April 1845', 22 Jul 1846. (WTU MS-0257-0258.)

⁶ Collinson, p.40; C.J. Ewen Journal, pp.1-2. (WTU, Ewen Papers, QMS-0705.)

hundred stand of serviceable arms in the whole Colony, (at Auckland there were not fifty) and there was very little ammunition.⁷

The most serious challenge, and the factor that had the greatest impact on the war, was the shortage of means of distribution, particularly of draft animals and drays in Auckland or the Bay of Islands which might be requisitioned to support operations. Thus, even when more military stores were imported during the latter stages of the war, the lack of means of distribution hampered British operations until the very end. The distribution problems were exacerbated by the topography of the theatre, which featured a mix of steep hills and rolling plains, heavily forested in parts, and criss-crossed by a number of small streams. Intra-theatre communications were limited to a number of tracks.⁸ As these had been developed to facilitate the movement of single carts or small bodies of livestock between the mission stations, they would prove inadequate for the massed movement of troops in winter.

The troops and their equipment could only be moved into the theatre by sea. This required a series of shipping movements between Auckland, Wellington, the Bay of Islands and Sydney, using Royal Navy warships and troopships, the East Indiaman *Elphinstone*, and a number of specially chartered vessels. In addition to their role as part of the logistical chain, the warships also blockaded the northern region to stop the importation of gunpowder and other materiel, and provided shore parties and artillery pieces to support land-based operations. The Royal Naval vessels were supplied by ships of the East India Station.⁹

Following the loss of Kororareka on 11 March, the British did not return to the Bay of Islands until late April. Their first action was an amphibious operation by companies of the 58th and 96th Regiments and 50 Auckland volunteers against Otuihu pa on 30 April to punish the chief Pomare for his involvement in the sack of Kororareka, after which the force undertook an expedition against Puketutu pa, north of Lake Omapare. Puketutu lay half-way between Heke and Kawiti's tribal homes at Kaikohe and Waiomio, and close to the friendly chief Tamati Waka Nene's home at Okaihau. It had been built by Heke over a period of about four weeks in April and early May. Its defenders were well armed, in some cases with more modern weapons than

⁷ R. FitzRoy, *Remarks on New Zealand*, London: W. & M. White, 1846, p.42.

⁸ M. Barthorp, *To Face The Daring Maoris*, London: Hodder & Stoughton, 1979, pp.12-13.

⁹ H.L. Clowes, *The Royal Navy: A History from the Earliest Times to the Present*, Vol 6, London: Sampson Low, 1901, p.347.

their opponents, and were able to call upon reserves of ammunition from the chief Pene Tau in nearby Ohaeawai.¹⁰

On 3 May, a force of 300 imperial infantry, 120 seaman and marines, and about 40 Auckland volunteers, under the command of Lieutenant Colonel William Hulme, landed at Onewhero Bay, and set out for Okaihau. Hulme had considered landing at the Kerikeri mission station, but changed to Onewhero Bay after Captain Home of HMS *North Star* pointed out the risk involved in bringing shipping up the Kerikeri inlet. The Puketutu expedition was notable for its lack of logistical resources. There were no drays or draft animals, no tents, no medical stores, and no additional rations. Each man carried his own musket, bayonet, a leather ammunition box containing sixty rounds, and a greatcoat and blanket strapped to his back, as well as a haversack holding thirty extra rounds, five days' biscuits, and two days' cooked meat. The naval personnel carried a Congreve rocket tube and a dozen rockets.¹¹

Although the first day's march was conducted in fine weather, it rained heavily that night. With only their coats and blankets for cover,¹² the men were drenched:

Never passed so miserable a night, had to get up and stand round the fire. We were in a pretty plight in the morning, Officers and men wet through, Arms, Ammunition and ... the food in our haversacks was unfit for use, the want of transport left us without the usual allowance of ration rum too, the loss of which was sorely felt & comments [made] which I need not write.¹³

The following day the force diverted to Kerikeri mission station, where two-thirds of the ammunition and all of the biscuit were found to be unfit for use. After further provisions and ammunition had been brought forward, the force departed Kerikeri on the morning of 6 May, and finally reached Okaihau at dusk, having thus taken four days to cover the fifteen miles from Onewhero Bay. There they found Waka Nene's people had erected two small huts for the officers and two large huts for the men, and had also prepared food. For the next few days the British were entirely dependent upon Waka Nene for food, without which assistance they could not even have remained in the field. While Waka Nene gave these bulk supplies, some of his people traded on an individual basis.¹⁴

¹⁰ O. Wilson, *From Hongi Hika To Hone Heke*, Dunedin: J. McIndoe, 1986, p.273; J. Lee, *Hokianga*, Auckland: Hodder & Stoughton, 1987, p.147; R. Burrows, *Extracts*, 9 Apr 1845; R. Burrows Journal, 3 Mar – 31 Jul 1845, p.14. (WTU, Burrows' Journal, MS-0245.)

¹¹ Bridge, 3 May 1845; J. Miller, *Early Victorian New Zealand*, Oxford: Oxford University Press, 1958, p.89; Barthorp, p.64; Wards, p.139; J. Cowan, *The New Zealand Wars and the Pioneering Period*, Vol 1, Wellington: Whitcombe & Tombs, 1922, p.38.

¹² A. Whisker, Memorandum Book, p.4. (WTU, Whisker Memorandum Book, MS-2374.)

¹³ Private J. Mitchell Diary, cited in Barthorp, p.65.

¹⁴ Collinson, p.56; Bridge, 6 May 1845; Whisker, p.5; Mitchell, cited in Barthorp, pp.70-71.

The assault against Puketutu on 9 May was an inconclusive engagement, which cost the British 14 dead and 38 wounded. On returning to Okaihau, the British officers 'found nothing to eat but potatoes – poor fare after fighting all day',¹⁵ while most of the men went hungry. Their circumstances highlighted the complete breakdown of the distribution system:

Poor Wandrum's body was carried back to our camp [for burial] & laid for the night in a breakwind neither rain nor windproof. By the time we got back it was dark & heavy rain set in. All very tired and hungry, having had no food that day or the day before. Rolled ourselves in our blankets & lay down in the shelter, soaking rain pouring in. It being very dark, I laid myself ... with my head resting on the body of a sleeping comrade. When daylight appeared, to my horror, it was poor Wandrum's body which had been my pillow.¹⁶

Heavy rain delayed Hulme's return to Kerikeri until 11 May. As there was no transport, the wounded had to be carried by their comrades and the Maori allies. Although the force was highly vulnerable during this phase, their opponents made no attempt to interfere with their withdrawal. The wounded were treated at a makeshift hospital in the Stone Store at Kerikeri, and thereafter evacuated to the military hospital in Auckland.¹⁷

While Hulme's despatches rightly highlighted his force's lack of commissariat and hospital facilities, it seems strange that 'an officer of good reputation and considerable experience'¹⁸ had to learn these lessons in so ignominious a fashion, especially as the problems had been identified previously. In August 1844, during the first disturbances in the Bay of Islands, a Royal Engineer officer named Lieutenant George Bennett was sent from Wellington with a detachment of the 96th Regiment. Bennett spent the latter part of August with Governor FitzRoy's party, which also included Hulme, Bishop Selwyn, and Protector of Aborigines Clark. On 26 August, while Hulme was preparing for possible operations against Heke, Bennett was directed to investigate the capacity of the roads from Kerikeri into Heke's territory to support military transport, and to ascertain the local availability of drays and draft animals for military use. He reported that the road from Kerikeri was a 'good road' for the first six miles but thereafter deteriorated rapidly, and that it would be suitable for drays but not for artillery. He further found that the missionaries were reluctant to provide drays or

¹⁵ Bridge, 8 May 1845.

¹⁶ Mitchell, cited in Barthorp, pp.70-71.

¹⁷ A. Garran (ed), *Picturesque Atlas of Australasia*, Vol 3, Sydney: Picturesque Publishing Company, 1886, p.34; N. Pickmere, 'Storekeeper At Kerikeri', in *NZ Historic Places*, 56, Nov 1995, p.11.

bullocks for fear of compromising their neutrality, while the farmers believed that such assistance would invite retribution. When he and the missionaries discussed the issue with the Governor at Kerikeri on 26 August, an interesting compromise was reached:

[FitzRoy] showed them that if the Government required their drays and bullocks it was imperative on them to supply them, but as he admitted it might destroy the influence of the Mission were they voluntarily to give the drays, he informed them that he should not ask for them, but if requisite he should send soldiers to take them. This satisfied them.¹⁹

All this would indicate that Hulme would have been aware of the state of the roads and the lack of locally available means of carriage prior to the campaign. In the light of this, his lack of preparedness nine months later can be seen as an example of the general ineptitude and lack of foresight that typified contemporary British logistical planning.

The second major British expedition, to Ohaeawai, ended in failure. Ohaeawai pa lay six miles south of Waimate, on a small plain at the edge of an expanse of bush. Unlike most modern pa it had not been built from scratch, but was an enlargement of an existing pa belonging to the chief Pene Tauī. It was surrounded by extensive potato cultivations, and was well-provisioned. The defences included four old cannon: two 9-pounders taken from Waimate, one 4-pounder, and one 4-pounder swivel gun. It was defended by about 100 well-armed and provisioned men.²⁰

During the Ohaeawai campaign the British forces were commanded by Colonel Henry Despard, who had arrived from Sydney in early June. Much has been written about Despard's performance in New Zealand, almost all of it condemnatory: he was obstinate, inflexible, bad-tempered, and tactically deficient. Belich alone amongst historians has attempted to defend Despard,²¹ although his use of the available evidence does not support his conclusion.

Despard's force numbered 500 infantry, 18 sailors and marines, and 75 Auckland volunteers. They were joined in-theatre by 450 Maori allies, to give a combined strength of about 1050 men. Despite the clear lessons of Puketutu and the increased size of the force, the logistics which supported this operation were only

¹⁸ Hulme to FitzRoy, 17 May 1845, G30/7, pp.800-3. (Cited in Wards, p.143.); J. Belich, *The New Zealand War and the Victorian Interpretation of Racial Conflict*, Auckland: Penguin, 1986, p.41.

¹⁹ G. Bennett, Journal, August 1844. (Multiple entries, WTU, Bennett Papers, QMS-0158.) See also Collinson, p.56.

²⁰ Despard, 'Narrative of an Expedition into the Interior of New Zealand, During the Months of June and July 1845', *United Services Magazine*, 214, Sep 1846, p.33; H.M. Blackburn Journal, 7 Jul 1845. (WTU, Blackburn Papers, QMS-0218.); Burrows, *Extracts*, 30 May 1845; Despard to FitzRoy, 12 Jul 1845; Cowan, p.55.

marginally better than those which had supported the earlier operation. There were only sufficient provisions for one month, many of which would never actually reach the front; a handful of bell tents, although not nearly enough for the entire force; and more medical stores, although still an insufficient quantity. More crucially, Despard had brought no drays with him, intending instead to requisition these assets in-theatre. In the event, he was only able to hire five drays, with sufficient bullocks to pull just three of them. These would prove wholly inadequate for the size of the force and the conditions in which it was required to operate, and Despard would later claim that he should have had at least 15 drays.²² The result was that distribution, rather than unavailability of supplies, became the major logistical failing of the campaign.

Despard chose to establish his main stores depot at Kerikeri – where it could be covered by the cannon of the frigates *North Star* and *Hazard*, thereby reducing his rear echelon – and at Waimate as the advanced base for the investment of Ohaeawai. He planned to march his force from Onewhero Bay to Kerikeri, while the stores and provisions were concurrently brought up the Kerikeri inlet. Again, however, the operation was beset by difficulties from the outset. On 14 June, the troopship *Royal Sovereign* ran aground south of Onewhero Bay, forcing her passengers to be transferred to the transport *Velocity* and her stores to be unloaded while the damage was repaired.²³ As a consequence the troops did not land at Onewhero Bay until 16 June, and reached Kerikeri at the end of the day.

The force began the twelve mile march to Waimate at 1pm the following day. The stores were carried on three of the drays, while the four guns were towed behind the drays, a somewhat awkward venture as they were mounted on naval carriages with solid 15-inch wheels. As there were no limbers, the powder and shot for the guns had to be dispersed amongst the drays.²⁴

Marched from Kiri-Kiri to the Waimati about noon. Had a most tedious and harrassing march owing to the heavy loads, ammunition, camp equipage, stores and guns – 2 drays broke down and the barrels of small arm[s] ammunition had to be carried in by the men on their backs. A Captn, Sub, and 50 men remained all night to guard one of the Drays. A similar party was left with the other, and a subaltern and 20 men remained with a gun which could not be brought on, the bullocks and horses being quite done up. I came on with the Advanced Guard,

²¹ J.A.B. Crawford, 'Despard, Henry', *Dictionary of New Zealand Biography*, ed. Claudia Orange, Wellington: Bridget Williams Books, 1990, pp.104-5. See also Barthorp, p.87; Belich, p.48.

²² Wards, p.149; Despard, 'Narrative', Sep 1846, pp.33, 43; Barthorp, p.92; Collinson, p.56; Despard to FitzRoy, 6 Jul 1845. (Cited in Wards, p.157.)

²³ Despard to FitzRoy, 6 Jul 1845. (Cited in Wards, p.157.); Blackburn, 14 Jun 1845; Bridge, 14 Jun 1845.

²⁴ Blackburn, 17 Jun 1845; Wards, p.153.

and brought in 30 casks of ammunition, and reached Waimati about 12 at night.²⁵

Our gun and ammunition dray, to which were attached four miserable bullocks, became bogged in the track. Drenched, and without food, we had to remain for the night. The following day [18 June] the ammunition was conveyed to its destination, and the gun was extricated with considerable labour we reached the Waimate, hungry and exhausted²⁶

The first troops reached the mission station at midnight, and took over a number of empty houses for accommodation.²⁷

Although the troops arrived at Waimate with only three or four days rations, this was actually the best provisioned they would be for the whole campaign: thereafter they never had more than two days' provisions in camp at a time. Like Hulme, Despard had to rely upon assistance from local Maori. Waka Nene provided bulk quantities of beef, potatoes and flour, while other Maori sold smaller quantities of produce to the troops on an individual basis. The neutral chief Ruhi divided about twenty pigs and a quantity of potatoes between the two sides: ironically, the rebels allowed Ruhi to drive the British force's pigs through their own lines to Waimate. The cultivations around the pa may have also provided food, and one soldier was shot and captured while looking for potatoes – an incident which highlights the lack of food in the British camp. Some of the troops also looted from friendly natives and the mission station itself, prompting Burrows to complain to Despard.²⁸

It took three days of continuous movement by the drays – until 21 June – for Despard to assemble sufficient provisions and materiel at Waimate to support the final advance upon Ohaeawai. The force left Waimate at dawn on 23 June, and due to heavy rain and the poor road took several hours to travel the six miles.²⁹ The next three weeks were the most harsh and bitter that British troops ever endured in New Zealand:

The hardships that the men had to endure from incessant rain and insufficient food, produced exhaustion and weakness. They had no change of garments, were ragged, tattered and torn, many without boots or tied on their feet with flax, their pants of many colours; blankets and greatcoats reduced in size to repair their continuations About this time the [food] supply had been exhausted, and half a pound of flour per day was the only food supplied to the troops for several days, which the men had converted into skilley, by boiling in

²⁵ Bridge, 17 June 1845.

²⁶ Sergeant R. Hattaway, cited in Barthorp, p.90.

²⁷ Blackburn, 14 Jul 1845.

²⁸ Despard, 'Narrative', Sep 1846, p.33; E. Meurant Diary, 18 Jun 1845 (WTU, Meurant Diary, MS-1634.); Blackburn, 18 Jun 1845; R. Burrows, 'The War in the North', p.40. (WTU, Burrows papers, QMS-0948.); Hattaway, cited in Barthorp, p.98; Bridge, 1 Jul 1845; Burrows Journal, 18 Jun 1845.

²⁹ Burrows, *Extracts*, 23 Jun 1845.

their mess tins The women of Tamati Waka Nene, at the time when the men were half starved in camp, regularly visited the sentries on outpost duty in the early morning, carrying small kits of cooked potatoes, and deposited one before each sentry on night duty before they returned to their camp.³⁰

The diarist's comments raise a number of points. The dearth of shelter has already been noted: with only two eight-man bell tents per company, the men had to construct shelters from ti-tree, flax and blankets. The state of their uniforms is also significant, in that the deterioration was evident after days, rather than months, of campaigning. As soldiers were not issued with separate field and barrack dress in the 1840s, this would suggest that their uniforms had been ragged before the campaign started. Despite these factors, however, contemporary accounts suggest that there were no cases of serious illness at any stage during the siege.³¹

The British assault against Ohaeawai on 1 July was one of the bloodiest episodes of the New Zealand Wars: of an assaulting formation of 220, 41 were killed and 73 wounded. Despard's initial response to the outcome of the attack was to propose that the force abandon its dead, bury the remaining stores, and fall back to Waimate immediately, although the friendly Maori and his own senior officers convinced him to continue the siege. The most significant problem facing Despard involved the treatment of the casualties, whose numbers fully stretched the limited medical resources. Although two surgeons had accompanied the force, there was no anaesthetic available, and only one hospital tent. Some procedures had to be undertaken in the bell tents.³²

... the doctors were employed the whole night through attending the wounded whose cries for assistance were indeed most piteous: the wounds were all of a most serious nature being mostly received from the very muzzles of the enemy's muskets and several amputations were necessary.³³

The wounded were evacuated to Waimate. Those with minor wounds were carried on the returning supply drays, while the more seriously wounded were carried in litters by other soldiers, as the Maori allies had refused to assist unless they were paid four blankets per man. Given the number of infantry lost, the only troops who could be spared for this task were the pioneers, of whom there were so few that only several evacuations could be completed each day. It took until 8 July to move the last of the wounded to Waimate. Other than about fifteen men who were kept in the Waimate hospital, the wounded were subsequently transferred to Kerikeri by dray,

³⁰ Hattaway, cited in Barthorp, pp.95-6.

³¹ Barthorp, p.92; Hattaway, cited in Barthorp, p.92; Despard, 'Narrative', Sep 1846, p.46.

³² Cowan, Vol 1, p.70; Bridge, 1 Jul 1845; Miller, p.91.

³³ Blackburn, 1 Jul 1845.

where the leased troop carrier *Slain's Castle* was been pressed into service as a hospital ship. *Slain's Castle* returned to Auckland in late July.³⁴

During the night of 9 July, the defenders of Ohaeawai abandoned the pa. After destroying the fortifications – a process that took four days – the British retired to Waimate. The Ohaeawai campaign ended with the departure of most of the British force to Auckland, leaving a detachment of the 58th Regiment at Waimate. By this stage, only the missionaries remained of the station's pre-war community.³⁵

The Commissariat arranged for the mission station mill to provide flour for the Waimate garrison, and on 18 July Burrows noted that 'Our flour mill is in full work and promises to supply for some time the daily ration required for the whole force, thus, not only saving the trouble of carting it in from the Bay, but providing the men with 'soft bread' daily.' Separate contracts to provide meat were awarded to members of the missionaries' families who were farming in the area. While these arrangements might seem something of a paradox, in light of the missionaries' earlier reluctance to be seen to be taking sides, it would appear that the Maori did not see them as compromising their neutrality. The British troops also did extensive damage to the Waimate mission station, including killing its livestock and poultry and using fence palings and roof shingles for firewood.³⁶

By this stage the deficiencies of materiel and transport were matters of wider comment. For example, a woman from Sydney claimed in a letter to a Royal Navy Captain in Tahiti that 'It is impossible to describe the destitution of the Ordnance department here...'³⁷ They were also obvious to the imperial authorities in London, as highlighted by the Colonial Secretary's stinging response to FitzRoy's despatches covering the Puketutu and Ohaeawai campaigns:

Both of these appear to have been undertaken at a particularly unfavourable period of the year, when the state of the soil and of the weather rendered the movement of troops and the transport of stores, guns, ammunition, and provisions, more than ordinarily difficult. The troops were, consequently, exposed in both cases to very severe privations, the supply of provisions on the first occasion was absolutely inadequate, and the small amount of spare ammunition was carried in the most objectionable manner.³⁸

³⁴ Bridge, 4 & 5 Jul 1845; Despard, 'Narrative', Sep 1846, pp.36, 38 & Oct 1846, p.235; Burrows, *Extracts*, 22 Jul 1845.

³⁵ Blackburn, 14 Jul 1845.

³⁶ Burrows, *Extracts*, 18 Jul 1845; Wards, p.185.

³⁷ Letter from Margaret Rushworth to Capt Hamond, RN, in Tahiti, 17 Sep 1845. (WTU MS-3495.)

³⁸ Stanley to Grey, 5 Dec 1845. (WTU, Gold Papers, MS-0080-1.)

Despard had already been ordered to suspend operations against the Maori until the logistical problems could be addressed and further reinforcements arrived. While the shortages of artillery and ammunition could be solved with little difficulty, the lack of transport was another matter. Auckland simply did not have sufficient draught animals for hire or sale. Attempts to import bullocks met with limited success: twenty-four bullocks were purchased in Australia and shipped on HMS *Regia* in late October, but eleven died en route.³⁹

The controversy arising from Waka Nene's men having demanded blankets as payment for carrying the British wounded back from Ohaeawai resulted in changes to the way that the British provided logistical support to their Maori allies. Despard had already shown that he had little time for his allies, and clearly mistrusted their advice and intentions. While the Maori were able to dismiss some of his actions as stupidity, they were less forgiving of his – and by implication, the authorities' – apparent unwillingness to provide the material means for them to assist in the war, including arms and ammunition. Many British officers felt that the Maori wasted ammunition, and some may have harboured concerns about it being sold or used against them.⁴⁰

Given that Waka Nene's men had previously assisted with casualty evacuation after Puketutu without seeking payment, their change of stance at Ohaeawai requires explanation. Because Puketutu pa was not besieged, the friendly Maori were able to remain a short distance away at Waka Nene's village, Okaihau, until the day of the battle, and so had less need for such basic creature comforts as blankets and shelter. At Ohaeawai, however, they lived under temporary shelter in the worst of the northern winter for three weeks, and provided practical and material assistance to the British throughout, for little return. (Indeed, a number of blankets had been sent by the Governor for their use, but it has been suggested had been mistakenly given to other chiefs who had not assisted in the war.⁴¹) Their demand, then, reflected their realization that if they were to undertake similar campaigns in the future, they would need blankets. Despard himself seems to have recognized this. After initially criticising the apparent callousness of his allies, he added blankets to arms and ammunition as items which might reasonably be issued to them; and in late September he requested

³⁹ Collinson, p.66.

⁴⁰ Collinson, p.72. See also Despard, 'Narrative', Sep 1846, p.36.

⁴¹ Meurant, 9 Jul 1845.

the issue of arms, ammunition, and blankets to his new ally Pukututu, whose support would be required during the forthcoming operations in the south of the theatre.⁴²

The ill-feeling over these issues was a major topic when Grey met his Maori allies for the first time at Kororeraka on 5 November 1845, and resulted in Grey giving a commitment that in future Maori auxiliaries would be supplied by the Crown. Grey believed that this would make the Maori easier to command, would encourage them to serve in larger numbers, and would offer an incentive to service.⁴³

By early December, Despard was ready to undertake what was to be the final act of the Northern War, the investment of Ruapekapeka pa. He had positioned over 1000 troops in Okiato and Kororareka, supported by six warships and troopships, the crews of which provided gunners and artillery to support the operations. The force was well-armed, and equipped with more powerful artillery than had been available previously.⁴⁴ Despard was accompanied by Grey, whose willingness to intercede between Despard, his subordinates, and the Maori allies (and on occasion to overrule Despard's decisions) was to be an important factor in the outcome of the campaign.

Ruapekapeka pa was a powerful fortification built by Kawiti in heavy bush atop the Tapuaeharuru range, south of the Kawakawa inlet and a few miles from his home at Waiomio. It was built between August and early December, and involved a heavy commitment that would have a telling effect on the Maori resistance. As it lay ten miles inland, in a part of the theatre which was more hilly and bush-clad than at Puketutu or Ohaeawai, the operation should have presented Despard with an even greater logistical challenge than those previous operations. Fortunately, the friendly chief Tamati Wiremu Pukututu had offered the use of his pa, near the mouth of the Waiomio River on the Kawakawa inlet, as a depot site to support operations against Ruapekapeka.⁴⁵

Because of the ongoing difficulty in acquiring distribution assets, Despard had just six drays and a three-horse cart, and 34 bullocks (some of which had to be acquired in the theatre) to support of force of 1200 soldiers, sailors and Auckland volunteers, and 450 Maori allies. He was able to lessen the effects of the shortages by establishing a series of depots linking Kororareka to Ruapekapeka. These included using warships as floating depots, from which supplies could be landed by small boats; establishing a

⁴² Despard, 'Narrative', Sep 1846, p.36; A.S. Thompson, *The Story of New Zealand*, Vol 2, London: John Murray, 1859, pp.151-3; FitzRoy to Despard, 20 Sep 1845, *Governor's Despatches: New Zealand*, Despatch 337, No 69, Encl 12, 1845.

⁴³ J. Rutherford, *Sir George Grey*, London: Cassell, 1961, pp.83-4; Wards, p.199.

⁴⁴ Cowan, p.75.

⁴⁵ Meurant, 7 Aug 1845. Meurant refers to Kawiti's having commenced the construction of a new position. Burrows (*Extracts*) noted on 7 Nov 1845 that construction was still continuing.

major depot at Pukututu's pa, which was defended by 40 marines, 13 soldiers, and a 'large body' of Pukututu's men; and a smaller depot at Waiomio, on the rough track between Pukututu's pa and Ruapekapeka, to hold the field force's immediate reserves of food and ammunition. His supply chain thus tied up about a quarter of his field force – and would have taken much more without Pukututu's assistance – but still provided a more flexible and efficient distribution network. As a consequence, the Ruapekapeka campaign was far better supplied than either the Puketutu or Ohaeawai campaigns had been.⁴⁶

The initial stages of this operation were hampered by a shortage of small boats, which were required to move the force up the Kawakawa inlet to Pukututu's pa. As only 150 men could be taken up the river at a time, the drays, artillery, and heavy stores were dropped further away and marched under a heavy escort along the riverbank to Pukututu's pa. Despite British fears for the security of the riverine ingress,⁴⁷ the Maori did not attempt to interdict the distribution network, and so the supplies and material were able to be moved forward with little difficulty.

It took Despard from 7 to 21 December to concentrate his force at Pukututu's pa, from 22 to 27 December to move his field force into position before Ruapekapeka, and a further four days to drag up the heavy guns:⁴⁸

The 30th and 31st [December] were principally occupied in bringing up the guns and ammunition through the woods; a work of great labour and time, as it required between fifty and sixty men to each gun to get them through, on account of the heavy trees it was necessary to cut down in making the road, and the steepness of the hills they had to pass over.⁴⁹

The bombardment of Ruapekapeka commenced as soon as the first of the light guns arrived on 27 December, although the initial bombardment had little effect. The larger guns commenced their bombardment on 31 December, and over the next ten days the guns were moved progressively closer to the pa, with greater effect. Ruapekapeka was captured on the morning of Sunday 11 January, ostensibly while its

⁴⁶ Collinson, p.67; Wards, p.200; McKillop, p.95; Despard, 'Narrative of an Expedition into the Interior of New Zealand, During the Months of June and July 1845', *United Services Magazine*, 216, Nov 1846, pp.379, 385; Bridge, 27 Dec 1845; R. Hattaway, 'Reminiscences of the Northern War', *New Zealand Herald*, n.d., p.12.

⁴⁷ Letter from Capt Charles Graham to Grey, 3 Jan 1846. (WTU, Graham Papers, MS-0763.)

⁴⁸ Barthorp, p.149; Despard, 'Narrative', Nov 1846, p.379; Despard to Grey, 5 Jan 1846. (Cited in McKillop, pp.110-113.)

⁴⁹ Despard to Grey, 5 Jan 1846. (Cited in McKillop, p.111.)

defenders were cooking or at divine worship to the rear, although this 'Sunday theory' has now been largely discredited.⁵⁰

The withdrawal to the ships began on 14 January, and proved as difficult as the movement into the theatre. The wounded were carried out in litters in advance of the main body, and returned to Auckland on HMS *Castor*. With every man required to carry one artillery shot and his own weapon and personal effects, as well as helping carry boxes of stores and barrels of powder, the main body covered just one mile that day.⁵¹ The following morning:

The Bullocks not coming to it was late we got up at 6 in the morning and carryed the shot shell and rockets down past the officers tents to give the Drays room to turn ... about 7 oclock one of the officers went down and set fire to the ferrin [fern] below the ammuniton to make us carry it farther on so we carryed it on to another hill at 2 minutes before 12 oclock we marched of from the Camp and we were halted at the ammuniton we got our first grog for the Day as an Inticement to carry the shot same as the Day before I was confined by Captn Thompson for saying it was Bullocks Work.⁵²

Following a period of written negotiations between Grey, Waka Nene, Kawiti and Heke, an armistice was reached which brought the war to an end. Kawiti surrendered on board the newly-arrived steamer HMS *Driver*,⁵³ and in light of the importance that steam was to play in providing logistical support to military operations in New Zealand from this point forward, it is tempting to attach some symbolic significance to this.

One theme which has been constant throughout the historical interpretations of this war has been the impact of the modern pa. Belich dealt at some length with this issue in his *The New Zealand Wars*, and in a 1998 television documentary series on the Wars even suggested that Heke and Kawiti 'invented' modern trench warfare.⁵⁴ While some historians have disputed this latter claim,⁵⁵ it is generally acknowledged that pa presented the British with a new and formidable challenge. It is, however, possible that

⁵⁰ Despard to Grey, 9 Jan 1846. (Cited in McKillop, pp.114-15); Belich, p.61. Belich has traced the origins of the Sunday theory, and attributes the myth to the missionaries 'who had reason to contrast the impiety of the troops with the piety of the "rebels ...".'

⁵¹ McKillop, pp.129, 133; A. Whisker Memorandum Book, p.25. (WTU, Whisker Papers, MS-2374.)

⁵² Whisker, pp.25-26.

⁵³ Clowes, Vol 6, p.349.

⁵⁴ Belich, pp.47-54, 291-8. The television series 'The New Zealand Wars', was produced by Landmark Productions.

⁵⁵ See, for example, C.J. Pugsley, 'Maori Did Not Invent Trench Warfare', *NZDQ*, 22, Spring 1988, pp.33-7; and G.J. Clayton, 'Maori Field Engineers: Leif Erikssons of Trench Warfare?', *NZ Army Journal*, No.4, July 1987, pp.29-34.

too much emphasis has been given to the artillery-proof pa itself, and not enough to the means engaged against it. A closer examination of the performance of the artillery will suggest two conclusions: that the effectiveness of the artillery was decreased by the lack of logistical resources to support the guns; and that even then its lack of effect was more apparent than real.

Puketutu, the first of the three pa attacked, had three rows of palisades constructed from thick puriri logs and flax masking, and firing trenches between the rows of palisades, and could certainly not have been taken without the use of artillery. Unfortunately, however, Hulme did not have any, because he had neither the draft animals nor the carts to get cannon and shot into the theatre. His ordnance comprised a single Congreve rocket tube and a dozen rockets. Given that the rocket was an anti-personnel weapon, it is hardly surprising that it should have had no effect on the pa.⁵⁶

Ohaeawai raises somewhat more complex issues, and so needs to be examined in some detail. Two schools of thought have dominated the debate over the reasons for the British loss at Ohaeawai. Most versions focus on Despard's incompetence and impatience in attacking before a significant breach was made,⁵⁷ while the revisionist interpretation emphasises the strength of the pa and the skill of those who built it.⁵⁸

An analysis of the logistics of the campaign, and particularly the inability of the British to move adequate guns and ammunition into the theatre, gives some credence to the earlier version. What must first be acknowledged, however, is that Ohaeawai pa was a formidable obstacle for the British. It featured triple lines of palisading on two sides and double palisades on the other two. The inner palisades, the *kiri-tangata* ('warrior's skin'), were constructed of thick puriri logs, set into the ground and projecting to a height of ten feet. The outer palisade, the *pekerangi* (curtain), was of lighter construction, and had a skirt of green flax hanging on its outer face to obscure the effects of enemy fire. Firing trenches were set behind the inner palisade, with firing ports at ground level, while bomb-proof shelters within the pa protected the garrison against artillery fire. The palisades were broken by a number of salients, from which enfilade fire could be directed against an attacking force.⁵⁹

The bombardment of Ohaeawai began on 24 June. Although an intense fire was brought to bear, it had little effect, and so that night the guns were moved closer to the pa. When it resumed the following morning, Major Bridge noted:

⁵⁶ Bridge, 7 May 1845; Cowan, p.38; Lee, p.143.

⁵⁷ See, for example, Cowan, pp.60-71; T.L. Buick, *New Zealand's First War*, Wellington: Government Printer, 1926, pp.139-190; and C.J. Pugsley, 'Walking Heke's War: Ohaeawai', *NZDQ*, 3, Summer 1993, pp.34-38.

⁵⁸ Belich, pp.47-54.

Many shells burst in the ditches and the *Pa*, but owing to the elasticity and tenacity of the flax, which closes up as the ball goes thro' it, it was impossible to see what extent of damage was done to the fences, and no practicable breach was made, owing, I think, to the shots not being all directed to one point, *and to the fire not being kept up – ½ an hour elapsing between each shot, but [at] Col Despard's directions* [emphasis added].⁶⁰

Bridge's suggestion that Despard was to blame for the failure of the initial bombardment ignores two points. The first is the relationship between a weapon system and the distribution network which serves it. If artillery is to achieve its full effect, it requires sufficient ammunition to render sustained fire over a prolonged period, which in turn requires a strong and efficient distribution system. Despard had neither the supplies nor the time to build up those supplies. With only a handful of drays available, and the ever-constant threat of enemy action along his lines of communication, he had little choice but to husband his resources carefully.

Secondly, the British artillery, which included two 12-pounder carronades, two 6-pounder brass guns, and five Coehorn mortars, was physically inadequate for the task at hand. Carronades were short-range naval weapons, designed to punch light balls at high velocity through the hulls of ships. Since the shot fired by 6- and 12-pounders were amongst the lightest ammunition types available, simple physics mitigated against them: they did not, and could never, generate the physical energy required to knock over thick puriri logs. The Coehorn mortars, short-barreled weapons which delivered high-explosive shells in a sharp trajectory, were also ineffective, partly due to the strength of the bomb-proof shelters, but also because of defective ammunition. As their fuzes had been manufactured in 1807, many simply failed to explode, and indeed the Maori are said to have derived 'a good supply of powder' from unexploded shells. (The British also tried adapting the Coehorn ammunition to discharge a poisonous chemical substance, although these 'stink bombs' proved unsuccessful.⁶¹)

Recognising the inadequacy of his artillery resources, Despard sent a request back to the *Hazard* at Kerikeri for a 32-pounder gun. The 32-pounder arrived late on 30 June, and the next morning bombarded the *pa* for two hours. As with the smaller guns, the 32-pounder's effectiveness was hampered by distribution problems. The gun itself had to be dragged up in a canoe shell by a team of bullocks, and only 26 rounds of shot were able to be brought up with it. Despite this, it is apparent that the larger gun

⁵⁹ Cowan, pp.51-54.

⁶⁰ Bridge, 25 Jun 1845.

⁶¹ Buick, *New Zealand's First War*, p.157; E. Kirk, 'Wesleyan Missionary Society in Mangangu.' (WTU, QMS-1113; T.L. Buick, 'The 96th Regiment in New Zealand, 1841-1846', p.43. (WTU, unpublished MS-0058.); F.E. Maning, *Old New Zealand*, Auckland: Robert J. Creighton & Alfred Scales, 1887, pp.340-341; Hattaway, 'Reminiscences.'

did have an impact. This time all the fire was directed at a single point, and although Cowan states that its shot failed to breach the palisades, at least two eyewitness accounts claim that it achieved 'good effect', which suggests that some damage was visible. It was at this precise moment that a party from the pa attacked Waka Nene's positions on the adjacent high ground and captured the British flag, before a counterattack drove them back. While the received version suggests that this incident prompted Despard to order the fatal attack that afternoon, Despard claimed that his hand had been forced by his logistical problems, and that he had always intended to attack the pa as soon as the 32-pounder ammunition was expended.⁶²

The British continued a sporadic bombardment with the light weapons during the days after the attack. The 32-pounder bombardment resumed as soon as further supplies of ammunition arrived on 9 July – eight days after the attack – and that night the garrison abandoned the pa.

Two points must be emphasised here. The first is that of the four hundred rounds the British fired at the pa during the siege, only two dozen were of sufficient size to pose any threat to the defences. Only Belich has noted this, although in muted terms: 'Though a 32-pounder ball was a different matter [to a 6-pounder ball], only two dozen of these had been fired and the inner fence was very little damaged by the British bombardment.'⁶³ It is, however, significant that the defenders' two major tactical initiatives – the foray against Waka's Hill and the evacuation of the pa – took place *immediately after* numbers of these larger projectiles were used. Secondly, both the received and revisionist versions have tended to stress the total length of the bombardment and the number of projectiles fired rather than the potential of the weapons used – quantity rather than quality – and as a consequence have failed to recognise the true impact of the 32-pounder on the battle. Both issues overlook the fundamental cause of the poor performance of the British artillery: the inability to move the ammunition forward in the quantities required to maximize the effectiveness of the guns. This was a direct result of the major British logistical problem during the first half of the Northern War – a lack of distribution assets.

As has been noted, however, by the end of the year the British had more distribution assets available, and so were better placed to support operations against Ruapekapeka. As a result, the performance of the British artillery at Ruapekapeka

⁶² Meurant, 30 Jun 1845; J. O'C. Ross, *With the White Ensign in New Zealand*, Wellington: Reed, 1967, p.35; Despard to FitzRoy, 2 Jul 1845; Cowan, p.60; Blackburn, 1 Jul 1845; Bridge, 1 Jul 1845; Despard, 'Narrative', Sep 1846, p.33. (Blackburn [Journal, 30 Jun 1845] suggests that 25 shot and 13 shell were brought up, while Meurant [30 Jun 1845] gives figures of 24 shot and 6 shell. The figures for the most important of the two types of ammunition, shot, are essentially the same: about 25 rounds.)

made the earlier bombardments at Puketutu and Ohaeawai seem 'mere child's play'. Here, too, there is ample evidence that they hastened the defenders' decision to abandon the pa. Ruapekapeka pa was irregular in shape, with each side broken by large salients. The palisades were constructed with puriri logs, and the interior set out with a complex system of bomb-proof shelters and firing trenches. Although seemingly more formidable than Ohaeawai, it had a fundamental weakness: it was built on the forward slope of a ridge, which meant that carefully-sited artillery was able to fire directly into its defences.⁶⁴

The British artillery at Ruapekapeka included three 32-pounders, one 18-pounder, two 12-pounder howitzers, one 6-pounder, four mortars and two rocket tubes.⁶⁵ The bombardment commenced as soon as the first of the light guns arrived on 27 December, although as at Ohaeawai the light shells and sporadic nature of the bombardment made it ineffective. There was some improvement from 31 December, when the 32-pounders and 18-pounder commenced their bombardment:

Some excellent shots were made by Lieut[enant] Bland of H.M.S. *Racehorse* with the 32 pdr, and one cut down the flagstaff with the enemy's colours and went thro' the rear fence of the *Pa*, behind which most of the natives were congregated at their dinner.⁶⁶

Throughout the next week new fire positions were established within 400 metres of the pa, from which fire could be brought to bear along the whole frontage, the western flank, and the interior defences in the rear of the pa. Contemporary accounts testify to the moral and physical effects of the bombardment. On 7 January, a chief named Hara left the pa under a flag of truce to speak to the British. Hara 'appeared very much disgusted, and asked what more we wanted. We had been a month here, he said, roasting them with iron and killing their people, and we are not satisfied.'⁶⁷ On 10 January, by which time large stocks of ammunition had been brought forward to the gunline, the guns commenced a bombardment which lasted several hours. The fire was skilfully coordinated to maximise the effectiveness of each weapon: while the heavy guns fired directly into the palisades, the mortars, light guns and rockets swept the centre of the position. The effect was devastating:

Rockets, mortars, ship's guns, long brass guns, all burst out firing at once. We were almost deaf with the noise, and the air was full of cannon-balls. The fence

⁶³ Belich, p.51.

⁶⁴ Buick, *New Zealand's First War*, p.251; Thompson, pp.127-9.

⁶⁵ Cowan, p.75.

⁶⁶ Bridge, 31 Dec 1845.

⁶⁷ Bridge, 7 Jan 1846.

of the fort began to disappear like a bank of fog before the morning breeze. So now we saw that the soldiers had at last found out how to knock down a *pa*.⁶⁸

While Maori accounts indicate that there were few casualties within the *pa*, they also suggest that the mortars had an enormous psychological effect:

They came tumbling into the *pa*, and they would hardly be on the ground before they would burst with a great noise, and no sooner would one burst than another would burst, and so they came one after another so fast that the people in the *pa* could get no rest and were getting quite deaf.⁶⁹

In a letter to Grey on 19 January, Kawiti claimed to be ‘filled’ with the British army’s ‘riches’ – ‘riches’ being a metaphor for artillery. Ian Wards notes that Kawiti ‘always said that without the guns, if the troops had been armed only with muskets, as were his men’, the *pa* would not have been captured, and concludes that the rebels abandoned the *pa* because the artillery fire convinced them their cause was hopeless.⁷⁰

Belich presented an alternative interpretation, suggesting that the Maori were not driven from the *pa*, but rather abandoned it as a tactical move to draw the British into an engagement in the bush to the rear. He notes that two British diarists recorded seeing large parties of Maori slipping into the bush on each of the three days before the *pa* was captured, and that most of the British casualties were incurred while they were pursuing the Maori into the bush.⁷¹ Belich suggests that the decision to abandon the *pa* was made about 10 January, most probably when Heke visited the *pa* and expressed concern about the effects of the artillery fire:

You are foolish to remain in this *pa* and be pounded by the cannon balls. Let us leave it. Let the soldiers have it and we will retire into the forest and draw them after us, where they cannot bring the big guns. The soldiers cannot fight amongst the *kareao* [supple-jack]; they will be as easily killed amongst the canes as if they were wood pigeons.⁷²

While Belich’s argument is convincing, it is interesting that his quoting of Heke’s comments regarding the artillery is the closest he comes to acknowledging that the artillery might have had the better of Ruapekapeka’s defences.

The important thing to note here is that at Ruapekapeka the artillery was better able to deliver a concentrated and coordinated fire, which was itself only made possible by the concentration of weapons and munitions at the appropriate place and time.

⁶⁸ Unnamed Maori source, cited in Buick, pp.251-2.

⁶⁹ Unnamed Maori source, cited in Buick, p.252.

⁷⁰ Kawiti to Grey, 19 Jan 1846, G 30/9, pp.156-7. (Cited in Wards, pp.201-202.)

⁷¹ Bridge, 7 & 10 Jan 1846, and H.C. Belneavis Journal, 10 Jan 1846. (Cited in H. Carleton, *Life of Henry Williams, Archdeacon of Waimate*, Auckland: Upton, 1877, p.124.); Belich, pp.60-63.

⁷² F.E. Maning, *Old New Zealand*, Auckland: Robert J. Crichton & Alfred Scales, 1887, p.343.

