

# THE RANGITAIKI

1890-1990



Walter H. Gibbons

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SETTLEMENT AND DRAINAGE ON THE RANGITAIKI

WALTER GIBBONS

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## FOREWORD

If all the numerous historical works dealing with aspects of New Zealand's past could be separated into piles, called 'general history', 'economic history', 'historical biography', and so forth, the tallest pile would probably be that of 'local history'. Anniversaries, jubilees, and centennials of churches, schools, local bodies, districts, localities, and provinces are usually marked by the publication of historical works. The majority of these publications, whether slight brochures of a dozen pages or massive volumes of 600 or more pages, celebrate the virtues and accomplishments of the 'pioneers' - the earliest European settlers of a district, the Founding Fathers (sometimes Mothers). The pioneers, if we are to believe what we read, transformed the wilderness into farms and towns, almost entirely by their own hard work and determination, and without much in the way of assistance from anyone except their neighbours.

This customary emphasis on the accomplishments of the worthy pioneers is inclined to be misleading. No one need doubt the extraordinarily strenuous exertions of the early settlers, or their successors for that matter. But that is only part of the story. In many areas of New Zealand the State played a significant role in European settlement, though to read some accounts one might imagine governments and bureaucrats were more difficult for the settlers to deal with than fire, flood and bush. In this book, an account of the drainage of the swamplands in what is now called the Rangitaiki Plains, the crucial role of the State is made abundantly clear: The State provided expertise, considerable amounts of capital, communications and transport systems, and important equipment, without all of which the work of the settlers would have been of rather limited effect.

Another feature of much local history writing is the emphasis on the 'conquest' of the wilderness by the pioneers. Though there is today a heightened appreciation of conservation issues, too many local histories give only limited space to the ecological problems set in train by 'progress' and development. It is one of the merits of this book that the reader is constantly made aware of the fragility of the environment, as the settlers themselves, and their successors, gradually discovered the difficulties of maintaining a complex hydraulic system. The digging of drains to draw off the swampwater was in fact the beginning rather than the end of the process.

One of the strengths of many local historians is their personal knowledge of the local landscape, its inhabitants and their traditions. Sometimes this is also a weakness, when personal knowledge is not complemented by research into the written records: recollections are not always complete, and reminiscences are not necessarily reliable. Using documentary materials, however, is time-consuming, and often wearisome and frustrating. The rewards of such research are nevertheless evident in this study: it is possible for the historian to be quite precise about much factual information. When full references are provided, as they are in this case, then the reader, and later researchers, can check the basis for the interpretations that are made. For example, the author suggests that the existence of the third Drainage Board, 1957-1989, was probably not necessary. It is a judgment which may arouse some controversy. Those who wish to argue the matter can weigh his opinion in the light of the documentary evidence.

While personal knowledge of a locality without use of written records is an inadequate basis

for good local history, the use of documents without recourse to local knowledge is equally undesirable. It may be as well to emphasize it is not obvious from the text of this book, that Walter Gibbons has brought to this study his own intimate knowledge of both landscape and people. Brought up in the Golden Bay area of Nelson province, he took up a 'rehab' farm on the Rangitaiki Plains in 1944 after returning from active service in Greece, Crete and the Western Desert during the Second World War. He farmed this property on Western Drain Road opposite the farm of Eric Haultain, first chairman of the re-established Drainage Board in 1957-1960 - until 1967, when he moved to Edgecumbe. He completed a degree in history from Massey University in 1968 and thereafter taught for 18 years at Edgecumbe College. He has written other articles and booklets on the history of the area, and is well-acquainted with the sources, published and unpublished, which are held in libraries, museums, and archival collections. Just as importantly, he has known and talked with almost all the important people referred to in this study or their descendants: he has lived for some 45 years in the district of which he writes; and, for those who like their historians to have direct experience of their subjects, he has, in 'stumping' paddocks and digging drains on his own property, shovelled his share of the top soil, volcanic ash, pumice and peat which layer upon layer, makes up the Rangitaiki Plains.

P J GIBBONS  
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## PREFACE

I am honoured to be invited, as local Member of Parliament and the son of a pioneer of the Rangitaiki Plains, to write this Preface.

Newcomers to the Plains find a fertile land, rich soils, a warm moist climate, and dairy farms as productive as any in the world. Hardly noticed are the drains, the dredgecuts, the floodgates and the stopbanks. Yet the whole of the prosperity of the Rangitaiki Plains depends on the drainage system. Not too long ago, we still described this land as "the Swamp". Those who grew up and lived here learnt to listen with apprehension to the sound of heavy rain on the roof. It was not just the fear of rivers flooding, but also because of the damage to pastures from waterlogging. As Mr Gibbons makes clear, it was only in the last two decades that the drainage system became adequate.

The sharp subsidence in the Edgecumbe earthquake gave a reminder of forces waiting and ready to turn the Plains back into a swamp. Less dramatic, but inexorable, is the desire of the Rangitaiki River to move its mouth eastwards until it reaches the hills once again. Day by day weeds grow in the dredgecuts and the banks require repair.

The history by Mr Gibbons is a reminder that nearly a century of struggle was needed to build the drainage system on which the prosperity of the Plains depends, and that it cannot be taken for granted.

Both the settlers and the government played a major part. The settlers had to overcome slumps (my father used to say that the slump of 1922 was worse than the 1930s), and some were bankrupted by the failure of the freezing works. Many of the finest younger farmers lost their lives in the two world wars. The courage, determination and unremitting hard work of the early families turned a wet wasteland into a great farmland.

From my own recollections, it was not easy dealing with governments over drainage issues, but they played a vital role, despite recurring budget difficulties. Time and again governments were willing to subsidise or carry out drainage works. One wonders how the drainage infrastructure could have been created without the government involvement.

Mr Gibbons deserves congratulations on a work which will be of great interest to present residents of the Rangitaiki Plains, and to the descendants of the pioneers. This meticulous detailed work will also prove a useful building block for more general histories. I hope that he will continue his research in other aspects of the history of the district.

Ian McLean, M.P.

## INTRODUCTION

The Rangitaiki swamp was a large area surrounding the Rangitaiki and Tarawera Rivers in the Bay of Plenty. When survey for settlement began in 1890 the area was a roadless wilderness of flax, raupo, manuka, wai wai and other swamp vegetation. The land, it was thought, would be fertile if it could be drained, and drainage merely awaited men with capital and determination. These views were held by surveyors, prospective settlers, the Auckland Land Board and by newspaper editors, and perhaps by the government of the day.

Since the arrival of Europeans in any numbers in this area there had been no major floods. Even Maori recollections of a flood in 1868 were vague and the implications uncertain. In 1891, when the swamp was offered for settlement, it was considered that a few drains would soon turn the district into a vast grain growing area. In Special Settlements the practice was to offer 200-acre blocks for selection. On the Rangitaiki local opinion was that larger blocks of 500-acres would invite settlers with more private capital who would very soon tame the swamp. The government agreed and the major portion of the area was surveyed for the 500-acre selections.

In July 1892 a deluge caused flooding of mammoth proportions. The swamp was so filled with water that for several years the area had the appearance of an inland lake behind the coastal sandhills. Although the initial settlers persisted in their efforts, dewatering the swamp was clearly beyond private means and beyond the means of a drainage board which had no access to public funds.

After 1900 a further attempt by a reconstituted drainage board with some access to borrowed finance was likewise unsuccessful: the board was unable to undertake the necessary key work which was essential for success. Without a quick disposal of the waters of the Rangitaiki to the sea, the land could not produce an income to support the borrowing; nor did the board have control over Crown Lands and Native Land, a vital requisite for the successful prosecution of any drainage proposals. Board control was therefore confined to such sections as were taken up.

When it became clear that the resources of the settlers were insufficient, the government took over the drainage of the entire area of 87,100 acres. The works took much longer and cost much more than was originally anticipated. Such delays and costs led to settler dissatisfaction and settler demands for local control. Successive governments resisted these demands until 1956 when the Rangitaiki Land Drainage Act restored settler control.

It was much easier to criticise than to perform. Many years were to pass before the third board became an efficient organisation. By the time it came to fully comprehend the complexities of operating and extending a drainage system the board was faced with the realities of regional government reform which eventually saw its dissolution in 1989.

Drainage on the swamp, which appeared relatively simple in 1890 when there was adequate fall, was made immeasurably more complicated when subsidence began, and continued with varying degrees of settlement depending on the depth of the underlying peat beds. This natural rate of subsidence was aggravated by subterranean subsidence over a wide area of the Whakatane graben in the earthquake of 2 March 1987.

Flood control was a major problem in preventing the intrusion of alien water on the swamp. Flood control passed to the Catchment Commission in 1963. Earthquake restoration work was carried out by the Bay of Plenty Earthquake Restoration Committee on which the Rangitaiki Drainage Board had representation. The works of the Catchment Board and the Adverse Events Committee are told separately and do not form part of the drainage story.

Readers will become aware of some sort of time structure in the manner of settlement. The first tier group included Johnathan Brown, Joseph Warbrick, Strachan, W. A. Murray, James Prebble, Hayward, Fergusson and Edward Gill. The second tier included R. E. Grieve, J. C. Grieve, Thomas Seccombe, George Murray, W. B. Gow, John Motion, W. G. Platt, G. S. Reid and C. F. Reid. The third tier came after 1910 and before 1925. These included William McCracken, David Martin, C. J. Luxton, J. W. Sumner, A. M. Feist, W. T. Law, S. C. Spence, E. C. Haultain, Alfred Sheat, Colebrooks, Alex McLean and I. M. Withy. Amongst this latter group were young returned servicemen of World War I. In time these became the leaders who advocated local control, and by the time they got it they had become the old men of the 1950s and 1960s. Following the Second World War there was a new influx of young men which included the Dutch immigrants. Of these people Tony Pansier and Bert van Beek became members of the drainage board. The most recent influx of settlers was that occasioned by the popularity of horticulture during the late 1970s and 1980s.

On the swamp in the early days there was minimal roading. There was a narrow cart track from Matata to Te Teko, constructed by the military forces. In an endeavour to shorten the travelling distance between those two settlements, the Military Road was constructed across the Tinitoroa (Tengaroa) swamp. A partially formed track existed between Matata and Whakatane along the sandhills. There was a road of sorts from Whakatane to Te Teko but it was not formed all the way and in any case was often impassable because of water and the depth of peat in the peat basins. There was a track across the swamp from Te Teko towards Rotoma. When James Baber began his survey in 1890 he laid off most of the road lines but it was to be many years before any road formation was carried out. From the beginning of settlement, therefore, location on the swamp was always indicated by section numbers rather than roads. When the Lands Department took over the drainage, the engineers and surveyors found that using section numbers was a convenient method of identifying locations. That method has been followed in this book. Readers should consult the map detailing the location of each section.

Because communications were an integral part of the drainage work carried out at public expense, it was considered prudent to include a chapter on roads, bridges and the railway. These works were not separate and apart from drainage but a necessary element in making the land fit for settlement. Likewise, a chapter on on-farm drainage and the growth of farming reveals how the potential of the swamp was realised. On-farm drainage followed many patterns depending on the size of the farm, its location, the nature and rapidity of subsidence and the whims of individual landholders. In the event many farms, or combinations of farms, lost gravity drainage completely and had eventually to resort to mechanical means of removing water to keep the land productive. There is opportunity for much more detailed study of selected areas of on-farm drainage.

While the drainage system must be regarded as a credit to the government which carried it out and maintained it at taxpayer expense the input of capital and labour by individual settlers should be recognised for the considerable contribution to a successful enterprise. The

Rangitaiki swamp spawned a great dairying industry in the district which in turn materially assisted Whakatane to become the thriving provincial town that it is.

The successful drainage of the Rangitaiki swamp has been a long road, but one worth travelling. It is unfortunate that such a long period elapsed before an attempt was made to record the century of endeavour. It is to the credit of the late Drainage Board that it resolved to have the omission corrected and the story made available for public scrutiny. This book is a memorial to the board, and to the host of toilers in drainage and settlement who have gone before.

## ACKNOWLEDGEMENTS

In seeking out material for this book I have had assistance from a variety of people in many places. I tender them my thanks. Anton van der Wouden of the Whakatane Museum has been of great assistance in offering his knowledge of where to locate the sources and in seeking out photographs, and when he was free to do so actually assisted me with research.

Tiena Jordan, Errol Westgate, Lilian Jordan, and Janet Maunsell of the Museum have located information which was relevant and assisted me to locate files. These people borrowed copies of the New Zealand Gazette from Opotiki primarily to assist my research.

Peter Gibbons of Waikato University and Joan, provided me with hospitality in Hamilton on a number of occasions. Peter assisted me in locating research material in the University Library. By asking the relevant questions he directed me into the areas of research which might otherwise have been overlooked. He read and commented on the first draft. For the Board he acquired an extensive range of photographs of drainage operations. The Massey University Library provided the microfilm of the New Zealand Herald and the reading facilities.

The staff of Survey and Lands in Hamilton sought out maps and copied them for me. Alexander Turnbull Library and the National Library staffs were most co-operative in seeking information from sources held in those libraries. At the level of both written correspondence and personal attendance the Auckland office of National Archives was of the utmost assistance. Archivists at National Archives, Wellington, located files on the period up to 1910.

A good measure of assistance in many ways was provided by Lindsay Henderson and Gaynor Hyde of which I was most appreciative. Some considerable number of people assisted me by way of conversation and in some cases by locating material for me. In this respect I would like to mention Keith Channon, David Martin, John Hawken, Ken Colebrook, Dick Colebrook, Eric Ramson, Bill Orr, Margaret MacDonald, Greg Pemberton, Harold Jenks, George Davis, Frank Wright, Ken Berry and Ian McLean. David Dowd's generous assistance was most helpful.

The story had to be typed, and for this work I commend Pat and Rosemary for no mean effort. A measure of onerous proof reading eventually devolved on them too.

Finally, I thank Peter Haarhaus of BCC Computers, for his generosity in providing a laser printed copy of the text.

30 July 1990.

W. G.

## GLOSSARY

Acre	- 10 square chains or 0.405 hectares. 1 hectare = 2.45 acres.
Aquifer	- a porous layer of subterranean pumice through which water seeps at an accelerated rate.
Blow-out	- the collapse of a retaining stopbank caused by hydraulic pressure. The most notable local example was the blow-out at Reynolds in 1962.
Chain	- 22 yards. 1 yard = 0.914 metres.
Coastal Progradation -	the intrusion of the land into the sea either gradually or by discernible stages. May be caused by alluvial deposits or by airborne volcanic deposits or by both in combination.
Cumecs	- cubic metres of flow per second. To change cumecs to cusecs multiply by 35.3.
Cusecs	- cubic feet of flow per second. 35.3 cusecs equals one cumec.
Fall	- the amount of height decrease from a higher point to a lower point.
Fascines	- wood laid in wet ground to give a foundation for roading. On the Rangitaiki swamp it was usual to utilise manuka.
Freeboard	- the height of drain banks above the flow of water. At the point where freeboard was lost through flood, siltation or subsidence water-over topped the banks and invaded the surrounding land.
Fresh	- a rise in river levels of less than a flood volume.
Graben	- an area of land subject to subsidence as a result of geological processes, usually occasioned by earthquake.
Heaving	- instability and movement of the land surface caused by the raising of hydraulic pressure, particularly in the peat basins.
Hydraulic pressure	- the force exerted by water at a higher level than the surrounding land.
Infill	- alluvial deposits left from flooding which in the process of thousands of years built up low areas of the land behind the sandhills.
Lifting	- a term frequently used by Lands Department engineers. It referred to the upwards movement of the bottom of canals when the raw wet peat was dredged out and placed on the banks, thus causing subsidence by weight. When walking dredges were employed lifting became a major problem because of the added weight of the machines on the banks. Lifting was almost entirely confined to the Kopeopeo and Te Rahu Canals.
Mile	- 80 chains or 1760 yards = 1.61 kilometres. 1 kilometre = 0.621 miles.
Outfall	- another name for a large drain which takes water from higher land to a major outlet.
Pontoon pond	- a pond of water artificially maintained so as to float the

Pound (currency)	<p>pontoon carrying a dredge.</p> <ul style="list-style-type: none"> <li>- one pound (£) was valued at two dollars when decimal currency was introduced in July 1967. £1 = 20/- (shillings)</li> <li>1/- = 12 pence (d).</li> </ul>
Revetment	<ul style="list-style-type: none"> <li>- a retaining wall for protecting river banks.</li> </ul>
Siltation	<ul style="list-style-type: none"> <li>- silt carried down from the hills which lodged in the uneven beds of drains and quickly built up obstructions which caused the loss of freeboard. Siltation was most evident in the Awakaponga and Te Rahu-Mangaroa Canals.</li> </ul>
Soilcon	<ul style="list-style-type: none"> <li>- an abbreviation for Soil Conservation and Rivers Control Council.</li> </ul>
Subsidence	<ul style="list-style-type: none"> <li>- settlement of the land due to shrinkage caused by the removal of water and drying out of peat, or by earth movement as the result of earth tremors. A foot of peat dries out to become an inch of soil. Once dried it will not expand.</li> </ul>
Taking up fall	<ul style="list-style-type: none"> <li>- excavating a drain to the maximum depth that it will continue to flow towards an outlet.</li> </ul>
Thirds	<ul style="list-style-type: none"> <li>- a portion of county rates set aside by law for roading and bridging purposes. Rates collected from individuals were required to be spent adjacent to their holdings.</li> </ul>
Yard	<ul style="list-style-type: none"> <li>- 36 inches or 0.914 metres.</li> </ul>

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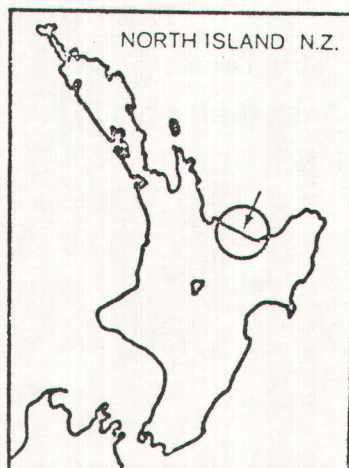
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Locality Map.

## PART ONE

### CHAPTER I

#### THE RANGITAIKI: GEOLOGY AND SOILS

The Rangitaiki Plains, as the area is known today, is in the Bay of Plenty region. It is bounded by Whakatane to the east, Matata to the west and reaches inland towards Kawerau. The area is within the Taupo Volcanic zone, which extends from Mt. Ruapehu to beyond White Island.

A brief description of the geology of the area should be of assistance in an understanding of the district and subsequently of the effects the geology had, and continues to have, on the drainage. The plains lie within the Whakatane graben, a geological feature of the volcanic zone.

The Whakatane graben is located where the coast is intersected by the volcanic zone. Geological investigation suggests that the graben is subsiding at 2 mm to 3 mm a year, while the hills to both the east and the west are being forced upwards some indeterminate millimetres each year. <sup>(1)</sup> In addition to this subsidence and uplift, the land surface within the graben was extended at a steady rate of 7 mm a year over a forty year period prior to 1987, according to geodetic surveys. <sup>(2)</sup> Further evidence of the uplift and subsidence has been provided by the discovery of marine fossils both in the hills surrounding the graben and in bore holes drilled within the graben. The marine sand of the district is overlain by volcanic ash deposits from the Taupo, Kaharoa and Tarawera eruptions.

Subsidence of the foundation sedimentary greywacke rock about 200 million years ago allowed the sea to invade the northern part of the graben. <sup>(3)</sup> There is evidence, in the eastern area, that about six thousand years ago the coastline was nine kilometres further inland than it is now. Progradation followed after each major volcanic eruption, the ash from each of these volcanic phases pushing the coastline northwards into the bay. <sup>(4)</sup> In the southern part of the plains ignimbrite overlays the basic greywacke, and this has been covered by pumiceous material from subsequent eruptions. <sup>(5)</sup>

Extensive and detailed geological investigation followed the Edgecumbe earthquake of 2 March 1987. Since that time there has been available a much clearer picture of the Whakatane graben and its behaviour in geological times, which was denied to earlier researchers.

Three major rivers intersect the plains. To the east the Whakatane River flows close to the eastern hills and directly to the sea. In the west the Tarawera, which rises from Lake Tarawera, enters the sea near Matata. The most significant of the three, the Rangitaiki River, meanders across the plains to enter the sea at Thornton. These are the river courses today. One hundred years ago it was vastly different. The Rangitaiki then had no mouth of its own. About three miles from the sea one branch of the Rangitaiki River, the Orini, flowed eastward and joined the Whakatane River. Another branch, the Awaiti, from a mile further upstream, flowed westward to join the Tarawera. The Awaiti was joined by the

Awaiti-Paku, a tributary of the Tarawera. The Rangitaiki River itself flowed westward to join the Tarawera and Awaiti River, and the combined waters of these rivers were called the Te Awa O Te Atua, which flowed along the foreshore behind the sand dunes to enter the sea at the western end of Matata.

The Whakatane River, rising in the Ureweras, carried shingle from the weathered greywacke. It had a well defined channel and only in flood times did it break out westwards from Rewatu and Poroporo and spread its waters into the Te Rahu basin to meet the surging waters of the Rangitaiki flood flowing eastward into the basin. The Tarawera River had a small catchment area and did not cause severe flooding until after 1904. But the Rangitaiki River had a large catchment area which included the hills to the east of Lake Taupo, and it also received water from the Ureweras via the considerable Whirinaki, Horomanga and Waiohau Rivers.

The Tarawera and Rangitaiki Rivers were, and are, perching rivers. That means they flow through channels built up by their own flood deposits of pumice and silt. In each case the normal level of water in the rivers below Te Teko is above the level of the surrounding land. In their natural state, the flood waters of these two rivers poured over their banks and inundated the surrounding land. The soil patterns of the area were based on the infill of pumiceous material, carried and deposited by a partially imprisoned river system. Infilling, swamp growth, subsidence and more infill behind the coastal sand dunes was a continuing process for thousands of centuries. The material deposited by the rivers was supplemented by a number of airborne volcanic ash showers, the most readily noticeable and easily accessible near-surface strata being the deposits of the Kaharoa showers of about 800 years ago. <sup>(6)</sup>

At some remote time in the past the swamp area had been heavily forested. The trunks of huge trees were found in plenty just below the surface when drainage began. In many areas the stumps protruded well above the ground and more appeared as the subsidence went on. In March 1987 submerged stumps appeared in the Rangitaiki River at Kokohinau, near Edgecumbe, when the land slumped during the earthquake. Drainage operations were frequently delayed by logs and stumps. In their reports engineers invariably emphasised the problems with the buried timber and the need to use explosives. Those who drilled for water, or for other reasons, usually found buried trees, sometimes as far down as 100 ft or more.

Most of the plains had layers of peat. The peat basins were particularly deep in the eastern area from the Te Rahu basin towards Luxton's Valley, in the low lying areas between the sand ridges from Te Rahu to the coastal dunes, in the Thornton West area, at Awakaponga, and along the Omeheu.

Several considerable streams from the surrounding hills added to the water on the swamp. The most significant of these streams were the Waioho, Otarere, Mangaroa, Te Rahu, Whakaire, Ngakauroa and Waiwhero on the east of the Rangitaiki. The latter two entered the Rangitaiki directly; the Waioho, Otarere, Mangaroa, and the double Te Rahu Stream entered the Whakatane River as the Poroporo Creek; and the Whakaire entered the Orini. To the west of the Rangitaiki River the Omeheu bisected the area between the Rangitaiki and Tarawera Rivers and flowed into the Awaiti. On the western side of the Tarawera, the Awakaponga, Waikamihi, Karaponga, Mangowhiki and Mangaone Streams flowed directly



into that river.

Vegetation on the swamp was raupo, wai-wai, niggerhead, flax, and tea-tree on the sand ridges along with occasional cabbage trees. Willows grew abundantly along the banks of the rivers and streams. It was a particularly uninviting area, of little use to either Maori or European. The only method of transport was by canoe. North of Kokohinau the Maori avoided gardening on the river banks because of the danger of flooding.

The area known as the Rangitaiki Swamp was not altogether unknown to Europeans before the 1890s for military forces had been present since 1865, but they had either used the sandhills to reach Whakatane, or the foothills and higher land to reach Te Teko and beyond to Galatea. Auguste Comte, a Marist priest stationed at Opotiki, in 1843 had been paddled from Whakatane to Te Teko across a sea of inland water. <sup>(7)</sup>

Toward the end of the 1880s there was pressure on New Zealand politicians to find more lands for settlement in the colony. In some quarters development of swamp lands was looked on favourably. The Rangitaiki Swamp appealed as a likely source of fertile farming land. In 1890 the Lands Department decided to send a surveyor to lay off sections. The Bay of Plenty area had already been surveyed to determine the confiscation line, but prior to 1890 no surveyor had yet set foot on the swamp itself.

#### REFERENCES

- (1) *Nairn and Beanland*
- (2) *Nairn and Beanland, quoting Sissons (1979)*
- (3) *BOPCC Rangitaiki Scheme*
- (4) *Pullar and Selby 1971*
- (5) *Nairn and Beanland*
- (6) *Pullar and Selby*
- (7) *August Comte - Travels in N.Z.*



The new swamp. A small portion of the wildlife reserve at the lower end of Section 109 Canal. The reserve probably gives some indication of how the undrained plains looked.

## CHAPTER II

### SURVEY SETTLEMENT AND THE FIRST DRAINAGE BOARD: 1890-1900

James Baber, junior, was appointed as government surveyor with the Lands Department at Tauranga in 1889. To Baber fell the task of surveying the Rangitaiki Swamp for sections. Some Whakatane people were of the opinion that the sections should be large enough to entice people with capital to begin drainage works. The Bay of Plenty Times considered that if the sections were too small the selectors would have little capital, which would serve only to keep bona fide capitalists off the land. Men of little capital would do themselves no good, and be able to achieve no significant drainage on their own. The swamp was drier in 1890 than in previous years and did not appear difficult to drain, although there was some concern that buried timber could cause problems with drainage. It was considered that there was a good fall on the swamp with a river running through the block which would provide a good outlet for drains. <sup>(1)</sup>

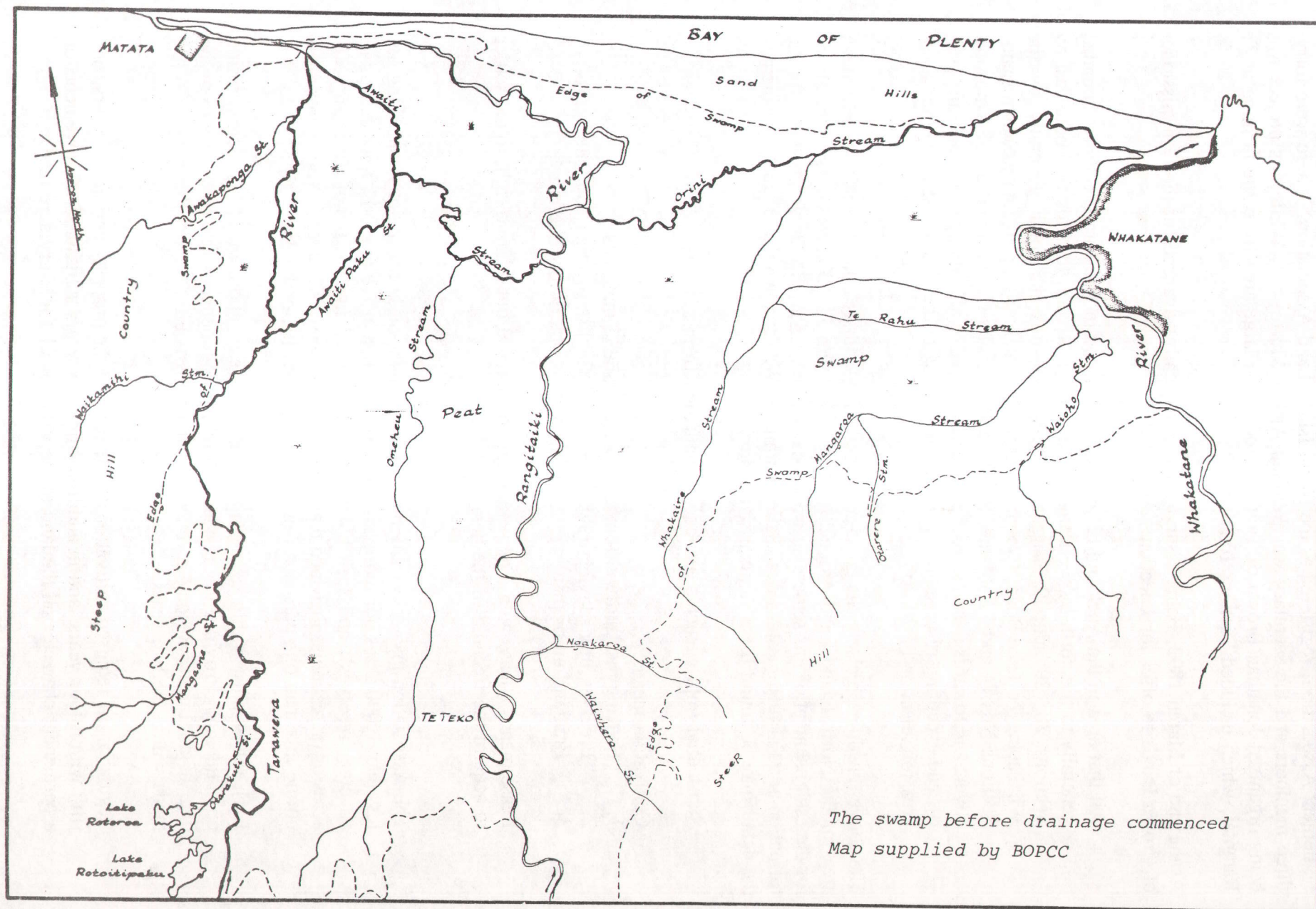
Baber went to Matata to begin the survey in May 1890. <sup>(2)</sup> No doubt the visit was to make preliminary arrangements. At that time it had not been decided whether the blocks would be the normal 200 acres, or larger blocks.

Later in the year, T. K. Thompson's party set off to join Baber's survey. With Thompson were Davis, Ansley and Ridings. Already with Baber were Hoyte and Harry Lundius. Their gear had been taken by the vessel Douglas on her maiden trip. A clatter of hoofprints marked the departure of Thompson's group. <sup>(3)</sup> Baber must have been back and forth making the necessary arrangements for on 17 November it was reported Baber's party had left for Matata. If he returned the following day it was to gather the party and some of his equipment for his departure on 19 November, as was again recorded in the press:

At the early hour of two this morning the sound of rapid galloping through our streets told to those who were awake or awakened of the departure of another survey party overland for Matata. This party consists of Messrs Baber (surveyor), Lundius and Hoyte. The first instalment of this party proceeded to the scene of action some days ago. They are, like Mr Thompson's party, to be engaged cutting up blocks near Matata, preliminary to their being offered for selection. <sup>(4)</sup>

Early in 1891 The Times reported Baber was to survey 40,000 acres between Te Teko and the Orini River. It was reported cattle could cross this land since the eruption of 1886. <sup>(5)</sup> Since the depth of ash was from two to six inches it was more likely the swamp was drier from absence of rainfall and floods than it was from increased deposits of ash. It was Thompson and his party who actually surveyed the blocks on the eastern side of the swamp, including the reserved land for natives. Baber, it might be assumed, was busy on the western area of the swamp. The government decision to opt for 500-acre sections instead of the usual 200 acres had already been communicated to them.

Francis Benjamin Greenup, from Canterbury, first saw the swamp when in 1891 he arrived by the SS Ohau at Whakatane to look at the land with a view to taking it up. <sup>(6)</sup> He spent eleven days inspecting the area, which at the time was relatively dry. <sup>(7)</sup> The possibilities impressed him and he carried cheerful reports of the prospects back to Canterbury where he



interested a group of would-be settlers. A small band of these men formed a Special Settlement Association, registered as the North Island Land Association. There were forty-three members and the secretary was William Arthur Murray. <sup>(8)</sup> While this project was being organised Jonathan Brown of Tauranga took up a large area for cattle farming at Te Rangitai, which included Sections 108, 109 and 110.

At the end of March 1892, Baber's survey was sufficiently advanced for the Commissioner of Crown Lands to offer for selection:

All that area in the Auckland Land District, situated in Whakatane County, bounded generally to the north by the Rangitaiki and Orini Rivers; towards the south-east by Sections 28, 29 and 30 Rangitaiki Parish; towards the south generally by the Whakatane-Te Teko Road, Crown Land, the Rangitaiki River, again by Crown Land, Sections Nos 74 and 73, Matata Parish, and again by Crown Land to the Tarawera River; and towards the west by that river: exclusive of all sold land and land disposed of, and excepting reserves for roads, education, and other purposes: containing a net area for selection of 20,000 acres. <sup>(9)</sup>

The above schedule precisely fits the description of the land set aside as a special settlement area for the North Island Land Association. The area was 21,600 acres. The regulations for the establishment of this settlement were gazetted on 14 April 1892: 'Regulations for the formation of a Farm Homestead Association within the Whakatane Swamp Lands'. Amongst the detail may be found these summarised conditions:

Substantial improvements: includes reclamation from swamps.