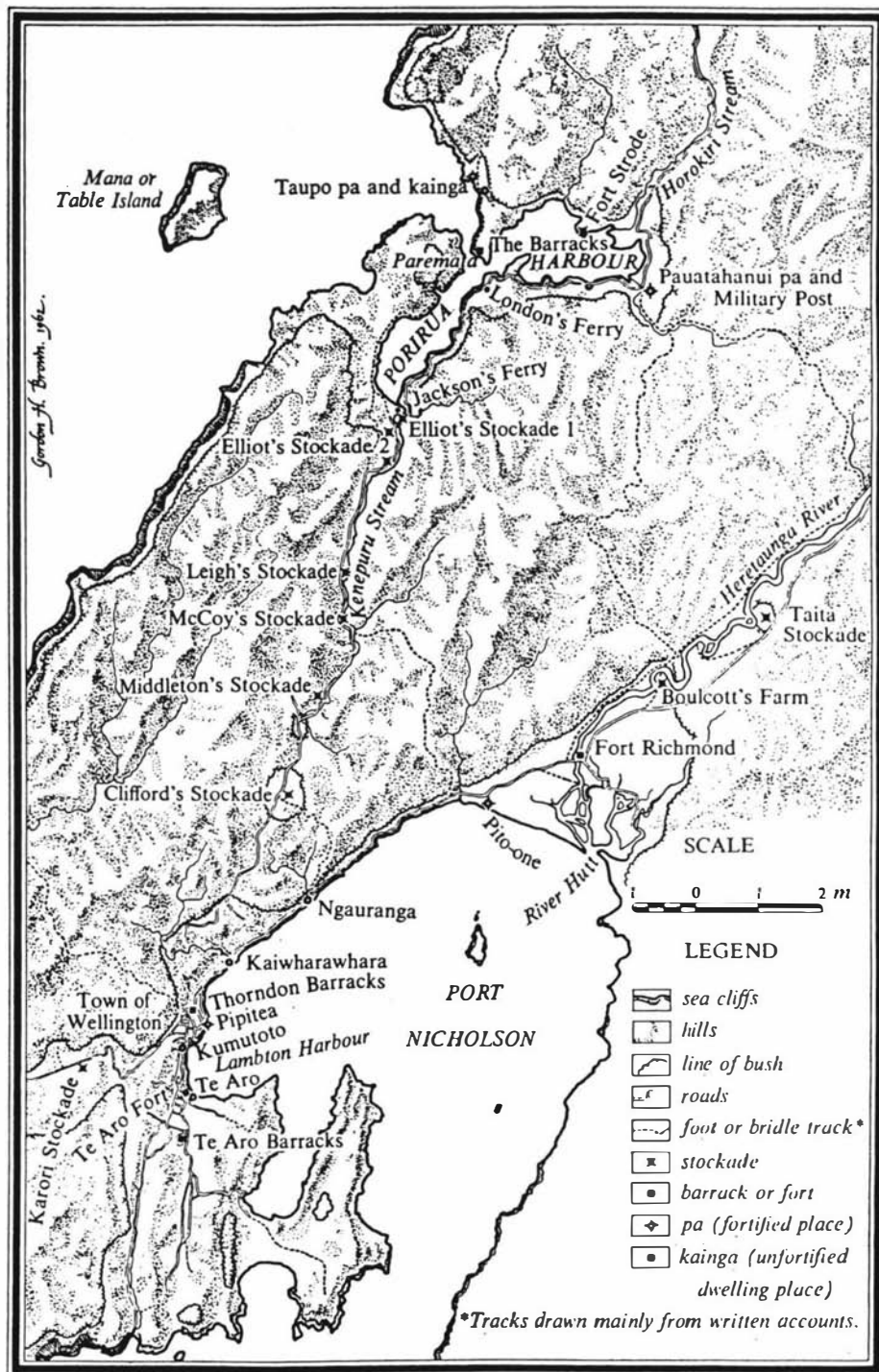
Whereas the artillery had been inadequate at Puketutu and its ammunition poorly supplied at Ohaeawai, at Ruapekapeka both guns and ammunition had been adequate and – notwithstanding the practical difficulties of movement – properly supplied, and as a result the artillery's full potential was realised. This suggests that the – albeit limited – improvements in British logistics provided part of the solution to overcoming the modern pa.

The Hutt War

The Hutt War of May to August 1846 was the immediate result of friction between settlers and some local Maori over the dubious dealings of the New Zealand Company, although the inter- and intra-tribal rivalries which fuelled the conflict could be traced back further. The dominant tribe in the district, Ngati Toa, had migrated there during the 1820s. Thereafter Te Atiawa, Ngati Tama, and Ngati Rangitahi had arrived, and been allowed by the chiefs Te Rauparaha and Te Rangihaeata to live 'under the cloak' of Ngati Toa. Ngati Rangitahi, who had connections with the Upper Wanganui tribes, occupied what became the Hutt valley, and it was this land that was under dispute. During the war the Ngati Rangitahi received practical support from a section of the Ngati Toa, under Te Rangihaeata, and a war party of Ngati-Haua-te-Rangi, from Upper Wanganui, led by Topine Te Mamaku. Although Belich suggests the resisting forces numbered no more than 200, the real figure is likely to have been higher, as the Wanganui party alone numbered over 200. The Crown was supported by Te Atiawa, under Wiremu Kingi and Te Puni, and other sections of Ngati Toa under Wi Tako and Rawiri Puaha, the latter a relative of Te Rangihaeata.⁷³

Following a series of attacks on isolated settlers and the proclamation of martial law for a short period in February 1846, British troops occupied and destroyed Makahinuku, a palisaded village on the edge of the disputed block. War broke out on 16 May 1846 when 200 Ngati-Haua-te-Rangi, reinforced by Ngati Toa and Ngati Rangitahi, attacked a military post at Boulcott's Farm, killing seven soldiers. Skirmishing continued for the next few months, as Grey sought to strengthen his military position in preparation for operations against Te Rangihaeata. After Te Rauparaha was arrested on suspicion of treachery in June, and Te Rangihaeata's fighting pa at Pauatahanui was captured at the start of August, the rebels retired to a hilltop pa in the Horokiwi Range. They were driven from this position by British and friendly Maori forces on 5 August, and subsequently pursued into the Horowhenua. Thereafter the rebellion collapsed as the rebels gave themselves up to avoid starvation.

⁷³ Belich, p.73; Cowan, pp.88-91.



Wellington and the Hutt: 1846

(Source: R.I.M. Burnett, *The Paremata Barracks*, Wellington: Government Printer, 1963, p.11.)

While the Hutt War has attracted little attention in comparison with the Northern War and the wars of the 1860s,⁷⁴ it was actually of considerable significance in the context of this study. In particular, it highlights Governor Grey's understanding of the importance of sound logistics as a basis of effective campaigning, and – together with the subsequent Wanganui War – provides the first insight into an understanding, by the British, of the mores of Maori warfare and the development of an appropriate counter-strategy.

Wellington had been seen as a potential flashpoint since at least 1843, and in fact the likelihood of trouble in the area had been a factor in Grey's determination to bring the Northern War to an end. During February 1846, immediately after the conclusion of hostilities in the Bay of Islands, 600 British troops were sent to Wellington to bolster the settlement's small garrison. They were supported by three warships: the steamer *Driver* and the frigates *Calliope* and *Castor*. The arrival of further reinforcements over the next few months increased the imperial garrison to 850.⁷⁵

The imperial troops were supported by the Wellington Militia, an enthusiastic but poorly armed and accoutred force of over 200.⁷⁶ The Militia had been raised in April 1845, and throughout the Northern War had built and manned stockades around Wellington, thereby releasing part of the imperial garrison for service in the North. They were armed and equipped as cheaply as possible: their weapons were primarily old Tower muskets from the New Zealand Company's holdings, which had been brought to New Zealand as trade items, while their uniforms comprised blue shirts and caps. They were required to provide their own trousers.⁷⁷

The Maori allies were also armed and equipped by the Government, again from the New Zealand Company's holdings. They were given the same blue serge shirts as the Militia, and while on operations were rationed by the Government.⁷⁸ Although the initial issue of weapons and accoutrements to the Militia and the Maori allies had been dictated by necessity, little was done thereafter to address the shortfalls and provide more modern equipment. In May 1846, by which time war had broken out in the Hutt, the *New Zealand Spectator* highlighted the problems facing both the Maori allies and the Militia:

⁷⁴ Belich, for example, devotes less than two pages of his *The New Zealand Wars* to the campaign. (pp.73-4.)

⁷⁵ Cowan, pp.99-100; W.C. Carkeek, *The Kapiti Coast*, Wellington: Reed, 1978, p.75.

⁷⁶ Wards, p.235.

⁷⁷ Wards, p.235; Cowan, pp.91-92.

Great dissatisfaction was felt by the natives at the miserable description of arms supplied to them from the Government stores. The equipment of a New Zealander for the fight is very simple. A good musket, and a cartouche box, to contain his ammunition, strapped round his waist are all that he requires. But so little preparation against any emergency has been made by the superintendent, that a great proportion of the muskets delivered to the natives were returned as unfit for use, the ammunition had been formerly wet and was unserviceable, and there were very few cartouche boxes for the supply of our allies [And] although the militia have been called out since the destruction of Kororarika now a period of fifteen months, and have been more or less employed during this interval, they have not even yet been supplied with scabbards for their bayonets.⁷⁹

The lack of materiel was such that even at the end of the war the Militia and Maori allies often had to share items of equipment amongst themselves. For example, the 60 Militia who garrisoned Clifford's Stockade (between Wellington and Porirua) were issued with a total of 25 Tower muskets and six greatcoats, the latter for use by the sentries.⁸⁰

Governor Grey, who had travelled to Wellington as soon as circumstances in the north permitted, exercised complete control during the preparatory and initial stages of this war, and it is important that some attention be given to his involvement. In early December 1845, soon after Grey had taken up his post as Governor, Lord Stanley had written to him to express his concern over the way in which the Puketutu and Ohaeawai campaigns had been conducted. Stanley suggested that the two campaigns highlighted the need to ensure that forces were not committed far from their resources, and that they were supported by effective communications and supply systems. This could be achieved by developing roads and communication links between the coast and the interior.⁸¹ By the time Grey received the letter, his own planning was well advanced, although as it transpired he was already thinking along the same lines.

Grey's emphasis on logistics can be seen through the pages of one of the few accounts of this war to be written by a participant, Assistant Commissary-General W. Tyrone Power's *Sketches In New Zealand* (1848). Power notes that while Grey had intended waiting until the summer of 1846-47 to undertake operations in the Wellington area, his hand was forced by the outbreak of war in May 1846; but that even then he resolutely refused the temptation to send troops into the bush where he knew they would be at a disadvantage. Instead, he

⁷⁸ Wards, p.273; Scott, D., 'Report to Major Richmond Of An Expedition Against Rebel Natives', Aug 1846. (WTU, Scott Papers, MS-75-1633.)

⁷⁹ *New Zealand Spectator*, 23 May 1846.

⁸⁰ Clifford to Richmond, 21 May 1846. (Cited in Wards, p.263.)

⁸¹ Stanley to Grey, 6 Dec 1845. (Gold Papers.)

adopted a plan which threatened to cut off their retreat, by the establishment of a post at Porirua, close to their only line of communication with the coast. This plan was fortunately successful, as the natives had no means of subsistence in the forests; and their rear being threatened, they at once fell back on Pauhatanui, abandoning the Hutt, and withdrawing the field of operations from the neighbourhood of the settlements.⁸²

From the outset, Grey's planning sought to ensure that any offensive operations in the Hutt district would be logistically sustainable, and conducted from firm lines of communication. Thus, when he returned to Auckland for three months on 22 April, he left strict instructions that the rebels were not to be engaged unless success could be absolutely guaranteed, that a vessel was to be kept in Cook Strait at all times, and that priority be given to completing the communications links north of Wellington. Grey also ordered that an advanced base be established at Paremata, to secure the northern approaches to Wellington, dominate the fishing and food-gathering areas on the Porirua and Paremata Arms, threaten the rebels' rear, and discourage Te Rauparaha – whose pa, Taupo, lay a short distance to the north – from supporting the rebels.⁸³

On 29 April 1846, the *Driver*, *Calliope*, and *Slain's Castle* left Wellington with 220 troops, but due to bad weather took over a week to reach Paremata. There the troops found themselves exposed to the elements, and for the next several weeks had to endure rotten, leaking tents, toi toi and flax huts, and irregular supplies from Wellington. The first stage in the development of the position was the construction of a blockhouse and stockade, a process which required the troops to cut timber from the nearby forest and raft it across the harbour to Paremata. The position was completed in July, and included a strong, loopholed stockade, with whares for accommodation and storage of supplies, and a crude ammunition store, comprising 'a small magazine covered of earth and not at all sited for keeping powder in a serviceable state.'⁸⁴

Until the road from Wellington was completed in mid-July, supplies could only be brought in by sea. Storms were frequent, and on one occasion a ship took six weeks to travel from Wellington to Paremata, much of which was spent in the lee of Mana Island sheltering from the weather.⁸⁵ Soon there were suggestions of mutiny, which New South Wales' Governor Gipps noted in a letter to the War Office:

... from accounts which reach me (indirectly) I cannot help but apprehend that our own Soldiers are becoming dissatisfied; desertions certainly are not

⁸² W.T. Power, *Sketches In New Zealand*, London: Longman Brown, 1849, pp.XIII – XVI.

⁸³ Grey to Stanley, with enclosed Instruction, 22 Apr 1846, G30/9, pp.799-816. (Cited in Wards, pp.257-8.); R.I.M. Burnett, *The Paremata Barracks*, Wellington: Government Printer, 1963, p.14.

⁸⁴ William Russell Memorandum Book, 1845-46, 26 Jul 1846. (WTU MS-1838.)

⁸⁵ Power, pp. 14, 41.

uncommon. The duty of the men is, I understand, very hard; and they are without barracks or comforts of any sort; even insufficiently supplied, it is said, with clothing that is both wet and cold; they are, however, not unhealthy.⁸⁶

During June, fourteen men were sent back to Wellington for mutinous conduct, behaviour the garrison commander, Major Arney, attributed solely to the hardships they had endured.⁸⁷ These hardships, however, must be seen within the wider context of what Grey was trying to achieve – the establishment of a forward logistics base and secure lines of communication. As such, they cannot be compared to the circumstances Despard's troops had earlier endured at Ohaeawai, for example: uncomfortable though the troops might have been at Paremata, the hardships they endured there prevented them from having to fight a lengthy and potentially costly bush campaign, and without the benefit of secure lines of communication.

At the same time as he sought to improve his own logistical position, Grey sought to undermine that of Te Rangihaeata. Te Rangihaeata had established a pa at Pauatahanui, called Mataia-taua, on a narrow tongue of land flanked on two sides by estuaries and the third by the Paremata Harbour. Mataia-taua pa featured double palisading, trenches and bomb-proof bunkers, but was vulnerable to attack from the higher ground to the rear, and could potentially be isolated or dominated by maritime gunfire. At Grey's direction, a small gunboat flotilla was established to patrol the Paremata Harbour: commanded by Lieutenant McKillop, the 'Porirua Navy' dominated the harbour and its surrounds, and restricted food-gathering by the Mataia-taua garrison. McKillop's operations were supported by small-scale but constant probing by land forces. These activities probably discouraged Te Rangihaeata from interdicting Government forces operating in the area, even though personnel were 'constantly passing singly, or in small parties' between Wellington and Porirua.⁸⁸

Te Rangihaeata was further isolated in mid-July, when his kinsman Te Rauparaha was arrested, on Grey's orders, on suspicion of treachery. Although McKillop's account of the operation suggests that several barrels of gunpowder, and 'upwards of a hundred stand of arms of various descriptions' were found in the pa, there were in fact only about 30 firearms and no more than nine barrels of powder, quantities which were 'insufficient to have seriously affected the issue...'⁸⁹

⁸⁶ Gipps to Gladstone, 'Private and Confidential', 25 Jun 1846. (*Historical Record Of Australia: Series One, Governor's Despatches To And From England*, Vol XXV (Apr 1846 – Sept 1847).

⁸⁷ Arney to Last, 23 Jun 1846, WO 1/526, p.408. (Cited in Wards, p.291.); P. Hodge, 'Wellington's Frontier', *NZ Historic Places*, 46, Mar 1994, p.43.

⁸⁸ Burnett, p.19; Power, p.18.

⁸⁹ McKillop, p.203; Wards, p.279; *New Zealand Spectator*, 25 Jul 1846. (McKillop led the naval party that arrested Te Rauparaha, on 23 Jul 1846.)

By late July, the logistical preparations ordered by Grey had been completed, and the government forces were in a position to undertake further operations against Te Rangihaeata. During the night of 31 July – 1 August, they moved against Matai-*taua*: in the event, the approaching force was detected as it moved into position for the attack, and Te Rangihaeata abandoned the *pa* without a fight. The British immediately occupied Matai-*taua* as a base for the next stage of operations, and began moving stores forward from Paremata.⁹⁰ The occupation of Matai-*taua* highlights one of the features of this war: Grey's insistence that operations against Te Rangihaeata be properly supported. By moving stores' depots forward to follow the advance, the British ensured that the resources the troops required were close to hand, and that their lines of communication were kept short and secure.

A combined Anglo-Maori force of 490 men pursued Te Rangihaeata through heavy bush to his next position, an entrenchment on a razorback ridge in the Horokiwi Ranges, several kilometres from Matai-*taua*. Horokiwi was captured in the early morning of 6 August with little loss to either side. Te Rangihaeata and his 150 remaining supporters retreated further into the fastness of mountain and bush, pursued by the Maori allies and two pakeha officers, Lieutenants Scott and Servantes. On inspecting the abandoned *pa*, the British found 'an evident want of provisions from the remains of native food which seemed to have been their main support.' It was later found that the rebels had been forced to subsist on fernroot,⁹¹ possibly highlighting the success of the measures taken by the British to deny Te Rangihaeata access to the food resources of the Paremata Harbour area. Throughout August, small groups were captured or surrendered to avoid starvation:

... heard from Scott and Servantes fearful accounts of the miseries they had endured in the pursuit, and which were of course still harder on the enemy; who, in addition to all other sufferings, were nearly in a state of starvation and almost naked It was supposed that many of Ranghaeata's people must have perished from cold and hunger, and this was confirmed by three of his women, who surrendered themselves at Wainui, in the last stage of misery and want. It was reported also that six of the enemy had been taken at Waikanahi, whither they had gone at every risk in the hopes of obtaining food from the state of the prisoners, it is evident that the rebels are scarcely able to keep body and soul together.⁹²

Again, the British continued to strengthen their own logistical position, even though the issue had effectively been decided. While the pursuit was in progress, troops were landed at points along the Kapiti coast to secure local food plantations,

⁹⁰ William Russell Memorandum Book, 7 Aug 1846. (WTU, Russell Papers, MS-1838.)

⁹¹ Scott, 12 & 18 Aug 1846; Thompson, p.138.

⁹² Power, pp.26-27, 31.

both for their own use and to deny them to the rebels. Assistant Commissary-General Power established a small depot at Wainui, and purchased large quantities of pork, flour, and vegetables from the local chief Urumutu to feed the troops and the Maori allies. Power paid for the supplies by cheque, which was apparently the first time this method of payment had been used in New Zealand.⁹³

In early September, the pursuit was called off and the Government forces withdrew to their posts to the south. Grey, however, continued to maintain the logistics infrastructure that had been developed in mid-1846, to prevent further trouble in the area, and to support the extension of settlement and land communications north of Wellington. Matai-taua was occupied as a redoubt until 1849, and the Paremata Barracks until the early 1850s.⁹⁴

The Hutt War highlighted a number of important logistical lessons. As with the Northern War, Grey's insistence here that the necessary logistical support systems be in place prior to the commencement of operations was critical to the outcome. Likewise, the work done to extend and develop those systems throughout the operation, regardless of how favourable the military situation appeared – again, at his insistence – was also important. Finally, the war clearly demonstrated that neither side could expect to 'live off the land' for an extended period.

The Wanganui War

Grey's influence, and his emphasis on logistics as a cornerstone of strategy, was evident during the next conflict, the Wanganui War of March to July 1847. The Wanganui War was fuelled by Maori disquiet over the probity of land sales, and rivalry between local tribes over issues arising from contact with the settlers. The Upper Wanganui hapu had already signalled their wider concerns over land issues by sending a war party under Topine Te Mamaku to fight alongside Te Rangihaeata in the Hutt in 1846; and on 19 May 1847 attacked Wanganui settlement in retaliation for the executions of four of their number who had attacked an isolated homestead in mid-April. After a second attack at St John's Wood on 20 July was repulsed, the war petered out.

Although the Wanganui War was really little more than a series of skirmishes, it does have some significance for the development of British logistics in New Zealand. Its main feature insofar as this study is concerned was the work done by Grey to complete the requisite preparations for war – including logistics – prior to the outbreak

⁹³ Wards, p.286-7; Scott, 18-29 Aug 1846; Power, p.27.

⁹⁴ C.J. Pugsley, 'Walking the Wellington War: Skirmishing at Porirua', *NZDQ*, 7, Summer 1994, p37.

of hostilities. As he had done in the Hutt, Grey delayed war in Wanganui in order to gain time for the British to secure their military position and develop the necessary logistics infrastructure in the district, thereby enhancing their prospects of success when hostilities began.

The government began preparing for war in Wanganui before the Hutt War had even finished. In August 1846, the Wanganui Magistrate had asked the senior British officer in Wellington, Major Richmond, to send arms to Wanganui for the settlers and the Putiki Maori. The request was not approved until September – probably because arms were in such short supply – when 70 muskets and a quantity of ball cartridges were sent to Wanganui. These were not issued until 20 October, after reports were received that a large war party was approaching from the north.⁹⁵

Recognising that Wanganui had to be made militarily viable, Grey despatched a garrison, comprising 180 men of the 58th Regiment and a Royal Artillery battery of two 12-pounders, to the settlement on HMS *Calliope* in December 1846. Their arrival on 13 December was inauspicious, and highlighted again the problems of campaigning along the west coast in general, and through this port in particular: as she was unable to cross the bar, *Calliope* had to anchor four miles from shore and unload the troops and their guns and stores using her pinnace and a borrowed colonial smack.⁹⁶

Once again, Grey issued strict instructions that the troops were not to undertake any offensive action until the stockades needed to accommodate the troops were completed, reinforcements had arrived, and the stores and equipment required for offensive operations had been concentrated in Wanganui.⁹⁷ All three conditions took several months to be met.

The garrison's first task was to construct a series of stockades to protect the town. The main stockade was built on the high ground to the west of the settlement, and covered the approaches through the swamp and low ground from the west. Its construction proved 'a troublesome affair', due to both the sandy soil on the hill and the problems of acquiring local timber and moving it to the site. It had been assumed that the pro-government Putiki Maori, under Hoani Wiremu Hipango, would assist the construction programme by cutting wood for the stockades and moving it to Wanganui. In the event, they refused to assist for fear of angering the Upper Wanganui tribes.⁹⁸ Lieutenant Collinson, the Engineer officer sent to oversee the construction programme,

⁹⁵ Wards, pp.322-3.

⁹⁶ McKillop, pp.244-5; Barthorp, p.173.

⁹⁷ Wards, pp.333-4.

⁹⁸ Wards, p.327.

then tried to use soldiers to cut and gather the logs. When they also proved too slow, he sent a notice to the upper-river tribes advising:

that logs would be paid for by me at the wharf from 1/- to 2/6 each according to size, and very soon rafts of logs appeared from several miles up All the hostile natives joined in to the disgust of the Putiki people, who saw they lost an opportunity to make a harvest.⁹⁹

The notice caused considerable excitement amongst the Maori, and soon produced a 'constant arrival of parties of natives, with logs of timber and small rafts....'¹⁰⁰ While the stockade was being built, the troops were housed in local houses ('for which a good rent was paid') and the Commercial Hotel.¹⁰¹ These surroundings were undoubtedly preferable to a rough-hewn stockade, which may help explain the soldiers' lack of speed in gathering logs.

The 'Main' or 'Rutland' Stockade was completed in April 1847, at a cost of £500. It measured 60 metres by 30, making it the largest stockade ever built in New Zealand. Rutland Stockade housed the garrison and the two artillery pieces until three further stockades could be completed: 'Middle' or 'York' Stockade, which was built to the south of Rutland Stockade in early June; 'Gunboat' Stockade, built beside the wharf to house a small Royal Naval detachment; and 'Lower' Stockade, comprising a stockade built around the Commercial Hotel and the homes of the doctor, Dr Rees, and the militia commander, Major Nixon. The Lower Stockade turned the right angle produced by the other three stockades into a square.¹⁰²

Throughout the first five months of 1847, the senior British officer in Wanganui, Major Laye, obeyed Grey's directive to wait until the preparations for offensive action had been completed. The troops thus waited in their positions while parties of Maori roamed freely through the outlying farms, committing minor acts of vandalism and killing cattle. Te Mamaku delivered a feint against the town on 19 May in an attempt to draw the troops from behind their palisades, but without success. The only British initiative during this period was a reconnaissance a short distance up the Wanganui River, on 25 May.

Once the stockades were finished, however, the warships *Racehorse*, *Inflexible* and *Calliope* and sailing vessel *Scotia* brought reinforcements of troops and friendly Maori, with artillery and supplies, from Auckland and Wellington, and evacuated 30 women and children to Wellington. The last reinforcements of soldiers, sailors, and

⁹⁹ Barthorp, p.174.

¹⁰⁰ Power, p.67.

¹⁰¹ Collinson, pp.38-41; Barthorp, p.174.

¹⁰² McKillop, pp.244-5; Barthorp, p.173; Power, p.67; Smart & Bates, pp.67-68.

friendly Maori, together with four gunboats and a large quantity of artillery stores, arrived on the *Inflexible* and *Calliope* on 4 June.¹⁰³ The Wanganui garrison, which now numbered some 750 well equipped and provisioned men, was finally ready to commence operations.

Grey and the senior British officer in Wanganui, Lieutenant Colonel W.A. McCleverty, undertook their first significant offensive action the following day – a reconnaissance in strength up the Wanganui River by 200 men in gunboats and a further 300 on foot. When rebel Maori were encountered at Papaiti, the gunboats, equipped with cannon and rockets, had ‘a pleasant little interchange of shots, and a considerable expenditure of rockets, grape and canister, but without any damage being done.’¹⁰⁴ The government force withdrew in the late afternoon, having neither inflicted nor sustained any losses. A similar expedition on 8 June had the same result. Grey returned to Wellington on 12 June, again leaving instructions for McCleverty to remain on the defensive. Te Mamaku’s attack at St John’s Wood on 23 July brought the war to a close.

Grey’s determination that the army should avoid a major engagement with the Maori until its logistical preparations were complete mirrored his earlier approach in the Hutt War. Despite the protestations of some of the settlers,¹⁰⁵ there was clearly no real imperative for him to order the army to commence offensive operations until everything was ready, and he was wise not to do so. This concern for logistical preparation was to become a feature of Grey’s approach, as would be demonstrated with greatest effect during the planning for the invasion of Waikato in the early 1860s.

It should also be noted that war gave new impetus to Wanganui as a settlement, led to the development of the military and civil infrastructure which would prove so important during the wars of the 1860s, and provided a basis for strengthening what was to become a vital strategic alliance between the Lower Wanganui Maori and the Crown.

The Wars of the 1840s and the origins of British logistics doctrine in New Zealand

There is some evidence that the British Army’s experiences in these wars had an influence on future British strategy and logistics in New Zealand. This influence was based on their growing understanding of Maori warfare, and their recognition of the importance of sound logistics as the basis for defeating the Maori.

¹⁰³ Wards, p.336; Collinson, 1853, pp.38-41; Power, p.105.

¹⁰⁴ Power, p.05.

The first sense of this growing awareness of Maori warfare emerges from one of the most important contemporary accounts of the Hutt and Wanganui Wars, W. Tyrone Power's *Sketches In New Zealand*, published in 1848.¹⁰⁶ Power was the Deputy Assistant Commissary-General (DACG) in New Zealand during the Hutt and Wanganui Wars, and in *Sketches* provides a logistician's perspective of those conflicts. He identified logistics as being a critical vulnerability of the Maori; and noted the Maori's natural vulnerability in the period prior to harvesting, together with the effects that would inevitably attend the loss of the unharvested crops. He suggested that therefore the best time to attack the Maori was in the period prior to harvesting. The effects of such tactics, he argued, could be compounded through the implementation of a prolonged campaign, and

a war of sudden and unexpected attacks, that would never leave them an hour in confidence, that would be constantly at their heels, that would not allow them to cultivate, or to reap the fruits of their cultivation: a war carried to their own homes that would stop all intercourse with white people, prevent them from procuring tobacco and blankets, cut them off from the sea-fishing, and keep them in constant terror and trepidation.¹⁰⁷

Such tactics would require that the Europeans display a willingness and ability to go inland, using New Zealand's natural water highways to take the war to the Maori.

Power concluded by suggesting that Kapiti Island would be a good base and depot for the ships, their coal and other requirements, and one-quarter of the land force to be garrisoned in New Zealand, as from there the ships and men could easily reach the whole coast from Wellington to Taranaki within a few hours.¹⁰⁸ Certainly steamers had been vital to British operations in Wanganui, and indeed one wonders what might have been had they had to rely entirely upon sailing vessels. Although his suggestion for a naval base at Kapiti was never acted upon, steamers would prove to be one of the decisive factors in the New Zealand Wars – particularly in Taranaki and the Waikato during the early 1860s.

It should be noted that Power was not the only contemporary writer to identify that the requirement that Maori warriors act as food gatherers as well as combatants placed them at a military disadvantage.¹⁰⁹ However, he was the first to take the next step, of suggesting that that fundamental weakness could actually be turned against

¹⁰⁵ Laye to McClevery letter, 20 May 1847, WO 1/528, pp72-4. (Cited in Wards, p.335.); Cameron to McLean letter, 13 June 1847. (WTU, McLean Papers, MSS-0172.); Dr J.D. Greenwood letter, May 1847. (WTU, Greenwood Papers, QMS-0886-0887.)

¹⁰⁶ W.T. Power, *Sketches In New Zealand*, London: Longman, Brown, 1849.

¹⁰⁷ Power, p.65.

¹⁰⁸ Power, p.66.

them, through the process of a longer campaign. He also strongly implied – although did not specifically state – that such a campaign would need to be supported by sound, effective logistics.

A number of other contemporary writers stressed the importance of ensuring that operations only be conducted after the appropriate logistical preparations had been completed, and sufficient resources were available. While to a certain extent these lessons were forced upon the British by the military prowess of the Maori, there was also recognition that the lack of planning had contributed to the setbacks the British encountered during these wars. For example, the Colonial Secretary, Lord Stanley, stated that in future operations in New Zealand

policy and ultimate humanity require that the blow struck should be decisive, and that no risk of failure ought to be encountered from insufficient means, inadequate preparations, or an undue contempt of the power of our antagonists
....¹¹⁰

Governor Grey and Lieutenant Colonel Cyprian Bridge similarly identified logistical planning as being necessary to ensure strategic success.¹¹¹

The observations of Power, Stanley, Grey and the British field commanders mark the start of the development of British logistical doctrine in New Zealand, and so are particularly significant to this study. The process by which that doctrine evolved and consolidated will be traced through the following campaign studies.

The Northern, Hutt and Wanganui Wars had highlighted many of the procedural and doctrinal weaknesses of contemporary British logistics, such as the inadequate staffing of the Commissariat and the lack of professional logistical input to planning. These weaknesses would be exposed more brutally, and on a far greater scale, a few years later in the Crimea. Nonetheless, there had been some developments. The British had begun to recognize that defeating the Maori required an ability to sustain operations for a prolonged period. This would require sound logistical planning, the development of an adequate distribution capability, and ensuring that future operations were supported by a strong logistics base.

¹⁰⁹ See, for example, Thompson, Vol 2, p.146; and Collinson, p.71.

¹¹⁰ Stanley to Grey, 5 Dec 1845. (WTU, Gold Papers, MS-0080-1.)

¹¹¹ Instruction, 22 Apr 1846, G30/9, pp.799-816. (Cited in Wards, pp.255-8.); Miller, p.53.

Chapter Five:

The First Taranaki War: 1860-61

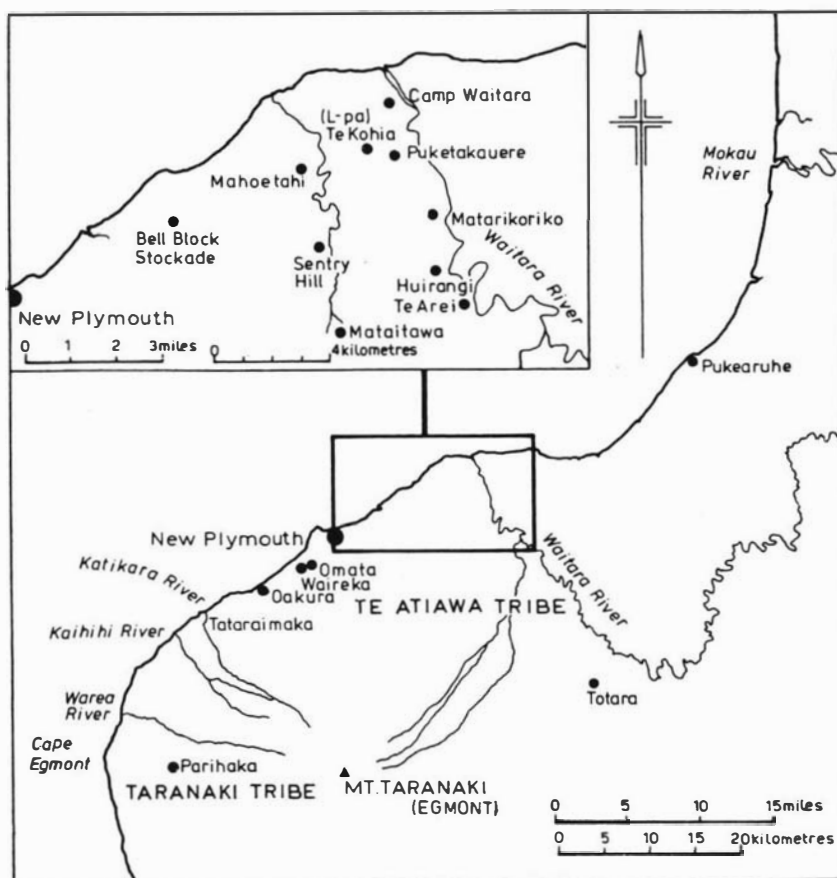
In early 1860, war broke out between the Crown and elements of Te Atiawa in northern Taranaki. The immediate cause of the war was the decision by the Government to purchase the Pekapeka Block, west of the mouth of the Waitara River, from a minor Te Atiawa chief, Te Teira, despite clear evidence that he did not have authority to sell the land. When other members of Te Atiawa disrupted the surveying programme in February 1860, martial law was declared in the province, and troops were ordered in from Auckland and Australia. Hostilities began on 17 March with an inconclusive action by British troops against Te Kohia, a small pa erected on the south-western corner of the disputed block, and lasted for twelve months.

Following an indecisive engagement at Waireka (28 March) and a crushing defeat at Puketakauere (27 June), the senior British officer in Australasia, Major-General Thomas Pratt, came to New Zealand in August to assume direct command of field operations. At Mahoetahi on 6 November, Pratt surprised and destroyed a party from the Waikato, but thereafter followed a more conservative strategy of capturing Maori pa by sapping rather than direct assault. The war ended with a truce in March 1861, brought about in part by war-weariness on both sides, but also by the Government's decision to transfer its attention to the subjugation of the powerful Kingite federation in the Waikato.

The First Taranaki War was a seminal event in New Zealand history, and is also a key campaign in the context of this study. It was the first conflict of the New Zealand Wars to be fought after the Crimean War, although significantly the post-Crimea logistical reforms were to have little effect. It did, however, provide further impetus to the development of a logistics-based strategy by the British. It also led to two significant logistical developments: the implementation of a general hospital system to replace the regimental system previously used, and merging of the supply and distribution functions under the aegis of a Commissariat Transport Corps. These were both local initiatives.¹

The British position during the early stages of the war was weakened by a number of logistical problems. These included the nature of the theatre, particularly

¹ T. Ryan & W. Parham, *The Colonial New Zealand Wars*, Auckland: Grantham House, 1986, pp.162-63. The development of the general hospital system is discussed in Chapter 2 of this thesis, and the establishment of the Commissariat Transport Corps is discussed in Chapter 5.



North Taranaki: 1860-61

(Source: J. Belich, *The New Zealand Wars and the Victorian Interpretation of Racial Conflict*, Auckland: Penguin, 1986, p.75.)

the unusual configuration of the local farms and settlements in relation to New Plymouth itself; poor communications; lack of infrastructure, particularly accommodation; problems with the civilian population; lack of food; and poor distribution facilities. These factors are all crucial to this study, and so will be examined in turn below.

The Taranaki theatre

New Plymouth had been established as a New Zealand Company settlement in 1841. Like Wanganui, its growth had been hampered by its isolation, a lack of available land for purchase, periods of economic depression, and a poor port.² By 1860, Taranaki province had a civilian population of 2650 (about 2% of the Pakeha population of New Zealand), of whom 1000 lived in New Plymouth itself.³ The remainder occupied a long, narrow belt between the coast and the Taranaki bush, and running from Omata-Waireka to Waitara. Although the settlement covered about 150 square kilometres, it had a defensive perimeter of more than 45 kilometres, the furthest point of which lay over 16 kilometres from New Plymouth. This meant the British lines of communication were exposed to interdiction along their whole length.

Intra-theatre communications were little better than those encountered in the wars of the 1840s. The main route between New Plymouth and Waitara, the Devon Road, had been developed for light commercial use, and so was incapable of facilitating the movement of troops, bullock-drawn carts and artillery for prolonged periods. The road crossed eight running streams, some of which were prone to flooding, and was particularly difficult in the wet season.⁴

Infrastructural problems

New Plymouth 'consisted of a few streets at right angles to each other, commanded by a stockaded work on Marsland Hill...[and] was open and defenceless, and liable to be rushed at any moment.'⁵ Its most serious problem was its lack of military infrastructure, particularly accommodation. Although the Marsland Hill barracks were large enough for a peacetime imperial garrison of less than 200, they were totally inadequate for the numbers of troops sent to New Plymouth during the war. By the end of March 1860, there were 600 imperial regulars, 300 militia, and 180

² T. Gilbert, *The War in Taranaki*, London: A.W. Bennett, 1861, p.4.

³ N.A. Elliot-Hogg, 'The Taranaki Refugees, 1860', MA, University of Waikato, 1999, p.12.

⁴ C. Hursthouse, *An Account of the Settlement of New Plymouth*, London: Richard Bentley, 1849, p.10.

⁵ J.E. Alexander, *Incidents of the Maori War*, London: Richard Bentley, 1863, pp.79-80.

Volunteers on duty in Taranaki, and reinforcements were *en route* from Wellington and New South Wales. These numbers increased quickly to 1700 by mid-July, 2600 at the start of August, and 3000 by the beginning of September, and remained at that level until the end of the war.⁶ The influx caused a critical accommodation problem, which the authorities never fully overcame.

Although there were a number of empty houses in and immediately around New Plymouth, Colonel Emelius Gold, the local commander, decided against using them for accommodation, apparently fearing that it would take longer to concentrate the troops in an emergency. After his initial attempts to commandeering large buildings such as inns failed in the face of public protest (the Provincial Superintendent, for example, claimed that the seizure of buildings would 'be attended by great inconvenience and hardship to many helpless persons and create confusion and illwill among the inhabitants in general'), Gold had new barracks constructed by civilian labour. That, too, proved a protracted process, as contractors, who were paid by the day, simply took their time.⁷ Consequently, the first drafts of reinforcements from Australia had to sleep under canvas,⁸ which gave the settlers another reason to criticise the military authorities:

Gales and squalls from the W. and S.W. with thunder, lightning and spouts of rain. I have never known it altogether equalled, and our poor soldiers under tents all the time. Their blankets were never dry for a week. To keep them under canvas in such weather after bringing them from Australian summer is stupid cruelty with scores of vacant houses. A fool is more mischievous than a knave, I think.⁹

In mid-May, Gold ordered the *Taranaki Herald* to stop printing for a period after it claimed that soldiers were sleeping under canvas while houses were available, and that a number of imperial officers were complaining about the situation.¹⁰

For the first half of the war, the majority of the personnel in New Plymouth lived in St Mary's church at the foot of Marsland Hill, or under canvas in its

⁶ R. Carey, *Narrative of the Late War in New Zealand*, London: Richard Bentley, 1863, pp.10-11, 31, 34; Alexander, p.103; H. Miller, *Race Conflict in New Zealand: 1814-1865*, Auckland: Blackwood and Janet Paul, 1966, p.36; T.R. Mould, *Sketch of Military Proceedings in New Zealand, from the Termination of the Waitara Campaign, in March 1861*, London: Royal Engineers, 1869, p.13.

⁷ J. Richmond to E. Richmond, 6 May 1860. (*Richmond-Atkinson Papers*, Vol 1, (ed.) G.M. Scholfield, Wellington: Government Printer, 1860, p.577.); Cutfield to Paul, New Plymouth, 9 Apr 1860. (Taranaki Provincial Council, Entry Books of General Outwards Letters, 14 Nov 1859 – 27 Jul 1860.)

⁸ W. Shaw, 25 Jun 1860. (AWM, 'Letters from Camp Taranaki', 3DRL/3398.)

⁹ J.C. Richmond to Mary Richmond, 12 May 1860. (*Richmond-Atkinson Papers*, Vol 1, p.581.)

¹⁰ Grayling Papers, 12 May 1860. (TM, Grayling Papers.); J.C. Richmond to C.W. Richmond, 12 May 1860. (*Richmond-Atkinson Papers*, Vol 1, pp.581-2.)

churchyard. The deteriorating circumstances added to the soldiers' sense of helplessness at being under siege:

[New Plymouth is] as miserable a hole as a man could come to What a place, all covered with ferns and hills in all directions. Nothing but deep gullies and hills and the chief approach to town is knee deep with mud I have an attack of the influenza after last night. 12 of us had to sleep without a blanket over us. Nothing but our watch coats on. Nothing here but mud and rain and most fearfully cold.¹¹

The graves in our churchyard are being trampled down by bullocks, placed there for safety. Our chapel exhibits the appearance of a lodging-house. During service, we find half our pews occupied with bedding and wearing apparel. The chapel yard is filled with tents, and in front of the door a large fire is blazing, at which the men are busy cooking their meals.¹²

The church was also used at various times as an extra field hospital and a powder magazine.¹³

Early in the war, a 50-strong Naval Brigade from the steamer HMS *Niger* established a small post adjacent to the landing site, called Fort Niger. The Naval Brigade gradually increased to nearly 400 men, drawn from various vessels. In addition to Fort Niger, Naval Brigade detachments occupied a signalling station on Mount Eliot, to the east of the town, where they lived under canvas, and later Camp Waitara (established in early March 1860), where a 200-man barracks was constructed during winter.¹⁴

(Incidentally, the accommodation problems did not end when hostilities ceased in March 1861. An attempt to settle hundreds of military settlers from Australia also ran into difficulties when the new arrivals had to sleep under canvas throughout a Taranaki winter, until accommodation could be made available.¹⁵)

Refugees

The accommodation shortage was exacerbated by a major refugee problem during 1860. Rural families began to seek refuge in New Plymouth as soon as martial law was declared. By 10 March 1860 – before the first shots had even been fired – the

¹¹ Shaw, 25 Jun 1860.