Cultivation means:

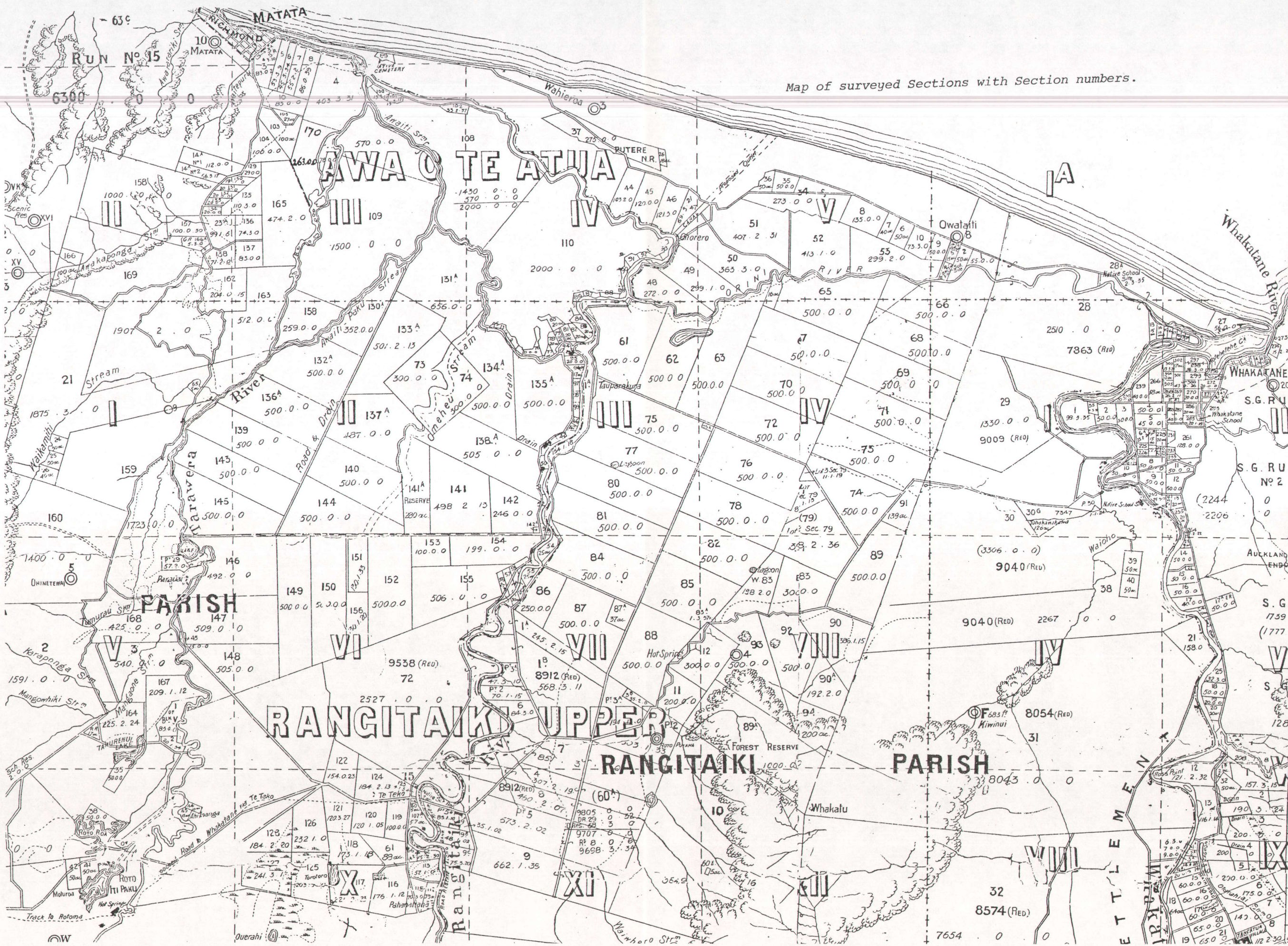
1. Fencing the land with timber or other durable materials
2. Breaking up or laying down the same in English or other cultivated grass or
3. Breaking up or planting or sowing root or other crops therein.

Lease means a lease with a perpetual right of renewal but with no right to the settler to acquire the freehold of the land.

The Association may select any block of land under these regulations containing not less than 1,000 acres nor more than 20,000 acres (exclusive of roads, townships, and all other reserves); and such block will be surveyed into areas not exceeding 500 acres or thereabouts; Provided that the number of persons located in each block shall not be less than one person for every 500 acres of its total area.

Each settler must within six months from the date of allotment of his section reside upon the land; Provided that residence need not commence within two years from the date of allotment, so long as the improvements required under Regulation 14 are made within the two years.

Regulation 14 required cultivation of one tenth of the property within two years, one fifth within four years, and in addition within six years substantial improvements of a permanent character on the land to the value of £1 for every acre held. <sup>(10)</sup>



Although stringent, these conditions may have appeared reasonable for a swamp which, for five or six years at least, had been comparatively dry. The vanguard of the Canterbury settlers arrived early in April 1892 to take up their allotments. <sup>(11)</sup> There was some delay in completing the final details of the survey and in the event they were not able to take up their leases until 9 September. In the meantime they were able to make a further inspection of the area. It was emphasised by the Bay of Plenty Times that the Canterbury Lands Association group was a co-operative and not speculators and that they sought to drain the land and then farm it themselves. <sup>(12)</sup> Speculators were not welcome because they did little other than hold land until rising land values encouraged them to sell at a profit.

Presumably these Canterbury men returned to the South Island until they could legally take up their leases. If so, they were absent when the massive floods of 1892 inundated the Bay of Plenty in several locations between Te Puke and Opotiki and inland to Te Whaiti. <sup>(13)</sup> Not only did the swamp become totally wet and waterlogged but large areas were beyond access except by boat, and, what was worse, the rain continued and the inclement conditions were prevalent until well into 1893. The Canterbury settlers were forced by circumstances beyond their control, to abandon the swamp settlement in the meantime because there was no way they could get on to their sections, let alone begin a drainage programme. <sup>(14)</sup>

The immediate effect of such a disaster overtaking a new and promising settlement encouraged interested parties to offer solutions. It was apparent that the waters of the Rangitaiki would have to be given a more satisfactory exit to the sea. There were two schools of thought as to how this might be best achieved. The first was to open a mouth for the Te Awa O Te Atua at Te Rangitai; the second was to cut a new channel for the Rangitaiki at Okorero straight to the sea where it now took a sharp left turn and flowed westward behind the sandhills towards Matata. Jonathan Brown, who had taken up Sections 108, 109 and 110, favoured the former solution, which he obviously thought would lower the water on his large holding. The Auckland Star had some sympathy for the misfortunes of the Canterbury settlers and it too took up a bold stance, supporting the opening of an outlet at Te Rangitai.

Whilst we regret to learn that so many of the enterprising settlers of the Canterbury Association have for the present abandoned this swamp land, we cannot blame them, for under present conditions it is impossible for private energy to succeed. Indeed, we think that nothing but hard work is before them, with ruin in the end .... Our proposal is to follow nature's lead, and turn the united rivers through the ancient opening opposite the village of Rangitai. This opening is about one hundred and fifty yards wide, and a few feet above high water mark. By cutting a channel from low water mark, a few yards wide, through this ancient opening, and continuing to the neighbourhood of the islands near the point where the river takes its westerly course, the sea and the river between them would very soon make the channel one hundred and fifty yards wide with a probable depth of ten feet at the entrance at high water .... This simple work can be done at very small cost and besides rendering available 100,000 acres of most fertile land would make Matata Harbour one of the best in the Bay of Plenty for steamers drawing ten feet. We direct the attention of the Government to this important work, and urge upon them the necessity of promptly sending an engineer to take the necessary levels and to commence the work without delay. <sup>(15)</sup>

Without doubt there was widespread discussion at the time. One Whakatane resident, who claimed he had lived some years in the neighbourhood, passed his views on to the Bay of Plenty Times. He expressed caution about the second school of thought, the idea of cutting a channel from the Okorero bend direct to the sea.

He observed that the Rangitaiki River frequently flooded the swamp. Whether the new proposed channel at Okorero would have the effect of lowering the Rangitaiki above this point by scouring out gravel was, he thought, one that experts must report upon. Unless such a cut scoured the channel he could not see how a drainage outfall could be fed into the river. Moreover, he said:

the river possesses the peculiarity of being higher than the surrounding land; the river course is a groove on the top of a ridge of gravel. This gravel has been washed down in former times from the upper reaches of the Rangitaiki .... The swamp in question has always, until the last few years, been considered an irreclaimable waste. The Whakatane-Te Teko road which runs along the margin was begun in 1874, and has never been free from water, lodged on both sides of it. <sup>(16)</sup>

The observations of this correspondent were as right as those of the Auckland Star. Guesswork was all very well but what was required was an engineer's report. The Lands Department had spent considerable time, effort and money on the survey and the allocation of sections and was already aware that a successful settlement demanded some action to make drainage possible otherwise all would be lost. To the government's credit it took immediate measures to have the situation expertly assessed. In July 1893 Arthur B. Wright of the Engineering Staff of the Lands Department, who had been promoted to the rank of Road Surveyor, was appointed to visit Matata to investigate the possibility of a cut through the sandhills to the east of that settlement, at Te Rangitai. <sup>(17)</sup> From this report it appears that both the Auckland Star and Bay of Plenty Times were ready to accept the viability of the Te Rangitai Outlet, and that Jonathan Brown was the settler who was seeking early relief for his lands near that projected outlet. Wright however must have been given a wider instruction to investigate the alternative outlet at Okorero. His report was published in the Bay of Plenty Times on 27 September 1893. The report had such significance for the later drainage of the swamp that it is here reproduced verbatim, together with the introductory comment of the Times. That such a concise and lucid report could be produced in the conditions prevailing at the time is a measure in itself of Wright's ability.

#### Surveyor's Report: A. B. Wright

The following report on the above has been sent to the Chief Surveyor, Auckland, by Mr A. B. Wright, Surveyor. Accompanying the copy which has reached us, is a lithograph map explanatory of the report. As we cannot reproduce this map, we may state that the two lines AB and CD referred to are drawn from the River Rangitaiki to the sea; the former AB starts at the little island, two miles above Matata close to the junction with the Tarawera River. The line CD starts at the sharp bend of the Rangitaiki nearly halfway to Whakatane and something over a mile north of where the Orini branches from it towards that place. The report runs as follows:

According to your verbal instructions I have been over the Whakatane Swamp with the object of seeing as to the best scheme for its drainage. On arrival at Matata I

found that the water in the swamp was much higher than it had been for several years, and that to take the levels across it would have been utterly impossible. I took the levels as best I could across the swamps from the Rangitaiki River to the beach, from A to B, an old opening of the river, and C to D, see attached litho: and found at A to B a distance of about eight chains, the levels taken at half-tide, that the water in the Rangitaiki was the same level as the high water mark, and taking the rise and fall of the tide, say at 5 ft, that the bed of the river would be 3 ft 6 ins lower than low water mark. I took these levels because one proposition mooted in the papers for the drainage of the swamp was the re-opening of this mouth. But from what I have seen and the short distance this opening would be from the present outlet, I do not think the idea worth considering.

The levels from C to D I found as follows: that the water in the Rangitaiki at C was about 7 ft 1 in, above high water mark, and therefore taking the rise and fall of the tide at 5 ft would be 12 ft 1 in, above low water mark. The depth of the water in the Rangitaiki at C was 9 ft 8 ins so that the bottom of the river is 2 ft 5 ins above low water. After having taken these levels, I went to Whakatane and from there, where possible, over the swamp and on to Te Teko and coursed down the Rangitaiki and Orini back to Whakatane.

The swamp seems to be formed by an alluvial deposit of pumice sand with a top crust of from 6 ins to 2 ins of volcanic soil from the late Tarawera eruption covered with a vegetation of rapu (sic), wi-wi, and tea tree (sic) clumps on the higher grounds.

From my own observation and from what I am told I do not think there are any springs in the swamp but the water now on it is the drainage water from the surrounding hills and overflow of the water of the river which cannot find exit quick enough to the sea. The Rangitaiki River has low banks especially at the lower end and in times of heavy freshes the water overflows into the adjacent flats; for like all New Zealand rivers the banks of the river are considerably higher than the adjacent flats.

Several willow branches which have broken off the trees, have lodged near the centre of the river and there taken root, and are now forming sandbanks, and consequently impeding the flow of the waters; between A and C there are two old Maori eel-weirs, but beyond seeing the ripple caused by the higher stakes and the apparently more rapid flow of the water, I should not have known of their being there unless told, as they were entirely submerged in the river, which as before stated was in high flood.

The Orini River, which has a very tortuous course is very much blocked by the growth of willows there being places not more than 30 ft wide between the willows while the average width of the stream seemed to be over one chain. Bunches of overhanging willows have been cut where they impeded the passage of boats and canoes and not having been taken out have simply sunk in the mire and again started to grow, so that shortly the river will be entirely blocked.

The most feasible plan of lowering the water, seems to me to cut a new water way between C and D; this I think would lower the water in the river 5 ft at least and would probably drain the lower portions of the swamp on the Whakatane side and the

lands adjacent to the Rangitaiki River. The difficulty will be in keeping the new mouth open, for in summer where the volume of water is much less than it is at present a north-easterly gale may bank the mouth of the river up and the water not being of sufficient quantity to again burst through the sand, will have a tendency to resume its old course. It would therefore be necessary to construct and keep the river as much as possible to again form banks for itself through the low-lying lands through which it will have to flow, and to concentrate all the water available and make it flow into the Rangitaiki and out at the new opening. By reference to my litho attached you will see how I would propose to thus concentrate the water. To form the present Whakatane-Te Teko Road, it will be necessary to make a drain along its upper, or hill side, which now flows on the swamp from the hills on the east side of the Rangitaiki River. Considering the nature of the soil in the swamp, it would be to advantage of the settlers, especially at the upper end for purposes of irrigation to have the water flowing through their land instead of leading it away to the Whakatane Harbour. On the west side of the river there was too much water to permit of my going on the land, but I think that by some such scheme as shown on the litho the water can be made to flow in the Rangitaiki.

The cut through between C and D. From the near bank of the Rangitaiki there is at present a small stream, running almost parallel with the road which flows into a swamp at the north end of Section 47, then there are a succession of swamps divided by low sand banks till within about  $\frac{1}{4}$  mile from the coast, where the sand begins. By following the low saddle and making use of all the low-lying places, which would not much necessitate going out of the direct line, the size of the cuttings would be reduced, and consequently the price of the construction of the proposed outlet.

If once the water was allowed to flow from one swamp after another till the river was reached, a considerable amount of the work could be done by the water itself. Wattle fences secured by wire might be made in the swamps so as to let the river accumulate sand against them and thus form a bank. It would perhaps be advisable to make some retaining works just at the outlet and prevent the water from spreading, and thus lose its power of forcing through any accumulation of sand that might be formed by a gale.

I am told that the Opotiki River which flows through much the same class of country does not alter within the sandhills but only on the beach, and if that is the case, the proposed outlet with such a volume of water as that of the Rangitaiki ought to keep open.

Besides the question of keeping the new waterway open, there will be the question for settlement of the riparian rights of the various settlers.

A. B. Wright Road Surveyor.

Rough estimate of the cost of construction of new outlet C to D will be about £2,000.  
(18)

Wright, it appears, had made his conclusions known verbally in the course of his work, or maybe he employed local assistants who reported his findings, for the Bay of Plenty Times, ever ready to advance the cause of the Bay of Plenty, reported in August that Whakatane people expected a good measure of government expenditure very soon to make a further

large area of the swamp ready for settlement in addition to that already taken up by the Canterbury people. Wright's views on the Okorero cut were reported to be the plan advocated in the Times itself. Further, the Whakatane people were looking for a bridge across that river, the best place for a crossing they believed being close to the farms of Major Swindley and Mr Chalmers, about a mile and a half above the port. <sup>(19)</sup> Wright's report had certainly raised some hopes from Tauranga to Whakatane.

That there was some anxiety about the delay in the Chief Surveyor releasing Wright's report is evident from a Matata correspondent who wrote:

We are anxiously looking forward to hear something more of the proposed outlet from the Rangitaiki River to the sea. This is all that is required to carry off the water and drain this vast swamp .... We have not heard anything definite as to when this outlet will be put through but have heard on good authority that some steps between the government and the several associations that have taken up a large area of the swamp [have been taken]. The government will then have 30,000 to 40,000 acres to throw open for intending settlers. If the channel was cut and a few snags removed in a couple of months a 100 ton steamer could reach Te Teko, and in two or three years it would take two or three such boats to carry away the maize and other produce this land would bring forth. <sup>(20)</sup>

It was evident that both the newspapers and the local people, including naturally enough the settlers, thought that events would move quickly: so rapidly in fact that the No. 2 Land Association on 25 October called tenders for the cutting of a drain five miles long from the Tarawera to the Rangitaiki River, ever hopeful to get enough fall to carry off the water. <sup>(21)</sup> Wright's report also had the effect of pushing aside the idea of an outlet at Te Rangitai, and of a proposal mooted by the Bay of Plenty Times in 1892 which suggested damming the Orini and thus creating a natural drain, and clearing the Rangitaiki of willows. <sup>(22)</sup> It is interesting to note that this 1892 proposal was resurrected and given effect to in 1901, at least as far as the Orini part of the suggestion went.

The anticipated talks between the government and the Canterbury settlers were not a matter of government assistance as such towards draining the swamp, but to encourage the settlers to find their own avenues through the Land Drainage Act of 1893, then about to become law. Joseph Warbrick had sought relief from arrears in August 1892. Floods had destroyed everything on his Sections 45, 46, 47 and 50. The Auckland Land Board informed him it could not remit arrears of rent but would accept the surrender of Section 50. <sup>(23)</sup> Eighteen months later Warbrick was still in trouble and applied for six months leave from residence as his sections were under water. The Land Board directed him to read the Land Drainage Act of 1893 and to pay the arrears of rent of £55-2-6 without delay. <sup>(24)</sup> The Act provided that on a petition from a majority of the ratepayers therein the Governor, by Order-in-Council, could constitute a drainage district. In July 1894 the settlers interested in forming a drainage board called a meeting at the Matata Hotel on 1 August. <sup>(25)</sup> The necessary petition was organised, the signatures collected and the petition forwarded. By Order-in-Council of 18 December 1894 the Rangitaiki Drainage District was constituted. <sup>(26)</sup> At the same time the Returning Officer, Charles Marshall Duckworth, was appointed, and the date of the first election of trustees, of whom there were to be five, fixed for 21 January 1895. <sup>(27)</sup> The Colonial Secretary's Office fixed the first meeting of the new Board for 25 February

1895 at 1.00 pm in the Town Hall, Whakatane. <sup>(28)</sup> Those elected were:

William Arthur Murray  
Joseph Astbury Warbrick  
E. P. Gill  
Frederick James Burt  
Joseph Hayward. <sup>(29)</sup>

The composition of the Board is interesting. Burt was a local landowner, being on Section 8, Matata. Warbrick was also a local man, having a large holding at Okorero: Sections 45, 46, 47, 50, 51, 52 and 53. Gill and Hayward were Canterbury men but had drawn sections on the edge of the swamp at Mangaroa, Gill being on Section 92 and Hayward on Section 93. Murray on Section 85 was the Secretary of the two special settlement associations. <sup>(30)</sup>

The North Island Association took up their holdings on the Lease-in-Perpetuity basis. Occupation of the allotted sections was progressive during the last three months of 1892 and throughout 1893. The settlers and the sections allotted were:

Prebble, James W.	Section	61
East, Frank L.		62
Seymour, Hugh		63
McDonald, K. J. and Whyte, W. G.		65
Thompson, Adolf		66
Seymour, S. B.		67
Thompson, Jno.		69
Thompson, H. M.		70
Anson, Geo. Ed. N.		71
Crowley, James		73
Thompson, R. P.		74
Templer, Jno.		75
Speight, Joseph		76
Kemp, Fred W.		77
Hayward, Joseph		78
Coates, Henry O.		79
Marley, George		80
Seymour, Chas. W.		81
Lord, John C.		82
Fergusson, H.A.C. (W and E)		83
Davies, Charles L.		84
Murray, W. A.		85
Lord, Jabez		86
Greenup, Fras. B.		87
Kemp, Samuel Ernest		88
McDougall, Edward G.		136A
Clive, James		137A
Hodgen, A.		138A
Hodgen, G.		139
Hodgen, W. H.		140
Lord, George C.		142

Gallagher, William	143
Leslie, Henry J. P.	144
Gill, Edward	145

Two other Canterbury settlers who were not members of the Association also took up the Leasehold-in-Perpetuity: they were:

Greenup, George	89
Speight, Benjamin	90 <sup>(31)</sup>

Sections 68 and 72 were not taken up at that time. Sections 92 and 93 were subsequently taken up by E. P. Gill (92) and Joseph Hayward (93). Section 91 was not offered in 1892. West of the Rangitaiki the cluster of sections immediately north of the Riverslea Road found favour.

North Island Land Association settlers obviously came with the knowledge that some drainage was necessary for proper management of their holdings. No doubt when they saw the aftermath of the great flood of July 1892 the prospect of breaking in their holdings was a most dismal one. Where previously drainage by constructing small drains had appeared feasible, they were, in August 1892, faced with a much more formidable dewatering task. The Rangitaiki and Orini were both running at a high level and spilling water across both the eastern and western parts of the swamp. Nevertheless the hopeful settlers proceeded to make plans which they hoped to put into execution immediately they took up their sections. A Whakatane report had this to say:

The weather for the past week has been very boisterous. By steamer there arrived several members of the Canterbury Land Association [the North Island Land Association] to begin operations on the large and extensive block of land in the Rangitaiki Parish, within easy distance of Whakatane and containing 20,000 acres of the finest land in the North Island. Main drains will be proceeded with immediately the weather takes up. Very heavy rains of late retarded progress. Two main drains are to be put through the interior of the block running parallel to each other north and south, a distance of one mile and a half apart. Dimensions of the drains are 10 ft x 8 x 3. Fall is given as 27½ ft. This will carry away all the water. Mr Lord and party will take the eastern drain contract beginning at Section 66 on the Orini, a navigable river. Messrs G. Anson, L. Davies and W. Graham will take up the western drain on the same river beginning at Section 65 on the property of K. McDonald. No permanent residence will follow for some time. £1000 is to be spent on draining this block in the first twelve months, to be subscribed by members of the C.L.A. at 1/- an acre. A call will be made every three months for 3d an acre. For Section 83 £500 has already been offered but the owner declined the sale with thanks. <sup>(32)</sup>

The plans were meritorious enough if the water could be got into the Orini. But the Orini remained high, as did the Rangitaiki so there was little chance of getting on to the land to dig drains. The rains continued and high river levels persisted throughout 1893 and thus led to the Lands Department seeking Wright's report.

It was not only the Canterbury settlers who were in trouble. Jonathan Brown on Sections 108, 109 and 110 asked the Auckland Land Board for his rent to be remitted owing to the

great loss the family had sustained through floods. He insisted that his case be brought before the government. <sup>(33)</sup> Two years later Brown wanted to surrender his holdings on account of continual floods and in exchange wished to select land for cash to the amount of the survey fee paid for the land he proposed to surrender. The Land Board was unmoved but decided to have the Commissioner of Crown Lands make an investigation. <sup>(34)</sup> In 1896 <sup>(35)</sup> Brown's sections were declared forfeit for non-compliance with the terms of his leasehold.

On Sections 51, 52 and 53, W. Strachan was also having problems with surplus water and was unable to make enough income to pay his way. His sections were forfeited in December 1894. <sup>(36)</sup> Patrick Fahey on Section 148 suffered the same fate. <sup>(37)</sup> Joseph Warbrick was sent a letter about the non-payment of his instalments of rent. <sup>(38)</sup> In reply he sought some relief from payment on account of the floods. The Land Board discussed forfeiture of his lease and decided to tell Warbrick that the Board could make no allowance for improvements since his debt was £20 greater than the value of the improvements. His arrears over five years were £91-17-6. <sup>(39)</sup> Warbrick however contrived to remain in occupation of his holdings and by 1901 to add Sections 51, 52 and 53.

Warbrick became a leading landholder in the drive for a drainage board, realising that concerted effort was the only method by which progress could be made. The limited efforts of Canterbury men with the eastern and western drains were not having much effect. The newly elected Board had no security to offer on which to borrow for drainage, and until they could get on to their sections there was no way they could make the necessary improvements. In fact they could not, or would not, pay their rent. <sup>(40)</sup>

James Prebble, threatened with forfeiture, explained to the Land Board why his Section 61 should not be forfeited. The Board accepted his story and adjourned his case for thirteen months provided he paid his arrears and made future payments on time. Henry Coates wrote to the Land Board to say he could not put up a house on his section until the water was disposed of. He was on Section 79. He was told to pay his arrears but given permission to reside off his land for one year. James Crowley, on his Section 73 advised the Land Board that he had spent £250 on his land and lost his health in the process. The Board advised him to try and dispose of his land. Forfeiture was delayed, to be considered again in July 1897. Crowley was also told that neither the Land Board nor the government would pay for improvements and had never done so. <sup>(41)</sup>

The settlers were in exceedingly difficult circumstances. They could not get on to their sections to drain them sufficiently to put up houses so if they were in residence they had to live in Whakatane or at Te Teko. Accommodation ate up their capital. If they were to carry out the drainage works themselves they had to get to the sites each day. That meant by boat along the Orini from Whakatane or by canoe from Te Teko since the swamp was far too deep and soft for horses. The alternative was to live in Canterbury and pay labour to dig the drains. The settlers faced a dilemma. James Crowley was not alone in his tribulations.

The first Drainage Board took up the drainage which had been commenced by the settlers who were constructing the eastern and western drains. To these were added the Eastern Boundary Drain along the eastern boundary of Sections 66 (A. Thompson), 68 (unoccupied), and 69 (Jno. Thompson); and the Rangitaiki Drain along the western boundary of Sections 61 (Jas Prebble) and 75 (Jno Templer). Warbrick's interests were similar to and as pressing

[illegible]

as those of the Canterbury men.

Financial restraints were a major problem. By statutory authority the Board could levy only a maximum rate of six farthings (1½d) in the £ on rateable value in the district. <sup>(42)</sup> Such a rate brought in little income, decidedly less than the North Island Land Association's levy on its members of 1/-an acre. From the latter levy each 500 acres would contribute £25. On a rate of 1½d Henry Coates on Section 79, with a rateable value of £400 would pay an annual rate of only £2-10-0, while James Clive on Section 137A, on a rateable value of £225 would pay rates of £1-8-0. On a rateable value of £137-10-0 on Sections 61, 62, 63, 65 and 66 the lessees would pay by way of rates only 18/4d each. In effect the maximum take from rates (if they were paid) that the Board could expect was £80.

There was provision in the 1893 Act for drainage boards to borrow from the bank by way of overdraft:

but the amount of such overdraft shall never at any time exceed in the aggregate at any one time the total amount of the ordinary income of the board for the year ending the thirty-first day of March previous. <sup>(43)</sup>

In an effort to make some progress the Canterbury settlers had approached the Land Board in 1893. They wanted relief from the annual rental and the construction of roads to facilitate access to their sections. They asked that they be given road work to the value of double the rent they were being charged. Rents were not high: Prebble was paying £5-10-0 per annum, Templer £8-10-0 and S. B. Seymour £6-10-0. The highest rental was that of £17-10-0, paid by John C. Lord on Section 82. But of course the settlers were not paying their rents so in effect they were asking for a subsidised remission. The Land Board informed the lessees that the provision of road work depended entirely on opportunities made by Parliament in the ensuing session. <sup>(44)</sup> If provision was made it would necessitate placing such public works on the estimates. In the event the settlers were given no relief.

Times were indeed hard and one frustration piled on another, not only for the settlers but for the Drainage Board as well. Henry Leslie surrendered his Section 144 on 17/9/1894. James Clive forfeited Section 137A on 23/7/1895. There were seven forfeitures in 1896: Edward Gill on Section 145, George Lord on Section 142, Hugh Seymour on Section 63, Fred Kemp on Section 77, John C. Lord on Section 82, Joseph Hayward on Section 78 and Jabez Lord on Section 86. Of these Hayward and George Lord surrendered their leases before they were claimed forfeit. There were three more forfeitures in 1897: Edward McDougall on Section 136A, S. B. Seymour on Section 69, and the lessees of Section 74. In the latter case the original lease was granted to R. D. Thompson for a brief period but was struck out and allotted to A. M. and D. T. McPhedran.

The defection of fourteen of their number was a serious financial blow to the remaining settlers of the Association, to the Board, and to other settlers not in the Special Settlement. Consideration had to be given to the eventual fate of the Association.

Despite all their expenditure and work no impact had been made on the swamp. Had they known what was happening, the Association might have disbanded sooner. However in 1897 a decision was taken to try to continue occupation and work for a further year, but without success. Henry Coates forfeited Section 79 on 21/6/1898 but he had actually surrendered

it on 23/3/1897. The remaining Canterbury settlers decided there was nothing to be gained by staying, so on 27 May 1898 the Land Board declared all their sections forfeit except for H.A.C. Fergusson on Section E83, who renegotiated his lease. <sup>(45)</sup> The venture of the North Island Land Association was, in spite of the hard work and high endeavours, defeated by a set of circumstances outside its control.

Canterbury men who were not members of the Association remained: George Greenup on Section 89, Benjamin Speight on Section 90, and Good and Hayward on Section 94. <sup>(46)</sup> George Clement Lord, who had occupied Section 142, did not leave the district but instead, in 1898, took up Section 3 of Block IX on the Opouriao Estate where, with his wife and family, he succeeded in developing a good farm. He remained on that land until 1928. <sup>(47)</sup>

In addition to the problems of residence, isolation, transport, capital expenditure, drainage, and difficulties with the Auckland Land Board, the Canterbury men were beset by a problem they could not comprehend, and which was to plague engineers for another century, that of subsidence.

In theory it was feasible to find enough fall to get the water from the eastern swamp into the Orini. But cutting outlets to the Orini also let its water back-flow into the swamp during freshes in the river. However the drains in drier weather took away the surface water and the peat began to dry out. Freeboard was lost and so the water from the higher areas ponded on the areas which were supposed to gain relief from the construction of the four main drains. There was no way further fall could be taken up to the Orini while it carried a significant distribution of the Rangitaiki's water. The Orini was to a certain extent on the sand ridge and its bed did not subside when the peat in the drained basins subsided. It was this problem which taxed the ingenuity of the first Board and its advisers and which led to a revival of the idea put forward in 1892, to dam the Orini and turn it into a natural drain. <sup>(48)</sup> It was a solution which enthused Joseph Warbrick and one which he was to pursue in earnest in 1901.

The activities of the first drainage board were inextricably bound up with the efforts of the Canterbury settlers. The board was a legally constituted and elected local body until November 1896: it is doubtful if it functioned beyond that time. If it did it was not operating legally. The 1893 Act stated specifically that:

On the first Monday in the month of November in the year following the year in which the Trustees for any district are elected, and on the same day in each succeeding third year thereafter the ratepayers of the district shall elect the required number of persons to be the members of the Board of Trustees of such district. <sup>(49)</sup>

Further, the same section of the Act required that notice of every election of a trustee should be gazetted. Since no Gazette carries notice of an election in November 1896, nor at any time before the end of the century it is unlikely there was a drainage board after 1896. Like the Canterbury settlers, the Board was endeavouring to deal with a problem the magnitude of which was not in reality exposed till the Lands Department began its works on the swamp in 1911 and even then only unfolded with the passage of time.

The Drainage District survived the collapse of the first Board and the North Island Land Association. In 1899 and 1900 the Land Board re-advertised the sections vacated on the

swamp, and those previously not allotted, <sup>(50)</sup> but this time on the options of lessees for Lease-in-Perpetuity (LIP), Occupation with Right of Purchase (ORP), or cash. A new group of landholders appeared who demanded land drainage to make their holdings viable ventures.

By 1902 the swamp was populated again. Reference to the ratepayers roll of that year will reveal the landholders and the sections taken up.