¹² Marjouram, 28 Aug 1860. (Cited in L.H. Barber and others (ed.), *Sergeant, Sinner, Saint and Spy: The Taranaki War Diary of Sergeant William Marjouram, R.A.*, Auckland: Random Century, 1990, p.65.)

¹³ G.A. Butt, *Poem in Stone: History of St Mary's Anglican Church, 1846-1971*, New Plymouth: St Mary's Parish, 1978, p.19.

¹⁴ J. Cowan, *The New Zealand Wars and the Pioneering Period*, Vol 1, Wellington: Whitcombe & Tombs, 1922, pp.163, 181; J.O'C. Ross, *The White Ensign In New Zealand*, Reed, Wellington, 1987, pp.61-2.

¹⁵ Editor's narrative, *Richmond-Atkinson Papers*, Vol 1, pp.547-9.

town was crammed with refugees, despite the fact that it 'had not room for half of them, much less for their goods.' As had happened in Auckland in 1845, the concurrent influx of reinforcements and refugees overwhelmed the town's accommodation and civic facilities, to the point that many of the refugees had to live under canvas in the Naval Brigade's camp on Mount Eliot, and in St Mary's church.¹⁶

The military authorities sought to ease the pressure within the town through the staged voluntary evacuation of women and children from May 1860, and the discharge of all Militia over the age of 50 and those with six or more children in July, although both measures met with limited success. Attempts by Pratt to force evacuation by proclamation in late August prompted one woman to threaten to shoot the first soldier who came to arrest her, while others went into hiding. By the time the evacuations ended in late October, there were still 824 women and children left in the town.¹⁷

The combination of overcrowding, malnutrition and disease caused misery and deprivation in the beleaguered town, especially for the civilians. By mid-May 1860, one observer was moved to note that:

sickness prevails among the inhabitants to a fearful extent; the men, women and children under medical treatment being, in all, four hundred. This unpleasant state of things has altered the countenances of many. Men who were, three months ago, stout, lusty-looking fellows, now shew the hollow cheek and tottering frame.¹⁸

The first deaths from influenza and typhus were recorded in early June. Disease claimed the lives of 121 settlers during the war – ten times the normal death rate – and most of the remainder required treatment at some stage. The sick rate for military personnel was lower, although at an average rate of 10% during the winter of 1860 it was still the highest of the New Zealand Wars.¹⁹

Food shortages

While the breakdown in public health was largely caused by unsanitary and overcrowded accommodation, lack of food was another important factor. Prior to the war Taranaki had over 200 farms, with 16,000 sheep, 4,000 cattle, and 2,000 pigs,

¹⁶ Marjouram, 20 & 22 Feb 1860, & 11 May 1860. (Cited in Barber, pp.37-8, 50.); C.W. Richmond to Emily Richmond, 10 Mar 1860. (*Richmond-Atkinson Papers*, Vol 1, pp.538-9.); B. Wells, *The History of Taranaki*, New Plymouth: Edmundson & Avery, 1878, p.190.

¹⁷ E. Holt, *The Strangest War*, London: Putman, 1962, p.161; Elliot-Hogg, pp.20-2, 24.

¹⁸ Marjouram, 9 May 1860. (Cited in Barber and others, p.50.); Butt, p.20.

¹⁹ J.C. Richmond to Mary Richmond, 23 June 1860. (*Richmond-Atkinson Papers*, Vol 1, p.597.); Marjouram, 3 Jun 1860. (Cited in Barber and others, p.51.); W. Swainson, *New Zealand and the War*, London: Smith, Elder & Co, 1862, p.151; Carey, pp.75-7; H. Eyre-Kenny, 'Pen-and-Ink

plus 13,000 acres under cultivation.²⁰ Although these resources should have been capable of feeding a combined civilian and military population of about 4500, as well as providing a strong base for operations against the Maori, in the event they proved inadequate.

The scale of the food shortage and the speed with which it affected the British can be attributed to two factors. The first of these was the inherent indefensibility of the settlement, which as has been noted made it easy for the Maori to isolate the outlying farms and deny access to their produce. The second factor was the timing of the war itself. Given that the two major products of Taranaki, potatoes and wheat, were normally harvested in February and March respectively, the timing of the outbreak of hostilities was crucial. While many Taranaki settlers had felt in early 1860 that war was inevitable, there was a 'general' feeling 'that it ought to have been timed so as to let us secure the grain harvest, a very good one, and the most of which will be lost by immediate hostilities'²¹ On 20 February 1860, two days before martial law was declared, James Hursthouse noted in a letter to Charles Richmond:

If we are to have war with the Natives try by *all means to put it off for another month or so. Half (¾ths?) of our crops are still unsecured* and they when hostilities once commence will have to be abandoned to the loss of all, and ruin of some whereas a month's delay if favoured by fine weather will enable us to thrash out and secure in *Town* a large quantity of produce.²²

Although some farmers sought to harvest their corn and thresh their grain earlier than normal and get it into town before hostilities commenced, enormous quantities of vegetables, grain, and livestock were simply abandoned as the settlers fled their farms.²³

The authorities took a number of early steps to try to resolve the food crisis. On 2 April, Gold sent an expedition south to Omata to recover foodstuffs from the outlying farms. The Omata expedition involved 200 Militiamen with one howitzer and 30 carts, and brought in 140 bushels of wheat and 40 tons of potatoes. All the livestock, however, had been shot and left to rot by the Maori. A series of similar expeditions followed, some to recover farm produce, and others to locate and destroy Maori flour mills and food stockpiles, and Pakeha cultivations whose produce could not be

Sketches of Officer Commanding the Forces in New Zealand from 1845 to 1870', *New Zealand Military Journal*, Jan, 1914, pp.110-1.

²⁰ Elliot-Hogg, p.12.

²¹ C. Hursthouse, p.9; C. Brown to C.W. Richmond, 19 Feb 1860. (*Richmond-Atkinson Papers*, Vol 1, p.524.)

²² J. Hursthouse to C.W. Richmond, 19 Feb 1860. (*Richmond-Atkinson Papers*, Vol 1, p.524.) (Italics in original.)

²³ Gilbert, p.52.

recovered. Gold also banned the export of foodstuffs upon which the survival of the town might depend.²⁴

The food shortage was attended by suggestions of profiteering. William King, a farmer-settler, complained in a letter to his evacuee wife in Nelson that 'soon there will be scarcely a cow in the place as the thieves of butchers bring in your cattle, kill them & sell you the meat at 7d a pound,' and that one butcher, an appropriately-named Mr Skinner, had made 'a small fortune' by rounding up and slaughtering stray cattle.²⁵ The soldiers and sailors, who still supplemented their rations at their own expense, also faced higher prices:

We have not received any money since we left Melbourne, and things are getting most fearfully dear. The place we are encamped is a flat surrounded by hills. We have called it Poverty Square and the creek's Poverty Creek. Food: water and plenty of water cresses. Butter 3 [pence per] lb, Eggs 3 [pence per] doz, [dry] Beef Potatoes, plenty of potatoes. Bread one 2 lbs loave very heavy and bad. Cannot get milk, only now and again.²⁶

In November, General Pratt (Gold's replacement) approved a plan for militiamen to be released from service to work their farms. It was intended that several would work on each farm, and that the farmhouses on the farms selected would be fortified for self-defence. The scheme did not proceed, however, supposedly because the farmers were unwilling to work their farms without military protection, although one imperial officer suggested that it was because they could not agree as to which farms would be worked. Instead, a large reserve near the town was cleared and used to grow food.²⁷

By the end of 1860, the combined effects of evacuation and improved steam communications between New Plymouth and other ports brought some improvement to the critical food shortage in Taranaki. (Ironically, the arrival of reinforcements in Auckland caused shortages there, to the point that in early 1861 tenders for food had to be called for in Sydney.²⁸) Even when more food and materiel became available, however, they still had to be distributed throughout the theatre, often to small and isolated garrisons. It was here that the effects of the last logistical problem were felt: a shortage of transportation and distribution assets.

²⁴ Barber, p.47; Elliot-Hogg, pp.25-6; J.C. Richmond to C.W. Richmond, 12 May 1860. (*Richmond-Atkinson Papers*, Vol 1, p.580.)

²⁵ W.M. King to M.W. King, Nelson, 2 & 12 Sep 1860. (TM, MSo81.)

²⁶ Shaw, 30 Jul 1860.

²⁷ *Taranaki Herald*, 10 Nov 1860; Carey, p.82.

²⁸ J. Blades, 'A Retrospective Review of Auckland from 1859.', p.17. (WTU, QMS-0240).

Distribution problems

Interestingly, this was the only logistical problem encountered by the British that could be said to have been largely of their own making: the other problems cited above could be attributed, either largely or wholly, to the civilian authorities and settlers. The shortage of land distribution assets – wagons, carts, and draft animals – and the staff to manage them was a colony-wide problem. Although, as has been noted, measures had been taken in the aftermath of the Crimean War to establish a military transport capability, these changes had not extended to New Zealand by 1860. This probably reflected the size of the garrisons involved, and the nature of garrison service in New Zealand: the imperial garrisons here were all numerically small and restricted to static duties. As such, their distribution requirements were limited, and so could be performed by civilian contractors.

The British were fortunate to have had access to the services of a number of steam vessels, including the warships *Niger*, *Cordelia*, *Pelorus*, *Fawn* and *Victoria* and the civilian steamers *Tasmanian Maid*, *Wonga Wonga* and *Airedale*, at various times during this war. Steam vessels were essential to maintaining external links, and for much of the war were the primary means of communication between New Plymouth and Camp Waitara, including casualty evacuation. In addition, their crews provided a naval brigade for service ashore. (The frequent references to the steamers in contemporary diaries and letters suggest that they also provided a powerful morale link with the outside world.) Certainly sailing vessels could not have rendered the same support to the beleaguered settlement, and indeed one sailing ship, *George Henderson*, was driven ashore and wrecked during a winter gale.²⁹

Throughout the war, the army's transport requirements were far in excess of the capacity of the limited numbers of draft animals and carts available locally. For example, the two 8-inch naval guns used by the British during the second half of the war each required a team of 18 bullocks, as well as those required for the limbers. The British initially met their land transport requirements by leasing bullocks and carts from local settlers, contracting civilians as carters, or occasionally impressing carts for short periods of service.³⁰ Although the leasing of bullocks and carts by the Commissariat was standard practice, some settlers saw it as yet another example of military inefficiency:

²⁹ Jane Maria Atkinson Journal, 1 Jul 1860. (*Richmond-Atkinson Papers*, Vol 1, p.604); Wells, p.218; A.H.W. Battiscombe, 'Journal Kept During the Maori War, 1860-61', 3 Aug & 30 Dec 1860. (WTU, Battiscombe Papers, QMS-0142.); J. Bach, *The Australian Station*, Kensington: New South Wales University Press, 1986, p.73; Marjouram, 3 & 22 Aug 1860. (Cited in Barber, pp.61, 64.)

As a small example of pecuniary mismanagement take the fact that at the end of this month [May 1860] ... the commissariat will have paid in bullock hire a sum which would have brought every bullock they have used. As the bullocks are not fed by their owners now there would be no extra expense in purchasing them on that score. The owners are paid for any loss or [bullocks] dying on service.³¹

Carts were occasionally borrowed from friendly Maori,³² or leased, apparently at high cost:

It was painful to witness the greedy and avaricious appetite of the natives exhibit itself in their haggling for terms of remuneration for engaging to render their assistance. No carts could be had in town. The native carts were idle, but they refused to let me go without at the same time having a strong armed escort of their own people, and every man in this escort [had] to be paid.³³

During the final British operations of the war – the programme of sapping and bombardment of the Huirangi, Matarikoriko and Te Arei pas between December 1860 and March 1861 – the British field force of 1000 men and several mortars and artillery pieces was supported by just 40 bullock carts. These were kept fully occupied throughout, bringing up food, ammunition, large barrels of water (since access to the Waitara River was too risky), and gabions and sap rollers for the sap. The shortage of carts was such that in late December wheelbarrows had to be used to move artillery ammunition from the stockade at Onukukaitara to Pratt's positions before Matarikoriko pa.³⁴

These logistical problems collectively severely hampered the fighting efficiency of the British forces, and reduced their numerical advantage over the Maori. Although the imperial garrison peaked at about 3000 men (against a maximum of 1000 Maori at any single time, from a total Maori mobilisation of between 2000 and 2500), the numbers of imperial troops used as convoy escorts, semaphore men and orderlies, on garrison duties at New Plymouth, Waitara, Bell Block, Omata, Waireka, Tataraimaka and Onukukaitara, and on the sick list, significantly reduced the number available for offensive operations. Pratt's Deputy Adjutant-General estimated that only about half

³⁰ Battiscombe, 10 Oct 1860; Ross, p.65; J.M. Atkinson to E. Richmond, 6 May 1860. (*Richmond-Atkinson Papers*, Vol 1, p.577.); Gilbert, p.56; Alexander, p.265.

³¹ J.C. Richmond to Mary Richmond, 6 May 1860. (*Richmond-Atkinson Papers*, Vol 1, p.577.)

³² R. Brown, 'Description of the Military and Naval Expedition from Taranaki to the Warea Pa, April 1860', 26 April 1860. (WTU, Brown Papers, MS-2561.)

³³ Gilbert, pp.136-7.

³⁴ Cowan, pp.211-19; Carey, p.198; Battiscombe, 29 Dec 1860.

the imperial troops were actually available for field duty, and that that only occurred during the final months of the war.³⁵

The fighting capacity of the local troops and Maori allies was similarly limited. Officially, 600 Taranaki Militia and Volunteers served during the war, although here too the figures are misleading. While the Taranaki Militia had a paper strength of 425, it could muster 'barely 100' of these in any circumstances less than an attack on the town itself. The colonial troops' effectiveness was undermined by a range of factors, including their having to continue their civilian vocations while still being available for military service; inadequate equipment, ammunition, clothing and shelter during the early stages; and disagreement between the civil and military authorities over how they should actually be used. About 14% of the colonial force actually worked as boatmen throughout the campaign, while others served in support of the Commissariat as butchers, bakers, grocers, bullock drivers and storemen. (A number of these contractors were killed in the course of their duties, most of them by being ambushed while bringing in stray cattle for slaughter or moving supplies between posts.) The Militia were paid one shilling per day by the Colonial Government and provided with rations of bread, meat, fuel and candles by the Commissariat. They purchased their ammunition from the Colonial Government, at a price of one shilling and sixpence per dozen rounds. Their pay was increased in March 1861, but in return they were expected to purchase their own rations, uniforms, and other requirements.³⁶

The Maori allies acted as scouts, guides, escorts and navvies, and occupied the New Plymouth Mission School, a defensive strongpoint south of the town. In return they were supplied with rations, uniform (a blue serge jacket with a large white bullseye on the back to assist with identification), ammunition and arms by the Commissariat. Contemporary military opinion questioned their value and reliability, however. There were suggestions that some chiefs declared for the British, but changed sides once they had been issued with ammunition; and that some of the saplings provided by the

³⁵ J. Belich, *Making Peoples: A History of the New Zealanders From Polynesian Settlement to the End of the Nineteenth Century*, Auckland: Allen Lane, 1987, p.236; J. Belich, *The New Zealand Wars and the Victorian Interpretation of Racial Conflict*, Auckland: Penguin, 1985, pp.82, 103; Eyre-Kenny, pp.110-1; Carey, pp.34, 163.

³⁶ Carey, pp.44-8; J.D. Huston, 'Colonial Force Effectiveness in Regional Conflicts: The Taranaki and Whanganui Theatres, 1860-1869', MA, University of Waikato, 1998, p.13; Alexander, p.166, 265, 269-70; Eyre-Kenny, pp.110-1; Wells, p.216; F. Ronalds to E. Ronalds, 3 Apr 1860. (*Richmond-Atkinson Papers*, Vol 1, p.551.); M.A. Atkinson to A.S. Atkinson, 27 Feb 1861. (*Richmond-Atkinson Papers*, Vol 1, p.692.)

friendly Maori for the production of sap rollers and gabions came from enemy sources, with whom the friendly Maori shared their payments.³⁷

The combined effects of these logistical problems directly influenced the way in which the war was conducted. For their part, the Maori were able to concentrate their forces with relative freedom and move against almost any point on the defensive perimeter with minimal risk of exposure, so that even farms within a few miles of New Plymouth could be easily isolated and attacked, and their produce denied to the civilian population and British garrison. Before the war had even started, there were indications that the Maori would employ such tactics:

my Natives tell me that after the first brush with the troops, W[iremu] King[i] does not purpose meeting them again, but by day and by night to cut off out settlers and their families, slaughter all the cattle and destroy the homesteads, these last will not however be burnt until they cease to attract their owners to look after them.³⁸

For most of the war, then, Maori strategy was essentially offensive-defensive. It aimed to provoke the British and colonial troops into mounting set-piece attacks against defended positions, which would thereafter be abandoned, and the process repeated. The provocation included ambushing isolated settlers, work parties, and contractors and destroying farmhouses, and continued throughout the war. In addition, 187 farmhouses were sacked and burned, often in broad daylight, and sometimes within rifle range of the stockades.³⁹

While the British response was essentially negative and reactive, it was still the best response for the circumstances. With neither sufficient effective troops nor the logistical means to mount sustained offensive operations, and hampered by an uncooperative civilian population, they were forced into a defensive posture from the outset, and had perforce to maintain it until such time as they could improve their own numerical strength and logistical capacity. They therefore avoided direct contact with concentrations of hostile Maori, and instead sought to weaken their opponents' logistical position through a series of major expeditions against Maori cultivations. One expedition to Tataraimaka and Warea, several kilometres south of New Plymouth,

³⁷ S. MacLean, 'A Place of Learning', *NZ Historic Places*, Sep 1993, 43, pp-11-14; Wells, pp.206, 222-3; Alexander, p.224; Gilbert, pp.51-2; *Nelson Examiner*, 5 Sep 1860; C. Brown to C.W. Richmond, 19 February 1860. (*Richmond-Atkinson Papers*, Vol 1, pp.522-4.);

³⁸ C. Brown to C.W. Richmond, 19 Feb 1860. (*Richmond-Atkinson Papers*, Vol 1, p.524.)

³⁹ J.W. Fortescue, *A History of the British Army*, Vol 8, London: MacMillan, 1910, pp.481-2; Belich, *The New Zealand Wars*, pp.104-7. Lt Col Carey identified this as the basis of Maori strategy during the war itself. (Carey, pp.87-9.); *New Zealand Examiner*, 11 Feb 1861; Cowan, p.219.

over the period 20-30 April involved over 500 men, three guns, and 46 bullock carts. This expedition recovered an enormous quantity of produce, as well as destroying crops, a number of iron ploughs and harrows, and a Maori flour mill. Participants' accounts make it clear that the soldiers' actions were not cases of wanton or opportunistic vandalism, but were instead part of a counter-logistics strategy intended to weaken the enemy's ability to resist.⁴⁰ These counter-logistics' expeditions were widely misunderstood by the settlers as being of little military worth, and as an inadequate substitute for direct confrontation with the Maori. Again, most of the criticism was directed at Gold:

Is [it] really possible that a man calling himself a soldier should put the country to the vast expense that this expedition must have cost without effecting any one object with the exception of destroying a few pah's, empty of course, and a great quantity of wheat and oats. Can the Colonel expect anything else but contempt for conduct of this kind?⁴¹

The military operations conducted by British and colonial forces during 1860 must therefore be seen in the context of this defensive strategy. The first of these was the battle of Waireka, fought on 28 March.

In the early afternoon of 28 March, two columns of troops – one of imperial Regulars, and the other of Militia and Volunteers – marched out from New Plymouth to gather up the settlers from the Omata-Waireka district to the west of the town and bring them back to New Plymouth. The Militia and Volunteers' route took them along the beach, and as they approached the first of the coastal farmhouses they were engaged by an unknown number of Maori skirmishers. The imperial troops, who had advanced along a road running parallel to the beach, engaged the Maori with long range rifle fire and a few Congreve rockets, until they were ordered by the operational commander, Lieutenant Colonel Murray, to withdraw to New Plymouth.

The received version suggests that while the colonial troops were trapped under heavy fire, one of their number rode back to New Plymouth for help, which came in the form of a party of sailors and marines from HMS *Niger*. The sailors and marines apparently captured a Maori pa overlooking the battlefield, drove off the attackers, and thereby saved the situation. By contrast, Belich has argued that the threat to the troops was not as great as has been claimed, that there were only a few Maori present, and that

⁴⁰ Brown, 'Description'; Barber, p.47; K. Day, 'Iwi Flour Mills', *NZ Historic Places*, 55, Sep 1995, pp.26-8.

⁴¹ Grayling, 29 Apr 1860. See also J.W. Marshall to W. Sawson, 12 May 1860. (WTU, J.W. Marshall Papers, MS-1553.)

Pakeha claims of the number of Maori dead (Cowan suggests that 50 Maori were killed) were a significant overestimation.⁴²

While a full review of the two arguments is beyond the scope of this study, consideration of the logistical aspects of the operation permits a number of observations about the state of British tactical-level logistics in New Zealand at the start of the 1860s, particularly the lack of cooperation between the imperial and colonial forces and the mindset of the Commissariat. Although the imperial troops were armed with modern Enfield rifles and rockets, and carried their normal issue of 120 rounds of small arms ammunition, the Militia were equipped with Enfield rifles and only 18 rounds per man, and the Volunteers with older percussion cap smooth-bore muskets and 30 rounds per man. There seems to have been no suggestion of more Enfield ammunition being made available from imperial sources for the Militia. The lack of logistical preparation for the operation is underlined by the fact that no provision was made 'for [extra] ammunition or food, or the wounded in case of any engagement,' despite the fact that there were carts available.⁴³

This supports Belich's suggestion that the size of the threat and the scale of the battle have been exaggerated. Although no accounts detail how long the colonial troops were engaged by the Maori, it is likely that they were in action from about 3 p.m. until nightfall, a period of at least three hours, during which time they used up almost all their ammunition. This suggests two possibilities: either that the Volunteers and Militia displayed an extraordinary (given their lack of training and experience) level of fire discipline; or that there were fewer targets within range than the accounts implied, and that the threat was more apparent than real. The ease with which a number of personnel were able to move through the Maori cordon and the surprisingly low number of casualties – two dead and eight wounded⁴⁴ – tip the balance in favour of the latter possibility.

There is also evidence that the Commissariat still retained something of its obsession with regulations and book-keeping. In a letter written a few days after the battle, Maria Atkinson (whose brother-in-law Harry led a company of Taranaki Rifle Volunteers during the battle) recalled that:

⁴² Cowan, p.465; P. Maxwell, *Frontier: The Battle for the North Island of New Zealand, 1860-1872*, Auckland: Celebrity Books, 2000, pp.27-34; Belich, *New Zealand Wars*, pp.84-9.

⁴³ Holt, p.153; M. Atkinson to E. Atkinson, 6 Apr 1860. (*Richmond-Atkinson Papers*, Vol 1, p.522.)

⁴⁴ H.A. Atkinson to C.W. & E. Atkinson, 6 Apr 1860. (*Richmond-Atkinson Papers*, Vol 1, p.553.); Maxwell, p.30; Cowan, Vol 1, pp.175-80, 465. Cowan gives the total Pakeha casualties for the battle as two dead and 12 wounded, including four sailors wounded during the assault against Kaipopo pa.

All seemed confusion in town, people tearing about late in the afternoon for carts and at last sending them off empty for the wounded. Not an officer ... thought of sending bite or sup to men most of whom had left without dinner, who had been fighting for hours and had a long fatiguing walk home Black [a Commissariat official] thought something should be done but had no orders He called James [Atkinson] from the little back parlour who instantly ... said the bread might if necessary be put down to his account, the red tape boobies hummed and hawed and made difficulties about complicating the accounts and so would have sent nothing because they could not tell whether the food or brandy would be used by the troops or volunteers!⁴⁵

In August, Arthur Atkinson travelled to Auckland, where he met with Governor Gore-Browne. During the meeting, Gore-Browne

related to me how many camels, horses &c, he had found it necessary to take with him in India to carry stores. This rather tickled me. I said I thought the Commt. department at Taranaki was not quite perfect ... if he saw it (the Commat. Dep) managing its own bullocks he would think they were quite as well in the hands of their original owners. I also mentioned how they could not send out bread to us at Waireka 'for fear of making confusion in their acct's'. This excited him a good deal & he was very near swearing at them [the Commissariat].⁴⁶

Even if one allows for the well-documented antipathy between the leading families in the province – the Atkinsons and Richmonds included⁴⁷ – and the military authorities, the proximity in time of these events to the Crimean War suggests that these comments may have had at least some basis in fact.

In mid-May, Governor Gore-Browne directed Colonel Gold to suspend operations until reinforcements had arrived, the military position had become more favourable, and the stance of the Waikato tribes could be ascertained. Gore-Browne reiterated this order in early June. On 27 June, however, 350 British and colonial troops attacked the twin defensive positions of Onukukaitara and Puketakauere, to the south of the Devon Road. The resulting defeat cost the British 30 dead and 34 wounded, against about five Maori killed and 12 wounded.⁴⁸

Although Belich correctly notes that Puketakauere was one of the heaviest British defeats of the New Zealand Wars, his suggestion that the battle had 'profound

⁴⁵ J.M Atkinson to C.W. and E. Atkinson, 6 Apr 1860. (*Richmond-Atkinson Papers*, Vol 1, p.556.)

⁴⁶ A. Atkinson Journal, 21 Aug 1860. (*Richmond-Atkinson Papers*, Vol 1, p.628.)

⁴⁷ James and Henry Richmond were Maria Atkinson's brothers. (F. Porter, 'Atkinson, Jane Maria', *Dictionary of New Zealand Biography*, Vol 1, (ed) C. Orange, Wellington: Department of Internal Affairs, 1990, p.9.)

⁴⁸ Gore-Browne to Gold, 17 May 1860, repeated on 6 June 1860. (*AJHR*, 1860, E3c, p.4.); J.W. Marshall, 12 May 1860; Miller, pp.35-36; Cowan, p.465; J.C. Richmond to C.W. Richmond, 2 Jul 1860. (*Richmond-Atkinson Papers*, Vol 1, p.607); Belich, *New Zealand Wars*, pp.95-6. Belich notes that various Pakeha accounts placed the number of Maori dead in excess of 150, but proves conclusively the lower figure of five.

strategic and political effects' on the course of the war⁴⁹ is more difficult to sustain. In fact, British strategy did not change either after or as a result of Puketakauere. Even if they had won at Puketakauere, the same factors that had initially forced them into a defensive strategy – primarily problems with logistics and refugees – would still have needed to be resolved before they could undertake sustained offensive operations.

The arrival of Major-General Thomas Pratt in August gave new impetus and purpose to the British war effort. Whereas Gold seems to have given little thought to how he would engage the Maori once he had consolidated his position and completed his logistical buildup, Pratt looked beyond this stage to the actual process by which the offensive could most effectively be taken to the enemy in the longer term. The result was a further development of the thinking of Power and others in the late 1840s, to provide a strategy that would break the Maori resistance in Taranaki. The new strategy involved conducting a prolonged campaign, backed by sound logistical support, to tie and wear down the Maori. The military appreciation process that led to the development of the strategy can be traced through two contemporary accounts of the First Taranaki War: Lieutenant Colonel Robert Carey's *Narrative of the Late War in New Zealand* (1863), and Colonel Sir James Alexander's *Incidents of the Maori War* (1863).⁵⁰

During the First Taranaki War, Carey served as Pratt's Deputy Adjutant-General (DAG), a posting which involved him intimately in operational planning and advising the General. Carey proved a capable staff officer, and later served as DAG to Pratt's successors in New Zealand, Lieutenant General Sir Duncan Cameron (under whom he played an important role during the planning for the Waikato campaign) and Major General Trevor Chute.⁵¹ Alexander was the Commanding Officer of the 14th Regiment, and while he was probably not as close to the General as Carey, he was one of the most experienced tactical commanders in New Zealand.⁵² As such, both Carey's and Alexander's works provide insiders' perspectives on the development of British strategic thought in New Zealand, and in particular on how the British used their own logistical strengths to attack the logistical weaknesses of the Maori during the critical first half of the 1860s.

⁴⁹ Belich, *New Zealand Wars*, p.92.

⁵⁰ R. Carey, *Narrative of the Late War in New Zealand*, London: Richard Bentley, 1863; J.E. Alexander, *Incidents of the Maori War*, London: Richard Bentley, 1863.

⁵¹ 'Carey, Major-General Robert', *The Oxford Companion To New Zealand Military History*, (ed) I. McGibbon, Auckland: Oxford University Press, 2000, p.79.

⁵² Alexander subsequently wrote a second book, on the Waikato War. (J.E. Alexander, *Bush Fighting*, London: Richard Bentley, 1873.)

In *Narrative*, Carey identified the key aspects of what Belich refers to as the modern pa strategy. Accordingly to Carey, the Maori sought to:

keep the war at a distance from their homes and cultivations; to take up positions naturally strong, the only value of which was that they were difficult of access; to cause much loss of life to the attacking party in its advance; to retreat and to vacate the post without coming to close quarters. By these measures they usually inflicted heavy losses on us and sustained little themselves⁵³

Alexander similarly identified the fundamental aspects of the pa strategy, including the pa's expendability, lack of strategic value, and use as a means to attrite and demoralize the British forces with little risk to the Maori.⁵⁴

As Power had done in the 1840s, both Carey and Alexander argued that as the British were better able to sustain military operations than the Maori, the best way to defeat the Maori was through a prolonged campaign, and preferably one that did not expose British troops to the dangers of costly, unnecessary frontal assaults against pa.⁵⁵ This meant that Pratt faced two challenges: he had to build up the logistical resources required to support a prolonged campaign; and find a way to either break the Maori resistance or render further resistance pointless, while at the same time limiting the cost to his own troops.

He met the first challenge by reducing the logistical demands being made on the army, consolidating the assets he had available, and acquiring additional assets from out-of-theatre. He withdrew the outlying garrisons deployed south of New Plymouth, as part of a wider redeployment of his military assets. The Tataraimaka garrison ('completely isolated, no earthly use, and 300 men have to march out to them every Sunday with provisions, ammunition, &c') was withdrawn to Camp Waireka on 26 August. Camp Waireka was in turn broken up on 7 September, much to the anger of the Omata-Waireka settlers and local militia. Pratt thereafter reduced the New Plymouth garrison to just 400 men, and redeployed the bulk of the remainder to Camp Waitara, which now became the base of operations against Te Atiawa. By ceding the strategically insignificant Tataraimaka post, he was able to shorten his lines of communication and concentrate the major part of his forces closer to the enemy. Next, he arranged for additional horses and bullocks to be brought in from Auckland and Australia. He also tried to evacuate more families from New Plymouth, although this met with little success.⁵⁶

⁵³ Carey, pp.88-9.

⁵⁴ Alexander, pp.308-9.

⁵⁵ Carey, pp.91-4; Alexander, pp.308-10.

⁵⁶ Battiscombe, 26 Aug 1860; Marjouram, 7 Sep 1860. (Cited in Barber, p.67.); Carey, p.143; Blades, p.117; Alexander, p.296; Holt, p.161.

While he was consolidating his logistical position, Pratt continued to send out expeditions against Maori cultivations and outlying positions. In late August, an expedition destroyed the villages of Manukorihi, Tikorangi, Ninia and Tima (the latter two of which were fortified), and cleared the country between Waitara and the Bell Block. On 4 September Pratt led a large expedition through the Waireka district to Burton's Hill, and destroyed Ratapihipihi pa. On 9 September, he led another expedition through the Kairau-Huirangi plateau south of the Waitara River, destroying four villages and capturing a number of horses and cattle. This operation was supported by 50 bullock carts, and was the largest mounted in New Zealand to that point,⁵⁷ thereby demonstrating the growing improvement in the scale and effectiveness of the logistical support available to the Army.

Having thus begun to address the first challenge, Pratt now revealed how he intended to break the Maori resistance. This would be achieved through the use of sapping: digging covered approach trenches up to pa, to enable an attacking force to close with the enemy while being protected from fire. Sapping used one of the British Army's inherent strengths, its ability to remain in the field indefinitely provided that it could sustain itself, to attack a fundamental Maori weakness – the inability of Maori war parties to remain in the field for long periods, particularly over the planting season.⁵⁸ Sapping was thus linked to logistics in two ways: in a positive sense, it needed to be supported by strong and effective British logistics; and in a negative sense, it indirectly attacked Maori logistics, by tying down Maori war parties over the period that they would otherwise be engaged in planting and gathering food.

Pratt seems to have reached this conclusion soon after arriving in Taranaki, for in late August he directed the Naval Brigade to begin making gabions and sap rollers. While gabions are used in both offensive and defensive entrenchments, sap rollers are only used when entrenchments are being dug within range of enemy small-arms fire, such as occurs with the digging of a sap. They were constructed from supplejacks provided under contract by friendly Maori, and from 40 cart-loads of pallisading taken from Puketakauere after the Maori abandoned the pa on 25 August.⁵⁹ Three points require emphasis here. First, it is clear that Pratt decided on a strategy of sapping from the very outset. Second, once the decision had been made, a considerable effort was made over a long period to ensure that sufficient stockpiles of gabions and sap rollers were established in order to implement the strategy. Finally, Pratt also ensured that

⁵⁷ Cowan, pp.190-2; Alexander, pp.190-4; M. Ronalds Letter, 25 Sep 1860. (WTU, MS-4298-015.); A.S. Atkinson Journal, 16 Sep 1860, *Richmond-Atkinson Papers*, Vol 1, p.634.

⁵⁸ Carey, pp.91-4; Alexander, pp.308-10; Barber and others, p.91; Cowan, p.202.

⁵⁹ Battiscombe, 26, 29 & 31 Aug 1860.

the army's most serious logistical problems – supply and distribution – were addressed, in order that sustained operations could be undertaken. This process was not completed until the end of 1860.

Pratt first used sapping during two expeditions through the district south of New Plymouth, in October. On 9 October, a force of over 1000 imperial and colonial troops and Maori allies, well supported by artillery, was sent out to reduce three pa on the banks of the Kaihihi River (30 kilometres from New Plymouth). When his artillery was unable to breach the pallisades of the first pa, Orongomaihangī, Pratt ordered a sap to be dug up to it. The sap reached the pa by the morning of 12 October, and while preparations were being made to blow a gap in the pallisade, the defenders abandoned the position. A detachment crossed the river and captured the second pa, Mataiaio, without opposition, while the third pa, Puke-kakariki, was abandoned after a short bombardment.⁶⁰

After inflicting a heavy defeat on the Maori in a set-piece engagement at Mahoetahi on 6 November,⁶¹ Pratt paused to complete the preparations for what was to be the final campaign of the war: the capture of a series of three pa alongside the Waitara River, Matarikoriko, Huirangi, and Te Arei. On 29 December, a force of 900 men and four guns crossed the coastal plain. While some of the troops threw up a redoubt on the site of the old Kairau pa (which had been destroyed on 11 September), a kilometre west of Matarikoriko, the remainder continued to advance upon Matarikoriko. Work on the redoubt continued throughout the day, all the while under a heavy fire from a wooded gully nearby. Pakeha accounts refer to a 'hot and fierce [Maori] fire ... volley after volley [fired] into us with a well-sustained vigour,' between 1p.m. and sunset. The British troops responded with 70,000 rounds of small arms ammunition and 120 rounds of shot and shell. The Maori abandoned Matarikoriko during the night of 30/31 December.⁶²

On 14 January 1861, Pratt led another force of nearly 700 men from Camp Waitara towards Huirangi pa. A second redoubt was established about 500 metres forward of Kairau Redoubt. Again, the diggers worked under fire, supported by members of their own column and small arms and artillery fire from Kairau redoubt. The new redoubt (No. 2 Redoubt) was completed in eleven hours, and garrisoned with

⁶⁰ Cowan, p.192; Maxwell, pp.43-4.

⁶¹At Mahoetahi, British columns from New Plymouth and Camp Waitara attacked a force of 150 Waikato on an old pa site beside the Devon Road. 50 Maori were killed and 60 wounded during the attack and ensuing rout. Cowan, p.194-5; Maxwell, pp.44-7; Carey, p.125-6.

⁶² *Otago Witness*, 26 Jan 1861; Carey, p.152; Pratt to Gore-Browne, 30 Dec 60. (*New Zealand Gazette*, 1861, p.1.); Cowan, pp.202, 465.

120 men and an artillery piece. Four days later, a 1000-strong force established a third redoubt (No. 3 Redoubt) 400 metres forward of No. 2 Redoubt. No. 3 Redoubt was garrisoned by 300 men, with an 8-inch howitzer.

On 22 January, the troops began to sap from No. 3 Redoubt towards Huirangi. The following morning, apparently unsettled by the British tactics, a force of 140 Waikato and Te Atiawa counterattacked No. 3 Redoubt. The attack was repulsed with heavy Maori casualties. For the next two months, the British sapped inexorably towards the Maori positions, constructing another five redoubts in the process, and advancing at an average of 50 metres per day. Huirangi was abandoned at the end of January, leaving the way to the final pa, Te Arei, clear. The final drive towards Te Arei began on 10 February, and continued until a truce was declared on 17 March.⁶³

Two aspects of the logistical support for this final campaign illustrate how much Pratt's logistical position had improved. The first of these was distribution. Although the army never had as many land distribution assets as Pratt would have wished, as a result of the changes he had made in August 1860 and the work he had done to bring additional distribution resources into the theatre there were at least sufficient bullock carts available to carry the ammunition, food, and other supplies required on a continual basis. These ensured that the army was able to sustain itself in the field for the duration of the operations.

The second aspect was the quantity and quality of British firepower. Whereas ammunition had been in short supply during the early months of the war, subsequent improvements in the supply and distribution networks had meant that by the end of the year they were able to deliver and sustain overwhelming firepower at the point at which it was required. As a result, the British were able to fire considerably more ammunition than had been available during the first months of the war. For example, the volume of British fire at Matarikoriko on 29 December 1860 (70,000 rounds) was probably ten times that at either Waireka or Puketakauere. As another example, an account of the Maori attack against No. 3 Redoubt on 23 January 1861 noted that 'the ammunition fired away [by the troops] must be astounding, and the labour of the men excessive; they keep loading and firing without aim the whole day.'⁶⁴

⁶³ Cowan, pp.205-10, 465; Belich, *New Zealand Wars*, p.109; Maxwell, p.54; Ryan & Parham, p.46.

⁶⁴ *Southern Cross*, 19 Feb 1861; J.C. Richmond to Mary Richmond, 18 Mar 1861. (*Richmond-Atkinson Papers*, p.695.)

The British artillery also proved increasingly effective during the final months of the campaign, particularly following the introduction to service of the new Armstrong guns.⁶⁵ One chief claimed after the war:

We did not like the shells ... before this we used to leave off fighting at six o'clock, cook our meals and rest for the night; but now in the dark, one of these great things comes down upon us, buries itself in the ground, then there is a sort of earthquake, it blows up, and we are scattered with pieces of iron, and get no peace.⁶⁶

There is a remarkable similarity between this and a number of statements made by the defenders of Ruapekapeka pa in January 1845, when explaining their own decision to cease hostilities and seek an accommodation with the government.⁶⁷ As was the case with Ruapekapeka, however, the improved performance of the artillery largely reflected the improvements made by the British commanders to the logistical network required to transport the guns into the theatre, and thereafter sustain their use for a prolonged period. These improvements in turn reflected the ongoing development of a logistics-based strategy by the British. That strategy would be demonstrated with greatest effect during the next war, the invasion of Waikato.

⁶⁵ Alexander, pp.415-25.

⁶⁶ Cited in Alexander, p.301.

⁶⁷ See, for example, C. Bridge, 'Journal of Events on an Expedition to New Zealand. Commencing on 4 April 1845', 1845-46, 7 Jan 1846. (WTU, MS-0257-0258.); Kawiti to Grey, 19 Jan 1846, G 30/9, pp.156-7. (Cited in I. Wards, *The Shadow of the Land: A Study of British Policy and Racial Conflict in New Zealand, 1832-1852*, Wellington: Department of Internal Affairs, 1968, pp.201-2.); and T.L. Buick, *New Zealand's First War*, Wellington: Government Printer, 1926, pp.251-2.

Chapter Six:

The Waikato War: 1863-64

The Waikato War was the decisive campaign of the New Zealand Wars. It resulted in the dislocation of the Waikato tribal confederation, the confiscation of over 400,000 hectares of Maori land, and the opening of the region to an irreversible tide of European settlement. In the context of this study, it represented the 'high tide' of British military logistics in New Zealand, and continued the revolution in British military logistics that had begun after the Crimean War.

In his final report on the campaign, Deputy Commissary-General Stanley-Jones suggested that 'the campaign was one of the best prepared and best organised ever undertaken by the British army.'¹ Most of these preparations involved logistical imperatives – specifically the development of lines of communication and distribution networks. These are discussed in turn below.

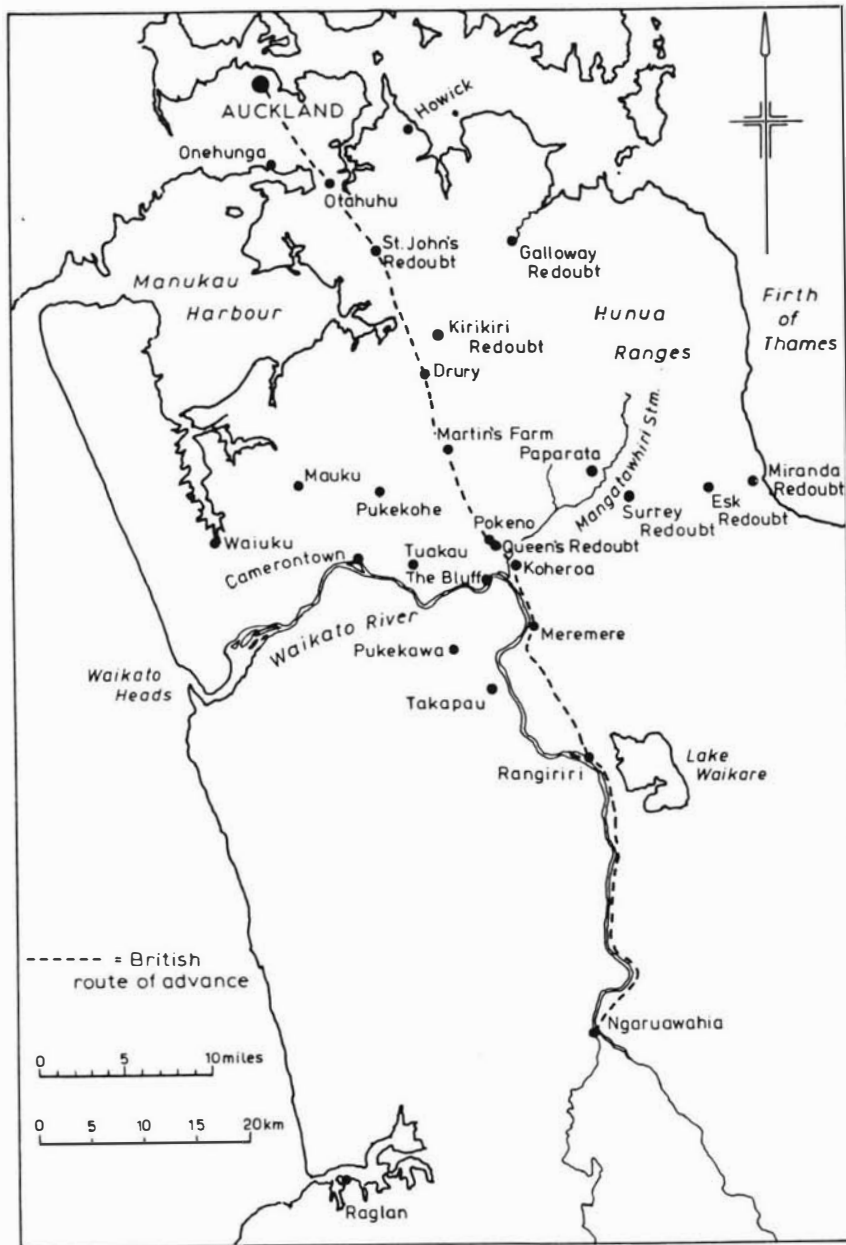
Development of lines of communication and logistics infrastructure

The Waikato had been the object of colonial ambitions since at least 1855, when the Auckland Provincial Superintendent had advocated 'look[ing] to the occupation of the Waikato and to the Waipa.' Governor Gore-Browne proposed invading the Waikato in early 1861 (during the latter stages of the First Taranaki War), although he was dissuaded on military and political grounds.² Instead it was left to his successor, Sir George Grey (who reached New Zealand in September 1861), and the General Officer Commanding the newly-established New Zealand Command, Lieutenant General Duncan Cameron, to plan and execute the invasion.

Although Grey and Cameron subsequently became estranged over the direction of the wars, they appear to have had a good working relationship between 1861 and 1863, and this greatly assisted the preparations for war in the Waikato. Grey's attempts to gain access to the Waikato have usually been seen as two distinct, but related, policies. The first, the so-called Peace Policy, included trying to extend European-style administrative and judicial institutions into the Waikato on the one hand, and political manoeuvring to isolate the Kingite tribes and undermine the King as a Maori figurehead on the other. The second policy, the War Policy, included developing the

¹ Stanley-Jones to War Office, 29 Oct 1864. (WO 33/17A.)

² *Auckland Provincial Council: Acts and Proceedings*, Session 3, 1855, p.3; *New Zealander*, 28 Mar 1855; H. Sewell, *Letter to Lord Lyttelton: The New Zealand Native Rebellion*, London:



South Auckland: 1863-64

(Source: J. Belich, *The New Zealand Wars and the Victorian Interpretation of Racial Conflict*, Auckland: Penguin, 1986, p.121.)

infrastructure required to support an invasion, and assembling the military resources and personnel to carry it out. The two policies were implemented concurrently, with the intention that if access to the Waikato could not be achieved through the Peace Policy, the invasion that had been planned under the War Policy would be carried out.³ The logistical preparations, then, were part of the War Policy.

Cameron began contingency planning for the invasion in April 1861, when he sent a Royal Engineers officer into the Waikato with one of the Native Commissioners, to gather information on potential invasion routes.⁴ It was clear from the outset that the Waikato River would be the key to the invasion. The river rose in Lake Taupo and flowed north to the Hunua Ranges, and then west to the sea. A major tributary, the Waipa River, joined the Waikato at Ngaruawahia. Steamers could potentially deploy on the Waikato as far south as the native village of Pukerimu, while the deeper, narrower and slower-flowing Waipa was navigable as far south as Te Rore by steamer, and Te Awamutu in smaller craft.⁵

By May 1861, Cameron had identified four possible invasion routes: by sea to the Firth of Thames, then to a landing site 40 kilometres up the Piako River, followed by an overland advance on Ngaruawahia; by sea to the mouth of the Piako River, followed by a direct overland advance on Ngaruawahia; by sea to Raglan, then over the Pirongia Range to Ngaruawahia; or overland from Auckland to the Mangatawhiri Stream, then down the east bank of the Waikato to Ngaruawahia. The first three routes would each involve a combined (land and sea) operation.⁶

The problem with all four options was the paucity of land communications in the theatre. While there were adequate roads in the Waipa Basin, the central region between Ngaruawahia and Mangatawhiri was less promising: the west side of the river was heavily forested, while the 'well-worn' tracks on the eastern bank were inadequate for military use. Even had this not been the case, however, the river would probably

MacMillan, 1864, pp.3 & 11; Gore-Browne to Cameron, 14 Apr 1861. (WO 33/10, Paper 147, Encl No. 2).

³ K. Sinclair, *The Origins of the Maori Wars*, Auckland: Auckland University Press, 1957, pp.237-8, 242-3.

⁴ Cameron to Military Secretary, 6 May 1861. (WO 33/10, Paper 147.); Gorst to Native Minister, 25 Feb 1863, *AJHR* 1863, Ei, p.23.

⁵ C. Heaphy, *Narrative of a Residence in Various Parts of New Zealand*, London: Smith, Elder & Co, 1842, p.91; F. von Hochstetter, *New Zealand*, Stuttgart: Cottascher Verlag, 1863, p.318; 'Transport in Te Awamutu', *Te Awamutu Courier*, n.d. (TAM); J.E. Gorst, *The Maori King*, London: MacMillan, 1864, p.19; J. Featon, *The Waikato War, 1863-1864*, Auckland: John Henry Field, 1879, pp.8-9.

⁶ Cameron to Military Secretary, 6 May 1861. (WO 33/10, Paper 147.) (A sea route from Auckland via the Waikato Heads was rejected as being impracticable, as the mouth of the Waikato was 'rendered too difficult and intricate by shoals and islands for that [part of the] river to be used as a line of operations.')

still have been the best means of distribution, since waterborne transport has historically been considerably more efficient than land transport. (In such circumstances, the latter would usually function to support the former in the first instance, and as a backup in case it failed.)⁷

The development of the lines of communication and logistics infrastructure began with the construction of the Great South Road through south Auckland. During 1861, imperial troops established a redoubt at Drury and improved the road back to their main base at Otahuhu, and in late December began laying a road from Auckland to the Mangatawhiri Stream (the northern boundary of Waikato). The road was made from planks cut from locally-felled trees and laid side-by-side to a width of 6½ metres, and metalled to a width of 5½ metres to make it suitable for year-round military use. By June 1861, it had been completed as far as Pokeno, a few kilometres north of the Mangatawhiri.⁸

Other troops built redoubts and established encampments along the road. Camp Otahuhu and Camp Drury were enlarged and fortified; Queen's Redoubt was built at Pokeno during December 1861, and enlarged and upgraded the following year to include a depot, canteen, commissariat services, and a field hospital; and a small stockade, Bluff Stockade, was built at the junction of the Mangatawhiri Stream and the Waikato River, a few kilometres south of Queen's Redoubt. In addition, in early 1863 a telegraph line was installed from Auckland south. The construction of the line was supervised by the Quartermaster-General's Department (with technical direction from the Royal Engineers), and was accorded highest priority. The line reached Drury by the outbreak of war in mid-July 1863; Queen's Redoubt by late November (when it was used to advise Grey in Auckland of the capture of Rangiriri and Ngaruawahia); and Alexandra (Pirongia) and Te Awamutu a few months after the war.⁹

⁷ W. Fox, *The War in New Zealand*, London: Smith, Elder & Co, 1866, p.72; Gorst, pp.18, 34; J. Sinclair, *Arteries of War: A History of Military Transportation*, London: Airlife, 1992, p.18. See also J.S. Martin, 'Barging Ahead', *Army Logistician*, Jul-Aug 1996, pp.32-3; and J. Thompson, *The Lifeblood of War: Logistics in Armed Conflict*, London: Brasseys, 1991, p.15.

⁸ *AJHR*, 1862, Ei, Sect 2, p.49; N. Bartlett, 'Their Promised Land: Australia and the Maori Wars, 1840-1870', pp.236, 250-1. (AWM, MS-1048.); D.J. Gamble, 'Journals of the Deputy Quartermaster General in New Zealand, 1861-64', 28 Jan 1862, p.9. (AMIL, Gamble Papers.) [Referred to hereafter as 'DQMG Journals'.]; T.R. Mould, *Sketch of Military Proceedings in New Zealand, From the Termination of the Waitara Campaign in March, 1861*, London: Royal Engineers, 1869, pp.13-15; J.E. Alexander, *Incidents of the Maori War*, London: Richard Bentley, 1863, p.367-9; J.E. Alexander, *Bush Fighting*, London: Richard Bentley, 1873, pp.60-1; J. Binney and others, *The People and the Land: an illustrated history of New Zealand, 1820-1920*, Wellington: Allen & Unwin, 1990, p.73.

⁹ DQMG Journals, 22-29 Mar 1862, 24 May 1862, 9-18 Jun 1862, & 23 Mar 1863, pp.15, 21, 24, 29-30; J. Cowan, *The New Zealand Wars and the Pioneering Period*, Vol 1, Wellington: Whitcombe & Tombs, 1922, pp.246-50; Alexander, *Incidents*, pp.364-5, 376; Gorst, pp.301-2, 387; W. Race, 'Under The Flag: Reminiscences of the Maori (Waikato) War', pp.23-4. (WTU,

In the months immediately prior to the war, the friendly chiefs Te Wheoro and Waata Kukutai established pa respectively near the Bluff Stockade and halfway between the Bluff Stockade and the Waikato Heads. A major stores depot, Camerontown, was established adjacent to Kukutai's pa.¹⁰ From August 1863, Te Wheoro's and Kukutai's men began carrying stores and supplies between the Waikato Heads and the Mangatawhiri Stream, and subsequently further up the river as well.¹¹

The Great South Road was completed in March 1863, at a cost of £40,000. A second, less successful, road-building project also deserves mention. In early 1862, Grey offered to pay the friendly Te Awaiaia chief Wiremu Nera to build a road across his tribe's land, from Raglan to Whatawhata. The road would threaten Ngaruawahia from the rear, and give Cameron an alternative invasion route, a secondary means of supplying an invasion from another direction, or both. Nera agreed to the request, although opposition from within the Kingite confederation forced him to commence the road from Crown land at Raglan.¹² The road was unfinished when the war began, but Cameron was still able to use it to supply his army for a period in early 1864.

Distribution

These road developments were the first aspect of Cameron's logistical preparations: the second was the development of the distribution network needed to support the invasion. The distribution network spanned two environments: land (horse- and bullock-drawn wagons, and pack horses) and water (steamers, small boats and canoes).

As there were no Military Train units in New Zealand, a new agency, the Commissariat Transport Corps, was established as part of the Commissariat Staff Corps in mid-1861. The first two Transport Corps' companies were formed from personnel transferred from other units, and included an officer, a staff sergeant, five sergeants and 100 private soldiers. Soldiers were preferred to civilians as drivers because they were cheaper (it was estimated that a civilian driver would cost eight shillings per day, whereas a military driver would cost one shilling) and could be ordered to serve outside

Race Papers, MS-1671.); Bartlett, pp.251-61; General Order No. 474, 19 Feb 1863; Cameron to Grey, 21 Nov 1863 (*New Zealand Gazette*, 1863, p.503); Cameron to Grey, 9 Dec 1863 (*New Zealand Gazette*, 1863, p.521.); Featon, p.86; A. Plummer, 'My Experience Through Waikato War, 1863', p.5. (WTU, Plummer Papers, MS-2288.)

¹⁰ Gorst, p.368; G.F. von Tempsky, 'Memoranda of the New Zealand Campaign in 1863 and 1864', p.33. (WTU MS-2136-2140.)

¹¹ DQMG Journals, 18 Aug 1863 & 7 Sep 1863, pp.54, 57.

¹² Gorst, pp.232, 289-91; W. Fox Journal, *AJHR* 1863, E13, p.3; Mould, pp.14-15; Wiremu Nera to Grey, Apr 1862 (exact date unknown), cited in A.S. Atkinson Journal, 25 Apr 1862, & 3 Jun 1862. (*Richmond-Atkinson Papers*, Vol 1, ed. G.M. Schofield, Wellington: Government Printer, 1960, pp.756 & 761.); Bartlett, p.247.

settled districts. Further, civilian drivers would require military escorts in enemy territory. It was thus argued that the Transport Corps would cost less than what was currently spent on transport services.¹³

MacLean's Farm at Penrose was leased for £700 per year as the Transport Corps' headquarters. The first drafts of animals (150 bullocks, 150 packhorses, and 25 horses for field ambulances) were purchased from Sydney, Auckland and Taranaki, and 30 double draught carts and 450 pack saddles (half each for pack horses and draught bullocks) were manufactured under contract in Auckland. With over 200 men and 325 animals, the Transport Corps was able to justify having its own Director of Transport (J. Bailey), an Adjutant, a Paymaster and a Quartermaster. (The Quartermaster was responsible for the stores and equipment used by the Corps, rather than the army as a whole.)¹⁴

Once work began on the Great South Road, the Transport Corps' establishment was enlarged and restructured, so that by late January 1862 it included two captains, two subalterns, two staff sergeants, six sergeants, six corporals, 12 lance corporals, 22 mechanics (to maintain the carts and other equipment) and 148 privates. The War Office retrospectively approved the changes, but noted that the additional costs were to be borne by the Colonial Government.¹⁵ While the Transport Corps was being brought up to strength, additional transport resources were provided by Captain Mercer's Royal Artillery (RA) Battery.

From the outset, the logisticians had to balance scarce resources against a heavy workload. Their solutions to the problems encountered during the road-building and preparation phase, however, helped shape their responses when similar problems were encountered during the subsequent invasion: further, they helped create a culture of mental flexibility amongst the logisticians. For example, in early 1862 it became clear that there were insufficient wagons and draft animals to cover the route between Auckland and Queen's Redoubt; and that even if there were more, the road between Papakura and Drury was unsuitable for heavy movement in bad weather. The problems were overcome by the establishment, from March 1862, of parallel land-sea supply lines between Auckland and Queen's Redoubt. Under the new arrangements, the artillery transport, which had previously moved supplies from Auckland to Drury, transported supplies between Auckland and Onehunga, where they were handed over to the Transport Corps. The Transport Corps then moved the supplies by water to

¹³ Bailey and Stanley-Jones to Cameron, 4 Jul 1861. (WO 33/17A. Enclosure 2 to Letter 1.)

¹⁴ Bailey and Stanley-Jones to Cameron, 4 Jul 1861. (WO 33/17A. Enclosure 2 to Letter 1.); A.E. Tonson, *Old Manukau*, Auckland: Tonson Publishing House, 1966, p.65.

Drury, and by land to distribution points and depots to the south. In addition, the artillery continued to run two land convoys per week between Auckland and Drury, and civilian contractors were used to deliver stores to the camps. The changes enabled ten artillery carts to be freed up for frontline service, and more of the Transport Corps' transport to be dedicated to road-building tasks.¹⁶

Further transport assets became available for use by the Transport Corps as a result of changes to the way the army controlled its tentage. Prior to 1862, units held their own tentage and the transport assets required to move them, so that when one unit replaced another in the field, the unit being relieved would take its tents down to make room for the relieving unit's tents. As well as being inefficient, the practice increased the volume of traffic on the roads, tied up large quantities of transport assets, and caused health and morale problems (due to the ground having been exposed to the wet). From June 1862, however, tentage and camp stores were centralized under the Commissariat, and an Assistant Superintendent of Stores was appointed to control them. The changes meant that

the troops move unencumbered; the transport, which has of necessity been divided, is economized, and the men moving from the front are sure (whatever the weather may be in the most uncertain season of this uncertain climate) of cover, and of dry ground to sleep on.¹⁷

The increased availability of transport helped the road-building programme progress quickly during 1862. During April, for example, the Transport Corps moved a total of 2400 tons a distance of 17 kilometres, at a cost of £3960. By contrast, civilian transport would have cost £7200. As a consequence, when the Army went into winter quarters Cameron directed that the Transport Corps be maintained for service in spring, and that it assume responsibility for all military transport and distribution in Auckland province. A formal order to that effect was issued on 6 July. The Transport Corps' horses continued to ferry supplies and construction materials from Auckland to Otahuhu, Drury and Queen's Redoubt throughout winter, while the bullocks were turned out to grass and hay to restore their condition before spring.¹⁸

¹⁵ Cameron to War Office, 30 Jan 1862. (WO33/17A.); War Office to Cameron, 26 Apr 1862. (WO 33/17A.)

¹⁶ DQMG Journals, 1-3 Jan 1862 & 22 Mar-7 Apr 1862, pp.3-4, 14-15; Robertson to Stanley-Jones, 7 Sep 1864. (WO 33/17A, Encl. 1, No. 13.)

¹⁷ DQMG Journals, 6 Jun 1862, p.23.

¹⁸ Stanley-Jones to Whitmore, 29 Jun 1862. (WO 33/17A.); General Order No 316, from HQ, Auckland, 6 Jul 1862. (WO 33/17A.); Stanley-Jones to War Office, n.d. (WO 33/17A.); Stanley-Jones to Whitmore, 19 Jun 1862. (WO 33/17A.); Whitmore to Stanley-Jones, 27 Jun 1862. (WO 33/17A.)

The attribution of the Transport Corps' costs soon became a major cause of friction between the colonial and imperial governments. In a letter to Cameron in January 1863, the War Office acknowledged the measures taken by Deputy Commissary-General Stanley-Jones, but questioned his figures and the way that the Transport Corps was funded. It noted that Stanley-Jones' costings did not include wages, and suggested that if they were included the true cost of the Transport Corps would be several times that of hiring carts and drivers. The War Office therefore requested that the estimates be revised to include separate figures for wages, fodder, and the purchase of animals and equipment; an indication of how the total was to be split between the Army and the colonial government; and a forecast of the likely future employment of the Transport Corps, including whether it would continue to assist with road building, in which case expenses could be claimed from the colonial government.¹⁹

Cameron responded that the disposition of his troops in Taranaki and Auckland created problems that made hiring transport expensive and impractical. By April 1863, there were 4000 imperial troops in the two provinces. The Taranaki garrison was split between New Plymouth and Camp Tataraimaka, and although the two posts were just 19 kilometres apart, it cost £2 to hire a cart for a trip from New Plymouth to Tataraimaka. Even then, a magistrate's warrant was normally required to press civilian carts into service. (Indeed, the problems were such that Cameron had recently ordered a Transport Corps detachment to Taranaki.) Since the much larger Auckland garrison was distributed amongst five camps along the 55 kilometres from Camp Otahuhu to Queen's Redoubt, the cost of hireage there would be 'enormous'. After noting that the Transport Corps overcame the two main problems of civilian transport (expense and uncertainty of hireage), Cameron concluded that

The maintenance of a transport establishment is, therefore, under present circumstances, unavoidable, and all that can be done is to confine the expense within the narrowest limits possible, to which my attention is constantly directed.²⁰

An accompanying minute by DCG Stanley-Jones gave a breakdown of the figures for May-June 1862. They showed that the Transport Corps had incurred gross expenses of £3761, of which £683 had been recovered and £1500 was outstanding, making the net cost £1578 for the two-month period.²¹

¹⁹ War Office to Cameron, 26 Jan 1863. (WO 33/17A.)

²⁰ Cameron to War Office, 7 Apr 1863. (WO 33/17A.)

²¹ Stanley-Jones to War Office, 30 Jun 1863. (WO 33/17A.)

The military and colonial authorities also developed a littoral and brown water maritime capability, to provide direct and logistical support to military operations in the Waikato. In May 1861, Commodore Beauchamp Seymour, who as Commodore of the Royal Australian Station was Cameron's senior naval advisor, had recommended the acquisition of at least one steamer.²² In November 1862, Grey ordered a gunboat steamer (*Pioneer*) from the Australian Steam Navigation Company in Sydney, and purchased the steamer *Avon* in Lyttelton.²³ Two further steamers were ordered from P.N. Russell & Company, of Sydney, in October 1863.²⁴ *Avon* and *Pioneer* were modified for military service at a commercial foundry at Onehunga, with the installation of armoured turrets mounting single Armstrong guns (one for *Avon* and two for *Pioneer*) and additional iron plates along *Avon*'s bulwarks. The two ships reached the Waikato on 25 July and 3 October 1863 respectively, followed by the Russell-built steamers *Koheroa* in January 1864 and *Rangiriri* in April 1864. The steamers were used for moving troops and supplies, reconnaissance, bombardment of riverbank positions, and transporting prisoners of war and wounded personnel to the rear.²⁵

The Government also purchased four coastal sailing cutters for conversion to armoured troop and cargo barges, and had six smaller, flat-bottomed armoured craft ('flats') built for moving supplies. These vessels could either be rowed or towed by the steamers. They and their Royal Naval crews were based at Bluff Stockade.²⁶

A number of other vessels were acquired for coastal operations and transport. The paddle steamer *Tasmanian Maid*, which had served during the First Taranaki War, was purchased by the colonial government in 1863, fitted out as a gunboat, and renamed *Sandfly*. During the Waikato War she transported supplies in support of land operations on the Firth of Thames, and captured a 20-ton Maori cutter, *Éclair*, which was carrying provisions for the Waikato Maori.²⁷ The government also purchased the

²² Cameron to Military Secretary, 6 May 1861. (WO 33/10, Paper 147.)

²³ Grey to Secretary of State, 22 Nov 1862, *AJHR* 1863, A6, p.1.

²⁴ R.D. Campbell, *Captain Cadell and the Waikato Flotilla*, Wellington: Maritime Publications, 1985, p.9.

²⁵ DQMG Journals, 26 Sep 1863, p.61; Liverpool Papers, n.d. (WTU, Liverpool Papers, MS-0595.); J. O'C. Ross, *The White Ensign in New Zealand*, Wellington: Reed, 1967, p.87; Cowan, *New Zealand Wars*, Vol. 1, pp.309-11; Campbell, p.9; J. Bach, *The Australian Station*, Kensington: New South Wales University Press, 1986, p.77; Featon, p.35; C.G.S. Foljambe, *Three Years on the Australian Station*, London: Hatchard & Co, 1868, pp.32-3; W. Temple Papers, 21 Nov 63. (WTU, Temple Papers, MS-0139.)

²⁶ DQMG Journals, 26 Sep 1863, p.61; Liverpool Papers, n.d; Foljambe, p.37; Alexander, *Bush Fighting*, pp.55-6.

²⁷ H. Baillie, 'A New Zealand Naval Veteran', p.2. (WTU, QMS-0108.); 'Diary of a British Soldier at the Queen's Redoubt, 1863-1866', 2 Nov 1863. (WTU QMS-0445.)

coastal schooner *Ruby* (renamed *Caroline*) and leased the steam lighter *Corio* for service on the Hauraki Gulf. The imperial government purchased the paddle steamer *Lady Barkly* and the large screw steamer *Alexandra* in 1863. *Lady Barkly* was used to convey troops, stores and despatches within the Manukau Harbour and between Onehunga and the Waikato Heads (and once up the Waikato River as far as Tuakau), while *Alexandra* was used to transport troops and stores from Onehunga to the Waikato Heads, and during the later Taranaki Wars. Finally, in August the barque *City of Melbourne* was chartered to move stores to the Waikato, and serve as a floating stores depot.²⁸

The steamers (including those which were New Zealand-owned) and smaller craft were commanded by Commodore Sir William Wiseman, the new Commodore of the Australasian Squadron, and mainly crewed by Royal Naval personnel from the nine Australasian Squadron warships serving in New Zealand waters.²⁹

By the outbreak of war in July 1863, the available distribution assets included two companies of Transport Corps supported by a number of Royal Artillery wagon teams and crews, and a small number of steamers and small boats. These assets traversed lines of communication that included the Great South Road from Auckland to the Mangatawhiri Stream, the littoral regions between Manakau Harbour and the Waikato Heads, and the Waikato River itself.

The first stage of the distribution process involved moving stores and materiel from Auckland to the Waikato River. Most stores were moved via the Great South Road, although other routes and means were used at various times. These included a 3-4 day voyage by steamer from Waitemata Harbour to Port Waikato; a six-hour voyage from Onehunga to Port Waikato, which involved crossing the hazardous Manukau Bar; from Onehunga to the Waikato River via Awaroa Creek, using small canoes; and along the Great South Road to Mangatawhiri.³⁰

The distribution network grew in size and complexity throughout the campaign, to meet the logistical challenges imposed by the nature of the theatre, seasonal factors,

²⁸ Stanley-Jones to War Office, 6 Sept 1864. (WO 33/17A, Enclosure 18, No.1.); Campbell, p.9; Ross, p.90; J. Millen, *Salute To Service: A History of the Royal New Zealand Corps of Transport and its Predecessors, 1860-1996*, Wellington: Victoria University Press, 1997, p.27; Robertson to Stanley-Jones, 7 Sep 1864. (WO 33/17A, Encl. 1, No. 13.)

²⁹ Campbell, p.9; D. Fairfax, 'Wiseman, William Saltonstall', in *The Dictionary of New Zealand Biography*, Vol 1, (ed) C. Orange, Wellington: Department of Internal Affairs, 1990, pp.605-6; HMS *Esk* Logbook, 8-10 Dec 1863. (WTU QMS-0458.); Cameron to Secretary of State for War, 4 Aug 1863. (WO 33/17A.); H.L. Clowes, *The Royal Navy: A History from the Earliest Times to the Present*, Vol 7, London: Sampson Low Marston, 1901, p.179.

³⁰ Robertson to Stanley-Jones, 7 Sep 1864. (WO 33/17A, Encl. 1, No. 13.)

enemy action, and the rapid increase in the number of British and colonial troops engaged. Each of these challenges was met with considerable success.

The invasion of Waikato

The Waikato War began on 12 July 1863, when the vanguard of Lieutenant General Sir Duncan Cameron's army crossed the Mangatawhiri Stream and began preparing positions on high ground on the north-western spur of the Koheroa range. Five days later, the force attacked and dislodged the Maori from their positions on the high ground to the south. The ensuing war included four military phases: operations to clear the invasion and supply routes in the district immediately south of Auckland, between July and October 1863; the capture of Meremere and Rangiriri pa and occupation of Ngaruawahia (October to December 1863); the advance through the Waipa Basin, culminating in the destruction of the Maori food-basket at Rangiaowhia and the defeat of a large Kingite force at Hairini (January and February 1864); and final operations at Maungatautari and Orakau (March and April 1864).³¹ These phases are dealt with sequentially below.

The first phase of the Waikato War involved two aspects: a series of Maori guerrilla operations against soft, isolated military and civilian targets and the British distribution network; and the British response. The Waikato Maori had spent at least 18 months preparing for these operations. In late 1861, they had begun developing cultivations at Pukekawa and Paparata to support military operations in the south Auckland district; and in the months before the war they established a large base in heavy bush between Wairoa and Papakura. The Maori also planned for offensive operations against the settlements and supply routes in South Auckland, and probably against Auckland itself. These included riverine operations: when the Auckland Naval Volunteers searched the Mangere and Papakura Creeks immediately after the outbreak of war, they found 18 new canoes, each capable of holding 50-60 men.³²

The Maori had also constructed a series of defensive lines at Koheroa, Meremere, and Rangiriri, to dominate the likely invasion route from the north. The positions at Koheroa were neither developed nor garrisoned in strength, but rather were intended for an advance guard to report on and slow any force crossing the Mangatawhiri. The more powerful depth defences at Meremere and Rangiriri were

³¹ Cowan, *New Zealand Wars*, Vol 1, pp. 231-413; J. Belich, *The New Zealand Wars and the Victorian Interpretation of Racial Conflict*, Auckland: Penguin, 1986, pp. 119-76; R.J. Taylor, 'Matelots in Maoriland: The Waikato Flotilla and the Waikato War', in *Half A World Away*, (eds) D. Johnson & P. Dennerly, Auckland: RNZN Museum, 1998, pp. 35-51.

intended to withstand direct assault, and thereby block an advance upon Ngaruawahia. They were completed in mid-May, and were 'filled with rifle pits [sic], and covered over with earth, supposed to be shell proof.' Soon after the war began, further positions were commenced around Paterangi, in the Waipa delta.³³ Having established firm bases with foodstuffs close to hand, the Maori were thus able to choose between offensive and defensive measures, or a combination of the two.

On 17 July, the same day that the British captured Koheroa, a Maori war party attacked a Transport Corps convoy on the Great South Road, between Drury and Queen's Redoubt. This was the start of a three-month guerrilla campaign against convoys, settlers, and farms in the south Auckland district, during which the Maori achieved considerable success. At the end of the month, Cameron reported that

... the bush is now so infested with natives that I have been obliged to establish strong posts along our line of communication, which absorbs so large a portion of the force, that until I receive reinforcements it is impossible for me to advance further up the Waikato.³⁴

Such was the effectiveness of the guerrilla campaign that Cameron was forced to spend the first three months of the war securing his lines of communications.

To this end all vegetation within 180 metres of the Great South Road was cleared to protect against ambushes; redoubts were established at Rhodes' Clearing, Baird's Farm, and Kerr's Farm (between Queen's Redoubt and Cameron's Headquarters at Drury); a new redoubt (St John's) was built at Papatoetoe; and churches at Pukekohe East and Mauku and farmhouses at Mauku and Waiuku were loopholed and stockaded for defence. The other military posts along the Great South Road were strengthened and fortified, and two major redoubts were constructed on strategic sites on the Waikato: Alexandra Redoubt, to the west of Tuakau; and Whangamarino Redoubt, on the southern end of the Koheroa range, at the confluence of the Whangamarino Stream and Waikato River. In addition, a volunteer unit, the

³² Jackson to Nixon, 14 Dec 1863 (cited in Featon, pp.66-7); R. Stowers, *Forest Rangers*, Hamilton: Richard Stowers, 1996, p.13; J. Blades, 'A Retrospective Review of Auckland from 1859', p.49. (WTU, QMS-0240.)

³³ Letter by 'Philo Maori', *Southern Cross*, 19 May 1863. (Cited in H. Miller, *Race Conflict in New Zealand, 1814-1865*, Auckland: Blackwood Janet & Paul, 1966, p.100.); Letter from I. Shepherd to Civil Commissioner G.L. Law, 23 May 1863. (WTU, Shepherd Papers, QMS-1797.); DQMG Journals, 30 Oct-1 Nov 1863, p.67; Featon, pp.12-13; Gorst, p.362; Cowan, *New Zealand Wars*, Vol 1, pp. 338-46; Binney, p.125; Belich, pp.133, 160-1. (While Belich suggests that Meremere, Rangiriri, and Paterangi were constructed in August 1864, November 1863 and December 1863 to January 1864 respectively, the evidence suggests that work on all three pa began much earlier.)

³⁴ Cameron to Secretary of State for War, 30 Jul 1863. (WO 33/12).

Forest Rangers, was formed in early August to conduct counter-guerrilla operations in the Hunua Ranges.³⁵

Maori war parties inflicted a series of small but important blows against the farms and distribution network in south Auckland during the first three months of the war. The most significant of these – in terms of the numbers engaged and the results achieved – was an attack against the stores depot at Camerontown (half way between the Alexandra redoubt and the Waikato Heads) on 7 September. At Camerontown, an attacking force of between 100 and 200 drove off the protective force of pro-government Maori, and captured and destroyed large quantities of bran, oats, maize, and tarpaulins. (It was this raid that caused the shortage of tarpaulins, which in turn led to such significant losses of stores to the effects of weather.) The government magistrate, James Armitage, who was responsible for the arrangements for canoe transport and storage, was killed in the attack.³⁶

The only Maori defeat during this phase of the war occurred at Pukekohe East Church on 14 September, when between 170 and 200 warriors attacked a stockaded force of 17 Militia, and were repulsed with heavy losses. Two days later, however, a Maori war party ambushed a major supply column half a kilometre from Martin's Farm redoubt. The received version has highlighted the engagement at Pukekohe East while largely overlooking the Martin's Farm ambush, and thereby significantly understated the importance of the latter. Coming so soon after Pukekohe East, Martin's Farm was another check to pakeha confidence: for example, one soldier noted in his diary that 'The road is now considered to very unsafe state [sic]. Fears is entertained regarding [sic] the bridges as it would be a very easy matter for the natives to cut them down during the night.'³⁷ Anxious settlers claimed that Maori war parties had 'been permitted to roam about with impunity, inflicting the most cruel barbarities, murdering and tomahawking our neighbours. *What has become of the 'flying column'? Where are the 'forest rangers'?* [emphasis added],³⁸ while John Gorst pointed out that

³⁵ Mould, p.18; DQMG Journals, 1 Aug 1863, 14-15 Aug 1863, & 15 Sep 1863, pp.49-50, 53-4, 60; Alexander, *Bush Fighting*, p.69; Cowan, *New Zealand Wars*, Vol 1, pp.246-50; Alexander, *Incidents*, pp.364-5, 376; Gorst, pp.301-2; Bartlett, pp.251-61; *Southern Cross*, 31 Jul 1863; Stowers, pp.6-9.

³⁶ DQMG Journals, 7 Sep 1863, p.57; Alexander, *Bush Fighting*, pp.70-1; Featon, pp.44-5; Cowan, *New Zealand Wars*, Vol 1, pp.262-4; Belich, p.136.

³⁷ Cowan, *New Zealand Wars*, Vol 1, pp.273-88; P. Maxwell, *Frontier: The Battle for the North Island of New Zealand, 1860-1872*, Auckland: Celebrity Books, 2000, pp.60-66; Belich, pp.137-8. (Belich mistakenly gives the date of the engagement as 7 September.); Diary of British Soldier at Queen's Redoubt, 19 Sep 1863.

³⁸ William Morgan Journal, 17 Oct 1863. (Cited in N. Morris (ed), *The Journal of William Morgan*, Auckland: Auckland Library, 1963, p.100.) The 'flying column' was the Colonial Defence Force, a cavalry unit raised prior to the war to undertake reconnaissance, provide flank

It does not require a large force of savages to inflict great loss upon our settlements. The chief mischief in the present war was not done by the 1,000 men who gathered at Meremere to fight the General, but by the small bands of twenty or thirty each, who roamed in the Hunua forest.³⁹

The initial success of the Maori guerrilla operations forced Cameron to halt his advance while he secured his lines of communication, awaited the arrival of reinforcements, and assembled his river flotilla. The delay gave the Commissariat time to establish three additional Transport Corps companies. Most of the new personnel were volunteers from the Militia, and many were untrained, untried, unfamiliar with animals, and apparently untrustworthy. The Transport Corps also acquired 100 draught horses from Australia, and exchanged a number of their own bullocks for 50 horses, with harnesses, from Mercer's Battery. (Bullocks were more suitable for pulling artillery in the forward areas of the Waikato theatre, and were easier to feed by grazing. They were also less suitable for working on metalled roads than horses, and as a consequence prior to and during the Waikato War were usually used in forward areas with unformed roads, while horses were used on metalled roads.) The War Office retrospectively approved these changes in December 1863, by which time the strength of the Transport Corps in the Auckland province had actually grown from two companies, with a total strength of two officers, 230 non-commissioned officers and men, 228 horses and 228 bullocks, as at 1 July 1863, to six companies, with 13 officers, 719 men, 926 horses and 179 bullocks by 1 December.⁴⁰

From the end of September the Maori abandoned guerrilla warfare for a pa-based defensive strategy. The change was so complete that afterwards only one casualty was caused by guerrilla action: on 2 February 1864, a naval officer, Lieutenant Mitchell, was killed by a sniper while standing on the bridge of the *Avon*.⁴¹ Von Tempsky later noted:

Why this process was not carried on all along the banks of the Waipa is difficult to understand – in fact the natives did not harass us half as much as they might have done – nor did they avail themselves, in the thousandth part, of the advantages of the country, for ambush and other elements of 'la petite guerre'.

protection to the army, and deliver dispatches. It was raised in early July 1863, and had a strength of 375 men, organised into two troops in the Auckland province, and one each in Hawkes Bay, Napier and Wellington. (Cowan, *New Zealand Wars*, Vol 1, p.244, Featon, pp.14-15.)

³⁹ Gorst, p.403.

⁴⁰ Cameron to Secretary of State for War, from Queen's Redoubt, 30 Jul 1863. (WO 33/12); Cameron to War Office, 29 Jul 1863. (WO 33/17A.); DQMG Journals, 20-23 Oct 1863, p.64; General Order 634. (WO 33/17A.); Stanley-Jones to War Office, 29 Oct 1864. (WO 33/17A, No. 13.); War Office to Cameron, 2 Dec 1863. (WO 33/17A.); Report by DACG Robertson on the Commissariat in the Waikato Campaign, annexed to Stanley-Jones to War Office, 29 Oct 1864. (WO 33/17A.)

⁴¹ Cowan, *New Zealand Wars*, Vol 1, p.309.

They seemed to be determined, then at least, to fight us on the grandest principle only.⁴²

The change in strategy has been explained variously in terms of the introduction of the steamers and supporting troop and cargo vessels; the arrival of the Waikato Militia, which freed up imperial troops for the front line; and even an apparent change of heart by Maori over the use of guerrilla tactics. (One Maori veteran subsequently claimed that: 'Our War Councillors particularly enjoined us not to indulge in potting, saying that war is not won by killing stragglers.' The shooting of Mitchell, he claimed, was in response to an earlier incident when a steamer had fired on a group of Maori fossicking for potatoes on the riverbank.)⁴³

Whatever the reasons for the change in strategy, this study contends that it was a watershed, in that the removal of the Maori threat to the British supply lines enabled the latter to regain the initiative. By mid-October, the gunboats *Avon* and *Pioneer* had arrived, and the Transport Corps had stockpiled two months' worth of stores at the Queen's Redoubt in preparation for renewed operations.⁴⁴ Cameron was now ready to resume the offensive.

The second phase of the Waikato War, the British advance to the confluence of the Waikato and Waipa Rivers, included the outflanking and capture of Meremere pa, the attack against and capture (in controversial circumstances) of Rangiriri pa, and the occupation of the Kingite capital, Ngaruawahia.

One of the features of this phase was the way that Cameron established depots at close intervals along his line of advance. Strong redoubts and Commissariat depots were established at Meremere and Rangiriri after their capture in October and November. Rangiriri was a substantial post, with a field bakery and a stockyard for sheep and cattle. A smaller redoubt and depot was established at Rahui Pokeka (south of Rangiriri) on 8 December, and several days later Ngaruawahia was occupied without opposition. Cameron established his headquarters on the site of the King's former home at the confluence of the Waikato and Waipa Rivers, with a major Commissariat depot, a small shipyard, a smithy, a carpenter's shop, and light repair facilities.⁴⁵

However tempting it might be to attribute the establishing of so many stores depots to Cameron's innate caution and concern for logistics, it would seem that he was

⁴² von Tempsky, p.93

⁴³ Both cases are summarized in Belich, pp.138-9. See also 'Maori Version of the Waikato War', related by Andrew Kay. (*Ngaruawahia Advocate*, 15 Feb 1924, TAM)

⁴⁴ Robertson to Stanley-Jones, 7 Sep 1864. (WO 33/17A, Encl. 13, No. 1.); Fox, p.75.

also forced to do so by seasonal factors and the need to maintain the momentum of the advance. The renewal of offensive operations at Meremere had coincided with the onset of summer, at which time falling river levels restricted waterborne movement by the steamers. As a consequence, *Pioneer* (the larger of the two steamers) was confined to the section of the river south of Rangiriri by late November, and to the section south of Rahui Pokeka from early December.⁴⁶ This exposed the campaign to some risk, especially if there was any interruption to the movement of supplies forward to the steamer and the troops it was supporting. Faced with a choice between suspending operations until seasonal factors were favourable or pushing ahead with the advance, Cameron chose the latter, more risky, option. At the same time, however, he mitigated the risk by ensuring that the requisite logistic support was forthcoming. The establishing of a chain of depots was part of this risk management process.

Another measure was the development of two lateral supply routes to provide alternative lines of communication into the Waikato. During November, Cameron sent 1000 imperial troops, Waikato Militia and Auckland Naval Volunteers to the Thames region to establish a series of redoubts and depots. The force travelled on the Royal Navy steamers *Miranda* and *Esk* and the hired steamer *Corio*, while the colonial gunboat *Sandfly* and the brigantine *Eliza* carried its stores.⁴⁷

After being delayed by bad weather on the Hauraki Gulf, the main body landed at Mataitaua, in the Firth of Thames, on 23 November and marched 20 kilometres to Pukorokoro, which the Maori abandoned without a fight. The remainder of the troops and their supplies were thereafter landed at Pukorokoro. The expeditionary force established three redoubts between Thames and the Waikato River (Miranda, Esk, and Surrey redoubts) during the next three weeks. Thereafter Commissariat supplies were brought by sea and river to Miranda redoubt, and on to the other redoubts by packhorse. Miranda redoubt soon became a major depot, with a field bakery and a stockyard to hold livestock for slaughter.⁴⁸ Although the Thames supply route was never used on the scale of the overland route to Queen's Redoubt, it nonetheless would have provided Cameron with a workable alternative had the need arisen. In addition, the redoubts – in conjunction with a strict naval blockade of the Thames and western

⁴⁵ Robertson to Stanley-Jones, 7 Sep 1864. (WO 33/17A, Encl. 1, No. 13.); DQMG Journals, 8 Dec 1863, pp.76-7.

⁴⁶ Robertson to Stanley-Jones, 7 Sep 1864. (WO 33/17A, Encl. 1, No. 13.)

⁴⁷ Gamble to Carey, 10 Nov 1863. (Cited in DQMG Journals, 7 Nov 1863, 3 Dec 1863, pp.69-70, 74.); Robertson to Stanley-Jones, 7 Sep 1864. (WO 33/17A, Encl. 1, No. 13.); Capt W.N. Greaves, 'Report on the Thames Expedition', 2 Jan 1864. (Cited in DQMG Journals, pp.82-85.)

⁴⁸ Robertson to Stanley-Jones, 7 Sep 1864. (WO 33/17A, Encl. 1, No. 13.); HMS *Esk* Logbook, 16-24 Nov 1863; Greaves, 2 Jan 1864; Featon, p.60; Cowan, *New Zealand Wars*, Vol 1, pp.321-3.

Bay of Plenty coasts – stopped the Maori from moving supplies from the Bay of Plenty inland via the Piako River, and protected Auckland from an approach from the south-east.⁴⁹

Cameron's second lateral route was from Raglan to the Waipa River. Over the period 26-31 December, the steamers *Alexandra* and *Kangaroo* (which had been leased for the purpose) took half the 50th Regiment, and 50 horses and a Transport Corps detachment from Manukau to Raglan. *Alexandra* took the remainder of the 50th Regiment and 300 Waikato Militiamen to Raglan shortly thereafter. The 50th Regiment moved to the foot of the hills between Raglan and Waipa Valley, about 27 kilometres from Raglan, while the Waikato Militia established a post at the Waitetuna Heads, about 16 kilometres from the 50th Regiment's position.⁵⁰ This secured a route between Raglan and Tuikaramea, based on the road laid out by Nera.

Historians have attached little significance to the Raglan expedition, especially in comparison to the better-known Thames expedition. Cowan and Maxwell, for example, make no reference to the Raglan expedition, while Belich spares it half a sentence. Even important contemporary accounts by Alexander and Featon do not mention it.⁵¹ But when events in January 1864 placed the Waikato distribution system under critical strain, the Raglan supply route helped save the British position in the Upper Waikato.