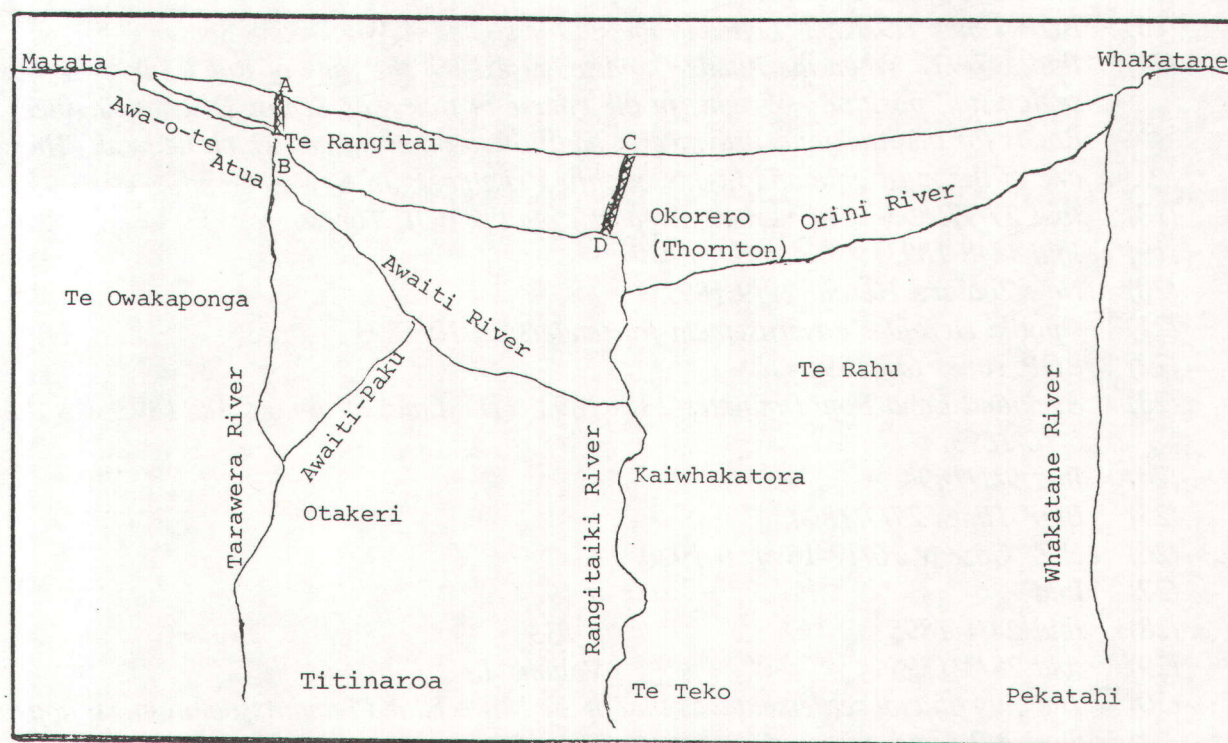
In mid 1901 the Governor used his authority to appoint the second Drainage Board. <sup>(51)</sup> The first act on the swamp had closed: the next was about to unfold.

## REFERENCES

- (1) *Bay of Plenty Times* 22/5/1890 (Hereinafter referred to as BOP Times)
- (2) *BOP Times* 22/5/1890
- (3) *Ibid* 11/11/1890
- (4) *Ibid* 19/11/1890
- (5) *Ibid* 13/3/91
- (6) *Ibid* 25/5/91
- (7) *Ibid* 5/10/91
- (8) *Special Settlements Registration Book* 1892. National Archives Collection
- (9) *New Zealand Gazette* 31/3/1892
- (10) *Regulations for the Formation of a Farm-homestead Association within the Whakatane Swamp Lands.* N.Z. Gazette 14/4/1892
- (11) *BOP Times* 6/4/1892
- (12) *Ibid* 6/5/1892
- (13) Gibbons, Walter : *The Deluge of 1892 in Historical Review* November 1989
- (14) *BOP Times* 19/4/1893
- (15) *Auckland Star* : Editorial 17/4/1893
- (16) *BOP Times* 7/9/1893 Letter to the Editor signed A Whakatane Settler
- (17) *Ibid* 5/7/93. When the Roads Department existed the rank of Road Surveyor was a senior staff position. Wright, in the course of time was Senior District Engineer of Roads for the Auckland Province in addition to other offices which he held. He was one of the most able and highly qualified engineers in New Zealand.
- (18) *Ibid* 27/9/1893. The verbatim report from the BOP Times
- (19) *Ibid* 11/8/1893
- (20) *New Zealand Herald* 29/9/1893
- (21) *Opotiki Herald* : Advertisement for tenders 25/10/1893
- (22) *BOP Times* 6/5/1892
- (23) *Auckland Land Board minutes* 23/8/1892. The Land Drainage Act 1893 was dated 6/10/1893
- (24) *Ibid* 9/1/1894
- (25) *BOP Times* 27/7/1894
- (26) *N.Z. Gazette* 20/12/1894 p 1920
- (27) *Ibid* p 1924
- (28) *Ibid* 24/1/1895 p 133
- (29) *Ibid* 28/3/1895 Volume 1
- (30) The only official settlement was that of the North Island Land Association. It appears the No.2 Land Association was an internal arrangement of the parent North Island Land Association and referred to those settlers on sections west of the Rangitaiki

River.

- (31) *Commissioner of Crown Lands : Lease-in-Perpetuity Folio No.1 in National Archives, Auckland*
- (32) *New Zealand Herald 17/8/1892*
- (33) *Auckland Land Board minutes 2/8/1892*
- (34) *Ibid 20/8/1894*
- (35) *Ibid 22/12/1896*
- (36) *N.Z. Gazette 3/12/1894* p 1895
- (37) *Ibid*
- (38) *Auckland Land Board minutes 25/2/1896*
- (39) *Ibid 29/4/1896*
- (40) *The Lease-in-Perpetuity Folio reveals that no rent was paid by the Canterbury men except Greenup in 1892-1893. In fact no rent was paid by any others until Hayward and Gill acquired Sections 93 and 92 respectively under the O.R.P. tenure in 1900 and 1901.*
- (41) *Auckland Land Board minutes 22/12/1896*
- (42) *Land Drainage Act 1893 Section 30*
- (43) *Ibid Section 38*
- (44) *Auckland Land Board minutes 2/5/1893*
- (45) *Ibid 27/5/1898*
- (46) *Ibid*
- (47) *Heath Alison B. : The Opouriao-Taneatua Settlement of 1896*
- (48) *BOP Times 6/5/1892*
- (49) *Land Drainage Act 1893 Section 13*
- (50) *N.Z. Gazette 1898 p 1621 and N.Z. Gazette 1900 p 1345* *provide examples of the offerings for selection which included per acre price, total price, rent per acre and half yearly rent.*
- (51) *Ibid Section 13 (1)*



Sketchmap showing suggested drainage solution in 1892. C-D recommended by Wright in 1892 was opened in 1914 . A-B was opened in 1917. Note the preferred spelling of both Owakaponga and Otakeri.

### CHAPTER III

#### THE SECOND DRAINAGE BOARD 1901-1910

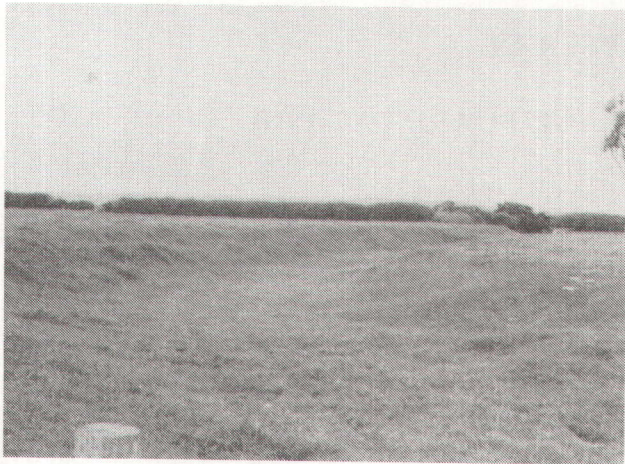
The collapse of the Settlement Associations did not make the water go away, but after a few years it did bring an influx of new settlers on the swamp. Towards the end of the nineteenth century there was a local desire to have a county council more attuned to local needs. The Whakatane Counties Act of 1899 centred a Whakatane County Council on Whakatane. Included were the ridings of Matata, Omatoroa, Opouriao and Waimana. The remainder of the old county became the Opotiki County. <sup>(1)</sup>

The new county council had its first meeting on 21 March 1900. <sup>(2)</sup> In June a contract was let to W. F. Moody for £97 to construct a new chambers. The first council meeting in the new building was on 20 October 1900. <sup>(3)</sup> As a new Council it was anxious to correct some of the roading omissions of the past which councillors perceived had been poorly dealt with by the old Whakatane Roads Board. But to improve roading to either Matata or to Te Teko and Rotorua demanded some effective swamp drainage. Therefore the Council on 17 November instructed the chairman to discover if the Council could form itself into a drainage board. <sup>(4)</sup> While this was in progress the Council considered an application to apply to the Minister of Lands to send a competent engineer to take levels and report generally on a drainage system for the Te Teko-Matata swamps. <sup>(5)</sup>

In March 1901 the Chairman saw William Herries, MHR, when he visited Te Teko, and asked him if the Rangitaiki Drainage District was still in existence. He also discussed drainage difficulties with Herries. The Council decided, in view of the Chairman's report, to write to the Colonial Secretary to get his opinion on whether the District was still in existence, and, if so, if there was anything in the Counties Act of 1899 to prevent the formation of a drainage board. <sup>(6)</sup> The Colonial Secretary replied that the District was indeed still in existence, but that Section 4 of the Whakatane Counties Act prevented the constitution of a drainage board outside the County Council. <sup>(7)</sup>

If it was not legal for the Council to function as a drainage board other moves were afoot to attempt drainage. To what extent local insistence was evident, or what pressure was exerted by Herries, cannot be determined but the issue was quickly resolved when the Governor, under Section 13 of the Land Drainage Act of 1893, appointed a drainage board. The members were J. A. Warbrick, F. J. Burt, E. P. Gill, J. Hayward and George Greenup. Their office was legalised as from 1 August 1901. <sup>(8)</sup> Joseph Warbrick was elected Chairman. Two months later he was elected to the County Council to replace H. J. Walmsley who had resigned over an allegation that he had not paid Maoris money owing to them. <sup>(9)</sup> Office in the reconstituted Drainage Board and a seat on the Council in addition to his considerable land-holding placed Warbrick in a strong position to make a contribution towards the work of local bodies.

It is anything but easy to envisage what the County Council had in mind regarding drainage in 1900. In June the government was asked to place a sufficient sum on the estimates to construct the main drains on the Te Teko-Matata swamps and also that the proposed historic Opotiki-Whakatane-Rotorua railway be commenced from the Rotorua end. Presumably the drainage was required to prevent the trains from sinking out of sight. <sup>(10)</sup> The Department



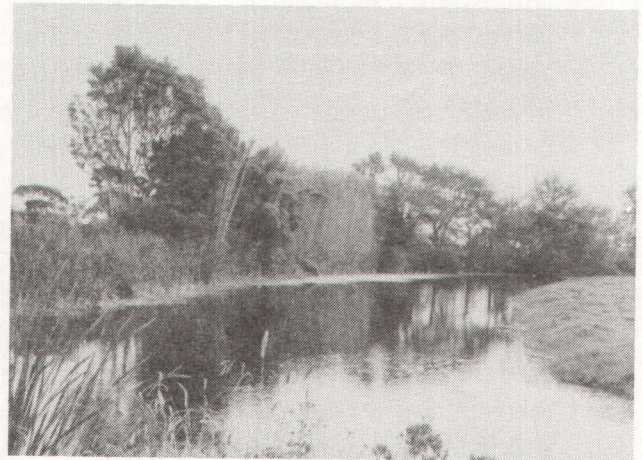
*An unfilled and grassed portion of the old Orini channel.*



*The visible hollow is where the old Orini flowed east from the Rangitaiki River. David Martin's house, East Bank Road.*



*Dry channel of the old Rangitaiki where it left the main stream at Thornton.*



*The old Rangitaiki.*

PHOTOS: The author, 1990.



*The Old Rangitaiki at Smith's Road, showing evidence of weed growth.*



*The Rangitaiki River at Thornton.*

of Lands and Survey replied that the Council's application to put in the main drains would be considered in preparing the estimates for the coming year.<sup>(11)</sup> It was cold comfort but the Council did have a little success officially for the Marine Department advised that on and after 1 October 1900 the powers of a Harbour Board would be conferred on the Council.<sup>(12)</sup> The Marine Department may have been aware that the district was more suitable for water transport than it was for a railway.

In October 1900 Greenup and Greenup and others petitioned the County Council to bring pressure on the government to open up the main drains, drawing particular attention to the large quantities of silt being carried down the Mangaroa Stream to be deposited on the swamp. The Chairman replied that the Council had done everything it could to get the government to open up the main drains in the swamp and as a result of their efforts Captain A. C. Turner, District Engineer, of Rotorua would come to report on the drainage.<sup>(13)</sup>

Whether or not Turner formulated ideas regarding drainage is not known, but being a competent engineer he probably did. However, no record exists of his recommendations. Wright's solution was not forgotten but the size of the task and the cost were outside the available finance so other means of effecting drainage were sought.

The second Drainage Board was soon at work after August 1901. It may have had Turner's advice, or it may have had G. J. Webster as engineer, for he was their engineer for several years from 1902. The initial plan was to dam the Orini River where it left the Rangitaiki, using wood and earth as the materials of construction. No time was lost and by December 1901 the dam was completed. A press report records the work on the Orini:

The long talked of drainage of the Rangitaiki Swamp, stretching from Matata to Whakatane, which was mooted by a band of Canterbury settlers some ten years ago has been commenced at last but on a different scheme. A drainage board has been formed and its first work is the damming of the Orini river, which is really a mouth of the Rangitaiki flowing out of that river some miles above its main exit at Matata, and going towards Whakatane. The dam has been built of timber and earth about a chain from where the Orini leaves its parent river and has had the effect of lowering the water in the Orini about six feet, thus affording good drainage to a very large area. A similar plan is to be pursued with the Awaiti on the other side of the Rangitaiki.<sup>(14)</sup>

Construction of the dam was apparently not without incident. As it neared completion an earthquake occurred which opened a crack in the new structure. Some earnest and positive efforts were required to seal the breach, which was seriously affected by the difference of eight feet in the water levels between the Rangitaiki and the now dammed Orini.<sup>(15)</sup> The dam held, though, and settled down. It was built on the boundary line of Sections 48 and 61 and it provided a roadway across the Orini for the partially formed track from Okorero to Te Teko.

From a drainage point of view the dam was a good move and a credit to Joseph Warbrick. About 6000 acres were relieved of water and the lowered level of the Orini provided a more satisfactory outfall for the Western Drain, Eastern Drain and the Eastern Boundary Drain. The six foot fall in the level of the Orini enabled the fall to be taken up in these drains over some miles.

Reducing the flow of the Orini into the Whakatane River was detrimental to the Whakatane harbour, which at best presented a difficult entry and exit for mariners on account of the limited depth of water at the entrance. One settler, who was the recipient of the better drainage, wanted the best of both worlds. Drainage helped him to grow a good crop of maize, but when it was harvested he wanted the water again to transport his produce to the Whakatane Wharf via the Orini waterway.

Mr J. W. Bentley waited on the Council and stated he wished the Council would take some steps to have the Orini River opened again as it was the only way he could get produce to Whakatane. He had 700 sacks of maize more or less damaged owing to the river having been closed and therefore not being able to get to Whakatane, and he thought it was within the province of the County Council to see that this waterway was kept open and he had been advised to represent the matter to Council. The chairman replied that the Council would attend to the matter. It was proposed that a letter be sent to the Drainage Board asking on whose authority the river was closed for boat traffic as a complaint had been made to the Council. An early reply was sought. <sup>(16)</sup>

The drainage board forwarded a prompt reply. Councillor Joseph Warbrick, who was also chairman of the Drainage Board, made his point at the Council meeting that closing the Orini was a matter in which the Council had no right to interfere. The County Chairman answered that the Council had every right to interfere because the Orini, being a navigable river, was a Highway, and that the Council as a Harbour Board, had control of the Rivers and Streams in the County. He therefore moved that the reply from the Drainage Board was unsatisfactory. Warbrick proposed an amendment which stressed that the matter was quite distinct from the County Council and that the Council had no power to question any works done by the Drainage Board within the Drainage District and referring to drainage matters. The amendment was lost on the vote. <sup>(17)</sup> This acrimonious debate set a pattern of conflict within the Council itself, and between the two local bodies which was to bedevil drainage efforts for the next eight years. It was unfortunate that the County Council did not have a more positive attitude from the beginning.

The Orini work was a good start, but without an assured income and capital for proposed works the new Board could not go far. Rates levied in 1902 were not due for payment till 1903. In the meantime a comprehensive plan and a survey was required. That indicated the employment of an engineer and he would require a salary. G. J. Webster was engaged. His salary was guaranteed and paid by J. H. Spurr and others, but the Board was slow to recompense them. Not too affluent themselves, they took their case to a solicitor who took a lien on all monies owed to the engineer by the Board. <sup>(18)</sup> The Board therefore came into conflict not only with the County Council but with a group of the ratepayers.

Mindful of the failure of the first Board, the new Board sought a loan through the Local Bodies Loans Act of 1901. It was required, before making application under the Act, to subdivide the District. To that end a Special Meeting of the Board, held in June 1902, passed a resolution to sub-divide the Rangitaiki Drainage District; the plan was deposited for inspection at the Board's Office <sup>(19)</sup> and would become effective immediately it was confirmed on 5 July 1902. <sup>(20)</sup> The order specified the subdivisions as Matata, Tarawera and Rangitaiki. <sup>(21)</sup>

Prior to the lodging of an application for a loan a poll of ratepayers had to be taken. In this

first instance the proposal was to borrow £3,000 for works within the Rangitaiki Subdivision to construct drains and embankments. A special rate of 1/- in the £ on all rateable property in the subdivision to secure and pay interest on and provide for repayment of the loan was to be levied. Fourteen ratepayers voted for the proposal, and none against it. Chairman J. Warbrick therefore declared the proposal carried. <sup>(22)</sup> At the same time the election of trustees, reported from the office of the Colonial Secretary on 18 November 1902, recorded the election of Joseph Astbury Warbrick, Henry George Armstrong, George Edward Reid, George Greenup, and Peter James Wilson. <sup>(23)</sup>

Within the Board itself there was friction for in mid-1903 McGarvey was elected to the Drainage Board in a disputed election. <sup>(24)</sup> There was further dispute again, owing to irregularities and in this case both Lees and McGarvey offered themselves for a seat on the Board, the third time in three months. <sup>(25)</sup> It appears that R. E. Grieve was elected to the Drainage Board at this time.

While these problems were in the process of resolution, G. J. Webster was carrying out his survey and making his recommendations. He reported to the Board that the best method of draining the swamp was to cut a diversion for the Rangitaiki River at Okorero, thereby virtually agreeing with Arthur Wright. After going into considerable detail he estimated the diversion cut and the necessary ancillary works would cost £16,000. <sup>(26)</sup> Such expenditure was patently outside what the Board could afford. The problem was not new. There was a limit to what could be borrowed against the capital value of the land, and until the land was drained there was little prospect of the capital value increasing so that more borrowing could be resorted to. The Board was forced to the conclusion that if it was to work within the finance available it should concentrate on the Rangitaiki Subdivision where the Orini had been closed off, and where a rudimentary system of lateral drains had been commenced.

Joseph Warbrick played a leading role in the decisions and work of the Board, within the financial restraints. His drainage and council interests sometimes coincided: in the autumn of 1903 we find him seeking, on behalf of the Drainage Board, Council permission to make a drain on the west side of the Road Reserve on the Whakatane-Te Teko Highway along the boundaries of Sections 73, 74, 79 and E 83, the said drain to be filled in by the Board at any time the Council may think it necessary to do so. After considerable discussion the Council granted permission on those terms. <sup>(27)</sup> Since the drain is still there ninety years later it must have been a reasonable request. There was a hitch, though. Running the water from Mangaroa down the roadside took it up against the sand ridge at Spurr's Corner. Since there was no drain to carry away the ponded water it became a matter of contention between the Board and the Council for some years, the road in rainy weather being frequently submerged.

The troubles of the Drainage Board continued. In August 1903 Joseph Warbrick visited his brother Alfred who was a guide at Waimangu. An unprecedented explosive eruption occurred and on 30 August in the upheaval Joseph lost his life. The loss was a serious blow to the fledgling board, and to the community attempting to establish itself on the swamp. In an election to fill the vacancy on the Board Thomas Seccombe was the successful candidate. <sup>(28)</sup> A few days later the result of a poll taken to raise £2,500 for the Tarawera subdivision, and £500 for the Matata Subdivision by way of a loan was declared. The Tarawera vote was for: 2, against: nil; and for Matata for: 3, against: 3, invalid: 2. The Tarawera poll was declared carried, the Matata poll rejected. R. E. Grieve signed as Chairman of the Drainage Board. <sup>(29)</sup> Where only two ratepayers voted in the Tarawera

Subdivision, and eight voted in Matata there was reason to suspect that there was little interest in further borrowing for drainage works. The Board did not proceed to apply for the Tarawera loan. Most of the drainage work would therefore continue in the Rangitaiki Subdivision where the £3,000 loan had been taken up.

While most of the land was taken up on the swamp a considerable number of the owners or lessees did not reside on their sections. There was absenteeism amongst owners as well as apathy. Ratepayers in 1902, who were to pay rates in 1903, and the sections in the name of each, were:

Armstrong, Frank	61, 62, 63
Bennett, Annie	104, 105, 107, 108, 109
Bigelow, F.	82
Brown, James B.	160
Brown, John	159
Brown, Charles H.	131A
Burt, Harry	10
Burt, Frederick H.	8
Close, Mrs Jane	73
Dowling, Elizabeth	65
Fergusson, H.A.C.	83
Fergusson, A. H.	45
Gill, Henry P.	85
Gill, Edward	90
Gill, Edward P.	92
Good and Hayward	94
Goulter, James and William	130A
Goulter, A.J.B.	132A, 136A
Greenup, George	89
Grieve, Robert E.	145, 78, 146, 79, 149, 147, 148
Glass, William	141, 137A
Hayward, Joseph	93
Hori, Pawa	84, 86
Hori, Ngatai	66*
Hulme, C. E.	48
Lees, T. F.	66, 68
Lillico, Isabella Y.	139, 143, 144
Laurell, Douglas	163
Hulton, T.	105
Makanui, Tohauoa	74
McAlister, Archibald/John/ George	E83
McGarvey, William	107A, 113, 114, 119, 120, 124, 56, 58,
118	
McGregor, J. G.	49
Mellsopp, Arthur P.	140
McGarvey, Mary	155
Harris, C. W. and C. T.	69
Parkinson, Thomas	70

Parkinson, A. J.	75, 76, 77
Ralph, Wilfred	157
Ralph, Lionel Gesterole	158A
Reid, G. S.	80, 81
Seccombe, Frances C.	121, 122, 125, 126, 127
Secombe, Thomas	138A, 142, 141A
Seccombe, C.	108
Seccombe, Emily F.	110
Seccombe, J. T.	109
Seccombe, Kate L.	158
Spurr, Mary Jane	72
Spurr, John H.	91
Haimona, Wetini	164
Warbrick, J. A.	44, 45, 46, 47, 50, 51, 52, 53
Wilson, Mary Jane	71, 73
Wilson, P. J.	151, 156
Whyte, William G.	88
Young, Ebenezer	74
McFarland, W.	134A
Warbrick, Arthur	129 <sup>(30)</sup>

\* (It appears Section 66 changed hands after the roll for 1902 was prepared)

Landholders who paid rates of 1/- in the £ on the No. 1 Special Loan during its first year in 1904 were, from the Rangitaiki Subdivision:

Armstrong, H. G.	64	Platt, W. G.	65
Bigelow, F. E.	83	Parkinson, Thos.	70
Fergusson, H.A.C.	68	Reid, C. F.	80 81
Frater	90 85	Reid, F. W.	61 62
Edgecumbe, R. G.	69		63
Greenup, G.	89	Reid, Geo. E.	75 77
Gill, E. P.	90 85	Spurr, Mary Jane	72
Grieve, R. E.	66	Spurr, J. H.	92
Harris, C. W. and C. T.	49	Warbrick, J. A.	50 51
Pawa Hori	84 86 <sup>(31)</sup> (estate)		52 53
Hulme, C. E.	48	Wilson, Mary Jane	71 73
Lees, Thos, F.	66	Whyte, W. G.	88
McAlister, J.A/D./J.J.	E83	Wilson, John	87
McGregor, John I.	49	Young, Ebenezer	74 82
McCutcheon, W. E.	67		

(32)

Ratepayers on the Rangitaiki Subdivision were keen, and their tenure relatively stable. In 1906 they agreed to a proposal to borrow a further £2,000, for which the rate was 9d in the £, payable half-yearly. The total yield was £107-10-1 and in the year 1/11/06 to 31/10/07 they all paid, in addition to the general rate, and the already existing 1/- in the £ on Special Loan No. 1. They also paid County rates. The landholders in November 1906 were, with their sections:

Armstrong, H. G.	64	Platt, W. G.	65
Arndt, R.A.C.	78	Powell, George	84 86
Arndt, T.F.W.	79 74	Reid, C. F.	75 77
Barnes, T. F.	48		80 81
Bigelow, F. E.	82	Smith, E. S.	E83 85
Davison, John	50 51		90*
Greenup, Geo. (Class C)	89	Spurr, J. H.	70 91
Gregson, Jno Irving	49	Spurr, Mary Jane	72
Harris, Chas. W.	69	Sumner, J. W.	76
McGregor, T. S.	68	Whyte, Christina D.	88
Kerr, S. P.	67	Wilson, John	87
Lees, T. F.	66	Wilson, Mary Jane	71 73
McRae, Joseph	W83		
Pile, John	61 62		
	63		

\* (200 acres of 90 Class C)

In 1909 there were only two changes:

Augustus Loosemore replaced Bigelow on Section 82

Frances Loosemore replaced John Wilson on Section 87. <sup>(33)</sup>

Works carried out on the Rangitaiki subdivision for the £5,000 borrowed were, in addition to maintenance, the continuation of the Western Drain and the Eastern Drain with the necessary widening and gradual deepening, extension of the Eastern Boundary Drain, and the construction of the Te Rahu Drain from the Whakatane River to the Main Highway on Section 30. An additional work was the drain alongside the main road bordering Sections 74 and 79. For the time these were quite considerable works but however much the drains were intended to be successful they created their own problems for the drying out of the peat caused subsidence. This was a particular problem where the drains came up against the sand ridges. In 1908 the Drainage Board employed Henry Metcalfe to take levels. His advice was to cut the Kopeopeo Drain from Section 63 to the Whakatane River, and to extend the Te Rahu Drain through Section 30 towards Section 89. That was a second best solution. Both engineers and settlers were becoming more and more driven to the conclusion that the key to successful drainage was to execute Wright's proposal, which Webster had reinforced, that of cutting the Rangitaiki diversion to the sea.

The means of achieving the physical work of drainage was either for the settlers to do the work themselves, or to employ Maori labour. In the Rangitaiki and Tarawera Subdivisions both of these methods were used, and the cost of the labour was charged to the Drainage Board.

Much of the Orini River flowed along the sandhills country where the subsidence was minimal. It became increasingly frustrating to the settlers to find that as they tried to maintain freeboard along the Eastern and Western Drains they merely added to the water problems in the lower reaches of these two drains, particularly in Sections 61, 62, 63, 65, 67, 66 and 68. Nevertheless the Board pushed on with the work as long as money lasted and the Eastern Drain reached the southern boundary of Sections 78 and 79, and the Western Drain reached the southern boundary of Sections 87 and 88. The Eastern Boundary Drain

was halted at the Boundary of Sections 71 and 73, where the swamp dipped sharply into the Te Rahu Basin and fall was totally lost. The Te Rahu Drain was constructed to Section 30 in an attempt to dewater the Te Rahu Basin.

The Rangitaiki Subdivision settlers had toiled mightily. They cannot be blamed for the failure to get the land into production. It was subsidence of the peat land which defeated them. The first loan of £3,000 was for seven years, the second of £2,000 for seven years. <sup>(34)</sup> The whole endeavour was to founder on the issue of the first loan, for until the land was productive there was no way the loan could be repaid when it became due in 1910, and beyond was the repayment of a further £2,000 in 1912.

In the Tarawera Subdivision most of the impetus for drainage works seems to have come from Thomas Seccombe, who in any case was the largest landholder. His concern early was to develop his Te Teko land and farm those sections he held on the drier land. The Seccombe Te Teko sections were 121, 122, 125, 126 and 127. At Te Kaiwhakatora he held 138A, 141A and 142, and on the lower swamp of the Tarawera Subdivision 158, 108, 109 and 110. Robert E. Grieve had Sections 145, 146, 147, 148 and 149. There were land sales and purchases which saw Halletts acquiring a large area, most of it from Grieve. In 1909 C. J. Hallett had Sections 147, 148 and 149; Thomas Hallett had 143 and 145; and Adelaide Hallett had Section 146. R. E. Grieve had Section 141 and J. C. Grieve 144, 150 and 165. These three family groups, Seccombes, Halletts and Grieves, through their landholding, therefore had the means to influence decision-making in the Tarawera Subdivision. <sup>(35)</sup>

The Tarawera River did not pose any serious problem until the end of 1904. It flowed along a well defined channel and although it meandered considerably, and was above the level of the surrounding swamp, it was not subject to any degree of flooding, being lake fed and having a limited catchment area.

All this changed on 4 November 1904 when the upper part of the natural retaining wall holding the waters of Lake Tarawera collapsed, allowing a torrent of pumice-laden water to surge down the Tarawera Valley.

The Tourist Department has received a report from Rotorua that Lake Tarawera has fallen about six feet during the last few days. It appears that the outlet has, through a large mass of sand having been washed away, been widening from about 25 ft to about 80 yds. For a couple of miles the river is a mass of foaming rapids. The approaches to several bridges on the Te Teko road have been washed away by the floods and a large area of low-lying land is at present under water. Guide [Alfred] Warbrick reports that he went in the oil launch to the mouth of the lake to ascertain the cause and he found that the sandbank on the north-east side of the outlet had been washed away leaving a passage 100 yds wide but where about 40 ft existed before. This bank had evidently given away suddenly sometime on Sunday last and the release of an immense body of water from the lake burst out the entrance to the river. The lake had fallen so much that he found the government boat house at Wairoa high and dry. Warbrick said the lake was still falling at the rate of one inch per day, and from the outlet for a distance of two miles there is a foaming mass of foaming rapids. <sup>(36)</sup>

Such a natural disaster was catastrophic for the settlers on the swamp. The entire Kawerau-Onepu area was covered with a layer of pumice ash when the Tarawera River bed filled and

spilled over the land towards Te Teko. Pumice was carried on down the river and raised the level of the river bed all the way to the sea. River transport became far more hazardous. Pumice shoals formed on the river bends. The amount of deposit may be judged when, prior to the disaster people could stand on the launch while it passed under the bridge on the Te Teko-Rotorua Road, but after the torrent had passed it was scarcely possible for the launch to scrape through.<sup>(37)</sup> As time passed the silting up of the river persisted as the pumice continued to wash down. The Grieve brothers constructed a stop bank to protect their properties. Thomas Seccombe constructed a stopbank and made attempts to divert the river into the lakes Rotoiti Paku and Rotoroa and the Otarakuti Stream. Halletts constructed Hallett's Drain in an attempt to turn the rogue waters away from their land. On the northern end of the swamp Thomas Seccombe had a stopbank constructed to turn the Tarawera overflow from his low land properties and away to the west of the Tarawera River.<sup>(38)</sup>

Seccombe had two other notable projects. It is likely that he was more concerned with his own land than with the public good, but both of these projects though had important beneficial results for drainage in the Tarawera Subdivision. The first project was the Edgecumbe Catchwater Drain. This was to tap the seepage from the direction of Mt. Edgecumbe and take it into a lagoon adjacent to the Rangitaiki River. When the lagoon rose the overflow would be fed into the river. The experiment was successful, as also was the means of digging the drain. It is important, as it was the first attempt on the swamp to use mechanical drainage.

... it was logical to start where the prospect seemed best, and our creature comforts would be catered for. Father proposed to cut a drain from the Rangitaiki River, above Te Teko, so approached Mr McGarvey for permission to excavate the proposed drain through his land, which lay between Mother's property and the river, and thus give us an outlet for the water. This permission was readily forthcoming, and with Mr McGarvey's co-operation a site was selected from a lagoon, which had been left when the river changed its course, right across his property to the foot of the nearest hills, where the swamp started and Mother's property was entered.