By the New Year, the Waikato River was

alive with small craft. Little river steamers panted upstream, sometimes towing barges filled with soldiers. Slim gunboats attracted the admiring gaze of friendly natives, whose canoes filled the river, carrying stores to the British camps.⁵²

Despite the sense of well-organised industry conveyed by the diarist's description, by this stage the distribution network was actually in serious crisis. Paradoxically, this was largely due to the success of the campaign and the strengthening of the British position to date. Whereas in July 1863 Cameron had had 3000 men in the field, and his advanced base, Queen's Redoubt, was 60 kilometres from Auckland, by late December he had 12,000 men in the field, and his advanced base, Ngaruawahia, was over 100 kilometres from Auckland. In addition, the Thames redoubts also needed to

⁴⁹ HMS *Esk* Logbook, 19 Mar 1864; Featon, p.36.

⁵⁰ Alexander, *Bush Fighting*, pp.126-7; DQMG Journals, 5 Jan 1864, p.86; *Southern Cross*, 20 Feb 1864; Gamble to Waddy, 25 Dec 1863. (*London Gazette*, 13 May 1864.); DQMG Journals, 20-26 Dec 1863, pp.78-9.

⁵¹ Cowan, *New Zealand Wars*, Vol 1; Maxwell, *Frontier*; Belich, p.141; Alexander, *Bush Fighting*; Featon, *Waikato War*.

⁵² von Tempsky, p.26.

be supplied. The problems caused by the growing demands on the distribution network were compounded by internal friction between the Transport Corps and Navy personnel over the division of responsibility between them, and excessive losses of stores due to a shortage of Transport Corps officers, theft, and a lack of proper storage.⁵³

Given the complexity of the distribution network, it was probably inevitable that there would be discord between the Transport Corps and the Navy. The Transport Corps was responsible for moving stores between Auckland and Mangatawhiri Stream, and between Meremere and Rangiriri, while the Navy was responsible for movements between Mangatawhiri and Meremere, and between Rangiriri and Ngaruawahia. Some stores were handled sixteen times between Auckland and Ngaruawahia, which increased the potential for damage and pilfering and made accountability impossible to achieve.

The problems were exacerbated by the shortage of Commissariat officers, which meant that instead of there being one officer on each boat as a conductor, each officer had to supervise several boats. The boat crews were directly supervised by Commissariat NCOs, who were usually former Militiamen without appropriate training, and were often as prone to graft as the crews. In practice, therefore, once the boats were on the river they would quickly disperse and lose contact with each other, thereby providing opportunities for pilfering. By December, the level of pilfering – especially of rum – was such that the Navy simply refused to accept responsibility for consignments.⁵⁴

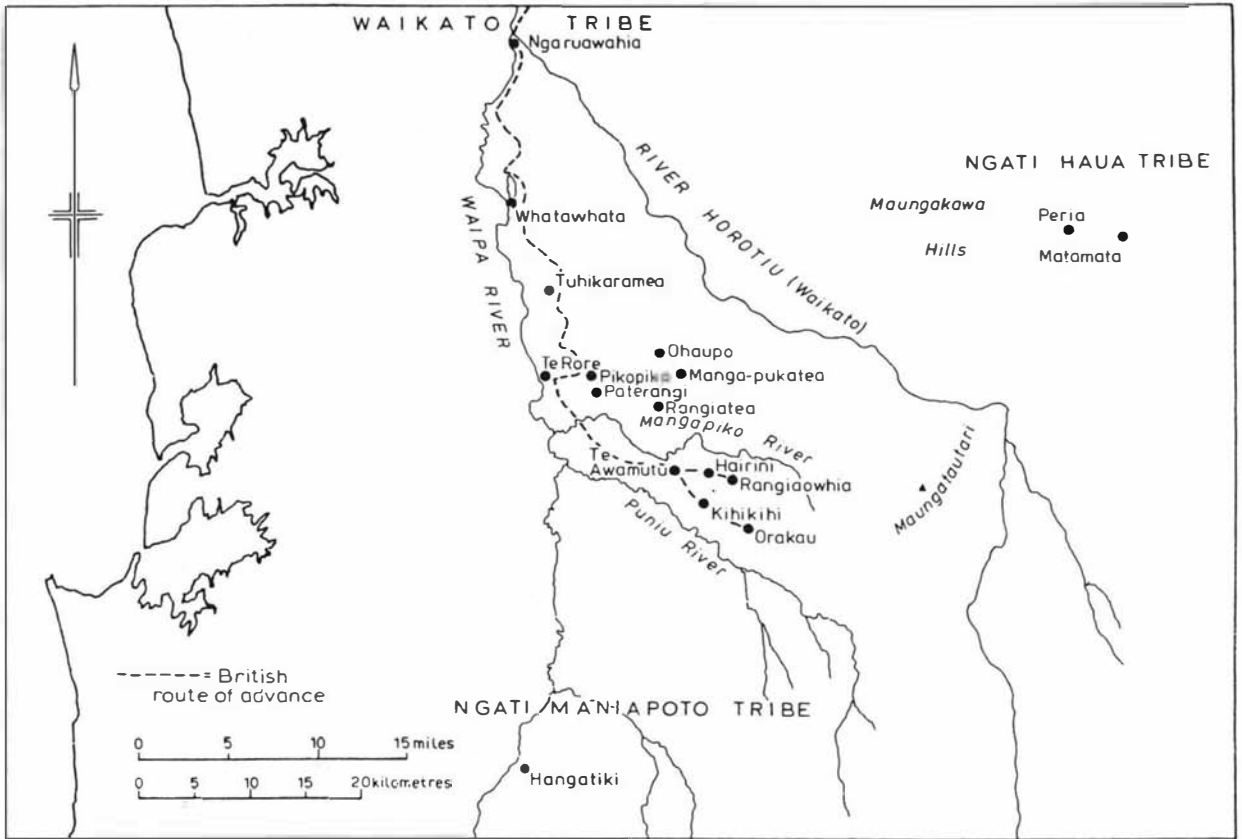
Large quantities of stores were also lost due to the inadequacy of the storage facilities. The only proper stores buildings south of Drury were at Rangiriri, where a number of wooden huts and stores buildings were built as part of the depot, using wood brought forward from Meremere by steamer. In the other depots, the Commissariat had to rely upon tarpaulins, even though they were unsuitable for long-term use. They were also in short supply, as a result of the Maori raid on the Camerontown depot on 7 September, during which a large number of tarpaulins had been burned.⁵⁵

During December 1863 and January 1864, the British implemented a number of measures to improve the efficiency of the distribution network. During early

⁵³ Robertson to Stanley-Jones, 7 Sep 1864. (WO 33/17A, Encl. 1, No. 13.)

⁵⁴ J.W. Fortescue, *A History of the British Army*, Vol VIII, London: MacMillan, 1910, p.519; Robertson to Stanley-Jones, 7 Sep 1864. (WO 33/17A, Encl. 1, No. 13.); Stanley-Jones to War Office, 29 Oct 1864. (WO 33/17A, No.13.)

⁵⁵ Stanley-Jones to War Office, 29 Oct 1864. (WO 33/17A, No. 13.); Robertson to Stanley-Jones, 7 Sep 1864. (WO 33/17A, Encl. 1, No. 13.); DQMG Journals, 7 Sep 1863, p.57; Alexander, *Bush Fighting*, pp.70-1; Featon, pp.44-5; Cowan, *New Zealand Wars*, Vol 1, pp.262-4; Belich, p.136.



South Waikato and the Waipa Basin: 1863-64

(Source: J. Belich, *The New Zealand Wars and the Victorian Interpretation of Racial Conflict*, Auckland: Penguin, 1986, p.159.)

December, two new land transport companies were established as part of the Transport Corps. From late December, the Transport Corps took over responsibility for all inland transport (including steamers and small boats) from the Navy, partly to address the problems outlined above, but also to free naval personnel for land operations. To cope with the additional workload, the Commissariat established three companies of waterboatmen to transport supplies between Mangatawhiri and Meremere. The waterboatmen were organized into the Water Transport Corps. The Water Transport Corps used specially-built boats, which were powered by 20 oars and a lug sail and could carry 10 tonnes in just one-third of a metre of water, making them ideal for use in shallow water. They normally made two trips per day between Mangatawhiri and Meremere. Maori allies also helped move supplies.⁵⁶

The measures taken by Cameron during this second phase ensured that his army was properly poised for the next phase, the invasion of the Waipa Basin. The establishing of a series of depots at regular intervals at once overcame the weaknesses and maximized the strengths of the various components of his distribution network. The vulnerability of steamers to seasonal factors was balanced by their ability to carry large quantities of stores, and the lesser capacity of land transport was balanced by its ability to cover those sections of the river that were denied to the steamers. Similarly, the development of alternate supply routes provided additional flexibility, and reduced the inherent risk of relying on a single supply route.

The third phase of the Waikato War, in January and February 1864, included the British advance through the Waipa Basin, the capture of the Maori food baskets of Rangiaowhia and Kihikihi, and the decisive defeat of the Kingite army at Hairini. This phase highlighted Cameron's competence as both a logistician and a strategist. On 27 December 1863, Cameron's army marched 22 kilometres from Ngaruawahia to Whatawhata, followed by *Avon* with the field force's supplies and equipment. On New Year's Day, the army advanced a further five kilometres to Tuikaramea, where the Raglan track met the Waipa River.⁵⁷

In early January 1864, DCG Stanley-Jones was advised by telegram that 3000 men were to be concentrated in Ngaruawahia immediately. The number was increased shortly thereafter to 5000, and then again to 7000. It would appear that Stanley-Jones was caught off-guard by the development, which suggests a breakdown in

⁵⁶ DQMG Journals, 1 Jan 1864, p.80; DACG Robertson's Report of the Final Stage of the Waikato War (Dec 1863 – May 1864). (WO 33/17A, Encl. 1, No. 18.) (Hereafter referred to as 'Robertson: Final Report.');

Cameron, Penrose, 26 Jul 1864. (WO 33/17/A, Encl. 2, No. 17.); Stanley-Jones to War Office, 29 Oct 1864; HMS *Esk* Logbook, 1 Jan 1864; Featon, p.68.

⁵⁷ Robertson, 'Final Report. '; DQMG Journals, 1 Jan 1864, p.79.

communications between him and his commander: certainly it proved a severe test of the Commissariat's flexibility. In order to relieve pressure on the Waikato River supply system, Cameron ordered the 70th Regiment and a detachment of the 40th Regiment to march across the hills towards Raglan, to draw upon the supplies in that area.⁵⁸

Having just raised two land transport and three water transport companies, Stanley-Jones was forced to quickly restructure the land transport system and increase its capacity. First, he purchased 300 horses and 100 bullocks in Auckland, circumventing normal tendering and purchase procedures to do so. Next, he transferred responsibility for the movement of stores from Auckland to Onehunga to civilian cartage agencies (thereby freeing up the Transport Corps for front-line service), and replaced the packhorses operating between Meremere and Rangiriri with bullocks, to allow the packhorses to be sent forward to Ngaruawahia. Finally, live cattle were driven to the front to reduce the demand for salt meat.⁵⁹

Stanley-Jones also acquired extra boats for the WTC, although not without difficulty. As the Onehunga boat-builders were unable to provide boats quickly enough and in the numbers required, boats had to be borrowed from Royal Navy ships in Auckland until the new ones were built. He also encountered problems raising crews for the boats: while Cameron was unwilling to release more imperial troops, the Colonial Government was unwilling to release any militia, and the militiamen were unwilling to transfer voluntarily. With 100 kilometres separating his headquarters in Ngaruawahia from Auckland, Cameron was unable to influence the government directly, and so Stanley-Jones had to lobby the colonial ministers on his behalf to release the militia. The ministers eventually gave their approval.⁶⁰

Cameron required ten days' rations for 3500 men, 130 cavalry, 200 pack horses and 150 bullocks to be brought up to Whatawhata before the advance could continue. It took until 25 January to achieve this, and the following day the 70th and 40th Regiments returned from Raglan.⁶¹ On 27 and 28 January, the army's vanguard advanced to Te Rore and Ngahinapouri, and established redoubts in both locations. Von Tempsky recalled the advance:

For miles and miles now there was an unbroken stream of soldiers, bullock-drays, artillery, packhorses and orderlies meandering over the plains and fern ridges of the sacred Maori delta [Waipa]. Yellow clouds of dust hovered along our road to the great disparagement of our faces, sight and clear speech. We had the especial honour to escort on the first day, some Armstrong guns,

⁵⁸ DQMG Journals, 5 Jan 1864, p.86.

⁵⁹ DQMG Journals, 5-18 Jan 1864, pp.86-7; Robertson, 'Final Report.'

⁶⁰ Robertson, 'Final Report.'; Alexander, *Bush Fighting*, p.127.

⁶¹ Robertson, 'Final Report.'

dragged by bullocks. Much as I once admired the patience and usefulness of these animals, I now abhor their pace, their shuffling gait and the stupid expression on their countenances, ever since I had to keep pace with them and swallow the bushels of dust sent into our throats by their lumbering feet.⁶²

Avon, carrying Commissariat supplies, also reached Te Rore on 28 January.⁶³ It was intended that the Ngahinapouri and Te Rore depots would be provisioned by *Avon* and the barges. Te Rore lay about 55 kilometres by river from Ngaruawahia, and the round trip between the two took between 20 and 22 hours:

We leave Ngaruawahia [on *Avon*] at 10p.m., with about twenty-five tons of provisions and stores (our greatest load), which the *Pioneer* brings up from Rangariri; one of us takes the *Avon* as far as Whata Whata, where we arrive about 2 a.m., or sometimes not till 3. We there take in more stores, and perhaps discharge some, and at about 3.30 a.m. proceed ... to Te Rore, where we generally arrive about 8 o'clock. But the General has established a redoubt at Ngahinapouri [sic] five miles below Te Rore, so we often stop there, and do not get to Te Rore till 9 a.m. We start again as soon as we have discharged our cargo, about 11.30 or 12, and get to Whata Whata about 4p.m., when we load again, so that we hardly have time to sleep or wash.⁶⁴

Although Cameron had intended to halt at Te Rore while supplies were brought up, on 8 February 'a mishap occurred which occasioned a most serious difficulty': *Avon* hit a snag on the Waipa and foundered, with the loss of ten days' supplies. (She was subsequently refloated.) DCG Bailey immediately ordered all available land transport forward to Ngaruawahia, and prohibited the use of transport for anything other than the movement of supplies. The newly-arrived steamer *Koheroa*, which was then being assembled at Port Waikato, was despatched to the Waipa, but soon after leaving Port Waikato was grounded and extensively damaged, and had to return for repairs.⁶⁵

It was at this point that the practice of pushing supplies forward and establishing depots at frequent intervals behind the advance proved itself. As a considerable reserve of supplies had already been established at Ngaruawahia, the advanced forces in the Waipa were able to cope until the arrival of *Koheroa*, provided that they remained in their locations. Due to the lack of fodder at Te Rore, the transport animals were sent back to Whatawhata (where fodder was plentiful), and for the next few days supplies were moved overland from Ngaruawahia to Whatawhata, and by canoes manned by friendly Maori between Whatawhata and Te Rore. DCG Stanley-Jones also sent *Alexandra* to Raglan with 15 bullock drays and teams and

⁶² von Tempsky, p.88.

⁶³ DQMG Journals, 28 Jan 1864, p.90; Robertson, 'Final Report.'

⁶⁴ Foljambe, pp.37-8.

⁶⁵ DQMG Journals, 8-9 Feb 1864, p.93; Robertson, 'Final Report.'; Foljambe, p.39; Mould, p.23; Featon, p.75.

additional rations. In the event, however, the bullocks could not be taken over the hills to Waipa, and most of the rations rotted before they could be consumed by the Raglan garrison.⁶⁶ *Koheroa's* repairs were completed on 12 February, and on 14 February she reached Te Rore with five days' supplies.

Both Cameron and Wiseman later suggested that the temporary loss of *Avon* was the most critical moment of the campaign for the British, and that had *Koheroa* been delayed even another few days, the army would have been compelled to fall back. Instead, by 19 February sufficient supplies had been accumulated at Te Rore to enable the force to continue its advance.⁶⁷

By mid-February 1864, Cameron's army was positioned before Paterangi, a series of four mutually-supporting pa⁶⁸ blocking the northern approaches to Te Awamutu and the food baskets to the south. The most powerful positions ever constructed by the Maori in New Zealand ('...immensely strong...An attempt to storm it would have cost even more lives than Rangiriri'⁶⁹), they were defended by a garrison of 2000 warriors and provisioned by convoys of pack horses operating from Rangiaowhia and the surrounding district. Another pa at Ohaupo, to the east, blocked the overland route from Kirikiriroa (Hamilton).⁷⁰

Determined to avoid another costly assault, Cameron chose to outflank Paterangi and strike against its food basket, Rangiaowhia. Here, again, he showed his attention to logistical detail, spending at least a month preparing to execute the plan. In his post-action despatch about Rangiaowhia and Hairini (20-22 February 1864), he noted that the move against Rangiaowhia was delayed by the loss of the *Avon*, and that the actual timing of the operation was determined by the requirement to gather 'sufficient means of transport' at Te Rore to sustain both the move against Rangiaowhia and any subsequent defensive operation.⁷¹ This suggests that his decision was made during the period between early January 1864, when he had ordered that 3000 men be concentrated at Ngaruawahia, and late January, when his force began its advance on Te Rore. On 27 January, DQMG Gamble (one of Cameron's inner circle of staff officers) noted that 'In preference to besieging this position...the Lieutenant-General will most probably be enabled to turn [outflank] the whole, which it is to be hoped will ere long

⁶⁶ Robertson, 'Final Report'; DQMG Journals, 10 & 14 Feb 1864, p.94.

⁶⁷ Cameron to War Office, 4 Mar 1864. (*London Gazette*, 13 May 1864.); von Tempsky, p.161; Robertson, 'Final Report.'

⁶⁸ Rangiatea, Manga-Pukatea, Piko-Piko, and Paterangi proper.

⁶⁹ A CDF veteran, cited in Cowan, *New Zealand Wars*, Vol 1, pp.339-41.

⁷⁰ DQMG Journals, 14 Jan 1864 & 11 Mar 1864, pp.87, 100; Cowan, *New Zealand Wars*, Vol 1, pp. 338-46; Belich, pp.160-1; Race, pp.64,76; Featon, p.76; Binney, p.125.

result in a termination of hostilities.⁷² Thus, while his men ‘watched it [Paterangi] week after week [in February] and waited for the General’s decision’⁷³, he had already confirmed his course of action.

During the night of 20-21 February, a 1000-strong force of imperial troops, Forest Rangers and CDF cavalry flanked Paterangi to the west, and after a silent march reached Rangiaowhia at dawn. Following a confused action in which five soldiers and 12 Maori were killed, the troops seized the village and its extensive cultivations, and then fell back to Te Awamutu. The Maori abandoned Paterangi the following morning, leaving a large quantity of food in its underground storage pits.⁷⁴

During the morning of 22 February, more than 500 of the former defenders of Paterangi began preparing entrenchments on Hairini Ridge, between Rangiaowhia and Te Awamutu. As soon as he heard of the development, Cameron despatched a force of 1200 men, with artillery, from Te Awamutu to clear the ridge and destroy the Maori force. In the ensuing engagement, 25 Maori were killed and an unknown number wounded.⁷⁵

Historical interpretations of the Rangiaowhia operation have tended to focus on the ethics of striking against an ostensibly safe population centre. For example, James Belich notes that the Maori had been given to understand that non-combatants would be protected if they sought refuge away from fortified areas, while Peter Maxwell dismisses Rangiaowhia as an unworthy, almost unchivalrous military manoeuvre

launched not through fern or bush but through cultivated fields and groves of peach trees when Maori women and children sheltered from the soldiers they did so not in palisaded trenches, but in a Christian church.⁷⁶

While there is no doubt that some commitment was made to protect non-combatants (even if Rangiaowhia was not specifically named), this study provides an opportunity to look at Rangiaowhia in another way. As the major food basket for the Kingite army, Rangiaowhia was as legitimate a military target as the stores depot at

⁷¹ Cameron to War Office, 4 Mar 1864. (*London Gazette*, 13 May 1864.)

⁷² DQMG Journals, 1 Feb 1864, p.92.

⁷³ A CDF veteran, cited in Cowan, *New Zealand Wars*, Vol 1, p.338.

⁷⁴ Waddy to Cameron, 22 Feb 1864. (*London Gazette*, 13 May 1864.); *Southern Cross*, 25 Feb 1864; C.R. Tylden, ‘Reminiscences’, p.9. (WTU MS-1350.); ‘65th Regiment of Foot: Extract from Digest of Service’, 25 Feb 1864. (WTU FMS-6168.)

⁷⁵ Cowan, *New Zealand Wars*, Vol 1, pp.357-60; DQMG Journals, 22 Feb 1864, pp.96-7.

⁷⁶ Belich, pp.164-5. See also: Statement of Te Wairoa Piripi, Cowan Papers, 41B. (WTU, Cowan Papers, MS-Papers-0039.); Wiremu Tamehana, Petition to the General Assembly, 5 Apr 1865, *AJHR* 1865, G-5; Statement of Whitiroa Te Kumete, in J. Caselberg (ed), *Maori Is My Name: Historical Maori Writings in Translation*, Dunedin: J. McIndoe, 1975, p.106; *Southern Cross*, 21 Mar 1864; Maxwell, p.8.

Camerontown and the supply columns, road parties and farms attacked by Maori war parties in South Auckland between July and October 1863.

What is also important in the context of this study is what Cameron was trying to achieve in striking at Rangiaowhia. It would appear that he had two objectives – one immediate, and the other secondary. His immediate objective was to sever the garrison's logistical lifeline from Rangiaowhia, as he correctly saw that the loss of Rangiaowhia would seriously – if not irrevocably – undermine the enemy resistance.

It is interesting how many of the participants saw the Rangiaowhia operation in these terms. One very junior Forest Ranger lauded it as 'Genl Cameron's master stroke' ('...for Maories like everyone else could not exist without food...').⁷⁷ Von Tempsky, who referred to the operation as 'the grand feature of the war', was similarly able to overcome an apparent sense of personal unease with a military necessity argument:

The most of us felt dissatisfied with that day's work – yet I for my part could not but see that the result of this move would prove of overwhelming importance to the relative positions of the Maori and his antagonist. The attendant evils of such a coup de main kept rising up in my throat – but they might have been infinitely worse; and the good gained – one gigantic stride towards the pacification of the country, would eventually counterbalance the doubtfulness of the detail of its accomplishment.⁷⁸

Cameron's secondary objective was to draw the defenders of Paterangi out of their fortifications and into a tactical situation in which the British had the advantage. It was thus an attempt to outmanoeuvre rather than outfight the Maori. Amongst historians, only Belich has addressed this issue in any detail. Although acknowledging that 'the conception and implementation of the Paterangi manoeuvre were little short of brilliant', Belich sought to qualify the degree of Cameron's success by noting that he still failed to destroy the Kingite army, either through the capture of Rangiaowhia or subsequently at Hairini: indeed, he regards Hairini as 'a carefully limited rearguard action' fought by an army which had already decided to abandon Rangiaowhia to save itself.⁷⁹ The latter claim is unsustainable, and need not occupy any time here: quite simply, the Maori had no need to conduct a fighting withdrawal, as they could easily have withdrawn from Paterangi without having to fight the British.

This study contends that Cameron intended the destruction of Rangiaowhia to be a *means* to an end, rather than an end itself. He expected that the flanking manoeuvre would force the Maori to abandon Paterangi, and further anticipated that they would come to Rangiaowhia to defend its cultivations. His preparations to counter

⁷⁷ Race, pp.76, 89.

⁷⁸ von Tempsky, p.111.

⁷⁹ Maxwell, p.74; Belich, p.165.

this riposte included the concentration of a force of sufficient size and means – including artillery – to fight a set-piece engagement in the open, in an assembly area close enough to Rangiaowhia to enable it to deploy before the Maori had time to prepare extensive positions, and yet not so far from Te Rore that the force would be hampered by distance and enemy action while assembling for action. To this end, he chose Te Awamutu as the assembly area for his army, and left Colonel Waddy in front of Paterangi to ‘protect the depot at Te Rore, to observe the movements of the natives, and to be ready to move to any point in our line of communication that might be threatened.’ A large baggage train, with five days’ provisions and three days’ forage, and a number of artillery pieces was to move up to Te Awamutu on 21 February.⁸⁰ It was this baggage train and artillery that ensured British success at Hairini.

Far from being an inconclusive rearguard action, Hairini was the action which finally broke the Kingite resistance and tipped the balance irreversibly in favour of the British. It forced the Maori to abandon the Paterangi pas and Ohaupo, which meant that

Three corner-stones of the quadrilateral [Paterangi’s fortifications and Ohaupo] had fallen almost without a life lost – compared to what any one of these places would have cost to take it by storm. We have moreover our knee upon the stomachs of our enemy, by holding the whole breadth of cultivated country between the Waipa and the Horutiu.⁸¹

In his own post-action dispatch, written on 27 February, Cameron noted that

The immediate result of our late movements has been the abandonment by the enemy of a series of fortified positions, which could not have been taken without a heavy loss, the possession by us of a large tract of fertile country between the Waipa and Upper Waikato Rivers, and the retreat of the enemy into the interior, with the loss of the cultivations on which he chiefly depended for his supply.⁸²

Cameron wasted no time in filling the vacuum created by his victory at Hairini. By the end of February, he had concentrated some 4000 troops at Te Awamutu, and was ready to secure the surrounding district. On 27 February, he moved the 40th and 70th Regiments forward to establish redoubts at Kihikihi (Rewi Maniapoto’s tribal home, by now abandoned), Rangiaowhia and Te Awamutu, ‘the two former on account of the immense quantity of food they contain, and of which it is desirable to deprive the

⁸⁰ Cameron to Secretary of State for War, 4 Mar 1864. (*London Gazette*, 13 May 1864.); DQMG Journals, 20 Feb 1864, p.95.

⁸¹ von Tempsky, p.118.

⁸² Cameron to Secretary of State for War, 4 March 1864. (*London Gazette*, 13 May 1864.)

enemy, the latter as being favourably situated for a depot, and base for future operations.⁸³ The troops sent to Kihikihi, six kilometres from Te Awamutu, found that

native cultivations extend along the whole of route, and far up the country beyond [to Rangiaowhia]. Hundreds of acres are laid down in wheat, potatoes, kumaras, peach and apple groves, & c., the land being of richest quality, as testified by the surprisingly full and healthy crops growing Great quantities of the indispensable tuber [potatoes] were found, ready for placing in kits, for transporting to other quarters, where the rebel forces might be fighting⁸⁴

In all, the capture of Rangiaowhia and Kihikihi yielded 3000 acres of wheat and vegetable crops to the British: indeed, the two settlements had enough potatoes to feed the entire field force for the coming winter. Once the occupation was complete, 5000 troops 'exerted their utmost powers of mastication and digestion to make good and sure this cutting off of the supplies from the Maories.'⁸⁵

The final phase of the Waikato War, during March and April 1864, saw a dramatic but futile 'last stand' by a multi-tribal force led by Rewi Maniapoto at Orakau, and the final dislocation of Ngati Haua from Maungatautari and Maungakawa, and the consolidation of the British position in the Waipa district.

The last engagement of the Waikato War, the battle of Orakau (31 March – 2 April 1864), represented the 'high tide' of British military logistics in New Zealand. At Orakau, a force of 300 Maori, including women and children, repelled a series of attacks on the afternoon of 31 March, before the British laid siege to the pa and began digging a sap towards it. On the third day of the siege, Cameron called on the defenders to surrender: they refused, and later that day abandoned the pa and fled through the British lines to the Puniu Stream, a few kilometres to the south. Large numbers were killed during the pursuit by the colonial troops (the imperial troops took no part in the chase). In all, 160 Maori were killed and 50 were wounded at Orakau.⁸⁶ Notwithstanding the inherent human drama of the battle, however, the simple truth is that from a logistics standpoint the Maori were defeated at Orakau before the first shot was even fired. Orakau pa was poorly sited and strategically unimportant, but that alone does not explain the defeat which occurred there.

⁸³ *Southern Cross*, 20 Feb 1864; L.H. Barber, *Frontier Town: a History of Te Awamutu, 1884-1984*, Auckland: Ray Richards, 1984, p.46; Cameron to Secretary of State for War, 4 March 1864. (*London Gazette*, 13 May 1864.)

⁸⁴ *Nelson Examiner*, 12 Mar 1864.

⁸⁵ Cameron to War Office, 4 Mar 1864. (*London Gazette*, 13 May 1864.); *New Zealander*, 1 Mar 1864; *Southern Cross*, 'Correspondent's Reports from HQ Camp in Te Awamutu', 27 Feb 1864; DQMG Journals, 24 & 27 Feb 1864, p.97; von Tempsky, p.118.

⁸⁶ Cowan, *New Zealand Wars*, Vol 1, pp.365-407.

The pa's defenders had very little food ('We had no water nor anything to eat except potatoes, which we ate raw to quench our thirst') and insufficient ammunition for a siege of any real duration: 'Our ammunition began to fail; we had no bullets, so we fired peach-stones and plugs of wood as a substitute.'⁸⁷ There is no question here of a lack of planning by the defenders of Orakau: the destruction of Rangiaowhia, and subsequent loss of the food baskets of Hairini and Kihikihi had quite literally left them without food – just as Cameron had intended.

By contrast, the imperial and colonial units engaged at Orakau stood at the end of a logistical chain which stretched over land, river and sea back to Britain. Despite this, they were remarkably well provisioned and supported. This is attested to by the fact that some forty thousand Enfield cartridges were issued to the troops at Orakau *in one day*⁸⁸, as well as ample supplies of hand grenades and high explosive shells. In short, the logistics which supported the British and colonial soldiers had built up a strength and momentum which was by now irresistible.

The huge disparity between the opposing forces at Orakau was not a product of chance, however, and neither can it simply be dismissed as the inevitable outcome of a conflict between industrialised and non-industrialised peoples. Rather, it was the measures taken by the British prior to and during the war to improve their logistics, together with Cameron's success in identifying and targetting logistics as a critical vulnerability of the Maori, which determined the outcome. Of all the engagements of the New Zealand Wars, Orakau best illustrates the success with which the British overcame the challenges inherent in supporting military operations in New Zealand.

During March, Cameron established two 200-man redoubts astride the Horotiu River at Pukerimu. Their purpose was to secure the Horotiu River and overland approaches to the Waipa Basin, and provide a firm base for operations against a series of strong positions the Ngati Haua chief Wiremu Tamihana had established on Maungatautari and Maungakawa, the mountains east of Pukerimu, during the final months of 1863. Cameron intended to clear these positions, most probably with a combination of sapping and direct assault, before the onset of winter. In the event, however, they were abandoned before they could be decisively engaged.⁸⁹ The reasons for the Maori withdrawal remain uncertain: Belich has suggested that they might have run out of supplies, although there is no evidence to support this: indeed, one contemporary source notes that Maungatautari was a well-cultivated area, and that

⁸⁷ Hitiri te Paerata, pp.6-7.

⁸⁸ *Taranaki Herald*, 9 Apr 1864.

⁸⁹ DQMG Journals, 22-23 Mar 1864, p.101; Foljambe, p.47; Mould, p.27; Cowan, *New Zealand Wars*, Vol 1, pp.408-13.

when the troops captured it they also found a number of ploughs and farming implements.⁹⁰

During the next few months, the British consolidated their positions in the lower Waipa, in preparation for the development of the Waikato military settlements. The main base in the Waipa was established at Te Awamutu, with smaller encampments at Kihikihi, Ohaupo, Alexandra (Pirongia), and Pukerimu (Cambridge). The troops were initially housed in tents, and then self-made, 24-man whares, until wooden huts could be constructed. D. Graham, a civilian sawyer, was contracted to provide two million linear feet of wood for the camps' buildings, and by the start of winter 200 sawyers were engaged cutting and milling timber at Rangiaowhia.⁹¹

The provisions for the posts were brought by steamer to Te Rore, and then overland in Transport Corps convoys (each of which usually comprised twelve bullock drays, eight horse drays, and such numbers of pack horses as were required) to Te Awamutu, a distance of 24 kilometres, six days per week. The outer posts were supplied from the Te Awamutu depot. The Pukerimu redoubts were primarily supplied by river (the *Avon* and *Koheroa* brought up stores every second day), and also overland from Te Awamutu and Ohaupo, as required.⁹²

By the end of the Waikato War, the British distribution network in the Waikato was as follows:

⁹⁰ DQMG Journals, 7 Apr 1864, p.107; Belich, pp.175-6; Newall Journal, pp.39-40. (WTU QMS-1584.)

⁹¹ *NZ Herald*, 5 Mar 1864; J. Cowan, *The Old Frontier*, Te Awamutu: Waipa Post, 1922, p.80; Barber, p.48.

⁹² P.M.J.L. Pye Papers, n.d. (WTU MS-2177.); G. Tatler Papers, 23 Mar 1864. (WTU MS-2076.); Foljambe, p.47.

Fig 1: British distribution network in the Waikato – March 1864⁹³

Stage	Distance (kms)	Mode
Auckland – Onehunga	10	CTC carts.
Onehunga – Drury	56	Hired boats, and steamer <i>Lady Barkly</i> .
Drury – Mangatawhiri	24	CTC carts.
Mangatawhiri – Meremere	8	WTC boats.
Meremere – Rangiriri	24	Pack horses, bullock drays, or boats. The boats were rowed, sailed, or towed from the river bank.
Rangiriri – Paitai	8	WTC boats.
Paitai – Rahui Pokeka	24	WTC boats, or friendly natives in canoes.
Rahui Pokeka – Ngaruawahia	24	Steamers <i>Avon</i> and <i>Pioneer</i> .
Ngaruawahia – Te Rore	64	Steamers <i>Avon</i> and <i>Koheroa</i> .
Te Rore – Te Awamutu	24	Pack horses and bullock drays.
Kirikiroa (Hamilton) – Pukerimu (Cambridge)	24	Steamers <i>Avon</i> and <i>Koheroa</i> , or wagon and packhorse from Te Awamutu and Ohaupo.)

Two aspects are at once evident: the length of the lines of communication (which, when added to the distance between New Zealand and Britain, were amongst the longest in the history of warfare); and the complexity of the distribution network. That complexity was forced upon Cameron largely by the terrain, seasonal factors, and the nature of his force. Nonetheless, the network was flexible enough to cope with the challenges it faced, especially when it included alternative supply routes through the Firth of Thames and Raglan. Its development reflects both the prior planning conducted by Cameron and his staff, and their ability to adapt to the challenges encountered during the course of the campaign. Despite the numerous obstacles and challenges encountered, Cameron's supply chain – like Wellington's in the Peninsular campaign – stretched but never broke.

The Supply function in the Waikato War

In his post-war report on the British logistic effort during the Waikato War,⁹⁴ Deputy Assistant Commissary-General (DACG) Robertson indicated that the main logistical problems encountered by the British involved distribution. Nonetheless, the provision of food and fodder also frequently caused problems. Ironically, while the Waikato was one of the most fertile areas in New Zealand, it actually afforded few resources to an invading Army. There was little food and meat available along the line

⁹³ Stanley-Jones to War Office, 29 Oct 1864. (WO 33/17A, No. 13.); *Southern Cross*, Mar 1864. (Exact date unknown: cited in Campbell, p.11.); Foljambe, p.47; Pye Papers, n.d.; Tatler Papers, 23 Mar 1864.

⁹⁴ Robertson to Stanley-Jones, 7 Sep 1864. (WO 33/17A, Encl. 1, No. 13.)

of march (at least until the force reached Rangiaowhia), and by the end of the war there were almost no sheep and cattle left in the theatre. Virtually all the army's requirements, including forage for the animals, had to be carried into the theatre. The only freely available resources were firewood and coal, although the coal could not be mined until the advance had reached Ngaruawahia.⁹⁵

Bread was always a staple food item for the troops. Initially, bread was baked four times per week by field bakeries at Drury and Otahuhu, and distributed to the various encampments in south Auckland. The delay in the campaign during the winter of 1863, however, gave time for more ovens to be built and moved to the front, so that by the time the advance resumed in late October ovens were in operation in nearly every camp. The field ovens were built by Messrs. Vickery and Masefield, of Auckland. The Vickery & Masefield ovens and their implements could be carried on a single light cart, and were regarded as being more robust than the Aldershot and Curragh military models used elsewhere by the British Army. The bread they produced was supplemented by 'very superior quality' biscuits imported from Sydney; 'very fair quality' biscuits supplied by an Auckland contractor, Charles Canning; and other biscuits, the quality of which was unstated, from the troopships.⁹⁶

Fresh meat was issued regularly. Between 1 October 1863 and 31 January 1864, cattle and sheep were purchased as livestock from the contractor, J.J. MacFarlane of Auckland, and driven by contract drivers to the various posts, where they were slaughtered by Commissariat butchers (usually ex-militiamen). It was found, however, that over-driving (which caused loss of condition), theft and 'loss' of the livestock made the real cost of the meat 1 shilling and $\frac{3}{4}$ pence per pound, which was deemed to be too expensive. As a consequence, the contract for the period 1 February to 31 March 1864 included slaughtered meat and livestock. Fresh meat was delivered to Commissariat posts within 29 kilometres of Auckland, and livestock were delivered further south. The contractor was made responsible for driving the stock, which discouraged over-driving and reduced weight-loss. The new price was agreed at 1 shilling and $\frac{1}{4}$ pence per pound (compared with a market price in Auckland of between 10 pence and 1 shilling per pound), which saved the Commissariat $1\frac{1}{2}$ pence per pound. Livestock was also supplied in smaller quantities, and on an irregular basis, by friendly natives.⁹⁷

⁹⁵ Stanley-Jones to War Office, 6 Sep 1864 (Encl. 1 to No. 18) and 29 Oct 1864 (WO 33/17A, No. 13.); Robertson to Stanley- Jones, 7 Sep 1864. (WO 33/17A, Encl. 1, No. 13.); Bailey to Cameron, 26 Jul 1865. (WO 33/17A, Encl. 2, No. 17.); Fortescue, pp.517-8.

⁹⁶ Stanley-Jones to War Office, 6 Sep 1864. (WO 33/17A, Encl. 18, No.1.); Robertson to Stanley-Jones, 7 Sep 1864. (WO 33/17A, Encl. 1, No. 13.)

⁹⁷ Stanley-Jones to War Office, 6 Sep 1864. (WO 33/17A, Encl. 18, No.1.); DQMG Journals, 22 Dec 1863, p.78.

When fresh meat was unavailable, or when the troops moved away from their supply lines at short notice, salt meat was issued in its place. Salt beef was purchased in New South Wales, and salt pork from New Zealand, Britain, and the United States. Some New Zealand pork came from pigs which had been fed fish, and when cooked gave off 'a most disagreeable taste and smell', leading to complaints from the troops. Lime juice was issued on each day that salt meat was issued, after the first day, although in the event the quantity of fresh meat available meant that lime juice was rarely issued.⁹⁸

Vegetables were generally supplied without difficulty throughout the campaign, although there were initially problems with the quality. Potatoes, for example, were purchased at Drury, but because of transport shortages and the fact that they were prone to decay in late winter and early spring often reached the troops in poor condition. During the early stages of the campaign troops in smaller and more isolated posts sometimes went without vegetables altogether, or had to purchase their own.⁹⁹

In October 1863, following complaints that some troops were suffering poor health due to insufficient vegetables, Cameron appointed a Board to advise on means of providing the soldiers' vegetable requirements. The Board, which included the Deputy Inspector-General of Hospitals (DIGH) and the DCG, recommended that each man receive a daily ration of one pound of potatoes and ½ ounce of onions, and that when these were unavailable they be substituted by rice, peas, compressed vegetables, pickles, or mustard. The cost would be covered by an additional stoppage of 1½ pence from each man's pay. The recommended changes took effect from 15 October 1863.¹⁰⁰ Despite the improvements, however, the men still complained when the use of substitutes meant they apparently got less:

The institution of a vegetable ration was doubtless very desirable for sanitary reasons, but it was very unpopular with the men. They would have been well satisfied with a free ration, but the charge of 1½d a day was strongly objected to. The small pickle ration was a source of constant grumbling, and it was not unusual for a soldier to be seen going about with half a diminutive onion on the point of a fork saying, 'look at the ration I'm charged 1½d for,' quite forgetting that he had had, in addition, a pound of potatoes for his money.¹⁰¹

The daily ration included a gill of rum. The rum was obtained by contract, and reduced to issue strength by customhouse gaugers in Auckland. Rum caused more

⁹⁸ Stanley-Jones to War Office, 6 Sep 1864. (WO 33/17A, Enclosure 18, No.1.)

⁹⁹ Stanley-Jones to War Office, 6 Sep 1864. (WO 33/17A, Enclosure 18, No.1.); A.T. Carbery Journal, p.5. (WTU MS 2310/1.); Hustwick letter, 26 Aug 1863. (WTU MS 3259.)

¹⁰⁰ Stanley-Jones to War Office, 6 Sep 1864. (WO 33/17A, Enclosure 18, No.1.); General Order, No 624, 6 Oct 1863. (WO 33/17A.)

¹⁰¹ Stanley-Jones to War Office, 6 Sep 1864. (WO 33/17A, Enclosure 18, No.1.)

trouble than any other single consumable: it was very heavy and difficult to transport, and the number of changeovers and modes of transport made accountability impossible. It was also attractive to thieves, and could be watered down in transit or by the personnel issuing it – actions which defrauded the public (of excise duty) and the soldiers (who paid for it from stoppages in pay). Soldiers were also issued with one pound of tobacco per month from January 1864, although this caused similar problems to the rum.¹⁰²

While the colonial troops generally received the same ration issue as the imperial troops, some complained that their rations were of a poorer quality and issued more irregularly, and that as a consequence they often had to purchase extra food themselves, even late in the campaign.¹⁰³ That, of course, was still standard practice for the imperial troops, who were paid 5 pence per day less than their colonial counterparts. In fact, towards the end of the campaign the colonial troops' field allowance was reduced to the same rate as the imperial troops', to recoup some of the expenses of providing the rations.¹⁰⁴ Despite the colonial troops' complaints, there is no concrete evidence to suggest that they were treated any worse than the imperial troops in respect to rations.

According to DACG Robertson, the Commissariat's greatest single supply challenge in the Waikato was providing forage for the horses and bullocks.¹⁰⁵ This problem had potentially far-reaching consequences, in that if the animals were not fed, the distribution network would break down. As fodder could not be acquired along the line of march (other than around Whatawhata and Rangiaowhia), it had to be brought into the theatre. This tied up a large part of the wheeled transport, which in turn increased the number of animals needing to be fed. The field forage ration comprised oats and hay, with maize, bran, and green fodder used as substitutes as required. Although contracts for oats, hay, bran, maize and green fodder were effected in Auckland, most of the oats, bran and maize consumed were imported from the other New Zealand settlements.¹⁰⁶

(The British Army was experimenting with a type of compressed forage during this period. Notification of the outbreak of hostilities reached Britain in October 1863,

¹⁰² General Order, No 707, 6 Jan 1864. (WO 33/17A.); Stanley-Jones to War Office, 6 Sep 1864. (WO 33/17A, Enclosure 18, No.1.)

¹⁰³ J. Stitchbury Journal, 24 Jul 1863. (Cited in J. Grainger, *The Auckland Story*, Wellington: Reed, 1953, pp.61-74.); Bartlett, p.284.

¹⁰⁴ Featon, p.13; Stitchbury, 20 Oct 1863; Bartlett, p.284; c.f. Carbery, p.5; Hustwick, 26 Aug 1863; Race, p.107.