This land of Mr McGarveys was high and dry, so it was necessary that the new drain should be deep enough to ensure that adequate fall be obtained to take the water from the swamp; this we estimated, without taking actual levels, to be fourteen feet, a depth that would warrant the use of machinery, so Father purchased a three-drum friction winch and a derrick, which we mounted on skids, so that with a dead-man set ahead in the line of progress we could haul the whole arrangement, with the winch and wire rope, through a double-purchase block, along as the work progressed.

This excavator was of the drag-line type, using a scoop of a capacity of half-a-cubic yard, and was set up on the side of the lagoon, right on the Te Teko-Galatea road, and the work commenced. The scoop was man-handled as regards direction, with the winch hauling it into the face of the excavation, then when it was filled it was lifted by the derrick and swung out to the side, and emptied. The winch was driven by a 6 h.p. Hercules engine, through a belt transmission.<sup>(39)</sup>

Seccombe and George Murray seem to have reached the same conclusion independently that lateral drains were not a sufficient answer, but that catchwater drains were a vital necessity

in farm drainage.

Thomas Seccombe was obviously a man of energy and ideas. In 1903 he was a member of the Drainage Board. In the 1905 election he was re-elected along with R. E. Grieve, John H. Spurr, Peter J. Wilson and W. G. Platt. Seccombe was elected Chairman. He was also successful in his bid for a seat on the County Council in 1905. He was therefore in a good position to push forward his other project, the delayed damming of the Awaiti River where it left the Rangitaiki. Shortly after taking his Council seat Seccombe placed a proposition before the members. On behalf of a number of section owners on the Tarawera Subdivision he asked that the 'thirds' which had accrued from these sections might be expended in placing a dam across the mouth (sic) of the Awaiti and opening up the Omeheu and Awaiti Streams. He explained that if the stream was dammed it would drain the land and enable the Council in the future to construct the roads which were surveyed in the vicinity. Seccombe also left with the Council a number of letters from the occupiers of the sections until further instructions were received from the Council regarding how the 'thirds' were to be spent. Seccombe's request was agreed to by the Council and the expenditure approved on the strict understanding that should any damage arise through the erection of the dam, or any claims be made against the Council, the Council would accept no responsibility. <sup>(40)</sup>

No time was lost in getting the dam constructed. By March of 1906 it was holding back the Rangitaiki water. An eyewitness account of the work reads:

We travelled along the riverbank to where the Awaiti left the main river and here we came on a scene of great activity. Mr Seccombe had arranged with George Powell of Te Teko to muster all the horses and drays he could lay his hands on. They were damming the Awaiti Stream to keep out the Rangitaiki water. The empty bed of the Awaiti could then be used as an outfall for the drains on the western side of the swamp. They were just finishing when we arrived. Getting the dam to hold had been a tough job, and the river nearly won. They had put a network of heavy wire across the channel, securing it to willow trees on each bank. Then they filled sacks with earth and laid them across the stream. I don't know how many sacks they used, but they only just had enough, and the willows and the wire only just stood the strain. The willows bent over and cracks were appearing as if the roots were giving way. They then dumped loose earth on the upstream side, making a filling about thirty feet wide, and built it up till it was higher than the surrounding land and not likely to wash away in a flood. The dam was built on the surveyed roadway. <sup>(41)</sup>

The Awaiti dam served Seccombe well. It reduced the water level on some parts of his lower land sections. He was encouraged to consider how he might now go about cleaning out the Awaiti Stream, and to clear the Omeheu-Tengaroa Streams to provide drainage for his Te Teko and Te Kaiwhakatora properties. The County Clerk was persuaded to write to the Commissioner of Crown Lands to ask if the 'thirds' from lands owned by Thomas Seccombe and family could be used in draining, clearing and deepening the Omeheu and Awaiti. <sup>(42)</sup>

The Omeheu was well choked with swamp growth and even the higher land was very wet: George Murray on his inspection of likely land to purchase met Captain Turner and his assistants at Section 151 where Turner was carrying out his functions as Drainage Engineer

in March 1906:

From these men we were able to learn quite a lot about our prospective property and the possibility of draining it. They said there was a fall of six feet to the mile, and if an outfall drain was cut along a drainage reserve to the Omeheu Channel, we could drain the property even if the Rangitaiki outlet never went through. They did not know when the [Drainage] Board would be able to put in the proposed drain, but said that if we put it in ourselves to the satisfaction of the Board's Engineer we would be refunded the cost later on .... [The property] appeared to be entirely covered by water to a depth of from six inches to a foot, and was growing only raupo and young flax. I found later that the centre was above water level most seasons [Section 156] like an inverted saucer. This made it easier to drain than other sections which were often like saucers sitting the right way up. <sup>(43)</sup>

The Awaiti dam settled down quickly without further trouble or fear of collapse. It was not long before there was a marked improvement along the stream. In June 1906 the County Council was pleased to note that the watercourse was dry since the stream had been dammed. <sup>(44)</sup> A few months later the Council was expressing its pleasure at the success of what it termed the Awaiti Dam Embankment. No doubt it relieved the Council of having to construct a bridge, so on the motion of the Chairman [A. Peebles, who was not well disposed towards the Drainage Board], the sum of £100 was passed for payment to the Rangitaiki Drainage Board on account of this work. <sup>(45)</sup>

While the Awaiti works were in progress there was friction within the Board, particularly between R. E. Grieve and Seccombe. It is likely that Grieve suspected Seccombe of ulterior motives and self interest. Grieve resigned from the Board in 1906, and Peter Wilson gave up his seat on the sale of his land to Murrays. In an election in September 1906 James Burman Gow and Thomas Francis Barnes were elected to the Board <sup>(46)</sup> to join Seccombe, John H. Spurr and R. E. Grieve, who had been elected in 1905. <sup>(47)</sup> Barnes was on Section 48, and Gow on 131A. Gow and Platt had been landowners since mid-1903, Gow having purchased his section from Charles Hawksworth Brown, and Platt his from Mrs Elizabeth Dowling. <sup>(48)</sup> Barnes was a newcomer to local landholding.

If the Board could not agree among themselves the settlers could not agree with the Board. Settlers were reluctant to borrow for works which they would have to pay for by way of special rates. They were advised, therefore, to carry out works themselves and be recompensed when a loan for works was raised. The key to the whole system was still the Rangitaiki outlet. But as time passed the cost of carrying out the work was escalating. The Board, already out of funds, was in a most difficult situation. Settlers, however, did carry out some works in the Tarawera Subdivision in addition to the Board's damming the Awaiti. A drain was run from the Awaiti through Section 109 to the northern boundary of Section 158. The Omeheu Drain and Omeheu Adjunct was cleared as a shallow channel through Sections 130A, 134A, 138A and along the boundary of 141 and 142 to the line of Riverslea Road. A small drain was run from the confluence of the Awaiti and Awaiti-Paku southwards along the Awaiti road line to Section 149. The payments due for these private works on public drains were, in 1910, for the Eastern Area of the Tarawera Subdivision £1,219-15-3, and for the Island Area £359-17-2. <sup>(49)</sup> In addition to these debts, the Subdivision owed the Rangitaiki Subdivision £188-14-0 which had been borrowed from the £3,000 loan for the purpose of carrying out engineering surveys in Tarawera. <sup>(50)</sup> A list of Tarawera Subdivision

ratepayers from whom this £188-14-0 was to be recovered was prepared for the Receiver in 1910. The names, residential addresses, sections held, acreage and rateable value were as follows:

<u>Name</u>	<u>Address</u>	<u>Section</u>	<u>Area</u> (acres)	<u>R/Value</u> £
Abbott, A.J.W.	Te Teko	141A	280	600
Abbott, A. H. & A.W.	Elliott St Auckland	107A, Pt 119 120, 124	418	1,910
Gow, J. B.	Opotiki	131A, Pt 73	806	1,830
Grieve, R. E.	Te Teko	141, 154	699	1,600
Hallett Adelaide	Napier	146	492	1,425
Hallett Chas. J.	Napier	147, 148, 149	1,514	3,400
Hallett Thomas	Te Teko	139, 143, 145	1,500	3,650
Hawken, A. E.	Te Teko	158, Pt 73	409	600
Lillico I. Y.	C/o R.E.Grieve Te Teko	144, 150	1,000	2,050
Matthews, R.E.N.	C/o R.Spencer Snowden St. Auckland	110	2,000	2,750
Mackay, Geo.	C/o R.E.Grieve Te Teko	133A	500	920
McCutchan, C. H.	Matata	136A	500	900
McFarland, Jas.	Helensville	134A	500	1,100
Abbott, A.W.J.	Te Teko	56, 57, 58, 155	556	1,400
Motion, John	Matata	130A, 132A	852	1,750
Murray, G. J.	Te Teko	151 152 156	760	1,750
Nathan, L.D. & Co.	Auckland	45	15	10
Platt, Mrs A. E.	Opotiki	137A	487	725
Platt, M. J.	Opotiki	95	380	220
Rawson, R.E.K.	Te Teko	135A	500	1,400
Seccombe, Miss C.	Whangarei	108A	2,000	1,500
Seccombe, Mrs F.C.	Te Teko	121, 122, 125, 126, 127	955	1,650
Seccombe, Thomas	Te Teko	138A, 142, 74	1,051	2,200
Seccombe, J. T.	Whangarei	109	1,500	1,500
Tolman, Alfred	Hinuera	140	500	780

Matata Subdivision had also had some engineering services.

The 1910 ratepayers were:

Campbell, Peter	Matata	130A, Pt. 136	219	950
Creeke, Mrs T.	Matata	129	29	70
Collins, G. W.	Matata	162, 163	716	850
Grieve, J. C.	Te Teko	165	474	250
Hulton, T. H.	Matata	10, 105	110	650
Savage, Mrs E.	Matata	23A	99	380
Skipper, J and Parkinson	Matata	136, 137, 138	219	850

(51)

By way of explanation for the Receiver the Board wrote extracts from its minute book to clarify the situation:

From the Minute Book 20/8/06 p 157:

That the Board accept Turner's report on the Tarawera Subdivision or any part of it

the Board wishes to carry out, and that any part of works on plans may be tendered by section holders or private individuals, to complete same at their own cost and be reimbursed out of the first loan to be raised for the Subdivision in which the work was done and interest on their outlay be allowed at the same rate as the loan charge.

From the Minute Book 30/10/06 p 168:

That the resolution of 20/8/06 be considered to apply to any subdivision.

From the Minute Book 12/8/07 p 192:

That Murray Bros application to carry out works in accordance with resolution of 20/8/06 be permitted: to make a 6 ft drain along the southern boundaries of Sections 152 and 156 subject to the approval of the Board's engineer and to be repaid out of the first Tarawera Subdivision Loan exclusive of the Outlet Scheme.

From the Minute Book 8/10/07 p 195:

Works to be carried out on same conditions as Murrays (Thos Seccombe did not vote).

F. C. Seccombe	sections 121, 122, 125, 126, 127
Thos. Seccombe	138A, 142
K. L. Seccombe	158
J. F. Seccombe	109

From the Minute Book 27/12/07:

John Motion to carry out unspecified works on same condition as Murrays. <sup>(52)</sup>

These extracts simply emphasise the fact that the driving force for drainage in the Tarawera Subdivision was Thomas Seccombe. Murray's drain was not then a public drain. Seccombe pushed for damming the Awaiti, he was on the Omeheu and Adjunct, and John Motion dug the first Awaiti Drain. Seccombe also constructed the Edgecumbe Catchwater. From the other landholders in the Tarawera and Matata Subdivisions there may have been hope but there was an inordinate amount of apathy. Internal drainage was not carried out to any extent except by Seccombe, Murray and Motion. Until public drain outfalls were constructed there was little internal drainage that could be done, except on the higher land in the subdivision. The landholders in Tarawera, other than those three, were not disposed to make the moves necessary to help themselves. The obvious urgent move was for construction of the Rangitaiki outlet.

The need for the outlet became more than ever imperative when the great flood of 1907 inundated the swamp. All the drainage attempted on the Rangitaiki was under water from both rivers. Being a summer flood, the effects on pasture were particularly serious. The County Chairman (Peebles) was landlocked in Taneatua. Telegrams to the County Clerk on successive days indicate something of his consternation:

On 14 January 1907

Big flood unable to get message to Healey.

If road dangerous better put lamp there tonight.

On 15 January

Tell Eivers get as many men as possible make road passable. Will send Healey as soon as he can cross river. Great damage done between here and Whakatane. Slips across roads and bridges down. Warn public Waimana road blocked. Matata report £200 damage. Eivers cutting Ohope Track.<sup>(53)</sup>

A flood of such magnitude was bound to have repercussions. It did. While the County Council proceeded to badger the government for flood repairs assistance, the Rangitaiki Subdivision settlers pursued the issue of the Rangitaiki Outlet. A poll, under Section 3 (3) of the Local Bodies Loans Act of 1901 was taken on 14 January 1908:

To raise a loan of £5,125 over a special district for diverting the Rangitaiki River from Warbrick's Bend to the sea.

The result of the poll was in favour: 31 votes, against: 13, a total of 44 votes. The number of votes cast for the proposal was in excess of the  $\frac{3}{5}$ ths required so the poll was declared carried.<sup>(54)</sup> No application for a loan was made, even though Seccombe, as chairman, was hopeful. There was still a period of controversy, understandably because the poll was for a special district. A further poll was taken on 19 October 1908 on a proposal to borrow £6,000, for the purpose of making a new outlet for the Rangitaiki River. The result was that the proposal was rejected. Again 31 voted for the proposal but 42 voted against it, the total votes recorded being 73.

Whichever way the Board turned they could not make any progress. Election year came again in 1908 but since the number of nominations did not exceed the vacancies no election was necessary and the nominees were appointed. They were R. E. Grieve, J. H. Spurr, T. F. Barnes, T. Seccombe and C. F. Reid.<sup>(55)</sup> J. B. Gow withdrew from the board and was not nominated. In 1909 T. F. Barnes was appointed Secretary. In an election of February 1910 Thomas Hallett replaced Grieve, and Alfred Thorne replaced Barnes, who remained as Secretary. John H. Spurr was elected Chairman in 1908.

The new members in 1910 tried to infuse some action into the Board. By their own enthusiasm they attempted to break the stranglehold on progress occasioned by the lethargy of the landholders in the Tarawera Subdivision. To that end the Board devised a plan for a loan proposal for the whole district which read:

Rangitaiki Drainage Board : Several loan proposals.

£2,800 for works in the Eastern Area of the Tarawera Subdivision:

In Favour : 9	Against : 5	Total 14
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£1,300 for works in the Island Special Rating Area of the Tarawera Subdivision:

In Favour : 4	Against : 0	Total 4
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£500 for a main drain in the Matata Special Rating Area of the Tarawera Subdivision:

In Favour : 2                      Against : 0                      Total 2

£5,000 for the Rangitaiki River Diversion from Warbrick's Bend to the sea:

In Favour : 40                      Against : 0                      Total 40 (56)

Once again there was an insufficient response from the Tarawera Subdivision. If the Board was dismayed, it would not give up. A further loan proposal was put forward on 21 February 1910 with specific reference to Tarawera works.

Eastern Area (Tarawera) to borrow £2,800 and from it repay settlers £1,219-15-3 for work already done.	<u>Vote</u> 9 : 5
Island Area to borrow £1,000 and from it repay settlers £359-17-2 for work already done.	4 : 1
Matata for drainage works borrow £500	2 : 0
Rangitaiki Outlet borrow £5,000	40 : 0 <span style="float: right;">(57)</span>

Nothing venture, nothing won. On 25 April 1910 the Board ran a single poll on the proposal to borrow £1,700 for Tarawera Works alone. It was supported by 10:0 but still an insufficient number were interested in voting. <sup>(58)</sup> They were to try once more on 17 May 1910. The proposals were for the:

Eastern Area of Tarawera Subdivision	2,800
Western Area of the Subdivision	1,700
Island Area of the Subdivision	1,000
Matata Area	500
Total	£6,000
and for the Rangitaiki Diversion	£5,000

There is no record that this latter proposal was put to the vote. What is abundantly clear is that the votes in favour of the Rangitaiki Diversion were coming from the Rangitaiki Subdivision. Landholders in the Tarawera Subdivision were holding back drainage improvements. The Rangitaiki outlet was as vital to them as to the Eastern Area, but they were averse to playing a positive role in what could only be of the utmost benefit to them in the long run. The Board clearly had tried every possible manoeuvre and every means of persuasion. Why the inertia and apathy was so widespread and continuous in the Tarawera Subdivision at the time can only be a matter of conjecture.

If the thwarting of their endeavours by the Tarawera Subdivision landholders to turn the swamp into productive farmland was the only disappointment for the second board they might yet have survived the crisis of 1910. But their lot from the beginning in 1901 had not been a happy one for a number of reasons. That such an earnest group were denied the support so necessary for the task they set themselves can only be a matter for regret. That the small number continued to press the cause for successful drainage plans to be implemented is a fine

example of pioneer perseverance.

## REFERENCES

- (1) *Whakatane Counties Act 1899.*
- (2) *Whakatane County Council Minutes 21/2/00 (Hereinafter referred to as WCC)*
- (3) *Ibid 20/10/00*
- (4) *Ibid 17/11/00*
- (5) *Ibid 19/1/01*
- (6) *Ibid 16/3/01*
- (7) *Letter Colonial Secretary to Clerk WCC reported in WCC Minute 21/5/01.*
- (8) *NZ Gazette Vol 2. 1/8/01 page 1581*
- (9) *WCC Minutes 19/10/01*
- (10) *WCC Resolution : Minutes 16/6/00*
- (11) *Lands and Survey Dept to WCC 21/7/00 WCC Minute.*
- (12) *WCC Minutes 15/9/00*
- (13) *Ibid 20/10/00*
- (14) *Bay of Plenty Times 16/12/01*
- (15) *Secombe, Thorne : Early days on the Rangitaiki Swamp 1900-1915.*
- (16) *WCC Minutes 17/5/02*
- (17) *WCC Minutes 21/6/02. Voting for the amendment were J. Warbrick, F. Burt, Rawson: against were Peebles, Moody, Stanley and Broderick.*
- (18) *Letter W. A. Carter Solicitor, Opotiki, to Chairman and members RDB 18/4/03.*
- (19) *The Whakatane County Council Office. On 15 February 1902 the County Council agreed to the Drainage Board using their office for its meetings at 5/- per meeting as long as not required by the Council on that day; the County to withdraw or terminate the arrangement at any time.*
- (20) *Notice of Special Order signed C. M. Buckworth, Clerk, RDB 6/6/02 Opotiki Herald 2/6/02.*
- (21) *These subdivisions were retained by the Lands Department. When the third Board considered subdivisions, as they were required to do by law in 1959 the same titles were retained with the exception that Rangitaiki was divided into Rangitaiki and Omatoroa.*
- (22) *New Zealand Gazette 20/11/02 page 2527.*
- (23) *Ibid p 2531*
- (24) *BOP Times 22/6/03*
- (25) *Ibid 29/7/03*
- (26) *Ibid 23/7/02*
- (27) *WCC Minutes 18/4/03*
- (28) *NZ Gazette 22/10/03 p 2239*
- (29) *Ibid 26/11/03 p 2465*
- (30) *Rangitaiki Drainage Board Rates Book 1902-1910*
- (31) *Pawa Hori is sometimes referred to as Hori Pawa but more frequently was known as George Powell.*
- (32) *RDB Rates Book 1902-1910*
- (33) *Ibid*
- (34) *NZ Gazette 15/3/06 p 800*
- (35) *RDB Rates Book 1902-1910*

- (36) *BOP Times* 7/11/04
- (37) *Seccombe, Thorne : Early Days on the Rangitaiki Swamp 1900-1915.*
- (38) *Ibid*
- (39) *Ibid*
- (40) *WCC Minutes* 21/1/06
- (41) *Murray, George J. : The Story of the Rangitaiki*
- (42) *WCC Minutes* 5/5/06
- (43) *Murray, George J. : The Story of the Rangitaiki*
- (44) *WCC Minutes* 22/6/06. *This Council meeting had been set down for 16/6/06 but was deferred for six days as a mark of respect to the Prime Minister R. J. Seddon who had died on 10 June.*
- (45) *WCC Minutes* 20/10/06
- (46) *NZ Gazette* 4/10/06
- (47) *Ibid* 23/11/05 p 2737
- (48) *WCC Minutes* 26/8/03
- (49) *NZ Gazette* 12/5/10 p 143
- (50) *Letter T. F. Barnes to E. Gerard, Official Assignee* 11/7/10.
- (51) *RDB Rates Book 1902-1910*
- (52) *Letter : Barnes, Secretary RDB to the Receiver* 11/7/10
- (53) *WCC Inward Correspondence* 14/1/07 and 15/1/07
- (54) *NZ Gazette* 23/3/08
- (55) *Ibid* 17/2/10 p 614
- (56) *Ibid* 10/3/10 p 791
- (57) *Ibid* 12/5/10 p 1434
- (58) *Ibid* 5/5/10 p 1348



*Seccombe's Drain at Te Teko. It was the first to be excavated by mechanical means.*

## CHAPTER IV

### THE DEMISE OF THE SECOND BOARD 1905-1910

It is all so simple now to say what the Board should have done. Quite probably members knew that the Rangitiaki Outlet was the key, but not having the finance available initially for such a project, they turned to lesser works which would make some of the land productive. Such a course would provide development sufficient to give settlers an income and in time to increase the capital value of the land against which further borrowing could be pursued. But too many settlers wanted too much too soon. The Board could not possibly deliver. In any case, settlers frequently could not discern what was Drainage Board business and what was County Council business. It would be fair to say that even the Council and the Board were often confused about the extent of jurisdiction.

The closing of the Orini River by construction of a dam in 1901 is a case in point. Despite the discussion in Council, no move was made to have the Orini re-opened for boat traffic, in itself an acknowledgement that the Drainage Board was legally entitled to carry out drainage works. <sup>(1)</sup> When the Orini became polluted the problem was referred to the County Council in these words:

Owing to closing of the Orini by the Rangitaiki Drainage Board the stream has now become a nuisance and a menace to public health. I intend to represent it to the Chief Health Officer, Wellington. I intend asking for co-operation in installing a sluice gate at the head of the Orini so that there will always be sufficient water to flush out the stream so there are no deleterious matters that find their way into the river bed. I am writing on behalf of the natives of Otamauru. <sup>(2)</sup>

The following month a further letter went to the Council from the same writer:

I am not asking the Council anything particular re the proposed sluice gate in the Orini Dam but wish most particularly to draw attention to the insanitary state of the Orini since it was dammed. I believe a great deal of waste comes from the flaxmill. I invite the Council to see the Orini at low tide and establish that I make no idle charge. I am personally careless myself of the Orini but I have been requisitioned to attend to this matter. <sup>(3)</sup>

In this case no action was taken by the Council, but if there was a culpable party it was clearly, in the view of the writer, the Drainage Board.

The Board was unpopular when it had the swamp lands classified for drainage rating. No doubt there was displeasure at the classification and in some cases settlers sought legal advice. Since almost all the land would benefit from drainage works, any appeal was not likely to be particularly successful. In any case, the grounds for appeal to a Magistrate were set out and adequately advertised as one settler found out to his cost, the solicitor's advice fee being £1-1-0. <sup>(4)</sup> There were four categories of classification:

1. Lands receiving or supposed to receive immediate and direct benefit.

Whakatane County Council has no powers to interfere in the matter and its remedy is to call upon the Board to connect the drain in question with one of the main Public Drains under its management.

The Board is liable to serious penalties if it fails in its clear duty in this matter. <sup>(15)</sup>

John H. Spurr, who was both a County Councillor and a member of the Drainage Board, entered the fray on his own behalf. In a letter to the County Clerk he threatened legal action if measures were not taken to reduce the water levels in the road drains under Council authority adjacent to his land [Section 91] as full drains were flooding his land. <sup>(16)</sup> In July 1908, in response to a Drainage Board letter, the Council authorised Councillor Spurr to have the offending drains cleaned out sufficiently to stop the water flowing over the road. The clerk was instructed to take out figures of expenditure on this portion of the Te Teko road over the last four years to submit to the next Council meeting with a view to claiming a fair share from the Drainage Board. <sup>(17)</sup>

At the beginning of 1910 the Council was adopting a more conciliatory attitude. Settlers were to be reminded that they must not drain water from their land into road or outlet drains.

<sup>(18)</sup> A month later the Council wrote to the Board asking it to consent to bearing half the cost of £25-0-0 for deepening and widening the Te Rahu Drain to 4 ft because it was in the Council's interest to run water down the Te Rahu, which offered the lowest point of entry to the Whakatane River. <sup>(19)</sup> The Board replied on 21 March, the Secretary stating:

By direction of the Board I make reply to your letter of 24 February last, that as the Board has spent a sum of something like £600 on drains from which the roads are deriving considerable benefit it cannot contribute anything to the Road and Government Drains as requested but it is prepared to adhere to the offer contained in its letter of January 24 last to which it asks for a definite and early reply so that <sup>(20)</sup> in the event of non-acceptance it may proceed to expend its proportion of £12-10-0.

This particular dispute ended at this point. Very soon the Drainage Board became involved in other more far-reaching issues which would lead to its dissolution.

When Thomas Seccombe planned to construct the Edgecumbe Catchwater Drain, which would require a crossing of the Te Teko-Galatea Road, he sought permission of the County Council. This permission was sought on his behalf by the Drainage Board: the drain therefore became a Board drain although constructed by a private landholder. <sup>(21)</sup> Permission was granted provided that a suitable bridge was erected and that traffic was not impeded in any way. The Council was concerned that the bridge which had been erected was not suitable, as when the water came down scour would make the bridge unsafe. Councillor Seccombe, as Chairman of the Drainage Board, agreed to bring the matter of the temporary and permanent bridges over the drain before his Board and would endeavour to obtain an authority in writing, to be sent to the Council, stating that the present bridge was only temporary and if in the future a permanent bridge should be required the Board would erect it. He stressed that the Board recognised the importance of keeping the road open and that the present bridge would be replaced if required later on. <sup>(22)</sup>

The Drainage Board, or Seccombe, was less perturbed than the Council. In March 1909 the Catchwater Drain was 35 ft wide instead of the 10 ft originally cut and in consequence a

great deal of sand had been washed down and deposited in the Rangitaiki River bed despite the absence of rain. The Council was apprehensive of what might happen in heavy rain. Mr C. F. Reid said that as Seccombe had misrepresented the issue when he sought permission to construct the drain across the road, he should be asked to close the drain. It was decided to send a reply to Reid advising that the Council was dealing with the matter, and to write to the Board pointing out that a considerable time had elapsed and that a suitable permanent bridge be erected at once in terms of the Board's letter of 1908. <sup>(23)</sup>

Apparently the situation worsened and the bridge became unusable for the Board wrote to the Council in March 1909 to say that the ford was quite safe and there were few people crossing it. There was no instance where travellers had been stopped. The Board proposed doing nothing until the rains had ceased. Seccombe, it was stated, had been in communication with the Roads Department as to the most suitable type of bridge to erect. <sup>(24)</sup> The Board had no funds to do any bridging, and scarcely any other work by 1909 so the question of the bridge lapsed. When the Council became aware in early 1910 that the Board was proposing (ratepayers willing) to borrow money for works in the Tarawera Subdivision, a letter was sent to the Drainage Board asking what amount had been provided for bridging the chasm on the Te Teko-Galatea road. <sup>(25)</sup> Evidently the temporary bridge was suitable for light traffic for in February the Council reiterated that it wanted a permanent bridge over the Te Teko chasm while it was disturbed that the Drainage Board was satisfied with the temporary structure. <sup>(26)</sup> The Council was obliged to tread warily in matters concerning this bridge because Seccombe had invited the Council's Chairman to attend while the bridge was constructed. The Chairman did so and also expressed his satisfaction with the materials and construction. Seccombe on behalf of the Drainage Board, was able to use the Chairman's acquiescence to good effect. <sup>(27)</sup>

From Onepu southward the Tarawera River was a source of concern after the collapse of the retaining wall at Lake Tarawera in 1904. As no drainage works could be undertaken in the Tarawera subdivision what little was done became the province of settlers themselves, in this case Seccombe and R. E. Grieve, and later Halletts and John Motion. Seccombe and Grieve were protecting their own land so the work carried out was not the Drainage Board work but private work. However where protection of roads was involved the County Council had to take an interest. As early as 1905 the Council, in an attempt to restrain the river, had an embankment built to contain the overflow. The workers were Putihura and Manihera. Evidently they did a good job for R. E. Grieve wrote to the Council to say they had completed the sanctioned work at a cost of £5-15-0, which would protect the main road for a considerable time unless the river channel filled up further. <sup>(28)</sup> Seccombe continued for the next three years to protect his lands in his own way by erecting small embankments where the river broke away from its channels. Late in 1908 he became concerned at the channel filling and the river spilling over. His first concern was his Te Teko properties, but he was mindful also of his properties lower down the swamp. He was dissatisfied with Turner's engineering advice so Metcalfe was engaged to write a report. Metcalfe's recommendations were most likely for the Drainage Board and not for the Council, since Seccombe was no longer a Council member. Dissatisfaction with Metcalfe's report and plan, which Seccombe regarded as misleading, led to the engaging of F. Rich of Auckland to assess the probabilities of the Tarawera River breaking loose, and to provide a workable plan to contain the channels. Seccombe thought the chances of the Tarawera actually getting into the Rangitaiki as 1:500,000, or perhaps one chance in a million. As Drainage Board Chairman he was determined to make the Tarawera safe if it could be done. <sup>(29)</sup>

Two months later there was an interesting development. Writing to the Council again, Seccombe advised that the Drainage Engineer's Report would have reached the Clerk the next day had not the Premier wished Seccombe to send it to Rotorua where he and the District Engineer might consult regarding the safeguarding of the Tarawera River. Seccombe thought that the government would probably undertake the work if Rich's plan was approved of. The estimated cost was a little over £350. Rich had gone a long way up the Tarawera and found the river nearly free of sand and he thought the sand would soon disappear from Onepu. <sup>(30)</sup>

That the Tarawera River was playing havoc cannot be doubted. The Mail Service from Rotorua found the road conditions so hazardous on account of the river that the Rotorua mail contractor wrote a report for the Chief Postmaster at Thames, the text of which the Chief Postmaster communicated to the Whakatane County Council:

We respectfully wish to draw your attention to the very dangerous condition of the road between the Tarawera River and Te Teko. The river has been frequently in flood of late, breaking over the road in many places, consequently rendering it unsafe for the mail coach - at the present time there are several washouts from two to four feet deep and varying in width from three to twelve feet, and in one place the road is covered in water for 150 yards. The trip before last the pole of the coach was broken in crossing one of these washouts and we have on occasions put on men to fill in these places with fascines at our own expense to ensure the coach getting through ....

You will see that this matter [of attention to the road] is urgent and important. An early reply will greatly oblige. <sup>(31)</sup>

It could be that the Council made some effort to improve access along the road. Since it was well away from the seat of Council activities it was not a matter raised again. Thomas Seccombe carried on with his own protection works but in 1910 felt compelled to address the Council once more, complaining about the state of the road down to Halletts, and the damage to grassland because one of the settlers erected a bank along the Tarawera River, thereby diverting the river from its course over the surrounding land. The Council replied it was sorry to hear that matters were as they were stated, but that banking the river referred more to the Drainage Board than to the Council. However the Council did resolve that a letter be sent to Hallett informing him that Seccombe took exception to Hallett's works. <sup>(32)</sup>

In 1905, before T. F. Barnes was elected to the Drainage Board, and while he was responsible for County road maintenance, he came across a flagrant settler disregard of communal responsibility. He reported the matter to the Council, and not to the Drainage Board. A cut had been made in the Rangitaiki River bank in one of Platt's sections during 1904. The cut was between Warbricks and the sandhills, ostensibly to let the water into the river, but by 1905 the cut was twenty yards wide and the East Bank Road was a lagoon 2 ft to 4 ft deep, depending on the river level. Barnes stressed the repair of the bank should be taken in hand without delay while the river was low as he regarded the existing state of affairs as prejudicial to the settlers. Even a dray could not use the road. He impressed the Council that his information was not faulty. <sup>(33)</sup> That Barnes, who was dedicated to the drainage works being attempted by the Board, should address the Council in this matter

indicates an unclear demarcation of responsibility where rivers were concerned, as Thomas Seccombe was with the Tarawera River.

Criticism of the County Council over its lack of concern in drainage matters extended to its apparent failure to do much about roading. In a letter on behalf of many settlers Thomas Seccombe implored the Council to use the rates from the undermentioned sections to provide wheeled roads for better settler access to their holdings. No doubt he was referring to 'thirds'. The sections were, 108, 109, 130A, 131A, 132A, 133A, 134A, 135A, 137A, 138A, 141, 141A, 154, 155, 158, 121, 122, 125, 126, 127, 73, 74, 84, 86, 75, 77, 80, 81, 84, 65, 66, 68, 50, 51, 52, 53, 48 and 49. A glance at the map will reveal that in fact Seccombe was asking for access by wheeled vehicles to most of the swamp. Self-interest could again have been a motive in some areas, but Seccombe appears in this case to have been concerned more for progress than for self. The Council had no money for such road construction, and little interest in the swamp. It was a problem it would rather not have had. So when the moves were afoot to have the government take over the drainage the Council seized the opportunity for roading of the Rangitaiki Drainage District while drainage works were being carried out. The Council made its point by a reminder to W.D.S. MacDonald MP, to put the roading issue before the government. <sup>(34)</sup>

The Council, however, was to have the last say in this long- running, acrimonious and futile series of disputes with the second drainage board. The letter forwarded by the Council to the board speaks for itself:

The Council understands that the Board has a scheme for cutting a channel to divert the Rangitaiki River to the sea at Warbrick's Bend, but so far the Council has not been approached with reference to cutting through the Matata Inland Road and as it is the Local Body responsible for the keeping open of communications by roads it would like to know what provision has been made to bridge the channel when it is cut. The Council also has the greatest sympathy with the project. <sup>(35)</sup>

The Council was more accommodating regarding office facilities. From 1901 the Drainage Board had had the use of the Council Chambers for its meetings. In 1905 the Board was seeking a site for its own building. The Council resolved that the Board be granted a temporary site on the east side of Wairere Creek, the site to be agreed on by the Council, and that the building be placed on runners. <sup>(36)</sup> Nothing further was done until 1909 when the Board asked the Council to point out the site which had been offered. On that occasion the Council moved that the Board be given the lease of the second piece of land from the road on the east side of the Council Chambers for a term of 10 years at £5 per annum. Plans and specifications for a building were to be submitted to the Council before such building was erected. <sup>(37)</sup> Apparently this was not acceptable to the Board and so arrangements were made to remove their office to Te Teko, to a corner of Abbott's woolshed. Presumably the Board were not financial enough to erect their own building at the time. Why the Council wanted the Board out of the Chambers has not been disclosed. So from 1910 the Board's Office functioned from Te Teko, where Barnes as secretary attended only on Mondays. <sup>(38)</sup> It was from the Te Teko office that the final moves of the second Board were to be played out.

The Board had been able to do very little work since 1907. <sup>(39)</sup> The indifference of the Tarawera Subdivision landholders had precluded any further borrowing. The loan for the

Rangitaiki Subdivision of 1902 was due for renewal or repayment. The Board was unable to negotiate renewal, therefore the inability to repay it brought swift official reaction:

In the matter of the Local Bodies Loans Act 1908 and the Rangitaiki Drainage Board:

I hereby give notice that by an order made by His Honour Mr Justice Edwards on the 9th day of March 1910 I have been appointed Receiver of all that part of the Rangitaiki Drainage Board which is liable (under the above Act) for payment of debentures amounting to £3,000 issued on 12 January 1903.

And further I will be at Whakatane on 7/4/10 ready to confer with all persons concerned or interested in the above matter.

Official Assignees Office, Auckland 24/3/10  
(signed) E. Gerard.

The Board met to consider the situation. The irony of it was that the settlers in the Rangitaiki Subdivision who had tried to do something were now in serious trouble, while in Tarawera and Matata where little effort had been made they were relatively untroubled. A decision was made to enlist the aid of W.D.S. MacDonald MP. The full text of the letter reads:

I am directed to furnish you with the following copy of a portion of a letter recently received from the agent of the Receiver now in charge of a portion of the Board's rates:-

I have received a communication from the Receiver stating that your Board's application to the State Guaranteed Advances Board for the sum of £3,000 has been declined and that the application for a loan of £5,000 has been postponed for further consideration.

The Receiver now desires to know as early as possible what the Drainage Board intends to do in the matter as he must proceed with the collection of the Special Rate struck at once, and where necessary enforce payment. All Special Rates (including the one struck by the Receiver) of Rangitaiki Subdivision pertaining to the £3,000 loan which are still unpaid on 10 May prox. will be sued for at the June sitting of the Magistrates Court in Whakatane.

A suggestion thrown out by the Receiver is that the member for the district should use his influence with the government outside the Advances Board. When he has paved the way possibly a deputation to Wellington consisting of the Board's Chairman, the Member for the district and the Receiver may be necessary. But that of course is a matter entirely for the Board.

The Board desires to obtain your assistance in the manner specified and to bring to your notice the fact that the Ratepayers of the Rangitaiki Subdivision are in desperate straits. <sup>(40)</sup>

During the following week the Board had discussion with C. H. McCutchan, who agreed to carry letters of introduction to Wellington and to represent the Board's difficulties in official quarters. He was engaged specifically to seek an audience with solicitors Messrs Findlay, Dalziell and Co., the Superintendent of the State Guaranteed Advances Office, and the Minister of Public Works. <sup>(41)</sup>

The Government moved remarkably quickly. No doubt Sir Joseph Ward, who was both Prime Minister and Minister of Lands, was well aware of the difficulties from his private contacts with Thomas Seccombe, but he lost no time in arranging for the Under-Secretary of Lands, W. C. Kensington, to go to Te Teko to meet the Board and the settlers. On this advice Barnes called the Board meeting for 7 June 1910 at 2 pm. Thorne, then in Hamilton, was advised by telegram, and Seccombe, Thomas Hallett, Spurr and C. F. Reid by letter. <sup>(42)</sup>

An advertisement was placed in two issues of the local paper advising that a meeting of Ratepayers would be held at 10 am at Te Teko on 7 June to meet the Under-Secretary of Lands and to discuss with him on behalf of the government the present position, the future, and all questions relative to the Drainage District. <sup>(43)</sup> Barnes was not very hopeful that the meeting would be well attended and advised Kensington not to expect more than twenty persons to attend. <sup>(44)</sup> There were 59 ratepayers at the time: Rangitaiki Subdivision 25, Tarawera 26, and Matata 8. The actual attendance was 30 persons. They were Messrs Jourdain and Owen Campbell from the Lands Department; J. McRae, G. Greenup, E. Smith, J. Pile, R. E. Grieve, W. Platt, A.W.J. Abbott, G. Powell, G. J. Murray, C. F. Reid, J. Grieve, T. McGregor, M. J. Platt, R. Rawson, Mrs F. C. Seccombe, T. Seccombe, T. Hallett, J.B. Gow, C. H. McCutchan, J. H. Spurr and Mrs J. H. Spurr, as ratepayers on the roll. Those who had recently taken up land but were not yet on the ratepayers roll were A. Sutherland, W. B. Gow, A. M. Feist, A. E. Hawken and A. J. Thorne. C. Motion and W. Motion were in attendance, most probably to represent the interests of John Motion.

So that Kensington might not be inconvenienced in any way Barnes arranged for saddled horses to be available at Te Teko to take him to Okorero, and for a launch to be on hand so he could make a thorough inspection of the Okorero Bend. <sup>(45)</sup>

Barnes had one more important duty to perform prior to the 7 June meeting and that was to prepare a simple statement of the Board's affairs and the financial position.

#### STATEMENT OF RANGITAIKI DRAINAGE BOARD 7/6/1910

	Area Acres	Value £s
Rangitaiki Subdivision	16,518	45,300
Tarawera Subdivision	20,633	38,825
Matata Subdivision	<u>2,091</u>	<u>4,085</u>
Totals	<u>39,242</u>	<u>88,280</u>

1. Loan No.1 £3,000 is levied on Rangitaiki Subdivision as above.
2. Loan No.2 £2,000 is to fall due on 1/11/12. Lenders are Messrs Jackson and Russell, Solicitors, Auckland. Rateable area is Rangitaiki Subdivision as above.
3. General account : Credit balance at bank £153-5-1

Special rate a/c	£121-12-7
Loan a/c No.2	£ 13-9-11

#### 4. Liabilities

£110	due Loan a/c No.1 from General a/c
£ 40	due Loan a/c No.2 from General a/c
£100	as engineer's fees
£ 50	advertising and legal expenses
<u>£ 50</u>	sundries

Total £350 is approximate and could be exceeded by up to £50.

#### 5. Maximum general rate leviable is 1½d in £ and can be levied over the whole area of the district.

No. of ratepayers :	Rangitaiki	25
	Tarawera	26
	Matata	<u>8</u>
		<u>59</u>

A few days after the meeting the Board wrote to A.W.J. Abbott thanking him for the use of a corner of his woolshed as an office. <sup>(46)</sup> Abbott promptly replied by saying he wanted the Board out of his shed. Alfred Thorne offered his iron shed as a depository for furniture and possibly for use as an office. Barnes thought it close enough to the projected works to refer the matter to Kensington. <sup>(47)</sup> The Under-Secretary replied that a written offer was required from Thorne including the terms on which the building might be leased. <sup>(48)</sup> Barnes was anxious to transfer the Board's effects as soon as the Board was abolished.

Barnes had another duty to perform and that was to advise the Official Assignee of those ratepayers in the Tarawera Subdivision from whom the £188-14-0 should be collected so that that amount could be credited to the Rangitaiki Subdivision. The list of ratepayers with addresses, sections held, areas and rateable values was forwarded. <sup>(49)</sup>

Thomas Francis Barnes had served both the County Council and the Drainage Board in a most conscientious manner for five or six years in addition to running his own farm. He had been at the centre of all the manoeuvrings and disputes since March 1910. Now as July was drawing to a close, he could feel the release of tension as he wrote the final letter of the second Board, which was addressed to the Chairman:

As there is unlikely to be little of importance transpiring in connection with the Board's business I have taken the opportunity of taking a ride up to town. I may be away a week or two and am writing to let you know. <sup>(50)</sup>

The second Drainage Board had toiled mightily against impossible odds to drain the swamp. The resources at their disposal had been too little for the settlers to make any real impact. As far as successful drainage was concerned both Wright and Webster had settled on the key factor, the Rangitaiki Outlet through the sandhills at Okorero. When that appeared beyond local aspirations to achieve, recourse was had to second best, the damming of the Orini and later the Awaitei. Neither of these was a long-term solution while the Rangitaiki continued to discharge into the sea via the Te Awa O Te Atua. Local indifference was a serious deterrent to progress and to the concept of an overall plan. The unhappy relations between

County Council and Drainage Board and the constant bickering over small matters of detail caused a loss of confidence in the Board to achieve anything worthwhile. Too much of the work of Public Drainage was left to the few men prepared to make the effort, namely Joseph Warbrick, Thomas Seccombe and John Motion, along with the ratepayers of the Rangitaiki Subdivision who furthered the work on the Eastern, Western and Te Rahu Drains.

When the Rangitaiki Bill came before the House of Representatives there was little debate. Members who spoke in the Second Reading commended the Minister of Lands, Sir Joseph Ward, for his foresight regarding the provisions. Speakers referred favourably to the success of government involvement in other similar ventures. All speakers were of the opinion that the Rangitaiki swamp would in due course become a fertile dairying district. The only jarring note was the comment by R. A. Wright MP, who hoped that the drainage could be achieved without the necessity of diverting the Rangitaiki River when he had heard Ward, Herries, MacDonald and Massey stress that the new outlet was the essential issue. Herries and MacDonald knew the area well, and McKenzie as Minister of Public Works had also been in the district. Since 1908 Ward had been in correspondence with Seccombe, and he also had Kensington's preliminary report. <sup>(51)</sup>

When the reason or reasons are sought for the Government coming to the aid of the settlers, regard must be had to Sir Joseph Ward's statement to the House:

That the cause of the Government coming in to give assistance to this part of the country was due to the fact that the settlers, in trying to do what was necessary under a Drainage Board, got into financial difficulties, and could not carry out what was required. And the Government stepped in at the instigation of the member for the district, Mr MacDonald, who made strong representations on behalf of those concerned ... the matter is a very important one, and no one except the Government could give effect to what is required in this case for the settlers .... In any case if we did not carry out the work the settlers would be ruined for a certainty.

Further reasons advanced included the success of the Hauraki Plains Drainage Scheme, the Rangitaiki settlers' petition that the Drainage District be abolished, benefit to the district and to the Dominion generally, increasing the dairy exports of the country, history of colonisation showing drainage had been beneficial, a favourable report by the Minister of Public Works, preparation of the way for construction of the East Coast Railway across the swamp, and interest in the potential settlement of the Urewera Country by Europeans.

Without a doubt there were political reasons, for the rural vote was important to both Ward as Prime Minister and to Massey as Leader of the Opposition. Ward certainly moved with alacrity to have Kensington report on the drainage problem itself. He was acquainted with competent engineers' reports from earlier years. There was the link with Seccombe and Ward had already sought Metcalfe's expert advice. It was probable that Ward had already determined what his course of action would be at least some months prior to the crisis; that as Minister of Lands he was able to move so quickly and effectively suggests that he was merely waiting for a catalyst to engage the Government in the drainage of the swamp. <sup>(52)</sup>

So the Rangitaiki Drainage Bill passed without difficulty. The Rangitaiki Drainage District, constituted under the Land Drainage Act 1908 (which superseded the 1893 Act) was abolished, and the Board dissolved as from 1 August 1910. All assets (including unpaid

rates) and liabilities of the Board existing on that date were to become assets and liabilities of the Crown. The Minister of Lands was required to construct and carry on such works as he thought fit for the drainage, reclamation and roading of the land or otherwise for rendering it fit for settlement. All land, including Crown land, was to be rated, except native settlements of less than fifty acres. The second Board had no statutory authority to rate Crown land, a factor which was important in reducing their potential income.

The land was to be classified into lands receiving a direct benefit, lands receiving a less direct benefit, and lands receiving only an indirect benefit. <sup>(53)</sup> An arbitrator was to be appointed by the Minister of Lands, and an arbitrator by the occupiers of the land. In the event Harry Lundius was appointed by the Minister, and Edward Allen of Cambridge by the settlers. Although the classification was carried out promptly and completed by 20 June 1911 <sup>(54)</sup> no rates were levied or collected for some years. Re-classification following the drainage works may have been considered but in 1916 there was a definite further postponement of rates collection. <sup>(55)</sup>

The demise of the second Board occurred without too many tears. From August 1910 the Rangitaiki swamp would become a national rather than a local effort as far as drainage and development was concerned. It was not to be the relatively uncomplicated task envisaged by the parliamentarians, nor was it as rapid as the settlers had deceived themselves into believing. Before the Lands Department had completed its mammoth task there would be howls of rage and many recriminations. It is appropriate now to see how the Lands Department went about their task, and to consider some of the problems which intervened before the planned works were concluded.

## REFERENCES

- (1) *Whakatane County Council Minutes* 21/6/02. (Hereinafter referred to as WCC)
- (2) *Letter R. Nisbet to WCC* 13/2/06
- (3) *Ibid* 16/3/06
- (4) *Letter Megen and Elliott, Barristers and Solicitors, Auckland, to A. H. Ferguson Esquire, Matata* 21/10/1893
- (5) *WCC Foreman's Report* 26/11/03
- (6) *WCC Minutes* 23/1/04
- (7) *Letter George Greenup to Chairman WCC* 10/2/06
- (8) *WCC Minutes* 18/1/08. *It seems the Government Drain East may have been constructed by the Drainage Board from a special government grant in an endeavour to move the water from Spurr's Corner into the Te Rahu Drain by cutting a channel behind the sand ridge.*
- (9) *WCC Minutes* 15/2/08
- (10) *Letter WCC to RDB* 18/4/08
- (11) *Letter RDB to WCC* 29/4/08
- (12) *Ibid* 25/1/08
- (13) *Letter Greenup and Greenup to WCC* 11/4/08
- (14) *Ibid* 15/5/08
- (15) *Letter Kirk and Harron, Solicitors, to WCC* 27/2/08
- (16) *Letter J. H. Spurr to County Clerk* 26/3/09
- (17) *WCC Minutes* 28/7/09

- (18) *Ibid* 15/1/10
- (19) *Letter WCC to RDB* 24/1/10
- (20) *Letter RDB to WCC* 21/3/10. *The letter referred to of 24 January consented to the Board spending £12-10-0 to widen the Te Rahu Drain to a width of four feet, starting from where it was scoured out up to the Government Drain.*
- (21) *Letter RDB to WCC* undated September 1908
- (22) *WCC Minutes* 17/10/08
- (23) *Ibid* 20/3/09
- (24) *RDB to WCC* 24/6/09
- (25) *WCC Minutes* 15/1/10
- (26) *Ibid* 19/2/10
- (27) *Letter RDB to WCC* 19/2/10. *The letter states that as the County Chairman was on site to suggest the position and approve of the present bridge ... the board does not consider it necessary to make any provision for another bridge at present.*
- (28) *Letter R. E. Grieve to Chairman WCC* 7/12/05
- (29) *Letter Thomas Seccombe to Clerk WCC* 25/12/08
- (30) *Letter Seccombe to Clerk WCC* 12/2/09. *This letter is important because it reveals that Seccombe was in direct contact with the Prime Minister, Sir Joseph Ward, who was also Minister of Lands and it probably explains how Ward became quite knowledgeable about the swamp, as is indicated in his speeches in the House when the 1910 Bill was being considered.*
- (31) *Letter Chief Postmaster, Thames to Chairman WCC* 10/12/07
- (32) *WCC Minutes* 21/5/10
- (33) *Letter T. F. Barnes to WCC* 1/3/05
- (34) *WCC Minutes* 16/7/10
- (35) *Letter WCC to RDB* 26/3/10
- (36) *WCC Minutes* 16/12/03
- (37) *Ibid* 21/8/09
- (38) *Letter Barnes to W. C. Kensington* 20/6/10
- (39) *Murray, George J. : The Story of the Rangitaiki*
- (40) *Letter: Barnes Secretary of RDB to W.D.S. MacDonald* 9/5/10
- (41) *Letters of Introduction : J. H. Spurr Chairman RDB* 16/5/10
- (42) *Telegram and letters : Barnes to Members* 30/5/10
- (43) *Advertisement Whakatane County Press* 31/5/10 and 3/6/10
- (44) *Telegram Barnes to Kensington* 25/5/10
- (45) *Letter Barnes to C. F. Reid* 30/5/10
- (46) *Letter Barnes to A.W.J. Abbott* 13/6/10
- (47) *Letter Barnes to Kensington* 27/6/10
- (48) *Letter Barnes to Alfred Thorne* 11/7/10
- (49) *Letter Barnes to E. Gerard, Official Assignee* 11/7/10
- (50) *Letter Barnes to J. H. Spurr, Chairman RDB* 21/7/10
- (51) *Parliamentary Debates : Rangitaiki Land Drainage Bill August 1910*
- (52) *Ibid*
- (53) *Rangitaiki Land Drainage Act 1910*
- (54) *Letter Kensington to Lundius, Crown Lands Ranger* 20/6/11
- (55) *Letter T. W. Broderick Under-Secretary of Lands to Harry M. Lundius, Crown Lands Ranger, Wellington* 31/5/16

## PART TWO

## CHAPTER V

## THE LANDS DEPARTMENT: PREPARATIONS 1910-1913

As the Rangitaiki Drainage Board became less able to carry out the necessary drainage works the local member of parliament, W.D.S. McDonald, began urging the Minister of Lands, the Rt Hon Sir Joseph Ward, to come to the aid of the Board and the sorely pressed settlers. The Minister sent the Under- Secretary for Lands, William C. Kensington I.S.O. to make preliminary investigations. He returned to Wellington in mid June 1910 with a report which stressed the importance of the Rangitaiki River outlet, the construction of which would cost about £5,000, and which would lower the water level by six feet. <sup>(1)</sup> It is clear that although other internal drainage works were desirable and necessary there was no disputing the conclusions Wright had reached in 1893, at least from an engineering point of view.

Kensington made a further visit in December 1910 when he made an exhaustive inspection of the swamp, this time paying particular attention to the Tarawera River. He recommended that the sinuous river be straightened so that the water might carry the silt and pumice out to sea and thus lower the level of the river. <sup>(2)</sup>

No time was lost in pursuing the main objective. The Lands Department moved with alacrity. J. B. Thompson who had accompanied Kensington on his visit, was appointed Consulting Engineer, a task added to his work as Engineer-in-Charge of the Hauraki Plains drainage. It became his lot to prepare the plans and specifications as required and to be responsible for the proper execution of the works. <sup>(3)</sup> In charge locally was Owen N. Campbell, an assistant surveyor and engineer of the Lands Department, who set up his quarters at the outlet.

Surveyors were promptly set to work over the whole swamp area taking levels. Progress was rapid enough for tenders to be called for the major work, the Rangitaiki Outlet, on 24 October 1910. <sup>(4)</sup> It was thought desirable to let this major work out for tender so that the work could be done more promptly, and allow the Lands Department to concentrate on internal drainage and on the Tarawera River works.

Works to be carried out were defined as either major works or minor works, the latter to be put in hand last as they were dependent on the construction of the major efforts. These two major efforts were the Rangitaiki River Diversion Outlet and the dredging, widening and straightening of the Tarawera River. All works were to be performed either by contract or by day labour as the Lands Department found expedient. <sup>(5)</sup>

The Government had agreed to a loan of £50,000, which was considered adequate for the proposed works. The Department adhered to the old-style names for the subdivisions, Rangitaiki and Tarawera, and allocated the loan monies at £23,100 for the Tarawera subdivision, and £26,900 for the Rangitaiki subdivision.



The group of settlers who met the representatives of the Land Drainage Department and negotiated the handing over of the drainage of "the swamp".  
 STANDING: L-R: Messrs J. McRae, G. Greenup (partly obscured), A. Sutherland, E. Smith, J. Pile, R.E. Greive, W. Platt, C. Motion, A.W. Abbott (obscured), W.B. Gow, G. Powell, G.J. Murray, C.F. Reid, A.M. Feist, W. Motion, J. Greive, T. McGregor, A.F. Hawken, M.J. Platt, R. Rawson.  
 SEATED: L-R: Mrs T. Seccombe, Messrs T. Seccombe, J.B. Gow, T. Hallett, C.H. McCutcheon, A.J. Thorne, J.H. Spurr, Mrs J. Spurr.  
 SEATED ON GROUND: L-R: Messrs Jourdain and Owen Campbell.



The Hon. R. McKenzie turning the first sod for the diversion of the Rangitaiki River at Thornton. The speaker is T. Hallett.

PHOTO: "Weekly News" 23/3/1911.

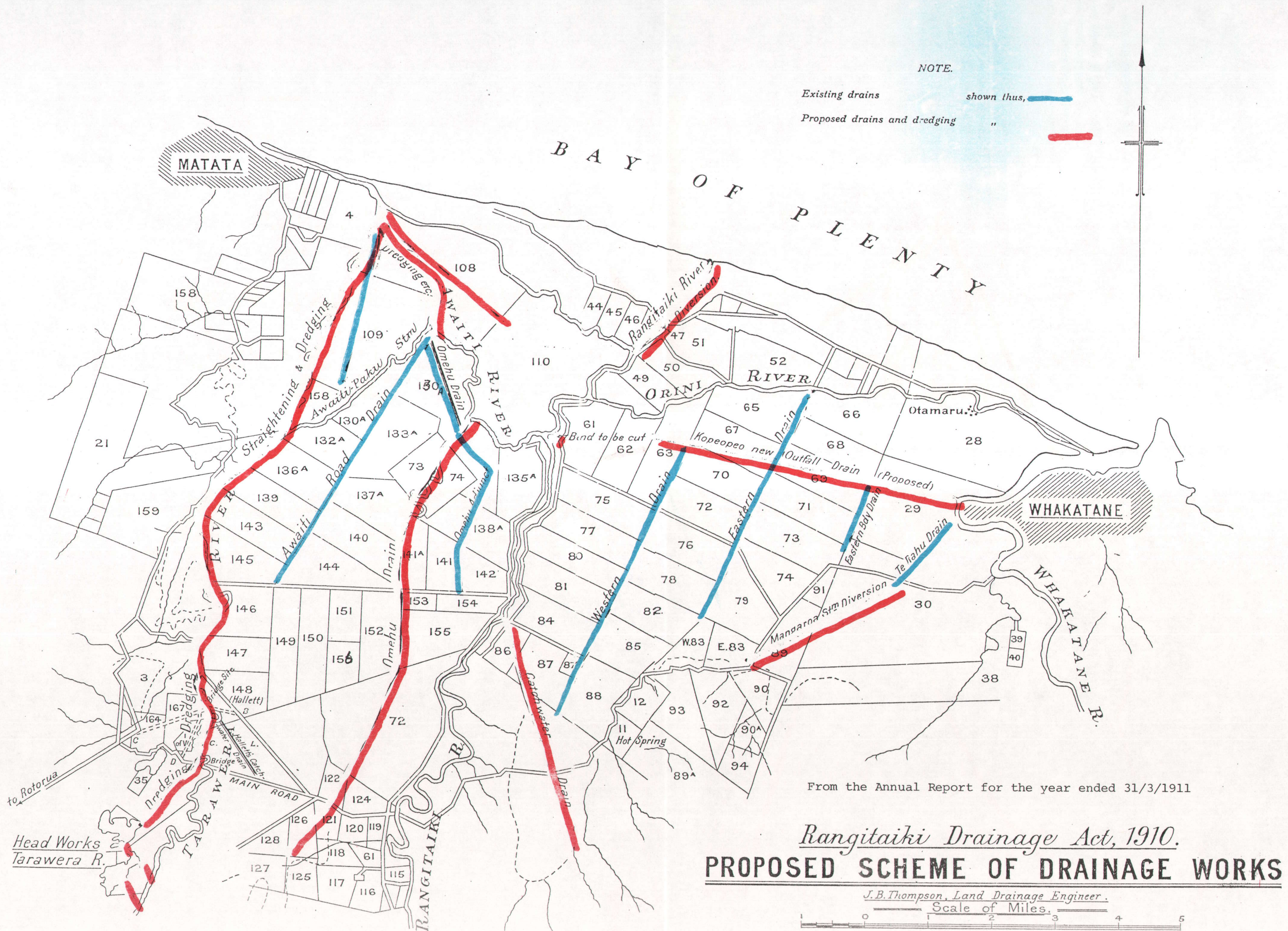
In addition to the Tarawera River work the following works were proposed within the Tarawera subdivision: Awaiti River dredging and general improvements from the mouth to the Awaiti-Paku Stream; Omeheu Stream Drain from the mouth at Awaiti-Paku through the lagoons to the southwestern corner of Section 126; the eastern adjunct to the Omeheu Drain; Tarawera Western Drain from its junction with the Awaiti-Paku southward for 350 chains; a new drain, the Awaiti Drain and widening, 380 chains; a drain through each of Sections 108, 109 and 110; drains west of the Tarawera River; groynes and stopbanks; clearing willows; and a contribution to the Tarawera Bridge on the Rotorua highway. The major work was estimated to cost £11,400 and the lesser works £11,700.

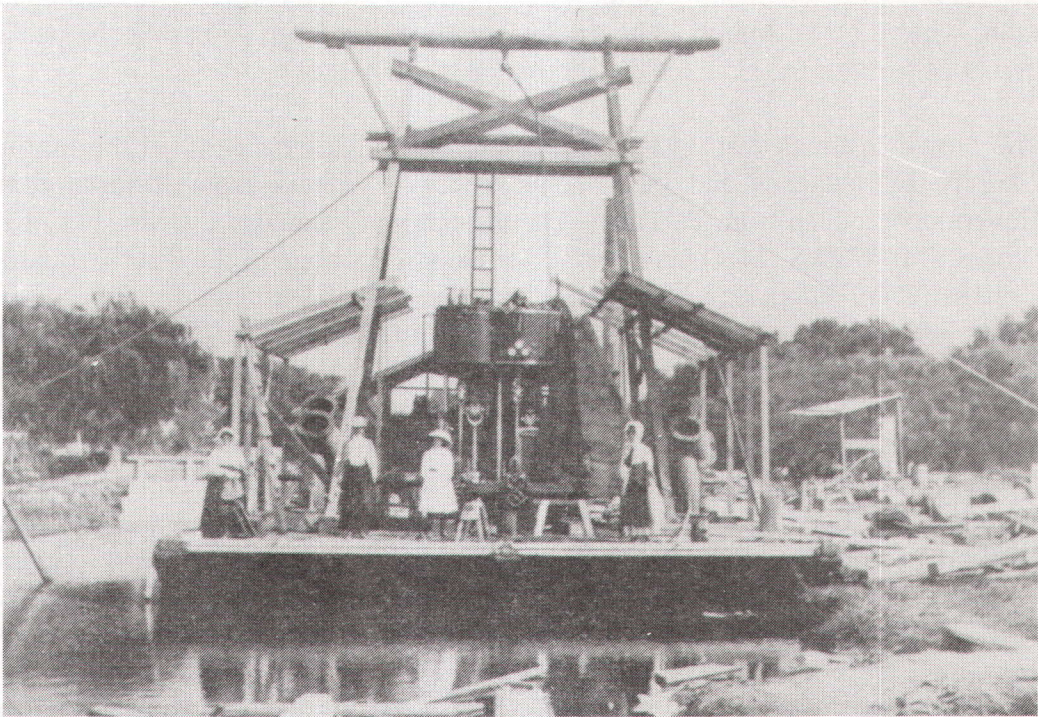
In the Rangitaiki subdivision the outlet diversion was estimated to cost £11,500 and the minor works £15,400. The works expected to be completed for the £15,400 were: dredging the Kopeopeo Outfall of five miles; Te Rahu drain widening and Mangaroa Stream Diversion; Western Drain improvements for six miles; Eastern Drain improvements for four miles; Eastern Boundary Drain improvements for two and a half miles; a catchwater drain to the Rangitaiki River of three miles; general improvements to the Orini Stream including willow removal; cutting off a sharp bend in the Rangitaiki River opposite the Awaiti Stream; drains to the north of the Orini; groynes and stopbanks on the Rangitaiki River; willow removal from the Rangitaiki River; Mangaroa Stream bridge and renewal of Te Rahu bridge; and compensation to A. Thorne for land and buildings taken at the outlet works. Allowance was also made for constructing a ferry to operate on the Rangitaiki River when the diversion was completed.

Within the monetary limits, which at the time were generous, it was a well-conceived plan. It did not deviate from the principles laid down by Wright in 1893 in that the essentials in the eastern sector envisaged the Rangitaiki diversion, the lateral drains: Western, Eastern and Eastern Boundary; the catchwater drains, and willow control. The Kopeopeo drain was a new catchwater not envisaged by Wright. In the Western Sector the main lateral drains were the Omeheu system and the Awaiti. Wright had not too seriously considered the Tarawera in 1893 for at that time it flowed through a well defined channel with adequate banks. That had all changed after 4 November 1904 when the containing barrier of Lake Tarawera collapsed and millions of cubic yards of pumice were washed down the Tarawera valley to clog up the river bed and create serious flooding problems west of the Rangitaiki from Onepu to the coast. Further, to divert the Rangitaiki direct to the sea from Okorero would reduce the quantity of water spilling over as the Rangitaiki flowed westward towards the Te Awa O Te Atua. In this area Sections 110, 109 and 108 were seriously and adversely affected.