¹⁰⁵ Robertson, 'Final Report', 6 Sep 1864.

and contracts for the compressed forage were signed at the end of October. The first shipment left on 18 December 1863, and reached New Zealand in mid-May 1864, by which time this war had ended. The forage was used during the later Taranaki Wars.¹⁰⁷)

There was also a requirement to provide coal for the steamers. Although coal had been discovered near the missionary B.Y. Ashwell's mission station at Kaitotehe (near modern-day Huntly) in 1859, and another seam was found near Taupiri in October 1863, these sources could not be safely accessed until the advance reached Ngaruawahia. Until then, coal was imported from Australia and elsewhere in New Zealand, landed in Onehunga, and carted overland to the Bluff Stockade. Port Waikato was also developed as a maintenance, assembly and coaling facility. As soon as the Taupiri coal field was secured, however, a party of miners was sent from Auckland to open and work the seam. The Taupiri coal field was deemed of such strategic importance that a small garrison was stationed there to protect the miners.¹⁰⁸

The Commissariat also had to cope with two economic problems arising from the war: a critical labour shortage and increased food prices. The labour shortage, which was caused by the mobilisation of the local male population to cover the shortage of imperial troops during the guerrilla campaign, manifested itself almost immediately. By late October 1863 virtually the entire male population of Auckland between the ages of 15 and 54 was on active duty with the Militia, the Forest Rangers, or the Colonial Defence Force.¹⁰⁹ It is important to note in the context of this study that many of the colonial troops came from trades from which the Commissariat purchased goods and services, either directly or indirectly. For example, one 102-strong Militia company included a seedsman, four farmers, three builders, a cabinetmaker, two shipwrights, a boat builder, a grain merchant, a mason, two brick layers, five blacksmiths, a tinsmith, two bootmakers, two storekeepers, a grocer, a chemist, two carters, and an ostler. It is likely that most, if not all, of these men would have made a greater contribution had they continued working as tradesmen, storemen, and producers and distributors of food and other resources.¹¹⁰

¹⁰⁶ Robertson, 'Final Report', 6 Sep 1864; Stanley-Jones to War Office, 29 Oct 1864. (WO 33/17A, No. 13.)

¹⁰⁷ Robertson, 'Final Report', 6 Sep 1864.

¹⁰⁸ Featon, pp.68-9; L.H. Barber, *The View From Pirongia: the History of Waipa County*, Auckland: Ray Richards, 1978, p.12; Ross, p.86; M. Long (ed), *Waikato - Northern King Country Historical Guide*, Wellington: NZ Historic Places Trust, 1985, p.12; Campbell, p.9.

¹⁰⁹ Cowan, *New Zealand Wars*, Vol 1, p.244, Featon, pp.14-15.

¹¹⁰ *AJHR* 1863, A6, p.1; *DQMG Journals*, 3 Aug 1863, p.50; Tonson, p.67; Cowan, *New Zealand Wars*, Vol 1, p.243; Featon, pp.16, 31; *HMS Esk Logbook*, 3 Nov 1863; E. Holt, *The Strangest War*, London: Putman, 1962, pp.190-1.

Recognising this, the Deputy Commissary-General initially tried to exempt civilians with commissariat contracts from military duty. In October, however, when regular troops were transferred from the Great South Road to the front for combat service, they were replaced by the militia. The colonial authorities immediately cancelled the exemptions, thereby severely disrupting such activities as boat-building, the preparation of harness and other transport equipment, and biscuit production. Despite personal representations from DCG Stanley-Jones, the colonial authorities officially refused to budge, although when the Militia arrived at their posts (the farthest of which were 37 kilometres south of Auckland), colonial commander Major-General Galloway (on Stanley-Jones' request) released those who were required for Commissariat contracts to return to Auckland.¹¹¹ The Militia were gradually demobilised following the arrival of the Waikato Militia from late October 1863.¹¹²

The flour contract provides a good illustration of the effects of the war on food prices. A single supplier, J.S. MacFarlane, of Auckland, held the Commissariat flour contract for the entire period of the war, at prices set on 1 April 1863. When labour shortages caused a decline in wheat production (and therefore the availability of flour), the open market price of flour soared to £30 per ton, or more than double the contract price of £13/19s. At that point MacFarlane considered breaking his contract and paying the breach penalty, reasoning that the Commissariat would thereafter have to pay what the market demanded. In the event he honoured the contract, and instead sought the market rate during negotiations for a new contract in early 1864. The Commissariat responded by purchasing two shipments of flour from Tasmania, which were landed at Port Waikato at a total cost of £20 per ton. The new contract price was subsequently set at £24/8s per ton.¹¹³

As noted earlier, the invasion of Waikato was the decisive campaign of the New Zealand Wars. By striking with such effect against the Kingite tribes and dispossessing them of their land and resources, the British had effectively destroyed the centre of gravity of the Maori resistance, and thereby fatally undermined the ability of Maori to reverse the tide of British expansion. The outcome of the war demonstrated the effectiveness of British logistics, and highlighted the central role of the logisticians. It was, in every respect, the 'high tide' of British logistics in New Zealand.

¹¹¹ Stanley-Jones to War Office, 6 Sep 1864. (WO 33/17A, Encl. 18, No.1.) (Galloway was the commander of the colonial forces.)

¹¹² Cowan, *New Zealand Wars*, Vol 1, pp.243-4. (The Waikato Militia was a new unit, whose members agreed to serve in the Waikato in return for grants of confiscated land. By October 1863, 2500 men had enlisted. Its four regiments eventually numbered 4000 men.)

¹¹³ Robertson, 'Final Report', 6 Sep 1864.

In a post-war despatch to the War Office, Cameron paid tribute to the work of his Quartermaster General, Colonel Gamble, concluding that the outcome of the Waikato campaign was primarily due to the work of Gamble and his Commissariat staff.¹¹⁴ The success with which the Commissariat overcame both distribution and supply problems would seem to support this assessment. More than this, however, the outcome of the invasion of Waikato was determined by Cameron's preliminary planning, his success in overcoming his own logistical problems prior to and during the war, and his destruction of his opponents' logistical capacity in its latter stages. It marked his zenith as a strategist, a logistician, and a commander.

¹¹⁴ Cameron to War Office, cited in Alexander, *Bush Fighting*, p.144.

Chapter Seven:

The Second and Third Taranaki Wars: 1863-66

In mid-1863, while government attention was focussed on the Waikato, hostilities were renewed in north Taranaki. This set in train a series of conflicts throughout Taranaki, the central North Island, the Bay of Plenty and the East Coast, which lasted until 1872. These included the Second and Third Taranaki Wars, an uprising by adherents of a new Maori messianic cult (the Hau Hau), and – following the implementation of the Self Reliant Policy and the attendant withdrawal of the British garrison – the final campaigns being fought by colonial troops and pro-Government Maori.

This chapter will examine logistics during the British Army's final campaigns in New Zealand, the Second and Third Taranaki Wars. Two themes will be highlighted. First, it will be shown that British logistics performed effectively during the Second Taranaki War, but less so during the Third Taranaki War; and that there were significant problems with cooperation between the various logistical agencies responsible for distribution and supply between 1864 and 1866, although ultimately these did not affect the outcome. Second, it will be shown that these wars saw the implementation by the British of a new, logistics-focussed operational approach – the use of counter-logistics operations to destroy the ability of the Maori to resist.

The Second Taranaki War: 1863-64

The immediate cause of the Second Taranaki War was a dispute over the Waitara and Tataraimaka Blocks to the east and west of New Plymouth, and Grey's refusal to return the Waitara Block to Te Atiawa unless other Maori abandoned the Tataraimaka Block that had been occupied during the First Taranaki War. However, many historians agree that Grey intended using war in Taranaki in early 1863 to support his claims of a 'threat' from Waikato, and thereby justify an attack against the latter.¹

On 4 April 1863, 300 imperial troops established St George's Redoubt at the mouth of the Katikara River (on the edge of the Tataraimaka Block), about two kilometres from the Maori entrenchments. The war began on 4 May, when a party of

¹ See *AJHR*, 1863, E3, 8 Apr 1863, p.29; Grey to Newcastle, 4 Jul 1863, *AJHR*, 1863, E3, p.54; E. Holt, *The Strangest War*, London: Putman, 1962, p.186; K. Sinclair, *The Origins of the Maori Wars*, Auckland: New Zealand University Press, 1957, pp.259-69; B.J. Dalton, *War and Politics*

ten soldiers travelling from St George's Redoubt to New Plymouth was ambushed at the Wairau Stream, near Oakura: nine of the soldiers were killed. It lasted twelve months, and included two major set-piece engagements (the capture of Katikara pa on 4 June 1863 and Kaitake pa on 25 March 1864), a number of smaller actions, and a series of 'bush scouring' operations against Maori villages and population centres.²

One of the logistical features of this war was a shortage of military transport in Taranaki, including civilian transport over which military control could be guaranteed, and which could be used in a hostile environment. It will be recalled that in early 1863 military distribution resources were in short supply throughout New Zealand, and that most of the available assets were concentrated in and around Auckland, in preparation for the invasion of Waikato. At that stage there were no military distribution resources in Taranaki at all, and the Taranaki garrison's transport requirements were being met entirely by civilian contractors. This reflected the configuration of the garrison, with the 300 imperial troops in north Taranaki being concentrated in New Plymouth and Waitara, the static nature of the garrison duty, and the apparent lack of a Maori threat in the area.³

Between mid-March and early April 1863, as war became imminent in Taranaki, 400 imperial infantrymen, 100 artillerymen who had been hastily reorganised as a squadron of cavalry, and a transport company and 40 additional bullocks were shipped from Auckland to Taranaki. The infantrymen and gunners-cum-cavalrymen returned to Auckland between mid-June and August, leaving the imperial garrison in Taranaki to be bolstered by the Taranaki Rifle Volunteers, who were called out in May, and subsequently by the Taranaki Military Settlers, new settlers recruited in Victoria to fight in New Zealand with the promise of grants of confiscated land. The transport company remained in Taranaki throughout the war.⁴

in New Zealand, 1855-1870, Sydney: Sydney University Press, 1967, pp.165-77; C. Pugsley, 'Walking the Taranaki Wars: Katikara', *NZDQ*, 21, Winter, 1996, pp.32-37.

² Sinclair, pp.253-66; J. Cowan, *The New Zealand Wars and the Pioneering Period*, Vol 2, Wellington: Whitcombe and Tombs, 1923, pp.221-2; A. Parsonson, 'The Pursuit Of Mana', in *The Oxford History Of New Zealand*, ed. W.H. Oliver & B.R. Williams, Auckland: Oxford University Press, 1981, pp.159-60; M.P.K. Sorrenson, 'Maori And Pakeha', in *Oxford History Of New Zealand*, ed. W.H. Oliver & B.R. Williams, Auckland: Oxford University Press, 1981, p.182; Holt, p.213.

³ Cameron to War Office, 7 Apr 1863. (WO 33/17A.); D.J. Gamble, 'Journals of the Deputy Quartermaster General in New Zealand, 1861-64', p.31. (AMIL, Gamble Papers.) ['DQMG Journals'.]

⁴ Cameron to War Office, 7 Apr 1863. (WO 33/17A.); Stanley-Jones to War Office, 30 Jun 1863. (WO 33/17A.); General Order 483, 17 Mar 1863. (DQMG Journals, p.30.); J.D. Huston, 'Colonial Force Effectiveness in Regional Conflicts: The Taranaki and Whanganui Theatres, 1860 - 1869', MA, University of Waikato, 1998, p.18; J.M. Atkinson to E.E. Richmond, 26 Aug

It is significant that this transport company was larger than what would normally be required to support a static garrison of this size, but still too small to support more extensive or intensive operations, such as the investment of a major pa. However, it was capable of supporting short-range expeditions against undefended or lightly defended targets, such as villages and cultivations. It would appear from this that Grey and Cameron intended that the New Plymouth garrison and surrounding redoubts would be only capable of self-defence and limited offensive action, at a level that would stop the local Maori from either undertaking significant offensive action against New Plymouth and its surrounds, or leaving their own homes undefended in order to go to the Waikato.⁵ In the event, the transport company was able to support the British and colonial forces throughout this war with little difficulty.

A second logistical feature of the Second Taranaki War was the use of shipping to support land operations. During the war, the British sought to protect New Plymouth and the local settlements with a series of redoubts: Omata, Poutoko, Bell Block, Oakura, and Tataraimaka (although Tataraimaka was only garrisoned at the start and end of the war).⁶ While the redoubts were linked by a well-developed coastal road, communications between them were continually threatened by disruption and interdiction, which made any significant overland movement a major exercise. For example, one supply column from New Plymouth to Tataraimaka in May 1863 required a 380-strong escort.⁷

In accordance with their largely defensive strategy, however, the British did not attempt to extend the existing coastal road beyond Waitara and Tataraimaka during the war. Instead, they addressed their land distribution problems by using steamers to complement land transport, and during periods of heightened threat to replace it. These measures met with great success. For example, when the British abandoned Camp Waitara and the Mahoetahi Blockhouse on 13 May 1863, the barrack furniture, stores, and soldiers' baggage were removed to New Plymouth on HMS *Eclipse* and her three surf-boats, while the two garrisons returned on foot.⁸

1863. (*Richmond-Atkinson Papers*, ed. G.M. Schofield, Wellington: Government Printer, 1960, p.59.); F. Glen, *For Glory and a Farm*, Whakatane: Whakatane Historical Society, 1984, p.68; J.E. Alexander, *Bush Fighting*, London: Richard Bentley, 1873, pp.25-6.

⁵ Cameron to War Office, 7 Apr 1863. (WO 33/17A.); Stanley-Jones to War Office, 30 Jun 1863. (WO 33/17A.); General Order 483, 17 Mar 1863. (DQMG Journals, 17 Mar 1863, p.30, & 3 Aug 1863, p.50.

⁶ DQMG Journals, 11 May 1863, p.34; Cowan, Vol 1, pp.223, 225, 228; Alexander, p.26.

⁷ DQMG Journals, 15 & 22 May 1863, pp.34-5.

⁸ DQMG Journals, 13-22 May 1863, pp.34-5.

The logistical aspects of the British attack against Katikara demonstrate how flexibility in logistical planning and cooperation between land and sea components helped achieve a decisive outcome. Briefly, Katikara was an uncompleted entrenched position on high ground to the south of the Katikara River, overlooking the Tataraimaka Block 19 kilometres to the west of New Plymouth. It was captured by a large force of imperial troops, supported by an artillery battery and naval gunfire from HMS *Eclipse*, on the morning of 4 June 1863.⁹

The aspect of this engagement that is relevant to this study was the way that the British commander, Cameron, manoeuvred his force and its supplies into position for the attack. The main body of British troops left New Plymouth at 9 p.m. on 3 June, and reached St George's Redoubt at 4 a.m. the next day. In a departure from previous practice, however,

In order that the march might not be impeded, the guns, mortars and reserve ammunition had been sent on a few hours before [the main body left New Plymouth], under strong escort, and no tents or baggage of any kind were allowed to accompany the column [following behind].¹⁰

This was the first occasion during the New Zealand Wars that the British had 'pushed' their support weapons and supplies forward of the main column: indeed, as best as can be ascertained it may have been one of the first times in the history of the British Army that it had been done. This ensured that the main column was able to move quickly to the battle area without the encumbrance of having to protect the baggage train, and thereby reached its objective in a good state of readiness. Previously in New Zealand, the main column had either advanced ahead of the baggage train, which meant that it invariably reached its objective ahead of the supplies, or travelled with it, which reduced the speed of the whole.

Incidentally, it should be noted that Katikara was Cameron's first action in New Zealand.¹¹ Like his subsequent 'master stroke' at Rangiaowhia, his bold yet calculated manoeuvre at Katikara counters his popular image of being slow and staid,¹² and instead suggests a firm grasp of logistics, a boldness of purpose and an ability to act quickly and decisively when required.

⁹ Cowan, Vol 1, pp.225-30; Pugsley, 'Katikara', pp.32-37; Warre to Grey, 4 Jun 1863. (*New Zealand Gazette*, 1863, pp.226-8.); Alexander, p.26.

¹⁰ Cameron to Grey, 9 Jun 1863. (*New Zealand Gazette*, 1863, pp.224-6.)

¹¹ Pugsley, 'Katikara', p.36.

¹² See, for example, W.P. Reeves, *The Long White Cloud*, London: George Allen & Unwin Ltd, 1924, pp.207-8. (3rd edition); and H. Miller, *The Invasion of Waikato*, Dunedin: Harold Miller, 1964, p.16.

The third logistical feature of this war was the use by imperial and colonial troops of an aggressive campaign of bush scouring to destroy the Maori's logistical capability, and thereby their ability to resist. This was actually the most important logistical development of the Second Taranaki War, in that it marked the emergence of counter-logistics as the key component of British strategy.

Bush scouring involved locating and destroying Maori villages and cultivations throughout the north Taranaki district, it being argued that 'tak[ing] or destroy[ing] an acre of potatoes...will tend more towards finishing the war than killing a Native would.'¹³ Bush scouring operations were characterised by flying columns of a few hundred men at most, lightly armed and equipped, unhampered by large supply networks, and led by flexible, adaptable commanders who were 'unimpressed by the rules of conventional warfare.'¹⁴

While there is no requirement here for a chronological examination of all the operations conducted in north Taranaki over this period, the following brief survey will provide a sense of how bush scouring was undertaken, its effects upon the Maori, and its implications for our understanding of British logistics.

During the second half of March 1864, 500 imperial and colonial troops moved against Kaitake, a Maori position south of the Tataraimaka Block, on the foothills of the Kaitake Range. As part of his preparations for the attack on the main pa, Colonel H.J. Warre (the senior British officer in north Taranaki) destroyed a series of local villages to stop the Kaitake garrison from using them as sanctuaries or sources of food supply. When the first village, Tu-tu, was attacked on 22 March:

A few old men, women and children were wholly unprepared for our visit & fled rapidly into the surrounding bush leaving their wharries, food, carts and belongings to the mercy of the troops, who having loaded themselves with everything portable destroyed the village – pulled down and burnt off the stockade & routed up many acres of growing crops, without the expenditure of a single round of ammunition.¹⁵

Taranaki Volunteer Arthur Atkinson recorded that Tu-tu's cultivations covered

about 15 acres – maize, potatoes, taros, kumara, tobacco &c. in large quantities After looking about a little we set to work seriously at the crops. I took to the taros & going up between the rows, took up [pulled out] a plant in each hand as I went. There were about 6 acres of maize cut down – ½ [acre] of taros &

¹³ W.S. Atkinson to H.A. Atkinson, 3 Dec 1864. (*Richmond-Atkinson Papers*, Vol 2, p.132.)

¹⁴ Cowan, Vol 1, pp.224-5; J. Belich, *The New Zealand Wars and the Victorian Interpretation of Racial Conflict*, Auckland: Penguin, 1985, p.213.

¹⁵ H.J. Warre, 'Narrative of the War in Taranaki, 1861-66', pp.114-15. (Warre Papers, WTU, MS-Micro-0449.)

kumara, & tobacco lines. The potatoes were some of the best I ever saw...and we spoilt a few of them.¹⁶

The second village, Ahu Ahu, was attacked two days later. Again, the village was lightly fortified and defended, and its small garrison was driven off without difficulty. 'A large quantity of vegetable produce of every description, including several acres of growing crops of Indian corn, tobacco, tara [taro] & c., fell into the hands of the troops, and with the exception of what they were able to remove, were destroyed.'¹⁷ Kaitake pa was assaulted and captured the following day. Its loss left between 30 and 40 acres of cultivations in British hands.¹⁸

Another expedition by 520 troops from St Andrew's Redoubt, Oakura, through the Tataraimaka district between 18 and 22 April 1864 destroyed the villages of Puketawa (19 April) and Paiakamahoe (20 April), and completed the destruction of Ahu Ahu (21 April).¹⁹

The British also used bush scouring as an adjunct to operations against fortified pa on a number of occasions. As noted above, in late March 1864 they attacked the villages of Tu-Tu and Ahu Ahu prior to the attack on Kaitake pa. Later, on 8 October 1864 they destroyed Manutahi village as part of the preparations for an attack against the nearby Hau Hau pa of the same name. The Hau Hau immediately abandoned Manutahi pa, after which the troops destroyed three other villages in the district.²⁰

Bush scouring was used in north Taranaki until 1866, and throughout south Taranaki during the latter stages of the Third Taranaki War, with devastating effects for local Maori. The attacks increased in scale and complexity as the British, colonial and kupapa forces grew in number and confidence. Heavy artillery pieces were abandoned in favour of smaller and lighter pieces, which enhanced mobility and helped the force achieve surprise. By 1866, the tactics of bush scouring had settled into a pattern that combined the skills of the Imperial and colonial troops and kupapa with irresistible effect.

It should be noted that a number of imperial officers serving in New Zealand had advocated the use of bush scouring-style tactics as a means of undermining Maori

¹⁶ A.S. Atkinson Journal, 25 Mar 1864. (*Richmond-Atkinson Papers*, Vol 2, pp.96-7.)

¹⁷ DQMG Journals, 26 Mar 1864, p.102; Alexander, p.153.

¹⁸ DQMG Journals, 26 Mar 1864, p.103.

¹⁹ W. Fox, *The War in New Zealand*, London: Smith Elder & Co, 1866, p.122; DQMG Journals, pp.107-8; Cowan, Vol 2, pp.16-17; C.J. Pugsley, 'Walking The Taranaki Wars: Ahuahua', *NZDQ*, 24, Autumn, 1999, pp.32-6; Murray to Warre, 22 Apr 1864 & Warre to DAG, 23 Apr 1864. (*New Zealand Gazette*, 1864, pp.123-4.)

²⁰ Warre to Cameron, 10 Oct 1864, & Cameron to Grey, 13 Oct 1864. (*New Zealand Gazette*, 1864, pp.393-5.)

logistics since the 1840s. For example, it will be recalled that DACG W.T. Power had advocated 'a war of sudden and unexpected attacks ... carried to their own homes ...'. As an extension of this, Power had suggested that

the best plan would be to make an attack upon him just before his potato crop is ripe, so that, if he himself should succeed in escaping, he would lose the means by which he lives, and, with his followers, would become a burthen to his friends for the whole winter. This would soon tire all parties, particularly if the system were pursued for two or three successive seasons. Nothing would so soon break their spirit and self-confidence, as they would see the utter hopelessness of a contest in which they have but little power to injure, while they may be harassed, impoverished, and perhaps destroyed, at the will of their enemies.²¹

In his report on the Northern War, Lieutenant T.B. Collinson, a Royal Engineers officer, suggested that these effects could be achieved by

... a local corps of men so equipped and trained that they could go wherever the native goes, and for the time live as he lives, come upon him by surprise and take him prisoner. Such a corps would not require guns or drays, or even bags of powder. And judging from some of our troops which had been in one or two campaigns, and from the habits of the settlers, I believe that a corps composed of British soldiers and settlers, so equipped, would after a year or two's training beat the savage out of the field.²²

Similarly, in his 1859 account of his experiences in New Zealand, the 58th Regiment's surgeon, Dr A.S. Thompson, advocated the establishment of 'a body of irregular troops...trained for fighting in forests and mountains, and like their foes independent of a commissariat.'²³

This raises a question that is of particular importance to this study: why did the British not use such tactics earlier in the New Zealand Wars? The answer can be found in an examination of the logistics required to support bush scouring.

Collinson's and Thompson's comments identify one of the common themes from the contemporary arguments in favour of bush scouring: the idea that reducing or avoiding logistical networks would improve the effectiveness of the force, and therefore enhance its prospects of success. By contrast, the logistician Power had noted that such operations needed to be supported by strong logistics. To this end, he had specifically recommended establishing a logistics base on Kapiti Island, and using steamers to

²¹ W.T. Power, *Sketches in New Zealand*, London: Longman Brown, 1849, pp.64-5.

²² T.B. Collinson, *Papers Connected with the Duties of the Corps of Royal Engineers*, Vol 3, London: John Weale, 1853, p.71.

²³ A.S. Thompson, *The Story of New Zealand*, Vol 2, London: John Murray, 1859, p.149. See also Warre, 'Narrative', pp.116-17.

move supplies forward to the coastal regions and up the rivers. (Power had been writing in the context of military operations on the Kapiti and Wanganui coasts.)²⁴

At the lowest level of war, the tactical level, there is some truth in the idea that bush scouring required less logistical support than such operations as set-piece engagements or the investment of pa, in that those engaged in bush scouring could live off the land – or, more correctly, the produce of the targeted villages – for short periods. On the other hand, the special nature of bush scouring, and particularly the requirement that columns not be encumbered by supply trains and heavy artillery, imposed a number of logistical constraints. These, in turn, set three conditions that had to be met if bush scouring operations were to succeed. Each condition involved logistics.

First, the forces engaged had to be supported by a firm base to the rear. The firm base itself had to be able to be easily defended and supplied, and be able to provide all the resources that the field force would require. Second, the field force had to be able to access the supplies in its firm base quickly and with minimal risk. This could be achieved by moving supplies forward, or (as happened in Taranaki) having the field force fall back on its depots after short periods in the field. Either resupply method required that the lines of communication be short and easily secured, to avoid the resupply process from becoming excessively complicated or risky. These two conditions were essentially what Power had proposed in his case for a base at Kapiti, and use of steamers for distribution.

The third condition was implicit in each of Power's, Collinson's and Thompson's comments: that the operations had to focus on the destruction of enemy targets (including warriors, supplies, and cultivations) rather than the semi-permanent or permanent occupation of territory. This was because occupying land is inherently resource-intensive, and forces so engaged require ongoing resupply and logistical support.

The first time that all three conditions existed for an extended period in New Zealand was in Taranaki in early 1864. Prior to this, the British had had to operate along extended and tenuous lines of communication, or could not guarantee their own lines of communication, or were specifically seeking to occupy territory through an extended campaign. As a consequence, bush scouring would not have worked during the wars of the 1840s, because the British had not had the logistical resources or network required to sustain operations. Similarly, in Taranaki in 1860-61 they had been unable to secure their lines of communication until quite late in the war, which meant that Pratt's bush scouring operations in September and October 1864 were

²⁴ Power, p.65.

necessarily restricted to the area immediately adjacent to Camp Waitara. As a result, Pratt's operations were far less effective than those conducted from 1864 onwards. Finally, the nature of the campaign in the Waikato (which, it will be recalled, involved the conquest and occupation of territory, along growing lines of communication) simply did not lend itself to bush scouring. While the operation against Rangiaowhia had some of the hallmarks of bush scouring (particularly in respect to the use of a flying column against a lightly-defended cultivated area), it differed from the operations in Taranaki after 1864 in one vital aspect: the British had immediately occupied the Rangiaowhia district, whereas in the Taranaki as soon as the troops had destroyed one village they moved on to the next.

A number of points require special emphasis here. First, the use of bush scouring as a tactical means to achieving a strategic end represented the culmination of over 15 years of British military thought about how to defeat the Maori. What had been missing until 1864 were the logistical conditions required to turn the theory into practice. Second, the British created those conditions in north Taranaki by the imaginative way in which they had addressed their logistical problems prior to and during the early stages of the Second Taranaki War. Specifically, the emphasis on consolidating the redoubts and depots along the coast, the use of steamers to supplement land transport, and the creation of short lines of communication into the hinterland helped facilitate bush scouring operations. Finally, bush scouring struck at the fundamental Maori weakness: the inherent conflict between meeting the economic needs of the tribe while trying to execute a resource-intensive pa strategy.²⁵

The Third Taranaki War: 1865-66

The Third Taranaki War began in mid-January 1865, and lasted 13 months. The British objectives were to subjugate the tribes of south and west Taranaki, and enforce the land confiscations effected under the provisions of the 1863 New Zealand Settlements Act. During the first months of the war, imperial, colonial and kupapa forces advanced slowly along the south Taranaki coast, establishing a series of redoubts and depots between the two settlements. The British commander, Cameron, did not seek decisive engagement with the Maori, but rather sought to establish the military and logistical framework required to support operations in the hinterland. The war brought to a climax a protracted and increasingly bitter dispute between Grey and Cameron over the conduct and direction of the war. The dispute culminated with Cameron's resignation and departure for Britain in August. Cameron's replacement,

²⁵ Belich, *New Zealand Wars*, pp.102-4, 129.

Major General Trevor Chute, thereafter brought the war to a conclusion with one of the most brutal campaigns of the New Zealand Wars.²⁶

The British Army's logistical services, which had operated with such telling effect in the Waikato and north Taranaki in 1863 and 1864, were far less effective during this war. This was the result of friction between the logistical agencies, inadequate distribution resources, disruption of the distribution network by political interference and environmental factors, and the effects of Cameron's dispute with Grey. These problems can be traced back to the closing stages of the Waikato and Second Taranaki Wars. They are discussed in turn below.

Inter-agency friction

In mid-1864, the previously good working relationship between the agencies responsible for providing logistical services in New Zealand, the Commissariat, the Military Train and the Quartermaster-General's Department, was rent by friction and rivalry. These problems continued until the end of the Third Taranaki War in February 1866, with serious effects for the provision of logistical services during that campaign.

The first sign of trouble was a dispute between the Commissariat and the Military Train in early 1864. It will be recalled that prior to the invasion of Waikato, the Commissariat had assumed responsibility for the British Army's distribution and supply functions in New Zealand. During the first half of 1864, the question of whether this local organisational arrangement should continue, or the two functions should be split to conform to the practice elsewhere in the British Empire, became a matter of military debate in both New Zealand and Britain.

On 22 February 1864, the 4th Battalion of the Military Train landed in Auckland. Its Commanding Officer, Colonel O'Brien, had a confidential instruction from London to convince Cameron that the Transport Corps should be transferred from the Commissariat to the Military Train. While it is unclear whether Cameron was aware of the instructions from London, he did seek the advice of the Commissariat and the Military Train as to how the latter should be employed in New Zealand, and whether amalgamation might be desirable. As the first step, he had O'Brien consult with the Director of the Transport Corps, ACG Bailey, over whether sufficient animals and personnel could be transferred from the Transport Corps to the Military Train to allow

²⁶ T. Gibson, *The Maori Wars*, Wellington: Reed, 1974, pp.142-56, 172-83; Cowan, Vol 2, pp.46-72; Belich, *New Zealand Wars*, pp.203-16; T. Ryan & W. Parham, *The Colonial New Zealand Wars*, Auckland: Grantham House, 1986, pp.115-24, 145-58.

the employment of a few surplus Military Train officers. It was during his meeting with Bailey that O'Brien revealed his instructions.²⁷

Both O'Brien and DCG Stanley-Jones (Bailey's immediate superior) were required to report to Cameron via DQMG Gamble, who was known to be opposed to the proposal on philosophical and practical grounds.²⁸ O'Brien's report recommended that the Military Train assume full responsibility for transport and distribution, and that the Transport Corps be absorbed into his command and reorganised into four battalions of Military Train. Some elements of the Transport Corps would remain under Commissariat Staff Corps control, and be deployed through the various posts in the Waikato to move Commissariat stores. This, he said, was the system used in Aldershot, Sharncliffe, Portsmouth and Plymouth.²⁹

By contrast, ACG Bailey's report to Stanley-Jones recommended that the Transport Corps retain responsibility for front-line distribution, and that the Military Train should assume responsibility for rear area transport in and around Auckland. Bailey's approach was based on his firm belief that 'the success or failure not only of the Commissariat department but of the army depended entirely upon the transport being efficient, and sufficiently strong to supply the forces under all circumstances.'³⁰

The way in which Stanley-Jones dealt with the issue is intriguing. In a letter to Gamble dated 26 May 1864 (two days after O'Brien had written to Gamble), he refuted each of O'Brien's comments in turn, in a manner indicating that he had had access to O'Brien's letter. Specifically, he expressed concerns that transferring transport personnel from the Transport Corps to the Military Train would jeopardise the whole basis of the supply network; that Military Train officers could actually refuse to carry out requests by Commissariat and non-combatant officers transferred from the Transport Corps; that the extant system had worked well, as demonstrated by the operations to date; and that any change would ultimately result in the Commissariat again becoming dependent upon the Military Train for transport.³¹

²⁷ Bailey to Stanley-Jones, 26 May 1864; Cameron to War Office, 4 Jun 1864. (WO 33/17A.)

²⁸ Gamble had earlier stated that while a battalion of the Military Train would be a valuable addition to Cameron's army, 'with the present extant of the military operations (and they have not yet reached their limit), it is not to be expected that a single battalion of the Train can take the place of the [Commissariat] Transport Corps in this country.' (DQMG Journals, 1 Jan 1864 and 27 Feb 1864, pp.80, 97-8.)

²⁹ O'Brien to Gamble, 24 May 1864. (WO 33/17A.)

³⁰ Bailey to Stanley-Jones, 26 May 1864. (WO 33/17A.)

³¹ Stanley-Jones to DQMG, 26 May 1864. (WO 33/17A.)

A post-war memorandum, written by Stanley-Jones to cover DACG Robertson's report on the work of the Commissariat during the final stages of the Waikato War, reveals the direction of Stanley-Jones' advice to Cameron:

[The Commissary-General] has the money [to purchase supplies] and supplies for the army; but, unless that army is stationary in the precise locality where the supplies are, he is still without the means of conveying those supplies to the army. Experience has shown that, to meet this case, transport, like money, should be under the control and direction of the Commissary-General. If he has to rely upon another department for the means of conveying his provisions, and that means of conveyance is not forthcoming as required, he cannot be held accountable for the supplies not reaching their destination.

A Commissariat Officer, therefore, without money, or without transport at his sole command, has not the power, under all circumstances, to perform his duty of feeding an army in the field, and manifestly cannot be held responsible that the duty is efficiently, faithfully, or economically performed – nor could the responsibility of failure be made to rest upon any one except those who refused to confer upon the Commissary-General the power of transport as well as money, which alone can enable him to perform his duties in face of difficulties and obstructions.

Money [to purchase supplies] and transport are to a Commissary-General what fire and water are to the steam engine; the former, without his motive power, would be no more useful in the field than the latter without its steam.³²

Having received both sets of advice, Cameron decided to retain the Transport Corps and the Military Train as separate entities, and to make the latter specifically responsible for transport between Auckland, Onehunga and Drury, which was at that time provided by contractors at a cost of £200 per month. (The Military Train and the Transport Corps subsequently shared responsibility for the route between Drury and Queen's Redoubt.) In justifying his decision, he noted that the Transport Corps had performed particularly effectively to that point; that the status of the Commissariat and non-combatant transport officers might lead to problems between them and the officers of the Military Train; and that it would be best to retain the linkage between supply and distribution.³³

The Military Train remained in New Zealand until 1867, during which time its members were primarily used as cavalry, while the Transport Corps remained the pre-eminent distribution agency.³⁴

³² Stanley-Jones to War Office, 6 Sep 1864. (WO 33/17A, Encl. 1 in No. 18.)

³³ Cameron to War Office, 4 Jun 1864; Stanley-Jones to War Office, 6 Sep 1864. (WO 33/17A, Encl. 1 in No. 18.)

³⁴ J.W. Fortescue, *A History of the British Army*, Vol VIII, London: MacMillan, 1910, pp.517-18; Ryan & Parham, pp.162-3.

The Commissariat also faced another, albeit less serious, challenge from the Army's materiel supply agency, the Quartermaster-General's Department, over the separation of supply and distribution responsibilities between the two. The problem arose from the fact that the military officers of the Quartermaster-General's Department technically outranked the civilian officers of the Commissariat, and so were able to override the orders of the latter. They used this power on several occasions during the Third Taranaki War, prompting a series of complaints by the Deputy Commissary-General in south Taranaki, Edward Strickland.³⁵

There was a further clash of prerogatives between the Commissariat and the senior military commanders over the control and use of the steamers hired by the Commissariat to support operations in south Taranaki. Under the extant arrangements, the Commissariat was responsible for the leasing and administration of the steamers, with costs being shared between the colonial and imperial governments. Although the arrangements did not formally establish who was responsible for the command and control of the steamers, it seems to have been assumed – by the Commissariat at least – that the Commissariat was. The absence of a clear statement of responsibility, however, only served to put the civilian Commissariat officers at odds with their military counterparts. The issue reached a head in 1865, during the Third Taranaki War, when Governor Grey sought to divert the steamer *Gundagai* for other military duties.³⁶

The resulting dispute undermined the performance of the transport system, caused additional costs, and exposed the operations that were being supported to unnecessary risk.³⁷ In a major report released in July 1865, Transport Corps Director DCG Bailey again reiterated the requirement that any transport required for commissariat purposes should

be an integral part of the establishment of the Commissary-General, and completely and exclusively under his immediate orders, subject to the control of the general officer commanding. It is submitted that this is absolutely unavoidable if the commissariat is expected under all circumstances to be prepared with the requisite supplies for the subsistence of a force anywhere but in a garrison town. If the commissariat be hereafter deprived of the control of its own transport in the field, it will necessarily follow that the supply of the

³⁵ Stanley-Jones to Commissary-General in Chief, 6 Mar 1865 & 26 Apr 1865. (WO33/17A, Nos. 14 & 15.)

³⁶ Strickland to unknown recipient (likely to be Stanley-Jones), 16 Apr 1865. (Strickland Papers, WTU, QMS-1934.); Strickland to Stanley-Jones, 25 Mar 1865. (Encl. 1 in No. 15, WO 33/17A.); R.D. Campbell, *Captain Cadell and the Waikato Flotilla*, Wellington: Maritime Publications, 1985, p.13.

³⁷ Strickland to Stanley-Jones, 1 Mar 1865. (WO33/17A, Encl. 1 in No. 14.)

army must be endangered, as there will be two parties responsible for the same thing³⁸

The problems between the Commissariat's civilian logisticians and their military counterparts affected the British Army's logistical services up to and throughout the Third Taranaki War. As a result, the levels of cooperation, economy and efficiency achieved during the Waikato and Second Taranaki Wars were not repeated in south Taranaki during 1865 and 1866.

Distribution problems

The British distribution network in Taranaki over the period 1863-66 included land and sea transport, reflecting the fact that the main areas of operations during the Second and Third Taranaki Wars lay along the coastal strip. Whereas the land and water-borne transport had worked well together to provide an effective distribution network in the Waikato and north Taranaki in 1863 and 1864, they were far less effective in south Taranaki in 1865 and 1866. The problems involved both modes of transport.

Land transport

The first land transport problem was the limited number of assets available. As noted above, the British had had to contend with a shortage of military transport in Taranaki prior to and during the Second Taranaki War. The situation did not improve significantly prior to the outbreak of the Third Taranaki War in early 1865, with the result that there were still insufficient distribution resources – personnel, horses, bullocks and carts – available to support sustained offensive operations in south Taranaki. Given the rapid growth in the number of logistics units prior to and during the Waikato War, and the fact that the Third Taranaki War actually involved far fewer troops than had fought in the Waikato, this seems a paradox. However, it can be explained by the geographical spread of the wider conflict. Whereas during 1863 and early 1864 the bulk of the Imperial and colonial forces, together with their logistical components, were concentrated in the Waikato, between mid-1864 and the end of 1866 they were spread between the Waikato (where they were supporting the development of military settlements between the Waipa Basin and Tauranga), north and south Taranaki, the Bay of Plenty, and Hawke's Bay. Further, the proliferation of pockets of resistance meant that British, colonial and kupapa forces were sometimes engaged in different areas concurrently. As a result, British logistical resources were severely

³⁸ Stanley-Jones to Cameron, 31 Jul 1865. (WO33/17A, Encl. 1 in No. 15.)

stretched throughout the entire period, including in the south Taranaki theatre. The most serious shortages were of distribution personnel and artisans.³⁹

The Commissariat initially tried to overcome these shortages by the same means it had used in the Waikato in 1863 and early 1864: transferring volunteers from other units, and hiring civilian carters. A few months after the Third Taranaki War started, however, DCG Strickland reported to his superiors that 'officers commanding regiments do not like to part with good men, none others are worth our taking, and no responsible civilian will serve for £150 a year, the maximum we are permitted to give.'⁴⁰ As a result, the Commissariat was given approval to raise another three land transport companies for service in Wanganui and south Taranaki. This gave the Transport Corps a total strength of 41 officers, 132 NCOs, 1341 men, 1516 horses and 728 bullocks. This was its peak strength in the New Zealand Wars.⁴¹

The second land distribution problem was the state of land communications in north and south Taranaki. It has already been noted the British did not extend the existing coastal road beyond Waitara and Tataraimaka during the Second Taranaki War.⁴² It was not until late 1864, when the government started the process of confiscating extensive tracts of land in Taranaki, that the Taranaki Provincial Council began to investigate establishing a coastal road between New Plymouth and Wanganui. In October 1864, the General Assembly authorised expenditure of £5000 on roading in Taranaki, as much to 'keep discharged militiamen from starving' as to support regional development. It was intended that a large post would be established at Patea, and that a series of secondary redoubts would be established along the coastal roads either side of it. These positions were to be supplied by road and sea, and used to support land operations and provide local protection for settlers.⁴³

Progress on the road construction programme was so slow that as early as January 1865 it was clear that the road would not be completed in time for winter.⁴⁴ The settlers blamed Cameron, claiming that he was refusing to allow soldiers to

³⁹ Strickland to Stanley-Jones, 1 Mar 1865. (WO33/17A, Encl. 1 in No. 14.)

⁴⁰ Strickland to Stanley-Jones, 1 Mar 1865. (WO33/17A, Encl. 1 in No. 14.)

⁴¹ Strickland to Stanley-Jones, 25 Mar 1865 & Bailey to Cameron, 26 Jul 1865. (WO 33/17A, Encl. 1 in No. 15 & Encl. 2 in No. 17 (respectively).)

⁴² DQMG Journals, 15 & 22 May 1863, pp.34-5.

⁴³ A.S. Atkinson Journal, 2 Nov 1864 & A.S. Atkinson to H.A. Atkinson, 10 Jan 1865. (*Richmond-Atkinson Papers*, Vol 2, pp.129, 145.); N. Prickett, *Excavations at Warea Redoubt, January – February 1978*, Auckland: University of Auckland Press, 1977, pp.2-6; Warre, 'Narrative', pp.110-11.

⁴⁴ A.S. Atkinson Journal, 2 Nov 1864 & A.S. Atkinson to H.A. Atkinson, 10 Jan 1865. (*Richmond-Atkinson Papers*, Vol 2, pp.129, 145.)

undertake the road work as paid piecework, and that as a consequence military settlers had to do the work.⁴⁵ On the other hand, one military observer, A.T. Carbery, questioned the need for a road at all. Carbery called the road

... a most useless piece of work – it is 100 miles and would take 15 years to make properly and then would not be of any use to the settlers as the sea communication is far shorter – it is a Colonial government job to keep the Troops at Taranaki to spend money.⁴⁶

Carbery was the Assistant Surgeon to the 18th Regiment, which raises the possibility that his comments may have reflected the ideas of his fellow officers, Cameron included. Regardless of who was to blame for the delay, the result was that the Transport Corps' ability to support operations in south Taranaki during the Third Taranaki War was severely hampered by the lack of a serviceable road.

Sea transport

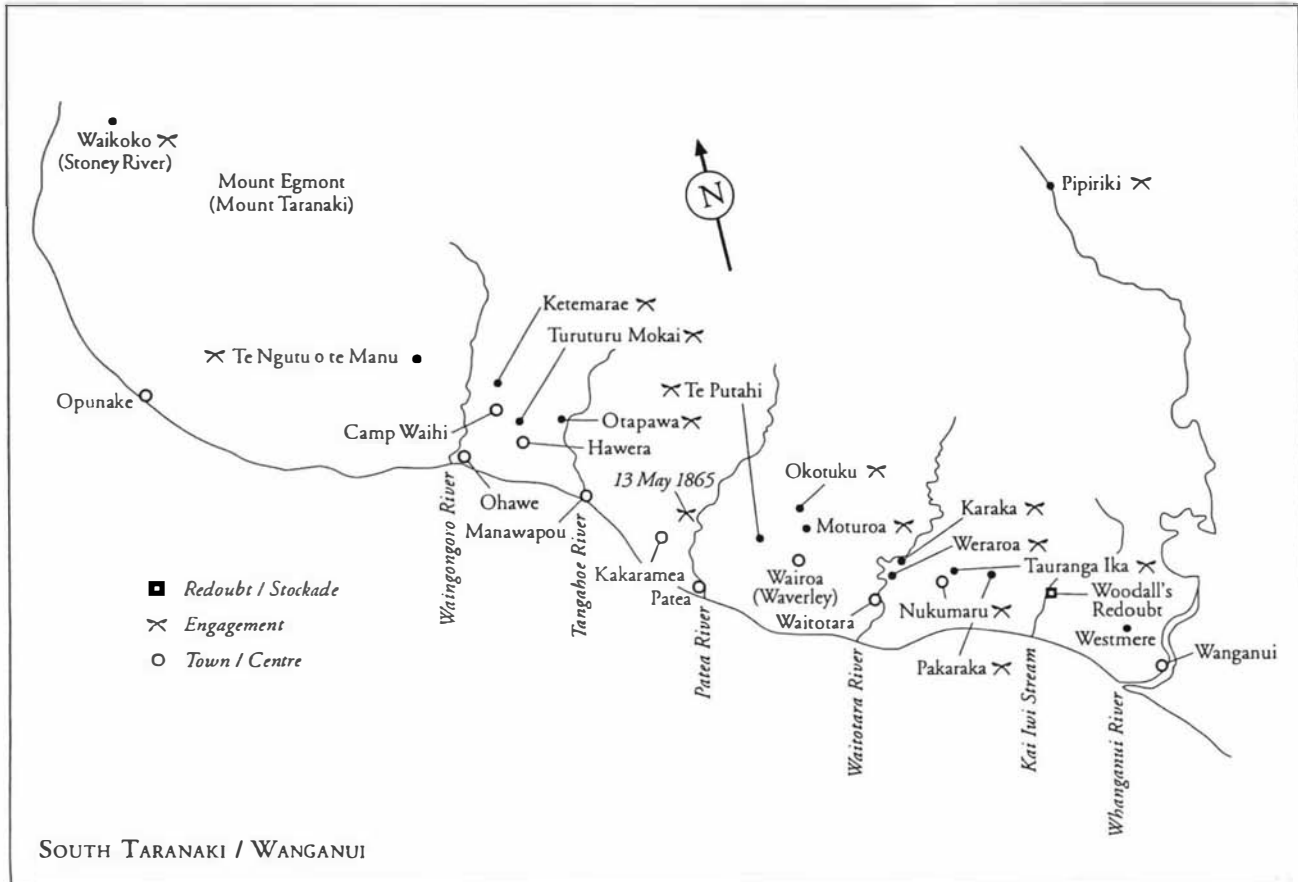
Sea transport featured prominently in Cameron's planning for the Third Taranaki War. It was intended that steamers would be used to supply the series of coastal redoubts and depots. Once landed, the stores would be distributed by bullock-drawn carts and pack-horses.⁴⁷

The British started the Third Taranaki War with the steamers *Gundagai*, *Sandfly*, *Alexandra* and *Lady Barkly* immediately available, and negotiations underway to hire the locally-owned steamers *Prince Albert* and *Wanganui*. Soon after the war began, however, it was realised that *Gundagai*'s cargo capacity was insufficient, and that her small engines limited her ability to cross the Wanganui bar in all but very good weather. As a consequence, the Commissariat hired another, more powerful steamer, *Moa*, in late March 1865. In April, the British-controlled steamer *Alexandra* (which had not actually been used in south Taranaki) had to return to Sydney for repairs. This forced the Commissariat to hire a temporary replacement, *Ahuriri*, at a cost of £700 per month. (*Alexandra* was wrecked off Pukearuhe, north Taranaki, in early August 1865, soon after returning from Sydney.)⁴⁸ As it transpired, most of the steamers proved technically deficient for either the task or the environmental conditions at hand.

⁴⁵ C. Brown to H.A. Atkinson, 13 Jan 1865. (*Richmond-Atkinson Papers*, Vol 2, p.146.) (Soldiers were paid an additional 2/6 to 4/- per day for road work.)

⁴⁶ A.T. Carbery Journal, p.30. (WTU MS 2310/1.)

⁴⁷ Cameron to Grey, 17 Feb 1865. (*NZ Gazette*, 1865, p.124.); Stanley-Jones to Strickland, 26 Apr 1865. (WO 33/17A, No. 15.); B. Wells, *The History of Taranaki*, New Plymouth: Edmundsen and Avery, 1878, p.249; Cowan, Vol 2, p.54.



South Taranaki and Wanganui: 1865-66

(Source: R. Stowers, *Forest Rangers*, Hamilton: Richard Stowers, 1996, p.156.)

As a result of these problems – inter-agency friction, and problems with land and sea distribution – the logistical machine that had been so formidable in the Waikato failed badly in south Taranaki in 1865. The problems can be traced through the early stages of the Third Taranaki War.

On 24 January 1865, 1200 Imperial and colonial troops and kupapa marched west from Wanganui. The force was led by Brigadier-General Waddy, with Cameron in attendance. Its immediate objective was to advance beyond Patea, clearing Maori positions and establishing a series of redoubts on the way. At the same time, a second force from New Plymouth, under Colonel H.J. Warre, would establish a series of redoubts along the coast from New Plymouth and Opunake, eventually linking up with Waddy's larger force. These redoubts would thereafter be used to secure the districts between New Plymouth and Wanganui, and help enforce confiscation.

After a seven hour, 25 kilometre march, Waddy's force camped near the village of Nukumarū, in the centre of the disputed Waitotara Block and a short distance from the powerful Hau Hau pa, Weraroa. Following a series of attacks by Hau Hau from Weraroa over the next two days, Cameron moved his camp to the coast, to await the arrival of reinforcements. By the end of the month his army had increased to 2300 men, and he was ready to recommence the advance. Thereafter he advanced in a caterpillar fashion, pushing half the army forward while the remainder held its positions, and then pulling the rear troops forward. On the night of 2-3 February, Waddy took half the army across the Waitotara River, leaving the other half of the army, under Colonel Weare, in their post-Nukumarū encampment. Waddy's force spent the next few days building a 150-man redoubt at Waitotara.

On 15 February, Waddy advanced to the mouth of the Patea River, while Weare moved from Nukumarū to take up positions around the Waitotara Redoubt. Over the next fortnight, Waddy's force established a 200-man redoubt on the left bank of the mouth of the Patea, and a 600-man position on the high ground overlooking the right side of the river mouth. This main position included extensive entrenchments surrounding a redoubt and a cleared area to be used for stores' buildings and accommodation.⁴⁹

⁴⁸ Strickland to Stanley-Jones, 25 Mar 1865 & 16 Apr 1865. (WO 33/17A, Encls. 1 & 3 in No. 15.); Campbell, p.16.

⁴⁹ Waddy to Cameron, 25 Jan & 25 Feb 1865. (NZ Gazette, 1865, pp.28, 124.); Gibson, pp.142-8; Cowan, Vol 2, pp.46-49, 550; P. Maxwell, *Frontier: The Battle for the North island of New Zealand, 1860-1872*, Auckland: Celebrity Books, 2000, pp.106-9; T.R. Mould, 'Sketch of Military Proceedings in New Zealand, from the Termination of the Waitara Campaign in March

The occupation of Patea led to a review of the sea distribution arrangements. When Waddy's force had arrived at Patea on 15 February, it had been met by the steamer *Gundagai*, which had only just succeeded in crossing the bar and landing her stores. The following day, *Gundagai* and *Sandfly* made a second trip to Patea, and again the steamers only just cleared the bar. It was therefore decided that it was too dangerous for the steamers to try to enter any of the coastal river mouths, and that henceforth the steamers would be used as floating depots, with their stores being transferred to shore by surf-boat.⁵⁰

The departure from Patea was originally scheduled for 10 March, but was delayed following a severe storm that destroyed 80% of the tents. The force remained in Patea until repairs were made and new tents were brought forward. It eventually left on 13 March, and established a series of further redoubts, at Kakaramea, Manutahi, Manawapou (where two redoubts and a depot were established on the mouth of the Ingaré River), and on the left and right banks of the mouth of the Waingorongoro River.⁵¹

Over the same period, troops advancing from New Plymouth established a redoubt near the mouth of the Stony (Hangatahua) River in January 1865, and a second redoubt at Warea in late April and early May. The Warea redoubt was subsequently used as the base for a series of counter-logistic operations in June 1865, during which Ngakumikumi village and Okeanui, Kekeua and Te Puru pas were destroyed. The property destroyed at Okeanui included the last Maori flour mill in west Taranaki.⁵²

From March, the sea distribution system was disrupted by a series of problems, and began to break down. The first problem was the attempt by Grey to interfere in the use of the steamer *Gundagai*. The details are as follows. In late March 1865, while *Gundagai* was laden with supplies to be moved from Wanganui to Cameron's advanced base at Patea, Grey ordered that she be unloaded and used to move a force of kupapa 50 kilometres up the Wanganui River. In the event, the steamer hit a snag on the return journey and was nearly lost. A few days later, on 27 March, Grey again attempted to have *Gundagai* unloaded in order to move another force of kupapa to

1861', Paper 3, p.33; Capt S. Grace Diary, 27 Feb 65. (Cited in J. Bilcliffe, *Well Done The 68th*, London: Picton, 1995.); Cowan, p.49.

⁵⁰ Strickland to Stanley-Jones, 25 Mar 1865 & 16 Apr 1865. (WO 33/17A, Encls. 1 & 3 in No. 15.); *Wanganui Chronicle*, 8 Feb 1865; Strickland Letter, 16 Apr 1865; Campbell, p.13.

⁵¹ Mould, p.34; Lt Col H. Morant Diary, 10 Mar 1865. (Cited in Bilcliffe, p.76.); Strickland to Stanley-Jones, 25 Mar 1865. (WO 33/17A, Encl. 1 in No. 15.)

Pipiriki, 130 kilometres up the Wanganui River. Although the senior military officer in Wanganui wanted to obey the order, DCG Strickland disagreed. Strickland wrote to Grey with 'the strongest remonstrance', noting that the diversion would delay the movement of stores and equipment required by the Field Force, and therefore disrupt Cameron's operations in south Taranaki; and that the loss of *Gundagai* would leave the Commissariat with insufficient capacity to support the field force. Faced with this argument, Grey backed down.⁵³

The second issue involved the use of steamers as floating depots, from which stores could be transferred ashore. Although the transfer system initially worked well, the onset of bad weather and heavy seas from late March caused major difficulties. On 30 March, one of the Manawapou surfboats was launched to meet the steamer *Ahuriri*. As the surfboat left the river mouth, it was struck by waves and dashed to pieces against the cliffs. The crew escaped.

Two days later, another surfboat from Manawapou tried to take despatches out to *Ahuriri*, and bring some cargo ashore. After completing that task, the surfboat crew advised the senior officer at the depot, Major Locke, that the waves were too heavy to allow the boat to go off again safely. Shortly afterwards, *Gundagai* arrived, displaying her ensign upside down. Assuming that there was a problem on board, Locke ordered the surfboat back out to sea. As it transpired, the captain had only wanted to land passengers and cargo, and so had run his flag up upside down to induce the surfboat crew to launch the boat. While returning to the shore, the surf-boat capsized with the loss of seven lives. Two other surf-boats were lost in similar accidents at Waingorongoro on 10 April and Manawapou on 12 April: on each occasion, three lives were lost.⁵⁴

This series of accidents forced the logisticians to revise their plans yet again. The immediate consequences were a greater emphasis being given to land transport, and a decision by Cameron to call off his advance until the security of his lines of communication could be guaranteed. To that end he left 370 men in the two redoubts at the mouth of the Waingorongoro River, and pulled the bulk of his force back to

⁵² DQMG Journals, 11 May 1864, p.34; Cowan, Vol 1, pp.223, 225, 228; Prickett, pp.2-6; K. Day, 'Iwi Flour Mills', *NZ Historic Places*, 55, Sept 1995, p.28; Cowan, Vol 2, p.57.

⁵³ Strickland to unknown recipient (likely to be CG Stanley-Jones), 16 Apr 1865; Strickland to Stanley-Jones, 25 Mar 1865. (WO 33/17A, Encl. 1 in No. 15.); Campbell, p.13. (In fairness to Grey, it should be noted that the Third Taranaki War coincided with a period of conflict in the upper Wanganui region. This included skirmishing between Hau Hau and kupapa, and an attack against Pipiriki, the northernmost pakeha settlement and outpost.)

⁵⁴ Strickland Letter, 16 Apr 1865; Stanley-Jones to Strickland, 26 Apr 1865, & Strickland to Stanley-Jones, 1 May 1865. (WO 33/17A, No. 15 & Encl.1 in No.16.); Wells, pp.249-50; Alexander, pp.259-60; Mould, p.34.

Patea.⁵⁵ As a consequence, by mid-year the campaign had effectively ground to a halt, with Cameron's army spread between New Plymouth, Patea and Wanganui, and smaller garrisons at the Stoney River, Warea, Kakaramea, Manutahi, Manawapou, Waingorongoro, Patea, Waitotara, Kai-Iwi, Stewart's, Mount Trafford and Alexander's redoubts. By that stage, Cameron's slow progress and seeming inability to decisively engage the Maori had earned him his popular epithet, 'the Lame Seagull'. Worse, his dispute with Grey, which had been exacerbated by his decision to temporarily halt his advance at Nukumarū in late January and subsequent refusal to attack the Hau Hau pa, Weraroa, had created a paralysing crisis of command.⁵⁶

The third issue affecting the British distribution network was the sudden and dramatic collapse of the steamer service during June and July 1865. On 16 June, Waikato Transport Service⁵⁷ Director Captain Richard Cadell wrote to the Defence Minister, Harry Atkinson, to advise that the contractors responsible for supplying beef and flour to the mines on the Waikato River had not been paid since February, and that even though the Waikato Transport Service was not responsible for paying the bills, it had been forced to do so in order to keep the mines open, and thereby guarantee its own coal supply. With the government facing a worsening financial crisis, Atkinson responded quickly. On 25 June, he wrote to CG Stanley-Jones to advise that the existing arrangements for river transport on the Waikato were to be cancelled with effect from 1 August. By the end of August, the only steamers available for Commissariat use in Wanganui and Taranaki were *Gundagai*, *Sturt* and the new riverboat *Moutoa*.⁵⁸ The speed of the collapse of the steamer service, together with the scale of the resulting loss of their logistic capacity, proved a serious setback for the British position in south Taranaki.

⁵⁵ Stanley-Jones to Strickland, 26 Apr 1865. (WO 33/17A, No. 15.); Capt S. Grace Diary, 11 Apr 1865. (Cited in Bilcliffe, p.54.); Mould, pp.34-5; Strickland Letter, 16 Apr 1865.

⁵⁶ Holt, p.222; Gibson, pp.146-7; Dalton, pp.227-31, 33-34; Stanley-Jones to Strickland, Auckland, 26 April 1865. (WO 33/17A, Encl. 1 in No, 15.) (Weraroa pa was subsequently captured by a combined colonial-kupapa force, led by Grey, with British troops providing some support. Belich has questioned both the significance of the engagement and the number of Hau Hau who were actually in the pa. See, for example, C.J. Pugsley, 'Walking the Taranaki Wars: Weraroa', in *NZDQ*, 29, Winter 2000, pp.25-8, c.f. Belich, *New Zealand Wars*, pp.206-7.)

⁵⁷ The name given to the newly-formed steamer company. The Waikato Steamer Service managed the provision of steamers to the Waikato and elsewhere, for military and settlement purposes.

⁵⁸ Cadell to Atkinson, 16 Jul 65, & Atkinson to Stanley-Jones, 25 Jul 65. (Cited in Campbell, pp.15-16.)

Supply

There were also major problems with supply. As noted earlier, Cameron's immediate objective in south Taranaki in early 1865 was to secure the coastal route between Wanganui and New Plymouth, as the basis for offensive operations in the hinterland. To that end, he restricted his army's movement to the coastal strip, specifically noting that – in the short term at least – there was to be no unnecessary movement into the bush.

Cameron's decision to restrict his army to the coastal strip had positive and negative effects on the British logistics network. On the positive side, it ensured that the British distribution network, which had already been disrupted by the problems with the steamers and surf-boats, was kept as short and simple as possible. Further, Cameron's foresight in having established the series of redoubts along his main supply route provided a level of security that was not broken at any stage during the war. On the other hand, his approach denied the British ongoing access to two important resources that were freely available in the hinterland, firewood and meat.

Local driftwood provided a partial solution to the first problem. In addition, in early April a seam of coal was discovered near the new redoubt at Waingorongoro. However, the bulk of the army's firewood and all of its meat had to be brought forward from Wanganui. This was usually done by land transport, and occasionally by steamer when conditions allowed.⁵⁹

Notwithstanding Cameron's prohibition of any movement inland, it is clear that any meat shortages were largely self-inflicted. When Manutahi pa was captured in early March 1865, it was found to have extensive plantations, large storehouses stocked with provisions, and plenty of livestock.⁶⁰ Had these resources been seized for redistribution to the army through the normal rationing system, it would have reduced the strain on the distribution and supply networks. Instead,

... there was a profuse waste of provisions, the object being to destroy the enemy's property What could not be eaten or stored for immediate use was destroyed systematically. Much the same may be said of pigs. One is safe in asserting that there is hardly a soldier in the whole force who had not himself killed or been party to the killing of a pig. All were surfeited with Maori plunder, yet they rigidly exacted their [issue] ration [as well]. It could not be denied to them; but they could not consume it, and, as a consequence, it was in

⁵⁹ Stanley-Jones to Strickland, 26 Apr 1865; Strickland to Stanley-Jones, 25 Mar 1865; & Strickland to Stanley-Jones, 16 Apr 1865. (WO 33/17A, No. 15; Encl.1 in No.15; & Encl.3 in No.15.)

⁶⁰ Gibson, p.149.

a great degree useless. This occurred when economy in an invading army could not fail to be of the utmost importance.⁶¹

The incident prompted CG Stanley-Jones to formally complain about

the extraordinary extravagance of the British soldier; claiming to the uttermost fraction the full rations he is entitled to by the Regulations, when actually surfeited with food of all kinds taken from the native village, and that when only with the utmost difficulty and at enormous cost, could these rations be brought to the front. I have observed similar wilful waste on other occasions, but not to the extent now remarked upon.⁶²

The provision of fodder for the horses and bullocks raised similar complaints about wastage. South Taranaki was actually the most fertile theatre encountered by British troops in New Zealand, in terms of its ability to provide fodder for the army's beasts of burden. Despite this, as had been the case in the Waikato, fodder was the greatest supply challenge facing the Commissariat in south Taranaki. Unlike in the Waikato, however, the challenge was largely self-imposed.

The problem arose from the introduction by the British army of a new form of compressed fodder, comprising a mixture of oats and hay. The fodder was carried in cylindrical cloth bags, each weighing 60 kilograms. Due to their weight and shape, the bags could not be carried by pack horses, but had to be carried flat in bullock carts. Under the extant regulations, the army's 386 horses were entitled to a ration of 7.5 kilograms of compressed fodder per day, meaning that the army would consume 48 bags per day. The fodder was occasionally used to feed the bullocks as well.⁶³

In an attempt to save money and reduce the burden on the distribution network, DCG Strickland tried to cut back the forage ration significantly and replace it with local fodder. Yet despite the fact that 'excellent grass was abundant, and [there was] no hard work to be done [to gather it], this reduction was strongly resisted', and he was only able to reduce the ration to 5 kilograms per day.⁶⁴ At the end of April Strickland sent all the transport horses back to Wanganui, retaining the more efficient bullocks for frontline distribution duties.⁶⁵

There is something of an irony in the fact that it should have fallen to the Commissariat, which for so long had been seen as excessively pedantic in its interpretation of the provisions covering soldiers' entitlements to rations and stores, to highlight the technical problems caused by over-zealous adherence to those provisions.

⁶¹ Strickland to Stanley-Jones, 25 Mar 1865. (WO 33/17A, Encl.1 in No.15.)

⁶² Stanley-Jones to Strickland, 26 Apr 1865. (WO 33/17A, No. 15.)

⁶³ Strickland to Stanley-Jones, 25 Mar 1865. (WO 33/17A, Encl.1 in No.15.)

⁶⁴ Strickland to Stanley-Jones, 25 Mar 1865, & 16 Apr 1865. (WO 33/17A, Encls. 2 & 3 in No.15.)

⁶⁵ Strickland to Stanley-Jones, 1 May 1865. (WO 33/17A, No.16.)

Nevertheless, regardless of whether it is argued in terms of commonsense or military practicality, it is clear that Strickland and Stanley-Jones were correct, and that a large component of the British distribution network was used to transport supplies that were freely available in the theatre of war. This was inefficient and wasteful, and further undermined the effectiveness of British logistics during this war.

The most striking feature of the logistical problems encountered by the British in south Taranaki was that most were avoidable. With the exception of the weather problems that disrupted steamers during the winter of 1865, every other problem affecting the provision of logistical services during the Third Taranaki War could be attributed to human factors: specifically, the breakdown in cooperation amongst the various logistical agencies, and between the civilian logisticians and the military commanders they were supposed to be supporting.

The breakdown in cooperation raises questions about Cameron's leadership during this phase of the wars. Cameron had shown in the Waikato in 1863 and 1864 that he recognised the importance of sound logistics, and was a firm advocate of the principle of linking the functions of transport and supply. He had also run a very effective staff system, in which the combatant and logistical functions were equally represented, and the members of the staff had worked well together. Indeed, the first recorded cases of significant disagreement were those discussed above.⁶⁶ It should also be noted that Cameron's staff system in south Taranaki was the same as that he had used in the Waikato, and that his headquarters staff remained largely unchanged.

What had changed was Cameron's relationship with Grey. Whereas the two men had worked closely together during the preparations for the invasion of Waikato, their relationship had deteriorated during 1864. The causes and course of their dispute have been well documented elsewhere, and there is nothing to be gained by revisiting them here. It is clear, however, that Cameron was distracted from his military duties during the first half of 1864, and that that distraction allowed rival groups and agendas to get established on his headquarters. (These conflicting agendas were not limited to logistical issues: for example, Colonel Warre conducted his advance from Opunake to

⁶⁶ J. Belich, 'Cameron, Duncan Alexander', in *The Dictionary of New Zealand Biography*, Vol 1, ed. C. Orange, Wellington: Department of Internal Affairs, 1990, pp.65-6; B. Gilling, 'Cameron, General Sir Duncan Alexander', in *The Oxford Companion to New Zealand Military History*, ed. I. McGibbon, Auckland: Oxford University Press, 2000, pp.78-9; 'Chute, General Sir Trevor', in *Oxford Companion to New Zealand Military History*, ed. McGibbon, pp.87-8; Stanley-Jones to Strickland, 6 Mar 1865 & 26 Apr 1865. (WO33/17A, Nos. 14 & 15.)

Waingorongoro without having been ordered to do so by Cameron. He was subsequently censured by the Commander-in-Chief, the Duke of Cambridge.)⁶⁷

All this would suggest that the internal friction that so seriously undermined British logistics during the first half of the Third Taranaki War was the direct result of Cameron's falling-out with Grey.

In August, Cameron departed New Zealand for Britain. His replacement was the General Officer Commanding the Imperial forces in the Australian colonies, Major General Trevor Chute. Chute had commanded a regiment during the Indian Mutiny of 1857-58, where he had earned a reputation for acting with vigour against the mutineers, and had led a series of flying columns to seek out and destroy enemy forces. His 'direct, unscientific approach to soldiering' in New Zealand reflected this approach.⁶⁸

On 30 December Chute left Wanganui with a force of Imperial troops, Wanganui kupapa, 45 Transport Corps drivers (each with a two-horse dray), and a quantity of pack-horses. His objective was to clear the route between Wanganui and New Plymouth by simply destroying any opposition found in his path. At Weraroa Redoubt (established following the capture of the pa by colonial troops in July), the force was reinforced by other Imperial troops, a contingent of 45 Forest Rangers, and another 100 kupapa, bringing its total strength to over 700. The kupapa had recently returned from operations against the Hau Hau on the East Coast, and had been persuaded to extend their service for a payment of 2/6 per man per day, plus free rations. They were accompanied by a number of women and children, who acted as 'hewers of wood and drawers of water', porters and cooks.⁶⁹

During the first two weeks of 1866, Chute waged a devastating campaign through south Taranaki. The villages of Ohinemutu and Okutuku and their extensive potato and maize crops were destroyed on 3 and 4 January; a strong Hau Hau pa at Te Putahi on 7 January; and the village of Taiporohenui, with its 'enormous supplies of beef, potatoes and cabbages and other vegetables, as well as herds of tame cattle in good condition, horses, pigs, and cultivated fields', on 11 January. Otapawa, one of the

⁶⁷ Dalton, pp.222-33; E. Bohan, *To Be A Hero: A Biography of Sir George Grey, 1812-1898*, Auckland: HarperCollins, 1998, pp.227-31.

⁶⁸ Cowan, Vol 2, pp.58-61; Gibson, p.173; D. Green, 'Chute, Trevor', in *Dictionary of New Zealand Biography*, Vol 1, pp.81-2.

⁶⁹ Strickland Diary, 31 Dec 1865 & 1 Jan 1866.

most formidable pa constructed during the New Zealand Wars, was taken by direct assault on 14 January.⁷⁰

Finally, the large and strategically important village of Ketemarae, and the neighbouring villages of Keteonetea, Puketi, and Mawhitiwhiti, were captured and destroyed on 15 January. A fifth village, Kauia, was spared because its chief had surrendered, and was supplying food to the Waingorongoro garrison. In two weeks, Chute's force had killed 68 Maori, and had lost 14 dead and 38 wounded. (Most of the British and kupapa casualties were incurred at Otapawa.)⁷¹

Chute's logistical support plan was seemingly quite basic. His army carried its entire requirements on the horse-drawn carts and pack-horses, and on the backs of the soldiers, kupapa, and camp followers. There was no resupply during the campaign, although this was mitigated to a large extent by the quantities of food captured at each of the villages. In the event, however, he began to lose his distribution assets from the early stages of his march. As no ambulances had been taken, horse-carts had to be used to evacuate the wounded from the various engagements. The only way the carts could be made available was to dump their stores at the Waingorongoro redoubts, thereby reducing the supplies available to the force.⁷²

Chute's apparent determination to avoid logistical networks and greater emphasis on self-sufficiency during this bush scouring operation contrasts sharply with Cameron's reliance upon strong, fixed lines of communication – a point seized upon by Cameron's detractors.⁷³ Yet it would be wrong to assume that Chute completely severed his own lines of communication. It should be recognised that his operation relied on the same logistical factors that had ensured the success of bush scouring in north Taranaki in 1864 and 1865: the coastal redoubts and depots, which provided a firm base close to the area of operations; short, secure lines of communication to those redoubts and depots; and a focus on destroying enemy targets rather than occupying territory. This would suggest that Chute's bush scouring operation in the first half of January 1866 was not as risky as it might have appeared, and that its success owed as much to the work done by Cameron to establish the coastal redoubts and depots in early 1865 as to the determination with which Chute carried out the operation.

⁷⁰ T. Gudgeon, *Reminiscences Of The War In New Zealand*, London: Smith Elder & Co, 1879, pp.107-114; Strickland Diary, 3-14 Jan 1866; Gibson, pp.174-6; Cowan, Vol 2, pp.61-7, 551; Green, pp.81-2; Alexander, p.292; Holt, pp.228-9.

⁷¹ R. Stowers, *Forest Rangers*, Hamilton: Richard Stowers, 1992, p.165; Chute to War Office, 15 Jan 1865. (Cited in Cowan, Vol 2, p.504.); Strickland Diary, 15 Jan 1866; Cowan, Vol 2, p.551.

⁷² Strickland Diary, 5, 12 & 15 Jan 1866.

⁷³ See, for example, Grey to Cardwell, No. 24, 13 Feb 1866, *AJHR*, 1866, A1, No. 33.; Gudgeon, p.107; Belich, *New Zealand Wars*, pp.207-8; Stowers, p.157.

Chute's next operation entailed a far greater risk, however. On 17 January 1866, he and a force of 480 Imperial troops, Forest Rangers and kupapa began an inland march through heavy bush to the east of Mt Taranaki, from Ketemarae to Mataitawa. The horse-carts, which were clearly unsuitable for the bush, were sent back to Waingorongoro, leaving 67 pack horses and 24 riding horses to meet the force's transport needs. Each man carried a waterproof sheet, a blanket, a greatcoat and two days supply of biscuits. DCG Strickland issued the pakeha troops with three day's rations on Chute's orders, and on his own volition took an additional half day ration per man. The native contingent insisted on getting all their rations in advance.⁷⁴

Although the 85-kilometre march from Ketemarae to Mataitawa was meant to take three days, in the event it took nine. As the loads on the Commissariat horses were consumed, the men were able to place their packs on the horses. Even then, progress was slowed by the dense bush, heavy rain, and hazardous conditions:

Many of the creeks today were within 100 yards of each other, so that the line of pack animals was often in three or more gullies at a time, and each gully presented its own peculiar difficulties, which had to be overcome without delay, sometimes by carrying stones from the bed of the river, to fill up holes, and at other times by making steps with logs and fern root, supported by pickets up the sides of almost perpendicular banks, and again by filling in swamps with branches hastily made into fascines, and with fern, all this overlaid with the ever useful fern tree. It should be witnessed to be believed the courage which the horses shewed in slipping down the steep banks of gullies, rivers, and streams, and again ascending by the artificial means improvised for them on the opposite banks⁷⁵

By the fifth day of the march the force was without food. In an attempt to alleviate the crisis, DACG Price, accompanied by Captain Leach (an imperial officer), Ensign McDonnell (a colonial officer), and seven kupapa, struck out ahead of the column to arrange for supplies to be sent back. It rained heavily during the march, and Price became so exhausted that he had to be left in a blanket under a tree. Next morning the rest of the party reached Mataitawa. Price was brought in by a group of friendly Maori shortly afterwards.⁷⁶

By now the men in Chute's column were very hungry, and the kupapa in particular had not husbanded their supplies adequately. On 21 January, one of the pack-horses was killed and distributed as rations: the following day, a second pack-horse was killed and eaten. Later that day, and 48 hours after he had left with Price, an

⁷⁴ Strickland Diary, 17- 19 Jan 1866; Alexander, pp.297-301; Wells, pp.255-57; Gudgeon, p.116.

⁷⁵ Strickland Diary, 20 Jan 1866.

⁷⁶ Strickland Diary, 17- 21 Jan 1866; Alexander, pp.297-301; Wells, pp.255-57; Gudgeon, p.115.

exhausted Leach arrived back at the camp with an escort from the 68th and 43rd Regiments, carrying 300 pounds of biscuits. These were immediately issued out as a half-ration per man. Colonel Warre, the senior officer in New Plymouth, arranged for further supplies (including two bullocks, biscuits and groceries) to be sent out to meet the column, and these reached Chute's camp during the morning of 23 January. Because of the heavy rain and difficult terrain, it took the men another two days to cover the last 15 kilometres to Mataitawa: on 25 January they left the forest, and two days' later made a triumphant entry into New Plymouth.⁷⁷

The accolades of the settlers could not disguise the fact that the expedition could have had more serious consequences. By deliberately abandoning his lines of communication, Chute had placed his force at considerable risk, and for no real gain other than to show that the troops could enter the bush. Further, Chute had been forced to split his column during the final stages by sending the kupapa ahead of the imperial and colonial troops. Even Gudgeon, who otherwise championed Chute's 'great energy and decision of character', assessed the operation in somewhat ambivalent terms: 'Many people have since characterised the march as useless; but if it did no actual good, it is certain that no harm resulted.'⁷⁸

It is acknowledged that with so many pack-horses available, there was little chance that Chute's force would have starved. A more serious and credible threat to the force was the possibility that it might have incurred casualties at some stage. Had the force encountered resistance on a level that resulted in significant casualties, its survivability might have been seriously threatened. In this respect, Chute was fortunate to have come across so few enemy along the line of march.

On 1 February, Chute's force left New Plymouth for Wanganui, via the coastal route. It was joined by detachments of imperial and colonial troops en route, and – with the exception of the destruction of another village, Waikoko, on 1 January – reached Wanganui without further incident on 9 February. In just six weeks, Chute had captured and destroyed 7 fortified pa and 21 villages, complete with their cultivations, and dislocated thousands of Maori.⁷⁹

Chute's return to Wanganui brought both the Third Taranaki War and the British Army's major involvement in operations in New Zealand to an end. As had been the case in the Waikato, logistical factors were important in the British success in the Second and Third Taranaki Wars. There were two aspects to this.

⁷⁷ Strickland Diary, 21- 27 Jan 1866; Alexander, pp.297-301; Wells, pp.255-7; Gudgeon, p.115.

⁷⁸ Belich, *New Zealand Wars*, p.208; Gudgeon, pp.107, 114-15; Cowan, Vol 2, p.68.

First, the British commanders had sought to ensure that operations in north and south Taranaki were supported by effective logistics. Notwithstanding the problems caused by human factors and environmental conditions during early 1865, and the apparent chaos that ensued, the British were able to establish a logistics network that could sustain the types of operations used during the two wars. The nature and structure of this network was shaped by two factors: local circumstances, particularly the fact that most operations were conducted near the coast; and the British commanders' emphasis on destroying the Maori's ability to wage war.

Incidentally, this contrasts sharply with the situation during the wars of the 1840s and in Taranaki in 1860, when British logistics were largely reactive and concepts of operation were developed to suit logistical constraints. By 1863, British logistics doctrine in New Zealand was operationally-focussed, and attuned to local circumstances. This reflects the evolution of British logistics during the intervening period.

This is linked to the second aspect in the British successes in Taranaki: the use by the British of counter-logistics operations against economically-important targets, in preference to major set-piece engagements against pa, as the primary means of breaking down Maori resistance. As noted above, the success of these operations highlights the effectiveness of the logistical network that supported them, notwithstanding the problems encountered in early 1866. At a wider level, they also highlight the degree to which the British now understood the fundamental nature of Maori warfare, and their recognition that the most appropriate and effective response to Maori warfare would be a strategy that attacked the ability of Maori to sustain themselves. This, too, had been an evolutionary process.

⁷⁹ Cowan, Vol 2, pp.70-1; Strickland Diary, 1 Feb 1866; Mould, p.37.

Chapter Eight:

Conclusion

In the introduction to his *Feeding Mars*, John A. Lynn comments that:

Logistics lacks the drama of combat. It can be expressed on balance sheets no more exciting than shopping lists; movement is not measured by the dashing gallop of charging cavalry, but by the steady plod of draft horses.¹

This thesis has sought to look beyond the shopping lists and plodding beasts of burden, to understand the causes and effects of logistics, and assess their effects on the New Zealand Wars. It has shown that a different – logistics-focussed – perspective can confirm some interpretations and challenge others.

The primary aim of this study was to challenge one of the recurring themes from the historiography of the New Zealand Wars: that a conflict between the world's leading imperial power and a divided, tribally-based society could only have had one result; and that the best the Maori could have hoped to achieve in such a conflict was to limit the scale or consequences of their eventual defeat. Even where this concept of inevitability of outcome has not been specifically stated, it has often been implied.

For example, Harold Miller has suggested that the 'Maori resistance was of course hopeless, but it was very determined.' Keith Sinclair emphasised technological factors, to conclude that 'the assorted weapons of the Maoris, old flint-lock muskets, double-barrelled shot-guns, sporting rifles, native clubs and spears were in the long run no match for gunboats, howitzers, Enfield rifles and hand-grenades.'² Belich concluded that 'in the end, however, the greatest European advantage and Maori disadvantage was the depth and breadth of resources', and that 'the most remarkable thing about the New Zealand Wars was not the eventual Maori defeat, but the degree of their success along the way'; and finally that

the British did not win the New Zealand Wars through superior technology, superior methods, or indeed through any kind of qualitative superiority at all.

¹ J.A. Lynn (ed.), *Feeding Mars: Logistics in Western Warfare from the Middle Ages to the Present*, New York: Westview Press, 1993, p.vii.

² H. Miller, *The Invasion of Waikato*, Dunedin: Harold Miller, 1964, p.16; K. Sinclair, *A History of New Zealand*, Auckland: Pelican, 1980, p.132. (Revised edition.) See also A. Parsonson, 'The Pursuit of Mana', in *The Oxford History of New Zealand*, ed. W.H. Oliver & B.R. Williams, Auckland: Oxford University Press, 1981, p.58; T. Simpson, *Te Riri Pakeha*, Martinborough: Alister Taylor, 1979, pp.135-6.

In the final analysis, they won for the same reasons that the Goths beat the Romans: overwhelming numbers.³

Notwithstanding the differences in emphases between these perspectives, they all share a common theme: the idea that the outcome of the New Zealand Wars was inevitable.

This study has sought to question this, by examining the practical application of logistics by the British, and by showing how and to what extent logistical issues influenced the course of the New Zealand Wars.

While the study generally confirms the overall concept of inevitability, it does so with qualification. It is considered here that the British and colonial success in New Zealand cannot be attributed solely to the *quantity* of resources available to the British; but that the *quality* of British logistics, and the way that the British logisticians adapted to meet the challenges they faced, were also important.

The campaign studies have shown that the British had to overcome a range of logistical challenges during each of their campaigns in New Zealand. These included problems caused by weather, terrain and climate; shortages of distribution assets; lack of infrastructure; the difficulty of establishing and maintaining secure lines of communication; and being unable to obtain sufficient quantities of food, fodder and other resources in their operational theatres in New Zealand.

The strength of imperial logistics usually counted for little when these problems arose. For example, the size and strength of the British Army, and the total logistical capacity that supported it, were of no help to Despard as he struggled to evacuate his wounded from Ohaeawai in July 1845, or to Cameron when bad weather disrupted the work of the steamers in south Taranaki in 1865. In such circumstances, the army's logisticians had to develop local solutions to these problems as they arose. As shown in the campaign studies, they did so in a variety of ways. For example, the development by the British of a number of alternative supply routes into the Waikato in 1862 and 1863 mitigated the risk of the invasion being disrupted by interdiction. As another example, on a number of occasions the British overcame transport shortages by contracting-out rear-area transport and distribution services to settlers and neutral or pro-government Maori. Similarly, when the British Army's standard ambulances and field ovens proved unsuitable for local conditions, new ambulances and ovens were designed and built by local civilian contractors.

³ J. Belich, 'New Zealand Wars', in *The Oxford Companion To New Zealand Military History*, ed. I. McGibbon, Auckland: Oxford University Press, 2000, pp.383-4; J. Belich, *The New Zealand Wars and the Victorian Interpretation of Racial Conflict*, Auckland: Penguin, 1985, p.298. See also P. D'Arcy, 'Maori and Muskets from a Pan-Polynesian Perspective', *New Zealand Journal of History*, 34, 1, 2000, p.117.

Some of the measures, such as the development of the general hospital system and the amalgamation of the army's transport and supply functions under the aegis of the Commissariat, had long-term effects on British logistics. (This is discussed further below.) Others were intended to address a short-term crisis only, and so left no legacy beyond an indication of the mental agility of the problem-solvers themselves. Perhaps the best example of this was the series of measures taken by Cameron, Gamble and Stanley-Jones to overcome the problems caused by the temporary loss of the steamer *Avon* in February 1864.

The study has also shown that British strategy in New Zealand was based on an understanding of the comparative strengths and weaknesses of the opposing sides, particularly in respect to logistics. It has been seen that from the late 1840s a succession of senior British officers developed an understanding of Maori warfare, and a strategy to counter it. This strategy was based on a recognition that Maori warriors had both economic and military functions; a realisation that this made Maori vulnerable in longer wars, particularly when facing a professional army with its own logistical services; and an implied identification of logistics as a critical vulnerability of Maori. The British also recognised that the Maori could not be defeated quickly, and that as a consequence they – the British – had to anticipate and accept short-term defeats in order to achieve a long-term strategic outcome. This explains why Pratt and Cameron, in particular, placed such great emphasis on strong, effective logistics.

In conclusion, then, the study has shown that while the British forces in New Zealand enjoyed clear advantages in numbers, technology, and quantity of resources throughout much of the Wars, these alone were not the decisive factor in the outcome. Rather, it was the way that the British logisticians adapted their procedures and developed their doctrine to meet the range of challenges they encountered in New Zealand, together with the application of logistics as part of a coherent strategy that ensured the success of British logistics. This, in turn, helped ensure success in the operations they were supporting. This recalls Clausewitz's dictum on logistics: that in war 'the quarter-master-general becomes the supreme commander, and the conduct of war consists of organising the wagon trains.'⁴

The New Zealand Wars and the development of British military logistics

The final comment to be made involves the effect of the New Zealand Wars experience on the subsequent development of British logistics. There were two

⁴C. von Clausewitz, *On War*, trans. London: Everyman's Library, 1993, p.405. (Originally published in 1831.)

particularly significant, and lasting, logistical initiatives in New Zealand. The first was the introduction of a new medical evacuation and treatment system between 1862 and 1866. Under the new system, casualties were evacuated via a staged process, through battlefield clearing posts, field ambulances and field hospitals to base hospitals in the rear. More advanced levels of medical intervention were provided at each stage in the process. This system was the basis of the 'general hospital system' used by modern armies, and so has lasted with minor modification for over 140 years.⁵

The second significant development was the amalgamation of the army's supply and transport functions within the Commissariat.⁶ The success of this measure in New Zealand influenced the subsequent reorganisation of the British Army's entire supply and transport functions. In July 1865, the War Office appointed a committee to report on 'The Supply of Stores to the Army in the Field'. Although it was intended that the Committee would focus on supply, its members lobbied to have the terms of reference widened to include transport. They argued, successfully, that most of the Army's supply problems were the result of the functional separation of supply and transport. As a consequence, the Supply Committee was replaced in late 1865 by the Army Transport Committee, which was tasked with advising on how the Army's supply and transport functions could be brought together to greater effect.⁷

The Army Transport Committee assembled on July 1866. It was presided over by the General Officer Commanding the British forces in Ireland, Lord Strathnairn, and included two men who had played key roles in New Zealand: Sir William Power (who had served in New Zealand as DACG during the Hutt and Wanganui Wars), and Sir Duncan Cameron, who had recently returned to Britain.⁸ In addition, one of its key advisors was ACG Robertson, who had served in New Zealand during the Waikato War, had been one of the small group that had convinced Cameron that the Commissariat should retain responsibility for transport after the arrival in New Zealand of the Military Train in early 1864, and had drafted much of the Commissariat's official

⁵ The development of the general hospital system is discussed in Chapter 2.

⁶ The establishment of the Commissariat Transport Corps is discussed in Chapter 5.

⁷ G. Crew, *The Royal Army Service Corps*, Barnsley: Leo Cooper, 1970, p.44; E.M. Spiers, *The Late Victorian Army, 1868-1902*, Manchester: Manchester University Press, 1992, p.76.