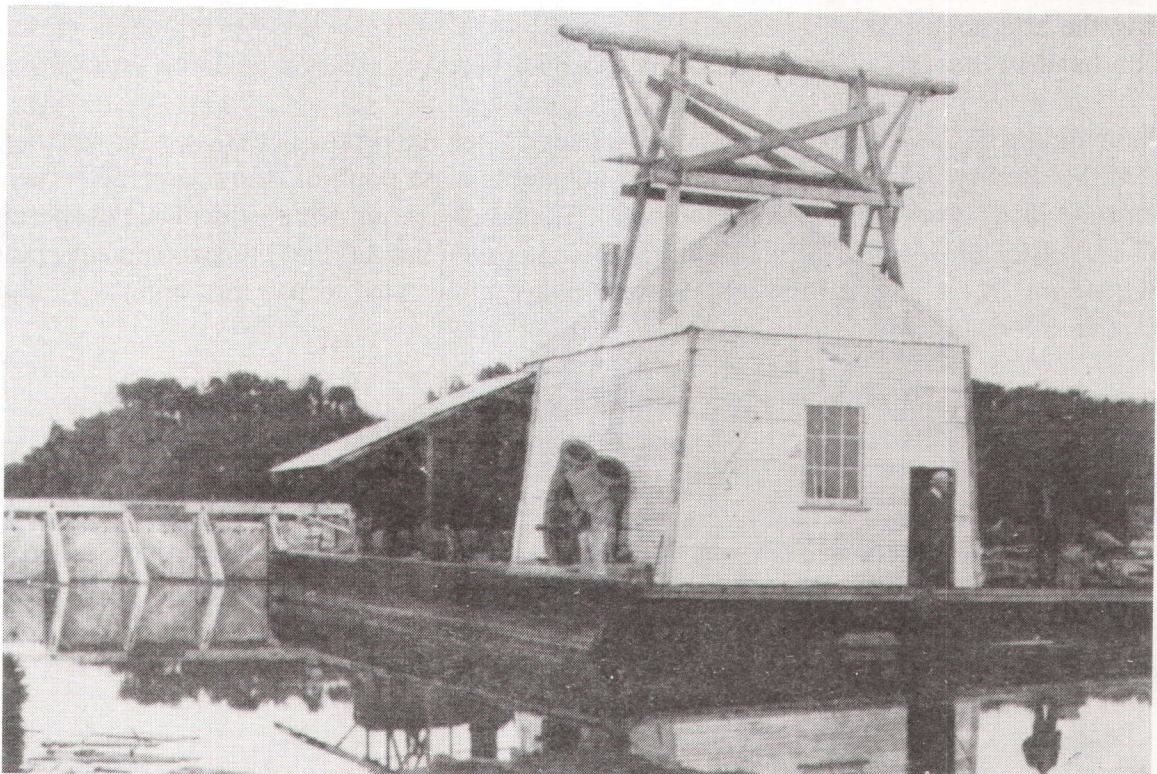
Contract No 1 for the Rangitaiki River diversion for a total distance of 112 chains brought a response, but the tenders were all too high and rejected. The Lands Department then decided to let the contract to Rich and Jeffreys, civil engineers of Auckland. The price fixed was £11,123 with a completion date at the end of 20 months. The contract was signed in January 1911.<sup>(6)</sup> Freed of the major work, the Department was able to apply itself to the preliminary work required to get other works organised and under way.

The completion of the Whakatane River bridge, and the commencement of full-scale drainage operations were enough to cause jubilation around the district, and a desire to mark the occasion. A visit by the Hon Roderick McKenzie, Minister of Public Works, provided the





*Messrs Rich and Jeffreys won the contract for the Rangitaiki River diversion. Their steam driven suction dredge is shown here being assembled at Thornton. Unfortunately the machine could not cope with the ground conditions and the firm withdrew from the contract.*



opportunity. Following the opening of the Whakatane bridge the Minister was brought along to Thornton, where, on 16 March 1911, in the presence of a large gathering, he performed the ceremony of turning the first sod in the diversion channel.

The crowd, estimated at up to 150 people, began arriving early in the morning at Okorero by launches and other conveyances. Visitors from Rotorua came by Government launch from Te Teko. The official party included the Minister of Public Works, Mr W.D.S. McDonald (MP), Mr Gow (Chairman of the Opotiki Board), Mr Holmes (Chief Engineer), and J. B. Thompson (Chief Drainage Engineer in charge of the Works). Also present was Mr Jeffreys of Rich and Jeffreys, the contractors for the diversion. Immediately before the Hon Mr McKenzie began his speech he was presented with a silver spade by Mr Jeffreys. The spade was suitably engraved and bore the following words: in the right hand corner, "Right Hon Sir Joseph Ward P.C., KCMG"; in the left hand corner, "William C. Kensington, I.S.O., Under-Secretary for Lands"; followed by these words: "Presented to the Hon. Roderick McKenzie, Minister for Public Works, on the occasion of his turning the first sod of the Rangitaiki Outlet, by the consulting and contracting engineers, Rich and Jeffries; J. B. Thompson, Engineer in Charge".<sup>(7)</sup>

Mr McKenzie, in a brief speech because he was soon due in Opotiki, said he was sure the swamp would soon be a land flowing with milk and honey, although the work would take a few years. He was frequently interrupted with applause. Immediately after he turned the first sod with the silver spade and photographs were taken the officials hastened away to the nearby banquet hall where drinks were taken prior to the whole gathering partaking of a fine lunch prepared and served by Mr Ganley of the Te Teko Hotel. Following the Minister's assertion that time and tide waited for no man, and in the case literally so for he was travelling by sea, Mr McKenzie departed insisting that officials and settlers should enjoy to the full the food and drinks provided. On his arrival the Minister had been welcomed by Mr Hallett, Chairman of the Ceremony Committee; on his departure Mr Thomas Seccombe, on behalf of the settlers, thanked him for his visit.<sup>(8)</sup>

During the afternoon many inspected the proposed route of the canal; Mr J. B. Thompson was on hand to provide all the information he could that was not of a technical nature.

Without doubt the assembled settlers had witnessed an important occasion. To them it seemed that twenty years of strife and indecision were on the point of being resolved. Their hopes were high. Perhaps they were too high. Shades of caution were evident in the speech by W.D.S. McDonald, their Member of Parliament, when he said that the government grant had been long in coming and the settlers would have to be rated to pay the capital cost and to provide interest payments on the loan.<sup>(9)</sup>

The euphoria of the opening day did not last very long. The settlers expected immediate results. In March 1911 the Department of Lands had called for a public meeting of occupiers of land for 19 April 1911, at 11 am in the Native School House at Te Teko, to elect an arbitrator to assist in classifying lands, in accordance with the provisions of the 1910 Act. By November there was scant evidence of any other activity so the settlers called a meeting, held at Te Teko on 10 November. Eighteen settlers were present: T. Hallett, E. S. Bentley, C. Hallett, R. Grieve, A. Sutherland, A. Feist, G. Murray, T. Barr, J. McRae, A. Abbott, Rawson, T. Seccombe, A. Hawken S. Smith, M. Garratt, and Mrs C.

Hallett. Mr T. Hallett was elected to chair the meeting.

A lengthy discussion took place, the substance of which was the apparent lack of drive by the Lands Department to get down to the essence of drainage. A petition in three parts was forwarded to the Minister of Lands, with a copy to W.D.S. McDonald MP. The petition read as follows:

That the Minister be requested to cause the drainage works of the Rangitaiki district to be pushed forward with greater speed than hitherto, and his attention be drawn to the fact that seventeen months ago when we agreed to hand over to his Department the drainage of the plains we were informed that the works would be started in September or October of that year [1910], and it is now more than a year past that date and the actual drainage is not started.

That neither of the Government dredges for the Tarawera River or Te Rahu are yet ready for work, and also the contractor for the Outlet is practically making no progress.

That many of the settlers have suffered very great hardship in having to pay rent and taxes for so many years while being unable to make any use of their land, and some have been compelled to sell without reaping any reward for their hardships. <sup>(10)</sup>

This was the settlers view. The Department of Lands, though, had not been idle. They reported to the Minister, and not to the settlers. The Engineer's Report for 31 March 1912 summarises what had been achieved while the settlers castigated the Minister for lack of progress. The main points of the 1912 Report indicate:

**Classification:** Mr H. Lundius was appointed as arbitrator for the Government and the settlers elected Mr Edward Allen of Cambridge. The classification of lands was carried out in May and subsequently the Valuer-General revised the valuation of the various settler holdings in order that rates for the payment of interest and principal might be levied. Original valuation had been about 10/- an acre whereas land was in 1912 changing hands at prices between £14 and £16 an acre.

**Tenders:** Separate tenders for Construction of the Kopeopeo Outfall and the Te Rahu-Mangaroa Outfall, called on 16 November 1911 had brought no response when tenders closed on 9 January 1912.

**Machinery:** A Hammond Pony dredge had been acquired locally and two Priestman high purchase and grab excavators ordered from the makers in England. These three all work on floating pontoons.

**The Outlet:** Rich and Jeffreys had been delayed in procuring suitable plant. Inaccessibility of the works and the problems of landing machinery were attendant worries. The plant consists of a suction dredge of two 16 inch centrifugal pumps with a capacity of 700 cubic yards of solids per hour. The delivery pipes to the spoil banks are to be carried on twenty-two floats. A large dam with special sluice gates was erected at considerable cost. Timber for retaining walls is on the ground. A great deal of unseen work has been accomplished so that the whole plant should be

operational by May 1912.

**Tarawera River:** The river has been diverted into Lake Rotoiti-Paku and a channel cut from there into Lake Rotorua. From that lake the river has been led down the Otarakuti which was straightened and widened to its junction with the Tarawera River. This diversion of the river has made the main coach road quite dry. A temporary span has been added to the Otarakuti bridge. The river diversion has created a valuable silt trap capable of holding four million cubic yards of silt and pumice.

**Kopeopeo Outfall:** No tenders were received for the outfall of 4½ miles so arrangements are in hand to dig a drain with a 10 ft bottom and to later enlarge the drain when a dredge is available.

**Te Rahu-Mangaroa:** No tenders were received for this outfall so a Priestman was ordered for the work. It will be assembled on a pontoon 55 ft by 22 ft by 6 ft located four miles upstream and work down on account of the falling grade.

**Awaiti Bend of the Rangitaiki River:** This work is half completed, some 3,500 cubic yards of material having been moved. Wheel scoops have been used.

**Awaiti Stream:** This has been snagged and cleaned for 1½ miles and is now navigable for launches.

**Orini Stream:** Snagging and cleaning have been done over six miles to make the waterway navigable by launches.

**Mangaone Stream:** A 40 chains diversion has confined this stream within banks, which has made a noticeable difference to the surrounding country.

**Eastern Boundary Drain:** Deepened, widened and improved for 144 chains.

**Western Drain:** 454 chains deepened and widened.

**Eastern Drain:** Deepened and widened for 360 chains.

**Te Rahu Drain:** Substantial deepening and widening for 110 chains.

**Ngakauroa Stream and Catchwater:** Cleaned and straightened for 65 chains and being continued for a further 49 chains.

**Omeheu Stream:** Cleaned, straightened and deepened for 80 chains.

**Awaiti Road Drain:** Important work in widening and deepening for 245 chains has been carried out and the drain is now 8 ft wide on the bottom and 4 ft 9 inches deep.

**Hallets Road:** A pontoon ferry was installed at the end of a three-mile road deviation constructed to take main road traffic from Rotorua to Opotiki while the main road and Otarakuti Bridge were reconstructed.

Thompson's report goes on to stress that in an undertaking of such magnitude much preparatory work and organisation had to be faced. In this case it was exacerbated by the long distance from any workshop when repairs were necessary, the chance of vessels being bar-bound for days, and the difficult nature of communications. Work on the pontoons for the Priestmans was being given priority so that they might be ready when the machines arrived in June 1912. <sup>(11)</sup>

Thompson added that the proposed principal works for 1912-1913 were completion of the Rangitaiki Outlet, continued dredging and straightening of the Tarawera River and dredging of the Te Rahu-Mangaroa Outfall.

This summary of works under construction, preparation for the Priestmans, and deepening and widening of existing drains, is at variance with the views expressed by the settlers in their petition to the Minister. It is difficult to understand what the settlers expected within eighteen months. If they were disappointed then with progress it was only one of the many disappointments that they were to experience as the years passed. The Department hoped that work on the main drains would encourage settlers to get on with their own internal drainage. Departmental policy was to provide the main drains and to give an outlet to each 500-acre section. A glance at the map will show how that was to be achieved. Whatever other work was done or planned though, was unlikely to be significantly effective until the Outlet was carrying the Rangitiki River direct to the sea.

It is interesting to note that flood control was not an issue in the early years of Lands Department work, nor did it receive much prominence until later years. Nor had Wright suggested the necessity of flood control. It seems to have been assumed, erroneously, that drainage was all that was required. It was not till after the drainage was well advanced that the thoughts of flood control became of consequence. Floods were seen as an Act of God, something unfortunate when they came, but not an issue to concern the whole area. In the early years of the main scheme it was thought anyway that when the Outlet lowered the water level by six feet that overflow of the banks would be a thing of the past.

## REFERENCES

- (1) *Press report - newspaper not named*
- (2) *Press report - 21/12/10 newspaper not named*
- (3) *Engineer's Report AJHR C 11 - 1911 (Hereinafter referred to as Eng Rep)*
- (4) *Tenders advertisement 24/10/10 - newspaper not specified*
- (5) *Eng Rep 1911*
- (6) *Ibid*
- (7) *Hot Lakes Chronicle 25/3/11*
- (8) *Ibid*
- (9) *Whakatane County Press 21/3/11*
- (10) *Ibid 17/11/11*
- (11) *Eng Rep 1912*

## CHAPTER VI

### CONSTRUCTION OF THE PUBLIC DRAIN SYSTEM 1911-1925

#### (a) The Eastern Area

##### (i) The Rangitaiki Outlet

Rich and Jeffreys proposed to use a suction dredge to dig the outlet canal. There was considerable preliminary work to be carried out, including the construction of the sluice gates which would provide a means of keeping the pontoon pond at an optimum level, and also to hold back the Rangitaiki waters during the progress of the works.

Despite their best efforts, and the expenditure of considerable sums of money, Rich and Jeffreys were obliged by the beginning of 1913 to give up the contract. Their basic problem was that the land would not liquefy and in order for the suction pumps to operate the solids had to be held in suspension.

The Lands Department instructed J. B. Thompson to take charge of the Outlet works. He proposed to use one of the Priestman dredges for the job. These dredges had been delayed in arrival for although the orders for them had been placed by letter in November 1911, and by cable in January 1912, strikes in England had delayed fulfilment of the order. However, by March 1913 they had been shipped to Auckland and delivered by scow, one to Whakatane, and one to Matata. The pontoons were already constructed, one at Mangaroa, and one at Matata. The dredge for Matata, destined for work on the Tarawera, was assembled and then towed the nine miles along the Rangitaiki to Okorero where it was taken through the sluice gates and into the pond and readied for the work ahead. <sup>(1)</sup>

Three types of land had to be passed through to construct the Outlet. Adjacent to the river was the hard peat mixed with sand and silt which had defeated Rich and Jeffreys; next was an area of swamp; and finally 20 chains of sand dunes. For the sand dunes a channel was dug by using horse drawn scoops. This cut the sand channel down to the level of high tide. The remaining work was to be performed by the Priestman. The dredge cut a channel 32 ft wide and eight feet deep from the sluice gates to the sand hills, throwing up material to form a stop-bank along the eastern side of the cut. It then turned about and worked back to the sluice gate removing another 32 ft in width and building the western stopbank. <sup>(2)</sup>

During the financial year 1913-1914 Priestman No 4, removed 82,850 cubic yards of spoil, mostly sand and alluvial silt at a cost of 3.9d per yard. Wheeled scoop teams excavated 35,650 cubic yards of sand at 6d per cubic yard. <sup>(3)</sup>

Thompson had anticipated the Outlet could be completed in 13 months from taking over the work on 11 March 1913. His estimate was close. In 1914 he was emphatic that the channel would be completed in May. Because of the key importance of this one work it was pushed ahead despite the many difficulties. <sup>(4)</sup>

The Outlet may have been important to the Lands Department and its engineers. It was



*After Rich & Jeffreys abandoned the contract the Lands Department undertook the work using steam driven Priestman grab dredges. No. 4 is at work.*



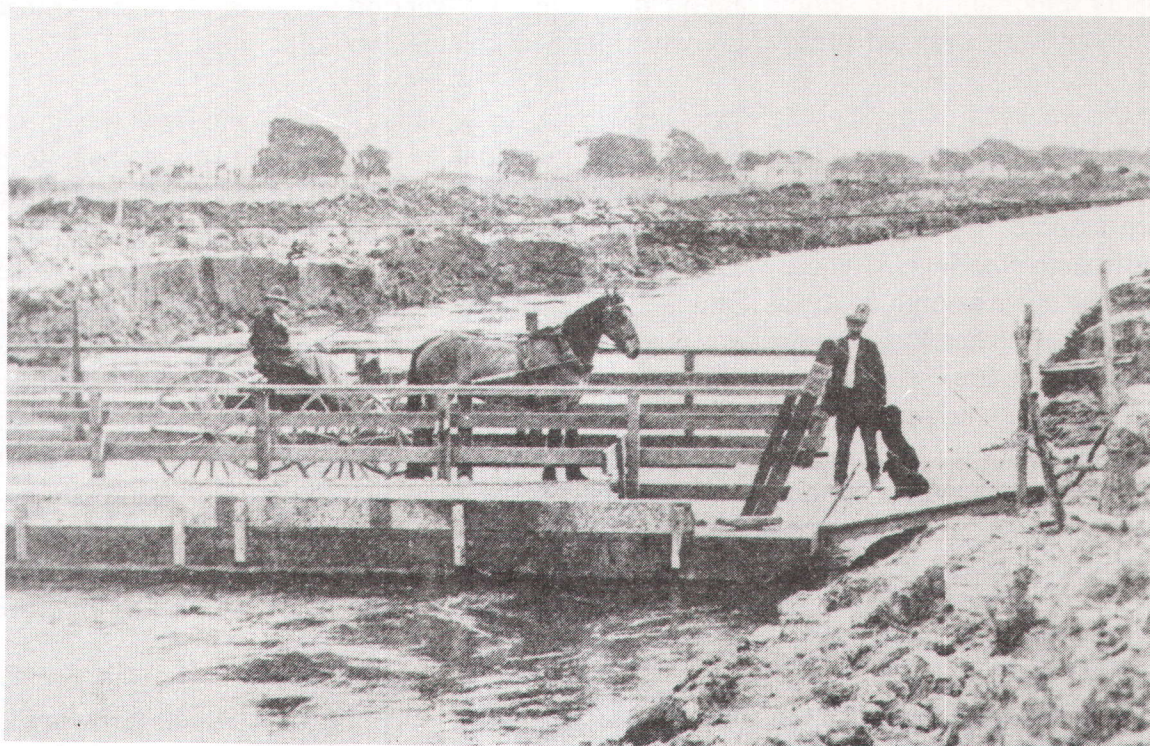
*The sandhills at Thornton were removed to low tide level using horse drawn scoops.*



*Priestman dredge at work on the diversion channel.*



*The diversion completed, the water pours out of the new rivermouth.*



*The ferry at Thornton on the newly-made river diversion.*

PHOTO: "Weekly News" 20/7/1920



*The ferry opposite the Matata township. It was later moved to the Tarawera River diversion.*

PHOTO: "Weekly News" 25/9/1919

doubly important to the settlers and a close watch was kept on progress, so much so that a ceremony was arranged for 26 May when the new channel would be opened.

On the weekend of 16 May there was heavy rain; by Monday 18 May the river was in high flood. At midnight Owen Campbell had two questions to ponder: the likely damage to the completed works, and the maximum benefit from scour by the extra water. It had always been assumed by the engineers that the river would complete the channel by scouring to below high tide level. There was an enormous quantity of sand to be forced out to sea. With the river as high as it was Campbell decided to open the sluice gates and let the water through the channel. Ceremony was not a consideration. Measures had already been taken to anchor the dredge in the cut it had made but even so there were some anxious moments as Campbell and his team had to take further emergency actions to prevent the Priestman being swept out to sea. So on Tuesday 19 May 1914, the Rangitaiki was coursing through its new channel and scouring as it went. There was anxiety that the water might overtop the new stopbanks but the fall was sufficient to allow the river to subside quickly. An hour after opening the sluice gates the water had fallen by three feet, and by eight o'clock in the morning by five feet and was still falling fast, and within a few hours was below the lowest recorded summer level. <sup>(5)</sup>

There had been estimates from time to time as to how much the river would fall when the cut was made. These ranged from the five to six feet postulated by Wright, up to eight feet. That meant that the water level would also fall on the swamp itself, which it did, by at least six feet, exposing a vast area of previously waterlogged country and affording drainage for the many lagoons.

When visitors arrived on Tuesday morning to monitor progress they were amazed to see the Rangitaiki in full flow through the new channel, and also to see a large expanse of land bereft of the water which was encouraged to drain away rapidly. <sup>(6)</sup> Boating became restricted and swamp growth reached the air for the first time. <sup>(7)</sup> It was astounding to see how the water level dropped so quickly, all of six feet. <sup>(8)</sup>

A little work remained to be done. The Priestman had to remove the partial blockage which had formed the abutments for the sluice gates and the gates, or what was left of them, had to be removed. A small dam was constructed on the western side to block off what was later to be called the Old Rangitaiki Channel. Its work at the Outlet completed, the No. 4 Priestman was towed by sea around to Matata and entered the Tarawera River to begin its delayed work there. <sup>(9)</sup>

Travellers between Tauranga and Whakatane had always used the sandhills as part of their access between these two towns. Now that the river was through the sandhills the Lands Department supplied and operated a free ferry across the Rangitaiki until such time as a bridge was built. The Inland Road, as the track was known, was a main road and such as it was it was one of only two east-west roads, the other being the Rotorua-Te Teko Road.

The Outlet was all in a day's work for J. B. Thompson and Owen Campbell but there can be no doubting their satisfaction at the successful construction of the works at Okorero. The old Rangitaiki channel was almost dry and thousands of acres of land were dewatered. The settlers, ever curious and with their private criticisms about delays and dissatisfactions, were now in a position to undertake relatively successful internal drainage on their sections in a more meaningful way. The parallel works which had been put in hand while the diversion

was being cut were made all the more valuable by the lowering of the water level at Thornton. There was an additional bonus too. Scows were able to use Thornton as a port for some years. Much of the cargo delivered there was fencing posts and wire. Settlers had been hard pressed to get such gear on to their farms prior to 1914 because of the distances from Whakatane and Matata, and the impossible nature of the country for any form of transport except boats.

In retrospect, both at the time and since, the Outlet was a red-letter day for the district as a whole. It was also a vindication of Arthur Wright's proposition of twenty-one years before. Although there were numerous trials and tribulations for many years to come the major impediment to successful drainage had been successfully accomplished and there could be confidence in looking forward to future development and prosperity.

## (ii) Te Rahu - Mangaroa

The Priestman No 3, which reached Whakatane in January 1913, was transported to the pontoon which had been built on the Mangaroa near where the Awakeri School was sited. There the dredge was assembled and it began work in April 1913. Because of the fall it was necessary to work downstream so that the Mangaroa Stream could provide sufficient water to float the dredge pontoon while it excavated the outfall.

A preliminary cut with a 10 ft bottom had been excavated to a depth four feet above the final bottom so that a great quantity of water seeping through the swamp could be carried away prior to dredge work commencing. The Te Rahu-Mangaroa was essentially a vital catchwater drain in addition to providing everyday normal drainage from a low basin in the swamp. The dredge cut when completed would take all this water to the Whakatane River.  
(1)

The cut was completed in January 1915. The latter portion of 123 chains was through hard sandy country containing a large amount of timber. The quantities of timber slowed down the rate of dredging and required the use of explosives to free up the soil for the dredge.

Deep peat in the southern section of this drain was to cause problems for many years to come. The shrinkage of the peat caused the loss of freeboard. Peat dredged out and placed as stopbanks was not good stopbank material. The heavy weight of the wet peat caused excessive subsidence which increased the loss rate of freeboard. The weight of the banks forced up the peat in the bottom of the cut which had been widened to 20 ft. Further, there was a perennial problem of siltation caused by run off from the hills finding its way down the Mangaroa, Otarere, and later the Whakaire Streams. Floods from the Whakatane River into the Te Rahu basin placed a heavy burden on the eastern stopbank. The most serious flooding from the Whakatane River, in 1965, breached not only the eastern bank, but the western one also, allowing the Whakatane River waters to surge westward across the Awakeri highway into the Luxtons Valley-McLeans Road area to weaken the Kopeopeo Canal stopbanks and cause a collapse there.

The combination of peat forced up in the bottom of the canal and the silt coming down and lodging against the peat bulges, along with the persistent subsidence of the whole peat basin was a heavy burden on the maintenance problem in the early years. The problem has persisted for seventy years, for the Te Rahu area continues to subside.

During its initial plans for drainage, the Land Department had envisaged a drain in a westerly direction direct to the Rangitaiki River to dispose of water from the Whakaire Stream. By 1917 the Department was considering a new possibility, that of continuing a catchment drain from the Te Rahu-Mangaroa to pick up the Whakaire. Such a drain, although not acceptable to all settlers, was dug by manual labour between 1917 and 1919.

<sup>(2)</sup> When the new American dredges were about to arrive in 1921 the engineers considered that the Te Rahu-Mangaroa-Whakaire would be a good drain to test the capability of the excavators, and if successful would avoid the necessity of diverting the Whakaire as the original plans had envisaged. Deep silt traps were to be constructed along the Whakaire.

<sup>(3)</sup> The final decision was to make the Whakaire a continuation of the catchwater system and so help to relieve the water surplus on the eastern side of the plains.

Originally the Whakaire had found its way to the Orini. That was before the great peat basins subsided with the construction of the new drains. The swamp then looked quite different from what may be seen today. The Whakaire has been taken into the Te Rahu, and the remainder of its old course is generally the line of the Eastern Drain which terminates near the Te Rahu-Mangaroa junction.

Farmers were prompt to take advantage of the Te Rahu-Mangaroa works. They quickly responded by laying down hundreds of acres of grass and turning it to good account long before the work was anywhere near completed. <sup>(4)</sup>

The dewatering consequent upon the cutting of the Te Rahu Canal encouraged the Department to cut outfalls on either side of the Tohakawakawa Stream southwards through Section 30 to the boundary of Section 38. The water level was lowered by 4 ft throughout and the spoil thrown up from the drains, one 10 ft wide, and the other 16 ft wide, provided the material for the formation of what would become Station Road. The Otarere Drain cut from it eastward through Sections 30 and 38. This drain was through soft peaty country and the bottom of the drain was constantly being thrust up, necessitating fresh excavation to get any depth. <sup>(5)</sup>

With the works constructed up to 1920 the seepage from the South Eastern hills was being channelled away to the Whakatane River. The more immediate requirements for the system were continuing maintenance and widening and deepening and some means of controlling siltation.

In November 1921 the two new Monighan dredges from America arrived and were both put to work on the Te Rahu. They were tracked dragline excavators. No. 17 Monighan began work at the Whakatane River end. It did a superb job. The canal was widened to its full 30 ft and up to 5 ft further in depth was excavated. The spoil removed was excellent stopbank material. Up to March 1922 No. 17 had worked 152 chains and removed 40,726 cubic yards of spoil from the canal. <sup>(6)</sup> This dredge completed a further 52 chains and was then transferred to the Orini.

No. 18 Monighan began operations some 2½ miles from the Whakatane River. This was in the deep peat area where, because the weight of the dredge caused subsidence, it had to be continually moved. However it did succeed in picking up four feet of depth which gave considerable relief to the country around Awakeri. When the dredge reached the junction of the Mangaroa Stream it worked up that stream for 20 chains to form a silt-trap. When this was completed No. 18 carried on along the Whakaire, widening and deepening on both

the outward and the return journey. The machine, in the last twelve months on this work, had dredged 222 chains and removed 56,487 cubic yards. The Te Rahu-Mangaroa-Whakaire system was reported as being in splendid order and no further trouble was expected from this quarter. <sup>(7)</sup>

Continued subsidence, lifting and heaving, and the indifferent effects of the silt traps were not issues to concern engineers further in 1923 when this major system was regarded by them as completed.

### (iii) The Kopeopeo Outfall

The Kopeopeo Outfall had been seen as a necessary catchwater drain by Metcalfe in his survey for the Drainage Board in 1908. The drain was to pick up the water from the large lagoons in Sections 62 and 63 and then be constructed in a straight easterly line to discharge into the Whakatane River, gathering on the way the flow from the Western Drain, Eastern Drain and the Eastern Boundary Drain which at that time discharged into the slightly higher Orini Stream.

J. B. Thompson and Owen Campbell agreed with Metcalfe's conclusions and the survey plans he had drawn. The Lands Department included the construction of the Kopeopeo outfall in its 1911 plans. <sup>(1)</sup> Tenders were called for the construction of this five-mile outfall in January 1912. No tenders were received so the Lands Department set about to do the work. It was decided during 1912 to run up a drain with a ten foot bottom, using manual labour, and to place a dredge in the drain to complete the work when a dredge became available. <sup>(2)</sup> The dredge situation was tight: the Hammond Pony was working the Tarawera River, one Priestman was assigned to the Te Rahu, and the other to the Tarawera River when they were delivered. In the event the Priestman destined for the Tarawera had to excavate the Rangitaiki Outlet when Rich and Jeffreys withdrew, thus its arrival in the Tarawera was delayed till mid-1914.

Early in 1914 the preliminary work of clearing and scooping was commenced at the Whakatane end of the proposed Kopeopeo canal. The location of the outfall for the first half-mile followed an old creek-bed which was overgrown with willows. These were demolished with explosives and the scooping of the high portions proceeded. The Te Rahu-Mangaroa was finished by No. 3 Priestman in January 1915 and the dredge and pontoon moved into the Kopeopeo. Before dredging could begin a dam and spillway had to be constructed so that there was sufficient water for the pontoon and also to get sufficient height of water so that the discharge chutes could be operated as the cut was made through the higher ground near the Whakatane River. <sup>(3)</sup> Dredging work was therefore delayed till near the end of 1915. <sup>(4)</sup>

Because of the hard country and the amount of timber, dredging was slow. In order to speed up the work and to give settlers the long awaited relief a double shift was worked throughout the summer months of 1915-1916. A further measure to hasten the work was to excavate only deep enough to float the plant, leaving the balance to be lifted out when No. 3 was on its return journey. <sup>(5)</sup>

There was difficulty in getting coal to the dredge so a new spillway was constructed. Unfortunately the ground was unstable and although the retaining piles were driven down 10 ft there was a serious washout. The spillway was eventually stabilised and made

more fall was available in the Kopeopeo Canal. <sup>(14)</sup> A year later the decision was reversed and No 3 Priestman, working in the Kopeopeo Canal was brought to Reids Central, widening it to 30 ft, as far as the railway, and taking up further fall on the return trip. Despite the need for repair to one chute and the continuing difficulties of obtaining coal, and the reversion to one shift only, No. 3 lifted a total of 122,017 cubic yards and dredged 213 chains.

Following the dredging of Reids Central the dredge worked westwards along the Kopeopeo, then along the Kopeopeo West deviation taking up fall, and returned to the Kopeopeo Outfall. <sup>(15)</sup> No. 3 worked along the outfall and on the way dredged a short way up the Western Drain. It continued eastwards along the Kopeopeo to complete taking up the fall. When the dredge reached the Whakatane River its programme was completed. The pontoon was in need of replacement. This dredge was one of the original purchases. It had done sterling work on the Te Rahu and Kopeopeo systems but in 1924 would be dismantled prior to removal elsewhere.

In 1924 floodgates were placed on the Kopeopeo Canal where it entered the Whakatane River so that the area served would receive the full benefit of low water in the tidal Whakatane River. <sup>(16)</sup> The Kopeopeo system was a splendid catchwater for the many drains leading into it, the most important being Reids Central, Western Drain, Eastern Drain, and the Eastern Boundary Drain.

It had taken the Lands Department much longer than anticipated to carry out the works in the eastern area, a full 13 years.