⁸ The other members were Lt Gen Sir Hope Grant (Quartermaster General), Col G. Gambier (Deputy Adjutant General, RA), Col J.C. Kennedy (Commandant of the Military Train), Col Shadwell (Military Assistant at the War Office), and Mr W. Brown (Accountant-General at the War Department).

correspondence and reports to Britain.⁹ The Committee also consulted with the Secretary of State for the Colonial Office, Sir Charles Trevelyan; the Secretary of State for War, Earl de Grey; and Commissary-General Drake. All three men had been recipients of the largely favourable reports from New Zealand about the work of the Commissariat and its transport component,¹⁰ and subsequently endorsed to the Committee the concept of amalgamating the army's transport and supply functions.

Following several months of consultation and deliberation, the Committee issued its report on 5 March 1867.¹¹ It is apparent that the experience of British logistics in New Zealand throughout the early and mid-1860s had some influence on the Strathnairn Committee's deliberations and recommendations. The Report specifically mentions New Zealand on a number of occasions, particularly with regard to the merging of transport and supply under the aegis of the Commissariat, the establishment of field bakeries, and the control of transport used for casualty evacuation.¹² A comparison between contemporary reports from New Zealand and the Strathnairn Report itself indicate the degree to which the former influenced the latter. For example, in one of his last reports to Cameron (and thereafter to the War Office) before Cameron left New Zealand, DCG Stanley-Jones had argued that

transport, or such portion of it as may be required for commissariat purposes, be an integral part of the establishment of the Commissary-General, and completely and exclusively under his immediate orders, subject to the control of the general officer commanding.¹³

This was reflected in a recommendation in the Strathnairn Report that

it would be for the good of the service that the Officer, to whom it is proposed to confide the entire direction of general land...transport and inland water transport (subject always to the General Officer commanding the troops, wherever they may be), should be at the head of the administrative staff of the Army [ie, the Commissary-General.]¹⁴

⁹ See, for example, Report by DACG Robertson on the Commissariat in the Waikato Campaign, annexed to Stanley-Jones to War Office, 29 Oct 1864. (WO 33/17A.); Stanley-Jones to War Office, 6 Sep 1864. (WO 33/17A, Encl 1 in No. 18.)

¹⁰ See, for example, Stanley-Jones to War Office, 29 Oct 1864. (WO 33/17A.); Stanley-Jones to War Office, 6 Sep 1864. (WO 33/17A, Encl 1 in No. 18.); Cameron to War Office, n.d. (Cited in J.E. Alexander, *Bush Fighting*, London: Richard Bentley, 1873, p.144.

¹¹ 'Report of a Committee appointed by the Secretary of State for War to enquire into the Administration of the Transport and Supply Departments of the Army', C3848, 1867, pp.xi-xliv. ('Strathnairn Report.')

¹² Strathnairn Report, pp.xi-xii, xxiv-xxv.

¹³ Stanley-Jones to Cameron, 31 Jul 1865. (WO 17/33A, Encl. 1 in No. 17)

¹⁴ Strathnairn Report, p.xii.

The Strathnairn Report concluded that

the Army Transport should be organised as *one service* [italics in original] and, as Transport is so intimately connected with, and is of such vital importance to, supply, it must necessarily be under the direction of the Officer at the head of the Administrative 'Staff of the Army' who is responsible for the supply. It would, in fact, be impossible to enforce such responsibility without giving absolute control over the means by which the supplies are connected and conveyed. The Committee accordingly recommended that Army Transport should be placed under one direction and control, to be vested in the Officer responsible for the supply of the Army.¹⁵

The recommendations began to be implemented in 1869, when the Control Department was established to consolidate and oversee the Army's logistical services. The Control Department comprised three agencies: the Commissariat (including the Commissaries of Provisions, Stores and Clothing, and Hospitals); the Army Service Corps (including the Commissariat's transport component, the Military Train, the Ambulance Train, and the Auxiliary Train); and the Account Department. In 1875, the Control Department was replaced by two complementary departments: the Commissariat and Transport Department, and the Ordnance Store Department (which was responsible for the storage and repair of weapons and ammunition). These two departments retained responsibility for providing the British Army's logistical functions for the next one hundred and twenty years.¹⁶

¹⁵ Strathnairn Report, p.xi.

¹⁶ J. Sutton (ed), *Wait For The Waggons*, Barnsley: Leo Cooper, 1998, p.20; Spiers, p.76; I. Knight, *Go To Your God Like A Soldier*, London: Greenhill Books, 1996, pp.196-7; P.J. Haythornwaite, *The Colonial Wars Source Book*, London: Arms and Armour Press, 1995, pp.28-9. The Commissariat and Transport Department and Ordnance Stores Departments each went through a series of name changes, eventually becoming the Royal Corps of Transport and the Royal Army Ordnance Corps. They were amalgamated to form the Royal Logistics Corps in 1993.

Bibliography

A. Primary Sources

1. Unpublished sources

Alexander Turnbull Library (WTU)

Baillie, H., 'A New Zealand Naval Veteran.'

Battiscombe, A.H.W., 'Journal Kept During the Maori War, 1860-61.'

Begley Diary.

Bennett, G., Journal, 1838-45.

Blackburn Journal.

Blades, J., 'A Retrospective Review of Auckland from 1859.'

Bridge, C., 'Journal of Events on an Expedition to New Zealand. Commencing on 4 April 1845', 1845-46.

Brier, G.E., 'My Travels to New Zealand as a Soldier'.

Brown, R., 'Description of the Military and Naval Expedition from Taranaki to the Warea Pa, April 1860'.

Buick, T.L., 'The 96th Regiment in New Zealand, 1841 – 1846.'

Burrows, Rev R., Journal, 3 March - 31 July 1845.

Burrows, Rev R., 'The War In the North 1845.' (manuscript).

Cameron Letters.

Carbery, A.T., Journal.

Clark, B.F., Logbook, HMS Esk.

Collinshaw, T.B., Papers.

Cowan, J., Papers.

Currie, A.R., 'Thorndon Barracks', 1949.

Dansey, R.D., Papers.

'Diary of a British Soldier at the Queen's Redoubt, 1863-1866.' (Writer unknown.)

Ewen, C.J., Journal.

Fenton, F.D., Journals, 1857-58.

Fraser, J., Diaries, 1867, 1869, 1870.

Gamble, D.J., Papers.

Gold Papers.

Gore-Browne Letterbook, 1855 - 62.

Graham, C., Papers.

Hamilton, W.J.W., Diary.

Hammick, W.M., 'Reminiscences'.

Hustwick, R., Letter.

Kent, I., 'The Maori War in New Zealand.'

Kirk, E., 'Wesleyan Missionary Society Station at Mangangu.'

Liverpool Papers.

McDonnell, T., Papers.

Mair, G., Diaries.

Marshall, J.W., 'Letters to W. Swanson, 1859-60.'

Mathews Papers.

Meurant, E., Diary, 17 April - 24 December 1845.

Monson, C.M., Papers.

Mouat, J., Papers.

Newall, S., Journal.

Nicholson, M., letters to Elizabeth Hall, 1859-61.

O'Halloran, C.S., Autobiography.

Plummer, A., 'My Experience Through Waikato War, 1863.'

Porter, T.W.R., Diaries, 1869, 1871.

Preece, G.A., Diary, 1870-1872.

Puckey, Rev W.G., Journals and Letters, 1831 - 1868.

Putman Diary.

Race, W., 'Under the Flag: Reminiscences of the Maori (Waikato) War.'

Records of Two Brothers: Henry and William Williams.

Ronalds, M., Diary.

Rushworth, M., letter to Capt Hamond, RN.

Russell, W., Memorandum Book, 1845-46.

Rye, P.M.J.L., Papers.

Scott, D., 'Report to Major Richmond Of An Expedition Against Rebel Natives.'

Selwyn. H., Letterbook, 1842 - July 1845.

Selwyn, H., 'Pastoral Letter to the Members of the Church of England in the Settlement of New Plymouth', 1855.

Shepherd, I., Papers.

Stitchbury Journal.

Strickland Collection.

Strickland, E., Diary.

Stuart, H.R.V., Journal.

Tatler, G., Papers.

Taylor, Rev R., Papers.

Temple, W., Papers.

Thomas, C.S., Letter.

Tylden, C.R., 'Reminiscences.'

von Tempsky, G.F., 'Memoranda of the New Zealand Campaign in 1863 and 1864.'

von Tempsky, G.F., 'A Campaign on the West Coast of New Zealand During the Months of January and February 1866.'

Warre, Sir H.J., Confidential Letterbook, 1863-1866.

Warre, Sir H.J., 'A Personal Narrative of the War in Taranaki.'

Whisker, A., Memorandum Book.

Whitmore, G.S., Papers.

Williams, G.A., 'Remarks on the Operations of the Royal Artillery During the Campaigns in New Zealand'.

Williams, Rev. H., Journal.

Unknown writer, letter to Rev R. Taylor.

Auckland Museum and Institute Library (AMIL)

Gamble, D.J., Papers. (Including 'Extracts from the Journals of the Deputy Quartermaster-General in New Zealand, 24 December 1861 - 7 September 1864.')

Williams, W.L., Diary.

Australian War Memorial (AWM)

Bartlett, N., 'Their Promised Land: Australia and the Maori Wars, 1840-1870.'

Shaw, W., Letters from Camp Taranaki.

Queen Elizabeth II Army Memorial Museum

Clayton, G.J., 'Gunrunning In New Zealand'.

State Library of New South Wales (SLNSW)

Sewell Journals.

Warrant appointing John Drake 'Commissary General of Stores provisions and Forage to Our Forces', 30 Aug 1833.

Taranaki Museum (TM)

Grayling Papers.

Newland Papers.

Taupo Museum

C. Finnerty, 'Armed Constabulary Report on Tapuaeharuru Station, 20 Feb 1872.'

Te Awamutu District Museum (TAM)

Heenan, J.W., letter to Swarbrick and Swarbrick, 24 Sep 1946.

'Maori Version of the Waikato War', related by Andrew Kay, *Ngaruawahia Advocate*, 15 Feb 1924.

Swarbrick Papers.

'Transport in Te Awamutu', *Te Awamutu Courier*, n.d.

Waikato Museum of Art and History

Savill Letters.

Royal Gloucester, Berkshire and Wiltshire Museum, Salisbury

'99th Regiment: Record of Service, 1844-1846.'

2. Newspapers

Auckland Star

Hawke's Bay Herald

Independent

Nelson Examiner

New Zealander

New Zealand Herald

New Zealand Spectator

Ngaruawahia Advocate

Otago Witness

Southern Cross

Taranaki Herald

Te Awamutu Courier

Wanganui Chronicle

3. Official publications.

Appendices to the Journals of the House of Representatives (AJHR).

Auckland Provincial Council: Acts and Proceedings, 1855.

British Parliamentary Papers.

Governor's Despatches: New Zealand. 1845.

Historical Record of Australia, Series I, Governor's Despatches to and from England, Vols XXIV & XXV.

New Zealand Gazette.

New Zealand Parliamentary Debates (NZPD).

Taranaki Provincial Council Letterbook.

4. Official reports

i. Colonial Office files. (CO series.)

CO 209/93 1851

CO 209/164 1860

ii. War Office files. (WO series).

WO 1/433 1845

WO 33/12 Army Medical Department files, including:

'Medical Reports for 1865: The New Zealand War of 1863-64-65.'

'The New Zealand War, 1866-67.'

'Suggestions drawn up by the Barrack and Hospital Improvement Commission for the Construction of Barracks and Hospitals in New Zealand, August 1863.'

WO 33/17A Deputy Quartermaster General files, 1861-65.

iii. Other

'Report of a Committee appointed by the Secretary of State for War to Enquire into the Administration of the Transport and Supply Departments of the Army', C3848, 1867.

5. Published Collections

Bull, H.G. (ed), *Papers Relating to Captain G.A. Preece: Part One - Correspondence with Sir Donald MacLean*, Maungaturoto: Tortoise Press, 1998.

McIntyre, W.D. & Gardiner, W.J. (eds), *Speeches and Documents on New Zealand History*, Oxford: Clarendon Press, 1971.

Schofield, G. (ed), *Richmond-Atkinson Papers*, Wellington: Internal Affairs, 1960. (2 Vols.)

B. Secondary sources

1. Books

100 Years on the Napier-Taupo Road, 1855-1955, Napier: Hawkes Bay and East Coast Art Society, 1984.

65th Regiment of Foot; 'Extract from Digest of Service'. (WTU.)

Adams, P., *Fatal Necessity: British Intervention in New Zealand, 1830-1847*, Auckland: Auckland University Press, 1977.

Alexander, J.E., *Bush Fighting*, London: Richard Bentley, 1873.

_____, *Incidents of the Maori War*, London: Richard Bentley, 1863.

Andrews, E., *Kiwi Trooper*, Wanganui: Wanganui Chronicle, 1967.

Bach, J., *The Australia Station*, Kensington: New South Wales University Press, 1986.

Barber, L.H. & others (eds), *Sergeant, Sinner, Saint and Spy: The Taranaki War Diary of Sergeant William Marjouram, R.A.*, Auckland: Random Century, 1990.

Barber, L.H., *Frontier Town: a History of Te Awamutu, 1884-1984*, Auckland: Ray Richards, 1984.

_____, *The View From Pirongia: the History of Waipa County*, Auckland: Ray Richards, 1978.

Barclay, G.St J., *The Empire is Marching*, London: Wiedenfeld and Nicolson, 1976.

Barthorp, M., *To Face the Daring Maoris*, London: Hodder & Stoughton, 1979.

Bassett, J., *Sir Harry Atkinson*, Auckland: Reed, 1975.

Batchelor, J. & Hogg, I.V., *Artillery*, London: MacDonald, 1972.

Belich, J., *I Shall Not Die: Titokowaru's War, New Zealand, 1868-69*, Wellington: Bridget Williams, 1993.

_____, *Making Peoples: A History of the New Zealanders From Polynesian Settlement to the End of the Nineteenth Century*, Auckland: Allen Lane, 1987.

_____, *The New Zealand Wars and the Victorian Interpretation of Racial Conflict*, Auckland: Penguin, 1986.

Bilcliffe, J. *'Well Done The 68th'*, London: Picton, 1995.

Binney, J. and others, *The People and the Land: an Illustrated History of New Zealand, 1820-1920*, Wellington: Allen & Unwin, 1990.

Bohan, E., *To Be A Hero: A Biography of Sir George Grey, 1812-1898*, Auckland: HarperCollins, 1998.

Bowler, R.A., *Logistics and the Failure of the British Army in America, 1775-1783*, Princeton: Princeton University Press, 1975.

Bradley, O.N. & Blair, C., *A General's Life*, New York: Simon & Schuster, 1983.

Brown, D.K., *Before The Ironclad*, London: Conway Maritime Press, 1990.

Buick, T.L., *New Zealand's First War*, Wellington: Government Printer, 1926.

Burnett, R.I.M., *The Paremata Barracks*, Wellington: Government Printer, 1963.

Burrows, R., *Extracts From A Diary Kept During Heke's War In the North In 1845*, Auckland: Upton & Co., 1886.

Butt, G.A., *Poem In Stone: History of St Mary's Anglican Church, 1846-1971*, New Plymouth: Masterprint Press, 1978.

Callwell, C.E., *Small Wars*, 3rd edition, Lincoln: University of Nebraska Press, 1996. (Reprint of 1906 edition.)

Campbell, M.D.N., *The Story of Napier, 1874 - 1974*, Napier: Napier City Council, 1975.

Campbell, R.D., *Captain Cadell and the Waikato Flotilla*, Wellington: Maritime Publications, 1985.

Cantlie, N., *A History of the Army Medical Department*, Vol 2, Edinburgh: Churchill Livingstone, 1973.

Carey, R., *Narrative of the Late War in New Zealand*, London: Richard Bentley, 1863.

Carkeek, W.C., *The Kapiti Coast*, Wellington: Reed, 1978.

Carleton, H., *Life of Henry Williams, Archdeacon of Waimate*, Auckland: Upton, 1877.

Caselberg, J. (ed), *Maori Is My Name: Historical Maori Writings in Translation*, Dunedin: J. McIndoe, 1975.

- Chandler, D., *The Art of Warfare in the Age of Marlborough*, London: Batsford, 1990.
- Clowes, W.L.C., *The Royal Navy: A History From the Earliest Times to the Present*, Vol 6, London: Sampson Low, 1901.
- Collinson, T.B., *Papers on Subjects Connected With the Duties of the Corps of Royal Engineers*, Vol 3, London: John Weale, 1853.
- Cooper, B., *Te Mata o Taupani a Tia : The Head of the Lake*, Turangi: Turangi District Historical Society, 1981.
- Cowan, J., *The Adventures of Kimble Bent*, London: Whitcombe and Tombs, 1911.
- _____, *The New Zealand Wars and the Pioneering Period*, (2 Vols), Wellington: Whitcombe and Tombs, 1922 and 1923.
- _____, *The Old Frontier*, Te Awamutu, Waipa Post, 1922.
- Crew, G., *The Royal Army Service Corps*, Barnsley: Leo Cooper, 1970.
- Crosby, R.D., *The Musket Wars*, Auckland: Reed, 1999.
- Dalton, B.J., *War and Politics in New Zealand, 1855-1870*, Sydney: Sydney University Press, 1967.
- Dixon, N., *On the Psychology of Military Incompetence*, London: Jonathan Cape, 1976.
- Drew, R. (ed), *Commissioned Officers in the Medical Services of the British Army*, Vol 1, London: Wellcome Historical Medical Library, 1968.
- Duncan, R., *The Fight at Ruakituri*, Dunedin: Reed, 1939.
- Farwell, B., *Queen Victoria's Little Wars*, London: Wordsworth Editions Ltd, 1999.
- Finlay, N., *Sacred Soil*, Auckland: Random House, 1998.
- Fitzroy, R., *Remarks on New Zealand*, London: W & M White, 1846.
- Foljambe, C.G.S., *Three Years on the Australian Station*, London: Hatchard & Co, 1868.
- Fortescue, J.W., *A History of the British Army*, (Vol VIII), London: MacMillan, 1910.
- Fox, W., *The Six Colonies of New Zealand*, London: Smith, Elder & Co, 1851.
- _____, *The War in New Zealand*, London: Smith Elder & Co, 1866.
- Foxton, P.D., *Powering War: Modern Land Force Logistics*, United Kingdom: Brassey's, 1994.
- Garran, A., (ed), *Picturesque Atlas of Australasia*, Vol 3, Sydney: Picturesque Publishing Company, 1886.

- Gascoyne, F.J.W., *Soldiering in New Zealand*, London: T.J.S. Guilford, 1916.
- Gibson, T., *The Maori Wars*, Wellington: Reed, 1974.
- Gilbert, T., *The War in Taranaki*, London: A.W. Bennett, 1861.
- Glen, F., *For Glory and a Farm*, Whakatane: Whakatane District Historical Society, 1984.
- Gordon, M., *Those Days, Those Men*, Christchurch: Pegasus, 1995.
- Gorst, J.E., *The Maori King*, London: MacMillan, 1864.
- Gorton, E., *Some Home Truths Re: The Maori War, 1863 to 1869, on the West Coast of New Zealand*, London: Greening & Co, 1901.
- Grace, M.S., *A Sketch of the New Zealand War*, London: Horace Marshall & Son, 1899.
- Grainger, J., *The Auckland Story*, Wellington: Reed, 1953.
- Gray, A.M., *Aotearoa and New Zealand: A Historical Geography*, Christchurch: Canterbury University Press, 1994.
- Gudgeon, T.W., *Reminiscences of the War in New Zealand*, London: Smith, Elder & Co., 1879.
- _____, *The Defenders of New Zealand*, Auckland: H. Brett, 1886.
- Hawthorne, J., *A Dark Chapter From New Zealand History*, Napier: James Wood, 1869.
- Haythornwaite, P.J., *The Colonial Wars Source Book*, London: Arms and Armour Press, 1995.
- Heaphy, C., *Narrative of a Residence in Various Parts of New Zealand*, London: Smith, Elder & Co., 1842.
- Hitiri te Paerata, *Description of the Battle of Orakau*, Wellington: Government Printer, 1888.
- Hogg, I.V., *The Illustrated Encyclopedia of Artillery*, London: Quarto Publishing, 1988.
- Holt, E., *The Strangest War*, London: Putman, 1962.
- Hursthouse, C., *An Account of the Settlement of New Plymouth*, London: Smith, Elder & Co, 1849.
- Jomini, Baron de, *The Art Of War*, ed. and trans. Philadelphia: J.B. Lippincott & Co, 1868. (Originally published in French in 1832.)
- Keegan, J., *A History Of Warfare*, New York: Alfred A. Knopf, 1993.

- Keegan, J., and Holmes, R., *Soldiers: A History of Men in Battle*, London: Guild Publishing, 1985.
- Kennedy, P.M., *The Rise and Fall of British Naval Mastery*, London: Ashfield Press, 1976.
- King, M., *The Penguin History Of New Zealand*, Auckland: Penguin, 2003
- Knight, I., *Go to Your God Like a Soldier*, London: Greenhill, 1996.
- Lee, J., *Hokianga*, Auckland: Hodder & Stoughton, 1987.
- Long, M. (ed), *Waikato - Northern King Country Historical Guide*, Wellington: NZ Historic Places Trust, 1985.
- Lynn, J.A. (ed), *Feeding Mars: Logistics in Western Warfare from the Middle Ages to the Present*, New York: Westview Press, 1993.
- McGibbon, I. (ed), *The Oxford Companion To New Zealand Military History*, Auckland: Oxford University Press, 2000.
- Machiavelli, N., *The Art of War*, New York: Library of Liberal Arts, 1965 edition.
- MacKay, J.A., *Historic Poverty Bay and the East Coast*, Gisborne: J.A. MacKay, 1966.
- Macksey, K., *For Want of a Nail: The Impact of War on Logistics and Communications*, London: Brassey's, 1989.
- Macksey, K., *Encyclopaedia of Weapons and Military Technology*, London: Penguin, 1995.
- Mair, G., *Reminiscences and Maori Stories*, Auckland: H. Brett, 1923.
- _____, *The Story of Gate Pa*, Tauranga: Bay of Plenty Times, 1937.
- Maning, F.E., *Old New Zealand*, Auckland: Robert J. Creighton & Alfred Scales, 1887.
- Marshall, P.J. (ed), *The Cambridge Illustrated History Of the British Empire*, Cambridge: Cambridge University Press, 1996.
- Martin, Sir H., *The Taranaki Question*, London: Smith, Elder & Co, 1861. (3rd edition.)
- Maxwell, P., *Frontier: The Battle for the North Island of New Zealand, 1860-1872*, Auckland: Celebrity Books, 2000.
- McDonnell, T., *An Explanation of the Principal Causes Which Led to the Present War on the West Coast of New Zealand*, Wanganui: Wanganui Times, 1869.
- McKillop, H.F., *Reminiscences of Twelve Months' Service in New Zealand*, London: Richard Bentley, 1849.

- Millen, J., *Salute To Service: A History of the Royal New Zealand Corps of Transport and its Predecessors, 1860-1996*, Wellington: Victoria University Press, 1997.
- Miller, H., *Race Conflict in New Zealand: 1814 - 1865*, Auckland: Blackwood & Janet Paul, 1966.
- _____, *The Invasion of Waikato*, Dunedin: Harold Miller, 1964.
- Miller, J., *Early Victorian New Zealand*, Oxford: Oxford University Press, 1958.
- Montgomery, B.L., *A Concise History of Warfare*, London: Collins, 1972.
- Miller, R., *The East Indiamen*, Amsterdam: Time-Life Books, 1980.
- Milne, J., *The Romance of a Proconsul*, London: Chatto and Windus, 1899.
- Moon, P., *FitzRoy: Governor in Crisis*, Auckland: David Ling, 2000.
- _____, *Hobson: Governor of New Zealand, 1840-1842*, Auckland: David Ling, 1998.
- Morris, N. (ed), *The Journal of William Morgan*, Auckland: Auckland Library, 1963.
- Mould, T.R., *Engineer Operations in New Zealand During the War in 1860-61*, London: Royal Engineers, 1863.
- _____, *Sketch of Military Proceedings in New Zealand, From the Termination of the Waitara Campaign in March, 1861*, London: Royal Engineers, 1869.
- Neuburg, V., *Gone for a Soldier*, London: Cassell, 1992.
- Nevins, E.M., *Forces of the British Empire, 1914*, Arlington: Vandemere Press, 1992.
- Norris, H.C.M., *Armed settlers, 1864-1874*, Sydney: Paul's, 1956.
- Oliver, W.H. & Williams, B.R. (eds), *The Oxford History of New Zealand*, Auckland: Oxford University Press, 1981.
- Orange, C. (ed), *The Dictionary of New Zealand Biography*, Wellington: Bridget Williams Books, 1990 and 1993. (Vols 1 & 2.)
- Orange, C., *The Treaty of Waitangi*, Wellington: Bridget Williams Books, 1987.
- Pearse, H.W., *History of the 31st Foot and 70th Foot, (Vol 1, 1702-1914)*, London: Spottiswoode, Ballantyne & Co, 1916.
- Petre, H.W., *The Settlements of the New Zealand Company*, London: Smith, Elder & Co, 1842.
- Platts, U., *The Lively Capital: Auckland 1840 - 1865*, Christchurch: Avon Fine Prints, 1971.

Pool, D.I., *Te Iwi Maori: A New Zealand Population, Past, Present, & Projected*, Auckland: Auckland University Press, 1991.

_____, *The Maori Population of New Zealand*, Auckland: Auckland University Press, 1977.

Porter, T.W., *Major Ropata Wahawaha: The Story of His Life and Times*, Gisborne: Poverty Bay Herald, 1897.

Power, W.T., *Sketches in New Zealand*, London: Longman Brown, 1849.

Prichard, M.F.L., *An Economic History of New Zealand to 1939*, Auckland: Collins, 1970.

Prickett, N., *Excavations at Warea Redoubt, January – February 1978*, Auckland: Auckland University Press, 1978.

Reeves, W.P., *The Long White Cloud*, London: George Allen & Unwin Ltd, 1924.

Regan, G., *Someone Had Blundered...: A Historical Survey of Military Incompetence*, London: Batsford, 1987.

Rickard, L.S., *Tamihana the Kingmaker*, Wellington: Reed, 1963.

Ross, J. O'C., *The White Ensign in Early New Zealand*, Wellington: Reed, 1967.

Rutherford, J., *Sir George Grey*, London: Cassell, 1961.

Ryan, T. & Parham, W., *The Colonial New Zealand Wars*, Auckland: Grantham House, 1986.

Sewell, H., *Letter to Lord Lyttelton: The New Zealand Native Rebellion*, London: MacMillan & Co, 1864.

Sharp, A. (ed), *Duperrey's Visit to New Zealand in 1824*, Wellington: Alexander Turnbull Library, 1971.

Shortland, E., *Traditions and Superstitions of New Zealanders*, London: Longman Brown, 1856.

Shrimpton, A.W. & Mulgan, A.E., *Maori and Pakeha: A History of New Zealand*, Auckland: Whitcombe & Tombs, 1922.

Simms, V., *Britain and the British Commonwealth, 1815-1939*, London: J.M. Dent, 1949.

Simpson, T., *Te Riri Pakeha*, Martinborough: Alister Taylor, 1979.

Sinclair, J., *Arteries of War: A History of Military Transportation*, London: Airlife, 1992.

Sinclair, K. (ed), *A Soldier's View of Empire: The Reminiscences of James Bodell, 1831-92*, London: Bodley Head, 1982.

_____, *A History of New Zealand*: Auckland: Pelican, 1980 (revised edition.)

_____, *The Origins of the Maori Wars*, Auckland: New Zealand University Press, 1957.

Smart, M.J.G. & A.P. Bates, *The Wanganui Story*, Wanganui: Wanganui Newspapers, 1972.

Spiers, E.M., *The Late Victorian Army, 1868-1902*, Manchester: Manchester University Press, 1992.

Stokes, E., *A History of Tauranga County*, Palmerston North: Dunmore Press, 1982.

Stowers, R., *Forest Rangers*, Hamilton: Richard Stowers, 1992.

Sun Tzu, *The Art of War*, London: Hodder & Stoughton, 1981. (Revised edition of 1910 Translation).

Sutton, J. (ed), *Wait For The Waggons*, Barnsley: Leo Cooper, 1998.

Swainson, W., *Auckland: The Capital of New Zealand*, London: Smith, Elder & Co, 1853.

_____, *New Zealand and its Colonisation*, London: Smith, Elder & Co, 1859.

_____, *New Zealand and the War*, London: Smith, Elder & Co, 1862.

Taylor, R.J., *Tribe of the War God*, Napier: Cosmos, 1996.

Thompson, A.S., *The Story of New Zealand*, (2 Vols), London: John Murray, 1859.

Thompson, J., *The Lifeblood of War: Logistics in Armed Conflict*, London: Brasseys, 1991.

Tonson, A.E., *Old Manukau*, Auckland: Tonson Publishing House, 1966.

Tucker, H.W., *Memoir of the Life and Episcopate of George Augustus Selwyn*, Vol 2, London: William Wells Gardner, 1879.

Tuta Nihoniho, *Narrative of the Fighting on the East Coast, 1865-71, With a Monograph on Bush Fighting*, Wellington: Government Printer, 1913.

van Creveld, M., *Supplying War*, Cambridge: Cambridge University Press, 1977.

Vayda, A.P., *Maori Warfare*, Wellington: Reed, 1960.

Vennell, C.W., *The Brown Frontier*, Auckland: Reed, 1967.

von Clausewitz, C., *On War*, trans. London: Everyman's Library, 1993. (Translation: originally published in 1831.)

von Hochstetter, F., *New Zealand*, Stuttgart: Cottascher Verlag, 1863.

Wallace, J.M., *Manual of New Zealand History*, Wellington: Wallace, 1886.

Wards, I., *The Shadow of the Land: A Study of British Policy and Racial Conflict in New Zealand, 1832-1852*, Wellington: Department of Internal Affairs, 1968.

Weller, J., *On Wellington: The Duke and His Art of War*, London: Greenhill, 1998.

Wells, B., *The History of Taranaki*, New Plymouth: Edmundson and Avery, 1878.

Whitmore, G.S., *The Last Maori War in New Zealand Under the Self-Reliant Policy*, London: Sampson, Low, Marston & Co., 1902

Wild, A., *The East India Company: Trade and Conquest From 1600*, London: HarperCollins, 1999.

Wilkinson, F., *Arms and Armour*, London: Hamlyn, 1978

Williams, H., *Plain Facts Relative to the Late War in the Northern District of New Zealand*, Auckland: Philip Kunst, 1847.

_____, *The Fall of Kororareka in 1845*, Auckland: Creighton & Scales, 1863.

Wilson, O., *From Hongi Hika to Hone Heke*, Dunedin: J. McIndoe, 1986.

_____, *Kororareka*, Dunedin: J. McIndoe, 1990.

_____, *War In The Tussock*, Wellington: Government Printer, 1961.

Younger, R.M., *Australia and the Australians*, Sydney: Hutchinson, 1970, p.61.

2. Articles

Ballara, A., 'The Role of Warfare In Maori Society in the Early Contact Period', *Journal of the Polynesian Society*, 1976, 85, No 4, pp.487-506.

Barber, L.H., 'Military Strategies Against The Hau Hau', *Australian Defence Force Journal*, 37, November/December 1985, pp.24-32.

Barr, H., 'Alexandra: A Waikato Military Settlement', *New Zealand Historic Places*, 22, September 1988, pp.6-8.

Belich, J., 'Cameron, Duncan Alexander', in *The Dictionary of New Zealand Biography*, Vol 1, ed. C. Orange, Wellington: Department of Internal Affairs, 1990, pp.65-6.

Bell, R.M., 'Early Military Forces in Hawke's Bay, 1857-1874', Napier: Hawkes Bay Art Gallery and Museum.

Brown, I.M., 'Feeding Victory: The Logistic Imperative Behind the Hundred Days', in Dennis, P. and Grey, J. (eds), *1918: Defining Victory (Chief of Army History Conference, 1998)*, Department of Defence, Canberra, 1999.

Clayton, G.J., 'Maori Military Engineers: Leif Erikksens of Trench Warfare?', *NZ Army Journal*, No. 4, July 1987, pp.29-34.

Cowan, J., 'Old Mangere: Story of the 'Maori Fencibles'', *Auckland Star*, 8 Jun 1929.

_____, 'The Hau Hau Rebellion', newspaper article, source unknown. (Copy held in Te Awamutu Museum.)

Crawford, J.A.B., 'Despard, Henry', *Dictionary of New Zealand Biography*, ed. Claudia Orange, Wellington: Bridget Williams Books, 1990, pp.104-5.

D'Arcy, P., 'Maori and Muskets from a Pan-Polynesian Perspective', *New Zealand Journal of History*, 34, 1, 2000, pp.117-132.

Davidson, J., 'The Children of Tu. Warfare and Fortifications', in J. Wilson (ed), *From The Beginning: The Archeology of the Maori*, Auckland, 1987, pp.109-124.

Davidson, J., 'Maori Prehistory: The State of the Art', *Journal of the Polynesian Society*, 92, 2, 1980, pp.291-307.

Day, K., 'Iwi Flour Mills', *NZ Historic Places*, 55, September 1995, pp.26-28.

Despard, H., 'Narrative of an Expedition into the Interior of New Zealand, During the Months of June and July 1845', *United Services Magazine*, 214, Aug 1846, pp.31-46.

_____, 'Narrative of an Expedition into the Interior of New Zealand, During the Months of June and July 1845', *United Services Magazine*, 215, Sep 1846, pp.253-67.

_____, 'Narrative of an Expedition into the Interior of New Zealand, During the Months of June and July 1845', *United Services Magazine*, 216, Oct 1846, pp.371-88.

Eyre-Kenny, H., 'Pen-and-Ink Sketches of Officer Commanding the Forces in New Zealand from 1845 to 1870', *New Zealand Military Journal*, Jan, 1914, pp.110-115.

Fairfax, D., 'Wiseman, William Saltonstall', in *The Dictionary of New Zealand Biography*, Vol 1, ed. C. Orange, Wellington: Department of Internal Affairs, 1990, pp.605-6.

Frost, P.J., 'Remembering Rangiaowhia', *NZ Historic Places*, 89, May 2001, pp.22-24.

Gilling, B., 'Cameron, General Sir Duncan Alexander', in *The Oxford Companion to New Zealand Military History*, ed. I. McGibbon, Auckland: Oxford University Press, 2000, pp.78-9.

Grove, E., 'Steam: A Revolution in Naval Affairs', in *Half A World Away: Proceedings of Auckland Maritime Museum Conference, 1997*, eds. D. Johnson & P. Dennerly, Auckland: RNZN Museum, 1998, pp.61-70.

Haworth, J., 'The War For The Waikato', *NZ Historic Places*, 59, July 1996, pp.8-10.

Hodge, P., 'Wellington's Frontier', *NZ Historic Places*, 46, March 1994, pp.42-44.

Kawiti, T., 'Heke's War in the North.' (Publication details unknown.)

La Roche, A., 'A Fencible Officer's Home', *NZ Historic Places*, 70, September 1998, p.32.

Letter from Lt G. Graham to S. Sergeant, 28 May 1845, *The Volunteers*, Vol 25, 3, March 2000, pp.155-7.

_____, 'The Past Revived', *NZ Historic Places*, 70, September 1998, p.32.

McGibbon, I. (ed), 'Carey, Major-General Robert', *The Oxford Companion To New Zealand Military History*, Auckland: Oxford University Press, 2000, p.79.

McGibbon, I. (ed), 'Chute, General Sir Trevor', *The Oxford Companion To New Zealand Military History*, Auckland: Oxford University Press, 2000, pp.87-8.

MacLean, S., 'A Place Of Learning', *NZ Historic Places*, 70, September 1993, pp.11-14.

Mackrell, A., 'From Ireland To Auckland', *NZ Historic Places*, 70, September 1998, p.30-31.

Martin, J.S., 'Barging Ahead', *Army Logistician*, July-August 1996, pp.32-3.

Maxwell, P., 'Frontier Fighting: The Armed Constabulary Storms Te Porere Ridge', *New Zealand Guns*, Mar/Apr 1992, pp.42-46.

Melbourne, S., 'The Implementation of Confiscation in the Bay of Plenty District', *The Volunteers*, 17, 1, October 1991, pp.30-65.

Mueller, D.M., 'Logistical Support for Land Warfare in the 21st Century', *Combat Service Support*, 2, 1996, pp.1-11.

Owens, J.M.R., 'New Zealand Before Annexation', in *The Oxford History of New Zealand*, ed. W.H. Oliver, Auckland: Oxford University Press, 1981, pp.28-53.

Parsonson, A., 'The Pursuit of Mana', in *The Oxford History of New Zealand*, ed. W.H. Oliver & B.R. Williams, Auckland: Oxford University Press, 1981, pp.140-67.

Paulus, R.D., 'Pack Mules and Surf Boats: Logistics in the Mexican War', *Army Logistician*, Nov-Dec 1997, pp.34-40.

Pickmere, N., 'Storekeepers Of Kerikeri', *NZ Historic Places*, 56, November 1995, pp.11-13.

Porter, F., 'Atkinson, Jane Maria', *Dictionary of New Zealand Biography*, Vol 1, (ed) C. Orange, Wellington: Department of Internal Affairs, 1990, p.9.)

- Prickett, N., 'An Inconclusive War', *NZ Historic Places*, 28, March 1990, pp.42-8.
- Pugsley, C., 'Maori Did Not Invent Trench Warfare', *NZDQ*, 22, Spring 1988, pp.33-7.
- _____, 'Walking Heke's War: Kororareka', *NZDQ*, 1, Winter 1993, pp.12-17.
- _____, 'Walking Heke's War: Ohaeawai', *NZDQ*, 3, Summer 1993, pp.34-8.
- _____, 'Walking Heke's War: Puketutu', *NZDQ*, 2, Spring 1993, pp.26-31.
- _____, 'Walking Heke's War: Ruapekapeka', *NZDQ*, 4, Autumn 1994, pp.28-33.
- _____, 'Walking the Taranaki War: Mahoetahi', *NZDQ*, 11, Summer 1995, pp.32-6.
- _____, 'Walking the Taranaki War: Puketakauere', *NZDQ*, 10, Spring 1995, pp.35-40.
- _____, 'Walking the Taranaki War: Te Arei', *NZDQ*, 12, Autumn 1996, pp.30-4.
- _____, 'Walking the Taranaki War: Waireka', *NZDQ*, 9, Winter 1995, pp.26-31.
- _____, 'Walking the Taranaki Wars: Ahuahu', *NZDQ*, 24, Autumn 1999, pp.32-6.
- _____, 'Walking the Taranaki Wars: Kaitake', *NZDQ*, 23, Summer 1998, pp.33-6.
- _____, 'Walking the Taranaki Wars: Katikara', *NZDQ*, 21, Winter 1998, pp.32-7.
- _____, 'Walking the Taranaki Wars: Koheroa', *NZDQ*, 13, Winter 1996, pp.30-6.
- _____, 'Walking the Taranaki Wars: Weraroa', in *NZDQ*, 29, Winter 2000, pp.25-8.
- _____, 'Walking the Waikato Wars: Meremere', *NZDQ*, 14, Autumn 1996, pp.28-33.
- _____, 'Walking the Waikato Wars: Orakau', *NZDQ*, 18, Spring 1997, pp.32-6.
- _____, 'Walking the Waikato Wars: Paterangi', *NZDQ*, 16, Autumn 1997, pp.32-6.
- _____, 'Walking the Waikato Wars: Rangiaohia', *NZDQ*, 17, Winter 1997, pp.32-6.
- _____, 'Walking the Waikato Wars: Rangiriri', *NZDQ*, 15, Summer 1996, pp.34-7.
- _____, 'Walking the Wanganui War: St John's Hill', *NZDQ*, 8, Autumn 1995, pp.31-8.
- _____, 'Walking the Wellington Wars: Bolcott's Farm', *NZDQ*, 6, Spring 1994, pp.36-41.
- _____, 'Walking the Wellington Wars: Skirmishing at Porirua and Battle Hill', *NZDQ*, 7, Summer 1994, pp.36-41.
- Roe, M., 'Roe, 1830-50', in *A New History of Australia*, ed. F. Crowley, Melbourne: William Heinemann, 1974, pp.82-123.

Rutherford, J., 'Hone Heke's Rebellion, 1844-1846', Department of History, Bulletin No. 34, Auckland University College, 1947.

Schoh, B.P., 'Union Logistics in the Peninsula Campaign', *Army Logistician*, March-April 1996, pp.40-3.

Sheffield, G.D., 'The Indispensable Factor: The Performance Of British Troops In 1918', in Dennis, P. and Grey, J. (eds), *1918: Defining Victory (Chief of Army History Conference, 1998)*, Canberra, Department of Defence, 1999, pp.72-95.

Sorrenson, M.P.K., 'The Maori King Movement, 1858-1885', in R. Chapman and K. Sinclair (eds), *Studies of a Small Democracy*, Auckland, 1983, pp.33-55.

Taylor, R.J., 'Incompetent or Scapegoat?: Despard at Ohaeawai', *Despatches*, QEII Army Memorial Museum, October 1989, pp.1-4.

_____, 'Matelots in Maoriland: The Waikato Flotilla and the Waikato War', in *Half A World Away*, (ed) D. Johnson & P. Dennerly, Auckland: RNZN Museum, 1998, pp. 35-51.

Urlich, D.U., 'The Introduction and Diffusion of Firearms in New Zealand, 1800 – 1840', *Journal of the Polynesian Society*, 79, No 4, 1970, pp.399-410.

Vayda, A.P., 'Maoris and Muskets in New Zealand: Disruption of a War System', *Political Science Quarterly*, LXXXV, 4, 1970, pp.560-84.

Wilson, J., 'A Famous Battle', *NZ Historic Places*, 44, September 1993, pp.42-7.

Wright-St Clair, R.E., 'Medical Services in the Waikato War', *Auckland-Waikato Historical Journal*, 43, September 1983, pp.28-35

Wynyard, M.H., 'The 58th Regiment', *Auckland-Waikato Historical Journal*, No. 43, Sept, 1983, pp.23-26.

3. Military publications

Australian Army, 'Land Warfare Doctrine 1: The Fundamentals of Land Warfare', Australian Defence Force: Canberra, 1998.

Land Command NZ, Publication G-4/001/99, 'Concepts Of Combat Service Support', New Zealand Army: Wellington, Apr 1999.

Royal Air Force, 'Air Operations', Air Warfare Centre: RAF Bentley Priory, 1996.

4. Journals

Australian Medical Journal. (1864)

British Medical Journal. (1864.)

Medical Times and Gazette. (1863.)

The Lancet. (1865, 1867 & 1868.)

5. Unpublished theses

Elliot-Hogg, N.A., 'The Taranaki Refugees, 1860', MA, University of Waikato, 1999.

Howe, K., 'Missionaries, Maoris and "Civilisation" on the Upper Waikato, 1833-63. A Study in Culture Contact, With Special Reference to the Rev. John Morgan of Otawhao', MA, University of Auckland, 1970.

Huston, J.D., 'Colonial Force Effectiveness in Regional Conflicts: The Taranaki and Whanganui Theatres, 1860-1869', MA, University of Waikato, 1998.

Shawcross, K.A., 'Maoris of the Bay of Islands, 1769-1840: a study of changing Maori responses to European contact', MA, University of Auckland, 1967.