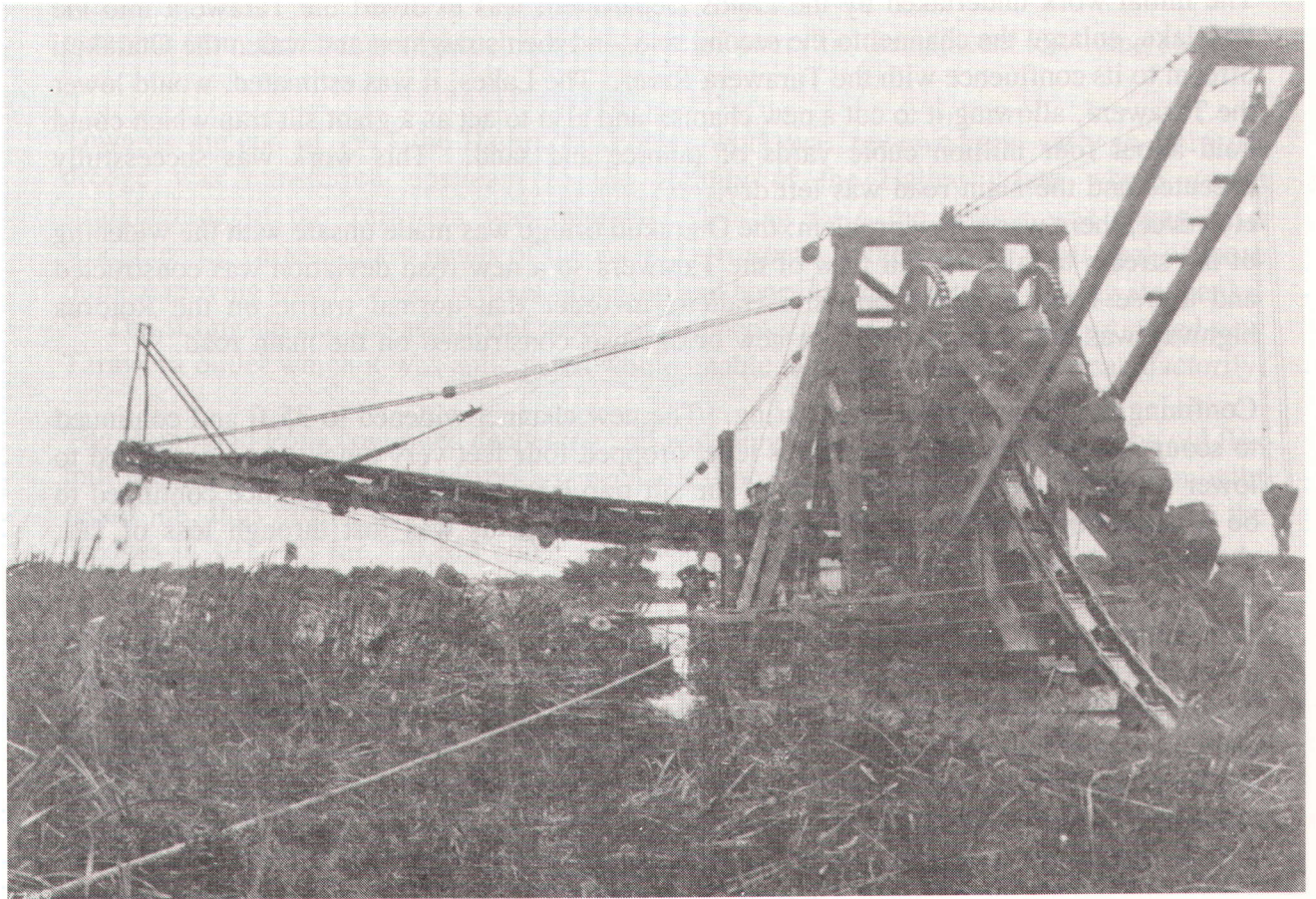
But the Rangitaiki Outlet, Te Rahu-Mangaroa-Whakaire, and the Kopeopeo systems were a just reward for precise surveying and engineering endeavours. The remaining construction work of any moment in the eastern area would be in the White Pine Bush locality where the work would be promptly put in hand using No. 17 Monighan. <sup>(17)</sup> Priestman No. 3 had been a good and faithful servant to both the Lands Department and the settlers.

## **(b) The Western Area**

### **(i) Tarawera River**

For the Tarawera and Western area of the swamp the engineers envisaged the straightening and dredging of the Tarawera River, the construction of the Awaiti and Omehu drainage systems, the Tarawera Western Drain to control seepage from the river, and three lesser drains through each of Sections 109, 108 and 110.

When the pumice retaining wall of Lake Tarawera collapsed in November 1904 a massive amount of pumice rubble was washed down the Tarawera valley, filling up the river bed and pouring pumice over the area between Kawerau and Onepu. The river was flowing over a considerable length of the main road at Onepu. There had been private efforts to construct retaining banks by Thomas Seccombe, Grieves, and later Halletts. These were not entirely satisfactory, nor was the attempt by Seccombe to divert the Tarawera into Lakes Rotoiti-Paku and Rotoroa.



*The Hammond ladder and bucket dredge worked for many years on the Tarawera River.*



*Tarawera River - the new river course leaving the lake.*

on the straightening and the direct outlet to the sea, the Department was justified in feeling some sense of achievement in disposing of the water from the western swamp and in the prevention of overflow. A groyne was erected between 1923 and 1925. Stopbanking on the eastern side of the railway to the sea was completed in 1925 along with stopbanking of the lower Awaitei Stream. There remained yet the troublesome area on the west around Awakaponga where works had been commenced.

## (ii) The Omeheu-Awaitei System

During 1912 and 1913 the Awaitei Stream was snagged for 1½ miles and the channel cleared to permit launch traffic. The Omeheu was cleared of weeds and deepened along its whole length. This work resulted in a lowering of the water level by 18 inches and a large area in the upper reaches of the Omeheu became dry. Farmers responded quickly by breaking in and grassing the dewatered land. <sup>(1)</sup>

No. 4 Priestman, which had originally been destined for the Tarawera River work had been employed on the Rangitaiki Outlet until that work had been completed. It was then taken out to sea and towed around to Matata, <sup>(2)</sup> where it was put to work dredging the lower reaches of the Awaitei. Next it excavated a silt trap in the Awaitei-Paku before beginning work on the Omeheu. When work on the Omeheu did begin hard dredging country was encountered. The dredge had to contend with sandy silt deposits and a great deal of timber. Horse-scoops were employed on the sandy sections and explosives used to cut through the submerged timber. Progress was decidedly slower than the engineers had foreseen although No. 4 was working a double shift.

The Awakaponga Stream was a priority job and No. 4 Priestman was due to begin that work, so the Omeheu was set aside in the meantime. The Department was loath to leave the work in abeyance in view of the considerable development work being carried out by farmers. <sup>(3)</sup> After preliminary work on the Awakaponga Outfall No. 4 was moved to the Tarawera Diversion where the new outlet was cut and the Tarawera flowed straight out to sea in April 1917. Breakdowns, shortage of parts, shortage of labour, shortage of coal, and inability to acquire new machines were all serious hindrances to the speedy completion of the works. Almost all of the difficulties were brought about by the exigencies of war.

Despite the problems the No. 4 Priestman, after the Tarawera cut was completed, once more returned to the Omeheu, but not before it had again cut a large settling bed for silt in the Awaitei-Paku. During 1917 and 1918 No. 4 made little forward progress. The problems which had to be overcome were the large amounts of sand which, when deposited by the chutes, tended to run back into the cut; the height of the spoil along the banks required the use of horse-scoops to clear it away so the chutes could function; the extensive mass of logs and stumps which had to be literally cut through with explosives; and delay while a dam at the western corner of Section 74 was constructed behind the dredge to allow better working. <sup>(4)</sup> The following year the long years of work and the heavy going caught up with No. 4. It had to be dismantled and a new pontoon built, and opportunity was taken for machinery maintenance. <sup>(5)</sup> Dredgemasters also changed twice in 1921. Added to the difficult dredging conditions the delays hindered progress and 1921 was a bad year for the Omeheu.

1922 was a much better year for the Omeheu dredging. Not only was the dredge reconditioned but the country was found to be much easier. No. 4 made excellent progress even though only a single ten-hour shift was worked from August 1921. By March 1922 the

dredge had reached the southern boundary of Section 155, leaving only 70 chains to complete the canal to its connection with the Tengaroa drain. The effect of the canal so far had been to provide ample freeboard and thus dry out the land quite rapidly. <sup>(6)</sup>

The construction of the Omeheu canal to Section 155 allowed the rearrangement of water discharge from several drains which would influence dewatering of a large area of the Omeheu system. The Omeheu Adjunct was blocked at its junction with the Canal, and the Omeheu Drain was also blocked. The anticipated result was that all the water from Kokohinau Drain, Murray's Drain and McIvor's Drain would flow down the Omeheu Canal. Water from the drain fronting the northern boundaries of Sections 153, 152 and 151 was to be cut off and persuaded to flow westwards. Murray's Drain along the southern boundaries of Sections 156, 150, 149 and 148 had been continued westwards across the upper end of Hallet's catchwater to McIvor's Drain. <sup>(7)</sup>

1923-25 saw No. 4 Priestman complete the junction with the Tengaroa and then work downstream again to the Tarawera floodgates to complete the Omeheu system. No. 4 then was set to work dredging the old Rangitaiki River bed up to the Matata road crossing, then worked back along Seccombe's Drain to Section 110 drain and along this drain to the eastern boundary of Section 108.

No. 4 Priestman, perhaps the most notable dredge to have worked on the swamp, and the veteran of both Outlets was then decommissioned and dismantled for transport elsewhere.

### **(iii) The Awaiti Drain**

From the outset of Lands Department works, the Awaiti Drain improvements were seen as complementary to the Tarawera River works. It is no surprise to find that in 1912, 245 chains of the drain had been widened to an 8 ft bottom with an average depth of 4 ft 9 ins.

<sup>(1)</sup> In this condition the drain was maintained annually while other major works were continued on the Tarawera River and the Awaiti Stream and Omeheu Canal.

By 1919 there was fall to be taken up so widening and deepening of the Awaiti was commenced by hand and continued for several years. Of much more significance for the Tarawera area was the seepage problem from the river which it was anticipated could be controlled by the Tarawera Western Drain, a new drain.

Completion of the Omeheu Canal improved the fall available in the Awaiti from the Omeheu junction so in 1924 the new No. 21 Bay City dredge was put to work on the Awaiti section north of the railway. On reaching the Omeheu the dredge turned around, working southwards as far as Section 143. Despite the heavy timber encountered at depth it performed an excellent job. <sup>(2)</sup>

The Awaiti Road Drain was an integral part of the Awaiti-Omeheu system. It performed well and gave no trouble during the construction period up to 1925. For the country it served it required and received scant attention.

### **(iv) The Awakaponga**

The Awakaponga did not appear in the list of drainage work and allocations of finance in the proposals of 1911. <sup>(1)</sup> There is no mention of works planned for the outfall until 1915, when

the construction of the Awakaponga was stated to be as yet untouched. <sup>(2)</sup> In 1919 the construction of the drain was commenced with manual labour. There was trouble with siltation from the Awakaponga Stream so in 1920 the drain was cleared of silt from the last 20 chains, and widened to 18 ft to the junction of Collin's Drain and all available fall taken up. It was anticipated that the Awakaponga would have to be deepened when the outfall was re-dredged, as the country was sinking a good deal. <sup>(3)</sup> In fact the subsidence as a result of constructing the drain was so marked that the drain had to be cleaned out again in 1921 and the contributing Collins and Amiona Drains deepened. In Collins Drain the work was slow and difficult and the construction very costly on account of large quantities of heavy timber encountered 6 ft to 8 ft underground. <sup>(4)</sup>

Late in 1923 it was planned to put No. 9 Priestman into the Awakaponga to cut the drain to canal size after it completed its work on the Awakaponga outlet. The high banks of the drain necessitated damming to gain sufficient working height. The country was found to be exceedingly difficult for the Priestman so a decision was taken to employ No. 21 Bay City to work from the railway line northwards to assist No. 9. <sup>(5)</sup> Transfer of the Bay City was delayed because it had to be dismantled, moved, and reassembled. Floods further delayed commencement of the work. However the Bay City proved admirable for the work in such exceptionally difficult country. In June 1924 it began work at the railway, worked northwards to link up with No. 9 Priestman, then worked south again beyond the railway to the head of the Awakaponga Drain. This work completed the schedule for the Awakaponga area. <sup>(6)</sup>

#### (v) Tarawera Western Drain

The Tarawera Western Drain did not appear on the original map of the proposed plan in 1910. However in the proposed allocation of finance for works in 1911 there was £1,000 set aside for this drain from the junction of the Tarawera River and Awaitei-Paku Stream for a distance of 350 chains southwards. It was therefore not an integral part of the Awaitei-Omeheu system. The drain was to pass through Sections 136A, 139, 143, 145, 146 and beyond the northern boundary of Section 147. <sup>(1)</sup> The drain was constructed by contract labour.

Conditions on the swamp altered during the construction period and the plans were revised. Instead of an outlet to the Awaitei-Paku, the drain was bent away through Sections 132A and 130A to join the Awaitei Drain. The decision to widen and straighten the Tarawera River, but to leave it to scour and deepen itself was wise enough, but when the drainage work caused sinkage adjacent to the river the rate of seepage accelerated. Reconsideration of the function of the Tarawera Western Drain was essential. Its course was moved closer to the river and in essence its function became a catchwater to take seepage from the Tarawera River.

The Matuku Settlement, which resulted from the subdivision of Sections 143 and 145, had always been rather wet. To give improved drainage the Tarawera Western Drain was deepened from the Awaitei Road Drain southwards to the boundary of Sections 136 and 139. Very soon afterwards, at the end of August 1921, No. 21 Bay City was put to work on the drain. The dredge had considerable difficulty getting a face to work on and for six weeks was engaged in cleaning the sides and the bottom. By October No. 21 began to pick up fall, taking 5 ft from the bottom of the drain. Despite problems created by timber, 120 chains had been covered by March 1922. <sup>(2)</sup> The dredge continued southwards to the end of the

Tarawera Western, then moved to the Awaiti Drain where it worked northward and then back southward to Section 143. From that point it walked across country to the Tarawera Western to dredge out the northern section of that drain. <sup>(3)</sup> The deepening of the Tarawera Western had a marked effect in reducing the seepage from the Tarawera River reaching out into the lower country. This drain became an integral part of the Awaiti-Omeheu system designed to dewater the entire western area between the Rangaitiki and Tarawera Rivers.

#### (vi) Drains to Serve Sections 108, 109, 110

These drains were designed to serve the three large blocks of land at the north-western end of the swamp. Section 109 lay between the Tarawera River and the Awaiti-Paku. It was 1500 acres. Section 110, of 2000 acres, lay between the Awaiti and the Rangitaiki. Section 108, 2000 acres, had its eastern boundary on Section 110, crossed the Awaiti-Paku to the Tarawera, with its northern boundary the Rangitaiki River.

The Lands Department, by the employment of manual labour, widened and deepened the Section 109 drain in 1912 for 140 chains. <sup>(1)</sup> Further information regarding these drains was not detailed but the construction of Section 108 drain to the boundary of Section 110 was included in the annual mileage of new outlet drains being dug. No. 9 Priestman, a new dredge, commenced work in the Awaiti Stream in May 1921; when it reached Section 109 drain it turned inland and worked up that drain. The dredge made good progress until it met an extremely hard ridge south of Kohika Lagoon. Beyond the ridge better progress was made and the resulting dredge-cut dried out one of the wettest parts of the swamp. <sup>(2)</sup> No. 9 worked back down 109 and was put to work constructing a channel through the Kohika Lagoon for 30 chains. This work necessitated the wattling of both banks of the cut and the formation of banks behind the cut. The main difficulty of the preliminary work was in acquiring spoil for the banks. The work was finished late in 1922. It was regarded as a splendid job. No. 9 was overhauled and moved to the Awakaponga Canal. <sup>(3)</sup>

Section 108 was a badly waterlogged drain. The diversion of the Tarawera River in April 1917 lowered the water level on the surrounding country by 2 ft 6 ins so the Department decided to run No. 4 Priestman along Section 108 drain to the boundary of Section 110. It was far from good dredging, for, towards the end, the ground was constantly slipping but the dredge completed the cut, which left the ground high and dry. <sup>(4)</sup>

#### (c) Other Works

The Orini Stream was snagged and the willows removed in 1912. This made the stream navigable again for launch traffic. <sup>(1)</sup> No. 17 Monighan worked the Canal in 1924, clearing and straightening, the work being completed on 31 March 1925. <sup>(2)</sup>

In the south the Mangaone, which overflowed a considerable area, was diverted and confined within its banks. This work was carried out early in 1911. <sup>(3)</sup> While this was in progress the Ngakauroa Stream was cleaned and straightened for 65 chains from the Rangitaiki River, and the drain extended a further 49 chains to the foothills. <sup>(4)</sup>

Immediately east of the Rangitaiki River was the Rangitaiki Drain which ran from Section 86 to the Orini. This drain was deepened and widened for 260 chains in 1912. <sup>(5)</sup> As a result of other drainage works, the land to the east dried out and subsided, leaving the Rangitaiki Drain high and dry. By 1918 it was abandoned and replaced by Reids Central Drain.

Floods were not a major problem as far as the construction of works was concerned. After the large floods of 1907 there was no serious flood in the Rangitaiki River until May 1914, which as we have seen was capitalised on by Owen Campbell to open and scour the new outlet. Two further floods in June and July of 1916 caused the Rangitaiki to overflow between Reids and Kokohinau and let a great deal of water into the lower swamp. This flood however provided a good scour at the Awaiti bend and along the lower reaches where willows had been removed right to the Outlet. The force of water was the greater because in 1913 the Rangitaiki had been snagged from Kokohinau to Te Teko over a distance of 4 miles 10 chains to give launch and punt access to Te Teko from Matata. In these 1916 floods the river was contained from Reids to the Outlet, where previously every freshet had resulted in overspilling along that whole stretch on either side. <sup>(6)</sup>

A flood in the Rangitaiki in 1920 caused the River to break through the existing low stopbank in Section 58 on the east side. A decision was taken to raise the Section 58 stopbank by 2 ft over 100 chains, and also to stopbank 50 chains on the western side opposite. A comprehensive scheme of stopbanking the river was to be done in conjunction with the Public Works Department whose engineers would strengthen the existing banks to protect the railway which was being laid in 1920. <sup>(7)</sup> Raising this stopbank did little to stop the flooding, for the river still overflowed at Pepperell's Bend (Section 58 overflow) and inundated the lower land on the eastern side. But the higher level of the stopbank caused the freeboard lower down the river to disappear and overspill occurred in many places. This led to the piecemeal stopbanking process which gave a poor return for fifty years and more until the Bay of Plenty Catchment Commission constructed a comprehensive scheme which was completed in 1980. Stopbanking was a continual concern. It had not been envisaged by Arthur Wright in 1893, nor was it a consideration by the engineers of the Lands Department in 1910. No provision was made for stopbanking in the allocation of finance in 1911. The authority for stopbanking for protective reasons was not stated in the Rangitaiki Land Drainage Act of 1910, but only the authority to construct and carry out such works as were necessary for drainage and reclamation. <sup>(8)</sup> Stopbanking on the eastern side of the Tarawera was clearly essential for reclamation to be successful. For the Rangitaiki stopbanking was a purely flood control measure.

In May, June and July of 1925 there was severe flooding in the Rangitaiki and Whakatane Rivers. Country north and south of the Kopeopeo Canal, in the White Pine Bush area, and in the Te Rahu basin was subjected to severe flooding from the overflow of both rivers. In addition the Omeheu Settlement area of Sections 134A, 135A and 138A to the west of the Rangitaiki was severely affected by floodwaters. Considerable damage was done to the embankment of the East Coast Railway line where it crossed the plains. <sup>(9)</sup> Flooding was not the outcome of drainage, but it did create havoc when it came because the Outlet had built up a false sense of security. The ever-present willows were a menace. Despite their clearance, which was carried out from time to time, large trees became undermined in a freshet and subsided into the main channel. This not only reduced the river flow by choking the channel but intensified the overspill at particular points and also caused erosion of the banks.

Flooding in the Whakatane River in March 1922 caused some drainage problems for which solutions had to be found. The height of the Whakatane flood was 3 ft 6 ins higher than the water level in the Kopeopeo Canal. Water from the river backed up the Tohakawakawa Stream. This caused waters from the Waioho Stream to back up and flood Section 30, the floodwaters then finding their way into the Te Rahu Canal. In 1924 a cut 40 ft wide was taken in a south-easterly line from the Te Rahu to the Waioho where it crossed the southern

boundary of Section 38. No. 17 Monighan dredge carried out this work and then moved to the White Pine Bush area to clean the White Pine Bush Drain and with the cleanings to build an eastern stopbank to prevent flooding from the Whakatane River. <sup>(10)</sup>

After fifteen years work the swamp was a vastly different place in 1925 from what it had been in 1910 when Kensington and Thompson carried out their surveys and formulated their plans. Not least among their difficulties had been a good supply of reliable labour. Labour problems had been caused by the war, and by having to compete with farm development work and with the requirements of flaxmills and of the railway construction. The Yugoslavs who arrived in 1919 made a great difference to the supply of labour. The amount of work done increased dramatically. These workers were particularly adept at manual widening and deepening. <sup>(11)</sup> Both Eric Ramson and Dick Colebrook were impressed with their attitude to work and the vigour they displayed in getting work done. <sup>(12)</sup> Most of the work done by Dalmatians was contract work. They were engaged for 90 chains of stopbanking on the Tarawera River in 1920 but the engineer was of the opinion that day labour was best on manual stopbanking because it could be monitored more closely than contract work could be overseen. <sup>(13)</sup>

By far the greatest amount of spoil in draining was removed by the dredges. The Hammond Pony was purchased and put to work in the Lower Tarawera in 1911. No. 3 Priestman was assembled in early 1913 and put to work on the Te Rahu-Mangaroa. No. 4 Priestman was assembled in Matata in March 1913, destined for the Tarawera River but in the event cut the Rangitaiki Outlet and later the Tarawera Outlet and then cut the Omeheu. No. 8 Priestman began work in October 1920 and No. 9 Priestman in April 1921. In August 1921 No. 21 Bay City Dipper was put to work, and in November 1921 No. 17 and No. 18 Monighans began work. With the additional machinery there was a sharp increase in the amount of spoil shifted after 1920 until the construction tapered off in 1925.

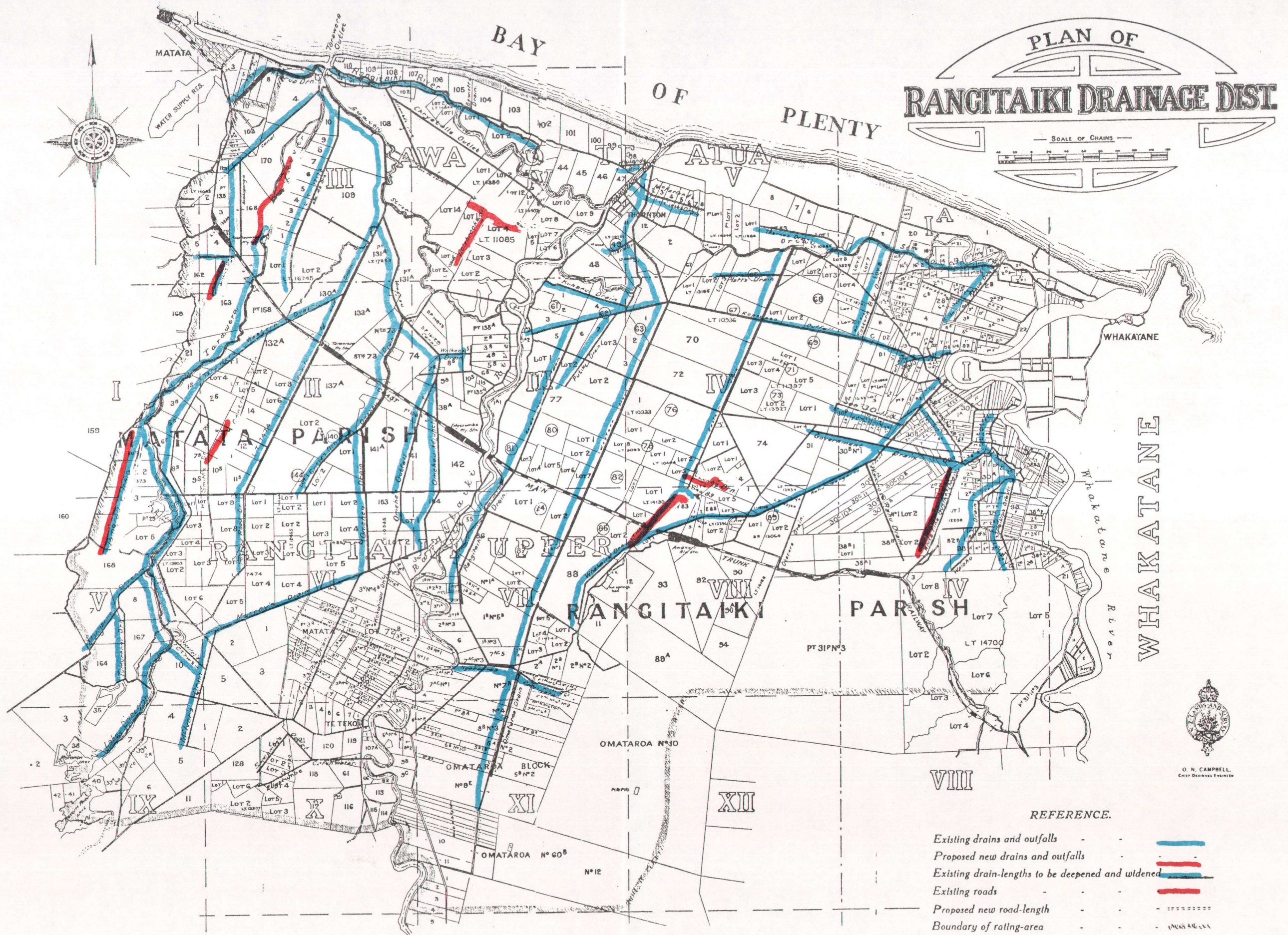
Some idea of the performance of the dredges collectively can be gauged from the table below. Variations year by year can be attributed to the type of country being dredged, the number of machines operating, the ability of the dredgemasters, the quantity and quality of coal available, the problems of dredge and pontoon maintenance and the occasional need for dismantling for transport and subsequent reassembly.

<u>YEAR</u>	<u>CUBIC YARDS LIFTED</u>	<u>COST PER CUBIC YARD</u> (Pence)
1912-1913	31,486	4.12
1913-1914	272,370	3.07
1914-1915	268,760	3.48
1915-1916	224,740	4.54
1916-1917	261,751	4.36
1917-1918	320,614	3.72
1918-1919	229,659	5.70
1919-1920	176,672	6.62
1920-1921	215,768	8.82
1921-1922	473,994	6.68
1922-1923	540,802	8.13
1923-1924	788,059	5.56
1924-1925	626,762	6.11
1925-1926	431,277	5.88



*Monighan draglines were used when the land became drier. They "walked" on wide pads to distribute their weight on the still soft surface.*





From the Annual Report for the year ended 31/3/1925

For bids see Rangitai Land Drainage Act, 1910.

The first summary of the total length of drains in operation appeared in 1915. <sup>(14)</sup> There was another summary in 1919 followed by annual summaries up to 1926 when a halt to new construction had been called. The mileages in the following table take no account of settlers' internal drains but include the rudimentary drains taken over in 1910: these were the Te Rahu to the Awakeri Road, Eastern Drain from the Orini to the southern boundary of Section 79, Western Drain from the northern boundary of Section 70 to the southern boundary of Section 87, the Eastern Boundary Drain fronting the eastern side of Section 69 and 71, the Omeheu Drain and Adjunct from the Awaitei to the southern boundary of Section 142, Section 109 drain, and the shallow Awaitei Road Drain to Section 145.

In miles and chains the Drains up to 1926 were:

	1915	1919	1920	1921	1922	1923	1924	1925	1926
Dredge Cuts	15.65	21.0	24.0	26.0	33.55	46.12	56.29	64.42	65.14
Main Outlet Drains	60.13	86.0	93.0	97.0	94.06	99.66	101.56	103.26	105.17
Road Drains	-	17.0	21.0	26.0	26.0	28.60	29.20	29.20	30.46

Drains which were part of each system by 1925:

### Tarawera River

#### Awakaponga System:

Awakaponga Canal  
Awakaponga Drain  
Collins Drain  
Withy's Drain

#### Awaitei-Omeheu System:

Section 109 Canal  
Awaitei Stream  
Awaitei Canal  
Awaitei Drain  
Tarawera Western Drain  
Tengaroa Drain

Seccombe's Drain  
Crystall's Drain  
Section 110 Drain  
Colebrook's Drain  
Omeheu Canal  
Omeheu Drain

Omeheu Adjunct Drain  
Walker's Drain  
Grieve's Drain  
Murray's Drain  
McIvor's Drain  
Kokohinau Drain

### To Whakatane and Rangitaiki Rivers

#### Kopeopeo System:

Kopeopeo Canal  
Kopeopeo West Canal  
Allen's Drain  
McFarland's Drain  
Kuhanui Drain  
Putiki Drain

### To Whakatane River

#### Te Rahu-Mangaroa-Whakaire System:

Poroporo Drain  
Section 30 Outlet Drain  
Government Drain East  
White Pine Bush Drain  
Waioho-Te Rahu Drain  
Te Rahu Canal

Reids Central Drain  
 Platt's Drain  
 Eastern Boundary Drain  
 Eastern Drain  
 Western Drain  
 Luke's Drain

Mangaroa Stream  
 Whakaire Stream

**Independent Drains entering Whakatane River:**

Orini Stream taking Thorne's Drain and Kapua Drain  
 Waioho Drain and Phillips Drain

**Independent Drains entering Tarawera River:**

Mangaone Stream with Tumurenu Drain  
 Hallet's catchwater  
 Tumurau Drain  
 Old Rangitaiki Channel Canal

**Independent Drains entering Rangitaiki River:**

Edgecumbe Catchwater with Seccombe's Outlet  
 Ngakauroa with Omataroa Drain  
 Hyland's Drain

The near completion of the construction programme with its network of drains had by no means drained the land adequately. It had, however, provided an outlet for every section and it had made possible the success of internal drainage systems. It was unfortunate that after such a mammoth effort by the Lands Department that a host of new problems arose and taxed the ingenuity of settlers and government alike in 1925.

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**THE OUTLET**

- (1) *Eng Rep 1913*
- (2) *I. M. Withy: Private Paper on drainage*
- (3) *Eng Rep 1914*
- (4) *Ibid*
- (5) *Press Report Wednesday 20 May 1914: paper not indicated*
- (6) *E. J. Ramson: conversational recollections 1989*
- (7) *Press Report 20 May 1914: paper not indicated*
- (8) *Dick Colebrook, observer: conversation July 1989*
- (9) *Eng Rep 1915*

**TE RAHU-MANGAROA**

- (1) *Eng Rep 1915*
- (2) *Ibid 1921*
- (3) *Ibid 1921*
- (4) *Ibid 1914*
- (5) *Ibid 1920*

- (6) *Ibid* 1922
- (7) *Ibid* 1923

### **KOPEOPEO OUTFALL**

- (1) *Eng Rep* 1911
- (2) *Eng Rep* 1912
- (3) *Eng Rep* 1915
- (4) *Eng Rep* 1916
- (5) *Eng Rep* 1916
- (6) *Eng Rep* 1917
- (7) *Eng Rep* 1918
- (8) *Eng Rep* 1919
- (9) *Eng Rep* 1919
- (10) *Eng Rep* 1918
- (11) *Eng Rep* 1920
- (12) *Eng Rep* 1921
- (13) *Eng Rep* 1920
- (14) *Eng Rep* 1920
- (15) *Eng Rep* 1920
- (16) *Eng Rep* 1924
- (17) *Eng Rep* 1924

### **(b) Western Area**

### **TARAWERA RIVER**

- (1) *Eng Rep* 1912
- (2) *Ibid*
- (3) *Ibid*
- (4) *Ibid* 1914
- (5) *Ibid* 1915
- (6) *Ibid* 1916
- (7) *Ibid* 1917
- (8) *Ibid* 1918
- (9) *Ibid* 1922
- (10) *Ibid* 1924
- (11) *Ibid* 1929

### **OMEHU-AWAITI SYSTEM**

- (1) *Eng Rep* 1914
- (2) *Ibid* 1915
- (3) *Ibid* 1916
- (4) *Ibid* 1919
- (5) *Ibid* 1921
- (6) *Ibid* 1922
- (7) *Ibid* 1922

### **AWAITI DRAIN**

- (1) *Eng Rep* 1912
- (2) *Ibid* 1924

**AWAKAPONGA**

- (1) *Eng Rep 1911*
- (2) *Ibid 1915*
- (3) *Ibid 1920*
- (4) *Ibid 1921*
- (5) *Ibid 1924*
- (6) *Ibid 1925*

**TARAWERA WESTERN DRAIN**

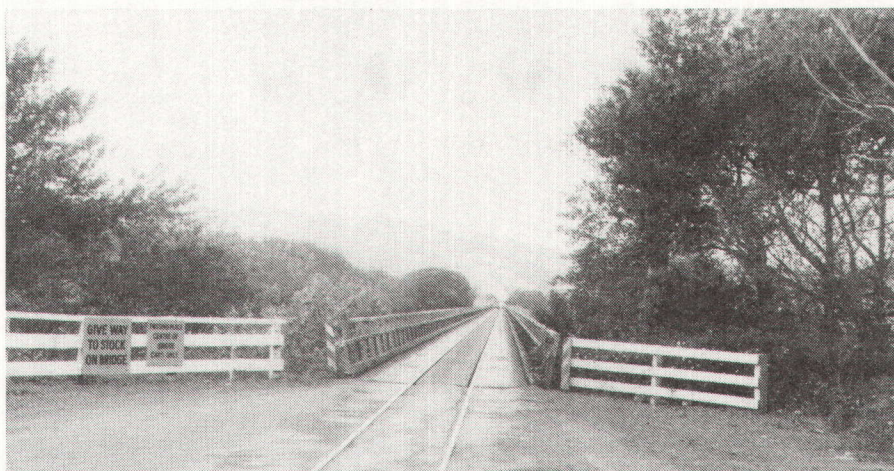
- (1) *Eng Rep 1911*
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**DRAINS TO SERVE SECTIONS 108, 109, 110**

- (1) *Eng Rep 1912*
- (2) *Ibid 1922*
- (3) *Ibid 1923*
- (4) *Ibid 1918*

**(c) Other Works**

- (1) *Eng Rep 1912*
- (2) *Ibid 1925*
- (3) *Ibid 1912*
- (4) *Ibid 1912*
- (5) *Ibid 1912*
- (6) *Ibid 1913*
- (7) *Ibid 1920*
- (8) *Rangitaiki Drainage Act 1910 Section 4*
- (9) *Eng Rep 1926*
- (10) *Ibid 1925*
- (11) *Ibid 1919*
- (12) *Personal interviews with Ramson and Colebrook*
- (13) *Eng Rep 1921*
- (14) *Ibid 1915*



*Pekatahi road/rail bridge.*

## CHAPTER VII

### ROADS, BRIDGES AND THE RAILWAY

When James Baber and his team surveyed the swamp prior to settlement between 1890 and 1892 most of the road lines were surveyed at the same time. Little had been done by way of road construction by 1910. The Whakatane County Council had plenty of commitments as regards roading, collected little by way of 'thirds' and received only meagre grants from the central government. Such little as was received and could be spent on the swamp was poured into the Te Teko Road and just as promptly disappeared into the deep peat, of which there were three particular stretches: from Spurr's Corner to Smiths, at the Hot Springs, and from McGougans to Knight's Corner. A second project dear to the County Council was the inland road from Whakatane to Matata. This was an integral part of the Tauranga-Opotiki main road. Construction became a more pressing demand after the Whakatane ferro-concrete bridge was opened for traffic in May 1911.

While such conditions prevailed there was scant hope for the settlers on the swamp to have their roading requirements met. In a letter to the District Roads Engineer in Auckland the Whakatane County Council asked for a grant for the road along the western side of the Rangitaiki from Te Teko to Okorero. The District Engineer was unable to supply funds and advised the Council to apply for a grant and offer if possible a subsidy. <sup>(1)</sup> Reference was also made on the survey map accompanying the request to roads surveyed or made, or otherwise designated up to that time. These roads were part of the inland road along the old Rangitaiki, a partial road/track along the Orini, a partial road along the sandhills north of Sections 44, 45, 46, 47, 50, Angle Road/McLeans Road, McCrackens Road, Western Drain from McLeans to Maunders, East Bank North from the Orini to the South Boundary of Section 80, and the road between Sections 51 and 52. Riverslea Road was shown as broken formation, and the Whakatane Rotorua Road as incomplete from Mangaroa to the Ngakauroa Stream, and again incomplete from Mapou one mile northward.

It is not surprising to find the county clerk writing to W.D.S. MacDonald, the local Member of Parliament, asking him to remind the government of the need for roading the Rangitaiki Drainage District at the same time as the projected drainage works were carried out by the government. <sup>(2)</sup> This letter reinforced the request that the settlers made when they met government representatives at Te Teko on 7 June 1910 and asked the government to take over drainage operations and to provide roading. <sup>(3)</sup>

The government recognised the necessity of roading the swamp if settlement was to have any chance of success. The Minister of Lands was authorised to construct roading of the land, and any other works necessary in addition to drainage, to make the land fit for settlement. <sup>(4)</sup> The Under-Secretary of Lands inquired of the County Council if it was prepared to hand over the 'thirds' now standing to the credit of the Drainage District in the Council's hands. <sup>(5)</sup> The Council complied with the request. 'Thirds' continued to be collected and applied to roading but the total was not great, £1,846-14-2 being grossed from 1911 to 1937 when this tax was abandoned. It was an insignificant amount of the total expended by the Lands Department on roading. The total length of roading on the swamp by 1924 was 113½ miles, of which 85 miles had been constructed by the Lands Department.

J. B. Thompson had a view of the roading system which was at variance with the local wishes. Locally the inland road to Matata and the Whakatane-Te Teko-Rotorua were seen as the essential highways. Thompson saw the route from Awakaponga to Mangaroa as the main arterial road, and also the most likely route of the East Coast Main Trunk Railway, in 1910 still a long way distant. That was at a time when locally it was hoped the railway would be constructed along the sandhills from Matata to Whakatane and on to Opotiki, along with a railway from Rotorua to Te Teko and thence to a junction at Whakatane. Thompson was realistic but his hands were tied until the actual line of the rail had been surveyed.

In the meantime roading was commenced. The method was to dig drains on each side of a surveyed road. The spoil was then thrown into the centre to make the foundation for the road. This method had the advantage of providing drainage and raising the level of the roadway above the surrounding land. The roads were fenced, as were the drains which were constructed. When a road was formed it was handed over to the County Council for maintenance.

The County Council had great difficulty in keeping the roads in order. Metal for roads was virtually unobtainable within a reasonable distance, and pumice had to be carted from hill deposits. The disadvantage of pumice was that it was washed away in heavy rain and blew away in dry periods. Cartage of pumice from the surrounding hill pits helped to consolidate the roads but also placed a considerable stress on those roads already formed.

Thompson came under heavy pressure to get on with the railway service road once his view was accepted regarding the Awakaponga-Mangaroa line. There were frequent letters from the Whakatane County Council, some in response to petitions from settlers.<sup>(6)</sup> Thompson was beset by enough difficulties, most of which were occasioned by the war, but he replied that as soon as the centre line of the railway had been surveyed and finally determined the government would take the necessary land for both railway and road by proclamation and have the action gazetted.<sup>(7)</sup>

The County Council maintained its pressure on Thompson and then approached from a different angle, no doubt themselves being pushed along by the settlers who were interested in the Freezing Works and access to the works. If the Council could not have the Awakaponga-Mangaroa road, perhaps Thompson would assist with diverting the Inland Road from the sandhills to the old Rangitaiki. Thompson would not; he had no funds, but he would provide the survey plans for the Council.<sup>(8)</sup>

When the construction of the railway finally reached the swamp in 1919, roadwork began on the eastern side of the Tarawera and proceeded to the Rangitaiki River. Thompson thought the settlers were too persuasive for he saw that the railway service road, as it was termed at the time, was of limited use only until the rivers were bridged. There was a serious problem at Awakaponga. From Potters Crossing to the Tarawera River the line crossed an old lagoon beneath which lay an area of deep peat. A bypass road was available from Potters Crossing to the Awakaponga Station, but that did not cover the full distance to the Tarawera River. The Whakatane County Council Engineer was asked to prepare an estimate for a new road on the eastern side of the railway. A further complication was that the land necessary for the road had to be purchased from D. H. Potter and Robert Wilson, and the road line legalised.<sup>(9)</sup> Negotiations were protracted. It was not until 1928 that the Council's Engineer was instructed to see Mr Bremner, assistant engineer of the Public Works

Department, and to complete the acquisition of the land from Wilson and Potter, make arrangements to fence the deviation and submit plans and specifications for the road construction. <sup>(10)</sup>

In the meantime there was general dissatisfaction with the steep grades on either side of Potter's crossing. The County clerk was instructed to write to the Public Works Department to ask for additional filling to ease the grades. <sup>(11)</sup>

By 1919 the railway service road had been formed to the Rangitaiki River and gangs were working from the east bank of that barrier towards the Western Drain. Progress, despite the difficulties, was not fast enough for the settlers. A petition was forwarded to D. H. Guthrie, Minister of Lands at the time, on the subject of taking of land for the road and the want of proper fencing on the Western Drain/Mangaroa section. The Minister replied that there was difficulty in obtaining fence posts. He instructed the Engineer to procure posts from Kaitaia. These would necessitate transshipment at Auckland but would, he anticipated, arrive in weekly lots. The minister also pointed out that the petitioners were incorrect. They had thought they signed only to permit the building of a road whereas in fact the agreement they signed was also an agreement for sale and purchase of the required road land. <sup>(12)</sup>

Dearth of labour was a prime reason for the relatively slow progress with roading. Thompson was not unsympathetic to farmer interests though. Evidence of this was in the formation of two unscheduled roads to enable settlers to have better access to dairy factories: this was the Tarawera Cross Road along the line of the Omeheu to connect the Railway Service Road with Riverslea Road; and Feists Road, along the northern boundary of Section 75 was hurried along to give farmer access more readily when the dairy factory was established at Awakeri.

Road formation was 6 miles 30 chains in 1913; 16 miles 47 chains in 1914; 6 miles 24 chains in 1915 with the observation that the land contained just enough grit and sand to make passable roads without metal; 14 miles 72 chains in 1916; and 60 chains in 1917. During 1918 roadwork was stepped up. Gow's Road was completed. Western Drain Road was formed from the southern boundary of Section 84 to the northern boundary of Section 78; and the County Council was requested to acquire the necessary land from Section 84 to Section 86 so that that portion of the East Bank Road could be completed, thus giving through road access from Thornton to Te Teko. Two portions of the Railway Service Road were under construction: from the Awaite Road to Section 158, and from the Western Drain towards Mangaroa Station. <sup>(13)</sup>

By 1919 the Western Drain Road formation was completed from the southern boundary of Section 84 to the Te Teko Road in the south, and in the north from Section 78 to Section 76 (McLeans Road). Feist's Road was hurried along and completed. On the Railway Road the section from the Western Drain to Mangaroa Station was completed, and the entire section from the Awaite Road to the Tarawera River was formed. The total formation, not including the Railway Road, was 4½ miles, but that included a portion of McLeans Road to Luxtons Road corner. Completion of the East Bank Road was still delayed owing to the County not completing the acquisition of the necessary land. Despite all the work and effort Thompson was moved to observe that the Railway Road was not of much use until the rivers were bridged. <sup>(14)</sup> Nevertheless the network of roads was taking shape.

In 1920 the County Council legalised the road line and then the Thornton-Te Teko East Bank Road was completed. Feist's Road was completed to give through road access from the Rangitaiki River to Awakeri. The Railway Road was open for traffic from Awaiti Road to the Rangitaiki River. Formation from the Tarawera River to the Awaiti-Paku Stream was commenced. A road from Section 30G to the boundary of Section 31 and 38 was formed and ready for grading. (This was White Pine Bush Road, later called Station Road). The road was completed and in use in 1921. Further roading in 1921 saw Powdrells Road completed, Cabbage Tree Lane North under construction, and the entire Railway Road from Awakeri to the Tarawera River completed. <sup>(15)</sup>

Drains had been cut along the Tarawera River-Awakaponga station section of the Railway Road in 1921. In 1922 the road was partially formed but it was costly, requiring alternate layers of fascines and spoil where it passed through the old lagoon. Preliminary work was completed but the road still required at least 2 ft of spoil over its whole length to make it passable. It was the most expensive piece of road construction. <sup>(16)</sup> In 1923 the Omeheu Road formation was carried on from Gow's Road Corner to Riverslea Road. Section 110 road required considerable filling due to subsidence of the land. <sup>(17)</sup> 1924 saw the northward extension of the Awaiti Road formed as far as the Awaiti-Paku to give access to settlers on the Section 109 subdivisions.

This work saw the completion of the roading programme by the Lands Department. There was a good network to serve the district. Roads running parallel with the rivers were the Braemar Road, Awaiti Road, West Bank Road, East Bank Road, Western Drain Road, Powdrells Road, Eastern Boundary Road, Whakatane-Te Teko Road, White Pine Bush Road and Rewatu Road. Lateral roads were the Inland Road, Railway Road and Rotorua-Te Teko Road. Most of these were formed by the Lands Department. From Awakeri to Pekatahi the railway service road was the concern of the Public Works Department and the Whakatane County Council.

By any standards the Lands Department must be credited with having done an exceptionally good job, both with drainage and roading. The settlers were not able to see it that way and continually importuned the Chief Drainage Engineer, the County Council, and the Member of Parliament to improve the rate of progress. Representations made to the Minister of Lands by W.D.S. MacDonald brought a reply from the Minister during 1919. In addressing Mr MacDonald, Hon D. H. Guthrie referred to the problems of draining the swamp and to the impossibility of obtaining more machinery from England at that time, and to the impracticability of modifying an excavator already in New Zealand. He said the influenza epidemic and its aftermath had seriously delayed some works, and one pontoon was temporarily out of action because of the shortage of timber. Further, the Minister went on to remind MacDonald that the Lands Department had been required to construct roads, of which 50 miles were already completed, through grants and from the funds of the Land Drainage account. These were all clay roads and once formed were handed over to the Whakatane County Council, which body was responsible for maintenance and eventual metalling. The Minister advised that the vast majority of roads had not been a charge on the ratepayers. The desired bridges were a separate subject and not within the province of the Lands Department where river crossings were necessary. <sup>(18)</sup>

Provision of public finance to serve settler aspirations was nothing new. An interesting sidelight on what settlers demanded and expected is shown by their dealings with the

Whakatane County Council in October 1923. At the time the estimated cost of metalling the Railway road from Matata to Taneatua was estimated to cost £12,648 for 18 miles 76 chains. A loan of £5,000 was to be raised and the balance borrowed from the State Advances at 4.5% for 36 years. At the same time there was a settler demand for a direct and straight new road from Edgumbe to the Freezing Works. The detailed estimate prepared reads:

52 acres of land at £52	£2,600
1040 chains of fencing at 32/6	£1,690
520 chains of formation at 80/-	£2,080
Bridges and culverts	£ 870
Metalling 520 chains at 10/- cubic yard	£2,860
Concrete Bridge Whakatane River (site not specified)	<u>£10,500</u>
Plus 10%	<u>£2,060</u>
Total	£22,660

These two items have nothing to do with drainage or the Lands Department but they do illustrate the unrealistic demands the settlers could and did make on officialdom.

The district was difficult of access. And communication within the district was restricted because the area was trisected by the three rivers. It was possible, at low tide, to ford the Whakatane River at Poroporo but there were no suitable places to ford the Tarawera and Rangitaiki Rivers where they flowed across the swamp. In May 1911 the Whakatane traffic bridge was opened to traffic. This bridge served as an outlet via the Inland Road and the Te Teko Road. On the town side the roads from Opotiki via Ohiwa and from Taneatua converged on the bridge. At Matata the County Council operated a ferry across the Tarawera, and at Te Teko the County Council had a ferry operating. These ferries were contracted out and hence the service offered depended on the whims of the contractors. When the Rangitaiki Outlet was functioning after May 1914 the Lands Department operated a full ferry at Thornton. There was a bridge over the Tarawera River from 1900 but it was left high and dry after the Tarawera River was diverted. A free ferry was operated by the Lands Department at Halletts while the Otarakuti Bridge was extended and reinforced by the Lands Department in 1914, since the Otarakuti then had become the Tarawera River. So in 1910 when the government took over the drainage lateral movement was restricted: one ferry operated the Whakatane River, one each the Rangitaiki and Te Awa O Te Atua, and one bridge crossed the Rotorua highway. This bridge in 1910 was useless anyway because the pumice-laden Tarawera was overflowing along the Rotorua Road from the Military Road corner to the Otarakuti Stream. In 1919 the bridge, consisting of five 26 ft spans, was dismantled, removed, and re-erected over the Tarawera Stream and new approaches constructed. The present concrete structure was built by Mahys in 1935.

It is not surprising that there was agitation by settlers for improved transport across the swamp, and that entailed bridges. It became all the more pressing to have adequate transport when the freezing works was nearing completion. Large areas of the swamp were drying out and beef cattle grazed.

Rates were rising with land values and farmers wanted a return that would make grazing viable. Bridges seemed to be the key to the works. Cattle would suffer less loss of weight if they could be processed locally instead of being driven long distances and then railed to the works in Auckland.

Farmer pressure obliged the County Clerk to write to the Lands and Survey Department to press on with the construction of the Railway and the service road, knowing full well that such works would entail bridges. The Chief Drainage Engineer replied with 'I have already informed you in previous correspondence' that nothing could be done until the final survey of the railway line was completed and the necessary land taken by proclamation. <sup>(19)</sup>

The County Council had also written to the Minister of Public Works on 2 July 1915 to urge on him the necessity of constructing the railway and service road. The Minister replied that he was obtaining the relevant information from his officers and noted the request for bridges over the Whakatane, Rangitaiki and Tarawera Rivers. <sup>(20)</sup> A couple of weeks later the Under-Secretary for Public Works advised the Council that the Minister was well aware of the necessity of proceeding with the three bridges but awaited the final survey for the railway. <sup>(21)</sup>

It is interesting to note that from this time onward the provision is always for three bridges. It is also interesting that the County Council had shifted their ground somewhat. They certainly had not finished the Inland Road and perhaps Thompson's central route looked more inviting and would cost the Council less in ratepayer's funds. But persistence had its price. The Council asked the Minister of Public Works for the difference in cost between simply railway bridges and combined rail and road bridges over the three rivers. The Minister replied that such a question could not be decided until the surveys were complete, but inquired what proportion of the cost the Council was prepared to contribute. <sup>(22)</sup>

The County Council tried J. B. Thompson again in October 1916. But Thompson would not bite. The Council had asked him when there would be a road from Whakatane to Matata, knowing full well that it was a Council road anyway. Thompson replied, presuming their request referred to the Railway Road, which would be taken in hand when the survey was completed. <sup>(23)</sup> If farmer pressure did not produce results the Freezing Company canvassed the County Council too. They wanted urgent construction of the road from the Outlet to Matata to provide better facilities for the transport of stock to the works. <sup>(24)</sup>

In mid-1917 the focus changed from the Inland Road to the bridges over the Tarawera and Rangitaiki Rivers. There was no difficulty about the location of the Rangitaiki Outlet, but in official correspondence there was confusion over the Tarawera Bridge. The local understanding was that the Outlet Bridge was where the Tarawera ferry was located; the government officials in reply referred to the Tarawera Bridge on the Awaiti Road. Correspondence between the County Council and the Minister of Public Works and W.D.S. MacDonald regarding plans, grants and subsidies continued from August 1917 to July 1918 when the confusion was unravelled and the provision of bridges at the two outlets was deferred. <sup>(25)</sup> The matter was left to the County Engineer but he made no progress because materials could not be obtained. Millars West Australian Hardwood Company advised the Council in September 1918 that there was no shipping available to provide the hardwood required for bridging. <sup>(26)</sup>

The Farmers Union had been insistent on getting the two bridges built. In July 1917 the Awakeri sub-branch of the Union was informed by the Council that it would have to await Councillor Keegan's report when the Union urged the erection of the Tarawera Bridge. <sup>(27)</sup> In January 1919 the Te Teko sub-branch asked that pontoon bridges be built over both the Tarawera and Rangitaiki Outlets. <sup>(28)</sup> The Council liked the idea and decided if possible to erect a pontoon bridge over the Tarawera Outlet.

No sooner had this decision been taken than the Resident Road Engineer advised he was endeavouring to get totara cut locally for the bridge. <sup>(29)</sup> In May the question of the Tarawera Crossing was left in the hands of the chairman and engineer to erect a small bridge as soon as possible. <sup>(30)</sup> No doubt there was some urgency as the ferryman was not performing well and the ferry itself needed repairs. It was decided to dismiss the ferryman, employ another at £6-0-0 a week and reduce the charges by 50%. None of this was entirely satisfactory so the Council asked the government to erect a temporary bridge over the Tarawera. The Resident Road Engineer agreed to do the work. <sup>(31)</sup> Thus after many years of waiting a solution was at hand. The bridge was constructed and in use by the end of February 1920. The Council's engineer was instructed to construct a temporary wing on the bridge to complete the work. <sup>(32)</sup>

Similar frustrations and delays were experienced in the negotiations for the Thornton Bridge. The Public Works Department was at pains to explain why funds were restricted, why hardwood was not available, and why totara could not be used for stringers. The Te Teko Farmers Union wanted a bridge high enough to let shipping pass up river. <sup>(33)</sup> The Whakatane Harbour Board wrote with a similar request. <sup>(34)</sup> Early in 1919 the Whakatane Council's engineer had prepared plans and submitted them to the Resident Engineer for approval. The delay was further exacerbated by the inability to get shipping for government hardwood timber from Western Australia. <sup>(35)</sup>

The Council seemed to be getting nowhere so to be seen to be doing something decided to call tenders in May 1919 <sup>(36)</sup> for the construction of the Outlet Bridge. The East Coast Co-operative Freezing Works Company was urging immediate erection of the Bridge. <sup>(37)</sup> At the same time W. H. Taylor, bridge builder of Paeroa, was advising the Council that he could not come to the district at that time. <sup>(38)</sup> The Council therefore instructed its engineer to commence pile driving immediately. <sup>(39)</sup> It was not quite all plain sailing, for the Chief Engineer of the Public Works Department forbade the use of totara for bridge stringers. <sup>(40)</sup> A sorely tried Council's response was to instruct its engineer to proceed with the pile driving and erect a temporary structure immediately. <sup>(41)</sup> The engineer responded promptly and by January 1920 the bridge was in use and the Council instructed the Engineer to improve the Outlet Bridge approaches. <sup>(42)</sup> A decision was taken later in the year to fence and metal the approaches to the Thornton Outlet Bridge. <sup>(43)</sup> In 1921 the Council, in response to a letter from parents of Thornton school children, asked the engineer to erect a railing on the bridge. <sup>(44)</sup>

Although a temporary structure, and hurriedly erected, the Thornton bridge was a major facility for the district. Despite the necessity for a few repairs it even survived the great flood of 1925 and remained in use until a wooden truss bridge of 6 x 20 ft spans and 1 x 62 ft span was completed in 1927.

While the County Council and the settlers were experiencing such problems with bridging the two Outlets, events were moving much more smoothly at the upper end of the swamp. Early in 1907 Arthur Wright had been in Opotiki to discuss bridges on the Opotiki-Rotorua Road and the two major bridges were those across the Whakatane River at Whakatane and across the Rangitaiki at Te Teko. Wright said nothing would please him better than to build these two bridges himself in ferro-concrete as an object lesson to the people of the Bay of Plenty. He would do the engineering himself and thus save the ratepayers money. He was critical of some engineers who knew little about bridge building. <sup>(45)</sup> Whakatane had

proposed a wooden bridge, but they borrowed Wright's ideas of a ferro-concrete structure: they did not accept his offer to do the engineering, which cost them dearly. The Te Teko Bridge was much more successful.

In June 1912 the Public Works Department advised that as the subsidy was pound for pound for erecting the bridge it could not be proceeded with until the Council's quota was lodged. The Minister however was formally disposed to consider the erection of the bridge by his department and to that end plans were being prepared. <sup>(46)</sup> Later in the year the Minister of Public Works advised that Cabinet had approved a straight out grant of £3,000 for the Te Teko Bridge and that £500 was already voted for the preliminary work. The Council decided to ask the Minister to have the bridge construction commenced immediately. <sup>(47)</sup>

Work began in earnest in 1913 and proceeded smoothly, quite free of local constraints, and performed by competent engineers. When Henry Luxton wrote to the Council complaining of the ferry charges the Council decided to take no action since the bridge was well on the way to completion in July 1915. <sup>(48)</sup> At the same meeting the Council resolved to ask W.D.S. MacDonald MP to support an application for a grant towards the approaches and instructed the Council's engineer to prepare specifications and call tenders for the approaches. <sup>(49)</sup> MacDonald was shortly to reply that the Public Works Department considered the approaches to be part of the bridge and were making their own provision accordingly. <sup>(50)</sup> The Te Teko Bridge was completed along with the approaches and opened to traffic in mid-December 1915.

Although it was not an ideal situation it was nevertheless possible after 1915 to travel from any part of the district to Whakatane by using the Upper Tarawera Bridge, the Te Teko Bridge, and the Whakatane Bridge. Despite the lack of internal roading cattle could be moved from one part of the swamp to another without recourse to the dangerous ferries.

Within the swamp itself the Lands Department carried out its own bridging programme as the drains were constructed and roads formed. A summary of this bridging programme reveals the extent of bridge construction:

- 1913 Under-strutting of the Ngakauroa Bridge
- 1914 One three-span bridge over the Orini  
One three-span bridge over the Te Rahu-Mangaroa,  
Fresh piles under the Otarakuti Stream (now the Tarawera River)
- 1915 Two three-span bridges where the Te Rahu crosses the main roads  
Five single-span bridges
- 1916 Two three-span bridges over the Kopeopeo Outfall
- 1917 Several small sill bridges
- 1918 Two substantial bridges over the Kopeopeo Canal (one in Section 29, and one in Eastern Boundary Road)  
Large sill bridge over Kopeopeo Canal in Section 62
- 1919 Substantial bridge over Kopeopeo deviation on the main Whakatane-Thornton Road  
Sill bridge over Kopeopeo Canal near the Whakatane River  
Sill bridge over Kopeopeo Canal in Section 51  
A large number of small sill bridges
- 1920 One pile bridge over Seccombe's Drain on the Matata-Thornton Road

- One pile bridge over the Omeheu Outfall at Gow's Road
- Five large sill bridges over large drains
- Thirteen smaller bridges
- Two concrete, and three wooden culverts
- 1921 One 30 ft bridge at Gow's Road
- Six 20 ft bridges: Eastern Boundary Road Bridge, Reids Central Canal Bridge, McCracken's Road Bridge, Railway Road West Bridge, Palmer's Bridge, Railway Road Bridge at Wharfe's
- Twelve small sill bridges
- 1922 Nine 30 ft pile bridges
- Twenty-five sill bridges
- 1923 Nine 30 ft pile bridges
- Thirty-six sill bridges
- 1924 Nine 30 ft pile bridges
- Eighteen sill bridges
- 1925 Nine 30 ft pile bridges
- Ten sill bridges
- 1926 Five 30 ft pile bridges
- Fourteen sill bridges <sup>(51)</sup>

In this list there are 193 identifiable bridges, and in addition a large number of smaller ones. It was a considerable performance by the Department's bridging gang.

Some bridges, especially the 30 ft ones, were quite substantial efforts which served the district until a programme of replacement was initiated from 1960 onwards.

What is demonstrably clear is that by 1925 when the drainage programme was all but complete the roading system was in place complete with adequate bridging. The cost to the country had been high: the taxpayers were due for a return.

It is appropriate now to turn to the railway. The railway, it was anticipated, would end the isolation of the Eastern Bay of Plenty and the East Coast. More immediately from a local point of view, it would bring the bridges so much sought after across the middle of the plains. In terms of settler expectation the rail was long in coming. In terms of construction difficulties from the Public Works point of view the railway construction was pushed ahead at a most creditable rate.

The East Coast section of the railway was commenced from Waihi. Thus the railway construction mileages reported by the Public Works Department refer to the distance from Waihi. Construction was done by contract so work was going on simultaneously over various sections. The Mt Maunganui-Te Puke section of 13 miles was under construction in 1913 and by 1916 was pushed on to Pongakawa, passengers and goods being transported to that point. <sup>(52)</sup> Despite the war and a shortage of labour, formation was pressed ahead so that by 1918 formation from 71 miles 5 chains to 79.16 was almost complete (Otamarakau to Matata), the permanent way laid including the station yards at Pikowai and Matata, and ballasting was in progress. Goods traffic was being carried to Matata, <sup>(53)</sup> and passenger traffic to and from Matata from October 1918. In 1919 formation of the line from 79.16 to 87.71 (Matata to Rangitaiki), was in progress with four miles completed. <sup>(54)</sup> The 1920 report says that forming and trimming went forward apace during the year to 31 March. The

steam shovel at Awakaponga was providing the spoil for the embankments. In June 1919 plate laying commenced from Matata and by March 1920 the rails were laid to 84.41 where a temporary bridge was being commenced. On the Awakeri Section from 87.71 onwards some formation work was in hand and several miles of service road constructed. <sup>(55)</sup> The 1921 report says that permanent rails had been laid over the whole section although the formation was not finally completed. One permanent bridge was in hand and temporary structures had been built over both the Tarawera and Rangitaiki Rivers. On the Awakeri section the permanent way was laid over the whole length and opened for goods traffic in September 1920. On the Taneatua section the line had been permanently pegged to 97.40, service road and bridges built, and three miles of earthworks completed with a further 1 <sup>3</sup>/<sub>4</sub> miles in hand. During the following year 106 chains of further formation were completed. <sup>(56)</sup>

In 1922 three steam shovels were working constantly at Awakaponga. Spoil was excavated for raising the embankments across the plains, and for subsidences on the Matata section where subsidence trouble, corrected in 1917, had reappeared. Across the plains over a mile of drains were dug, culverts built, and one permanent bridge completed. <sup>(57)</sup>

1923 saw a caterpillar steam shovel loading at Awakaponga pit; 55,400 cubic yards were added to embankments across the plains, and 42,000 yards for the Tarawera rail bridge approaches. Temporary bridges were erected at all rail bridge crossings so that permanent structures could be built without delaying traffic. On the Awakeri section 12,000 yards were laid to widen the embankments and half the piles for the Rangitaiki Bridge were driven. At Taneatua the piles for the bridge at Pekatahi were being cast. <sup>(58)</sup>

The entire section from Matata to Awakeri was opened for traffic in November 1923. During 1924 the formation and completion of the station yards was carried out at Awakaponga, Tarawera (Otakiri), and Rangitaiki (Edgecumbe). At Awakeri the station yard was widened and 30 chains of sidings laid. At Pekatahi rails were laid to a ballast and shingle pit in the Whakatane River. All the bridge piles had been cast and piles in the first four piers driven. The concreting of piers B and C was completed. Girders for this bridge were being erected in the Railway yards at Mt. Maunganui. <sup>(59)</sup>

Up to 1924 passengers from the Eastern Bay for Tauranga had to go by rail to the Mount, and then cross by launch to Tauranga. This changed from 20 June 1924 when the Tauranga Harbour Rail Bridge was opened by C. E. MacMillan MP. On that day the train from Matata left at 8 am and was timed to arrive in Tauranga at 10.55 am, when the opening ceremony was performed. The following Saturday a regular daily service began between Tauranga-Matata-Awakeri. Times were variable to suit steamer services. Tauranga replaced the Mount as the railhead. Goods were carried to the Mount, but not passengers. <sup>(60)</sup>

Beyond Tauranga construction proceeded apace. Waihi-Katikati had fourteen miles under construction, Katikati-Te Puna nineteen miles, and Te Puna-Tauranga six miles. Auckland was still distant.

Heavy floods on 25 June and again from 1-3 July 1925 caused a number of serious washouts on the railway line, and hence the necessity for some major reconstruction. In all 22,000 cubic yards of embankments and 15,335 yards of ballast were required on the section from Awakaponga to Rangitaiki. Temporary bridges suffered severely, particularly that one over Reids Central Canal. On the Awakeri section the Rangitaiki River Bridge approaches were

being constructed. The driving of the concrete and timber spliced piles was proceeding, seventy-two of the 50 ft piles having been driven. Piers A to E had been concreted and temporary staging erected across the river. At Pekatahi the erection of the bridge, the longest in the North Island at the time, had been completed. Erection of the 2 x 30 ft and 19 x 60 ft girders, made at the Mount and transported to the site had been completed without difficulty and the plates and rails laid. <sup>(61)</sup>

Continual flooding was a serious problem on the Awakeri section during 1926 with troublesome washouts at culverts. The Rangitaiki River Bridge was completed by the concreting of piers E to R and the placing of the girder spans 3 x 60 ft and 13 x 30 ft, like the Pekatahi girders having been assembled at the Mount yards. When the temporary staging was removed and the rails laid the goods and passenger service was extended to Taneatua from 1 February 1926. <sup>(62)</sup>

During 1926 and 1927 raising and widening the banks was continued. For the Rangitaiki section 18,260 yards of spoil and 9,827 yards of ballast was supplied from the Matata pit and for the Awakeri section 53,000 yards of fill and 14,580 yards of ballast, also from Matata. From Taneatua 33,000 yards of fill was supplied by train and 7,000 yards by drays, along with 26,000 yards of ballast. <sup>(63)</sup> There were three reasons for the large quantities of material: first, the embankments were brought up to design standard, a work not completed as the track was laid; second, there was the knowledge of what floods could do and the necessity of building the rail above flood level; and third there was the subsidence associated with weight on the swamp for which correction had to be made.

In late 1927 there was a large slip at Pekatahi which completely blocked the line, necessitating the removal of 11,190 yards of spoil. At Taneatua an engine shed was built, and a 70 ft turntable. At the beginning of 1928 work on the East Coast Railway was completed from Matata to Taneatua. In response to local insistence to continue the line, the Minister, who was also the local member, made it clear he was halting the line at Taneatua until local patronage could be gauged before any extension was considered. <sup>(64)</sup>

On March 28 1928 the Tahawai-Tauranga section of the East Coast Railway was opened by the Prime Minister, the Right Hon. J. G. Coates. This section completed the whole line and on that day the direct Auckland-Taneatua service began. The line was handed over by the Public Works Department to the Railways Department on 2 September 1928. <sup>(65)</sup>

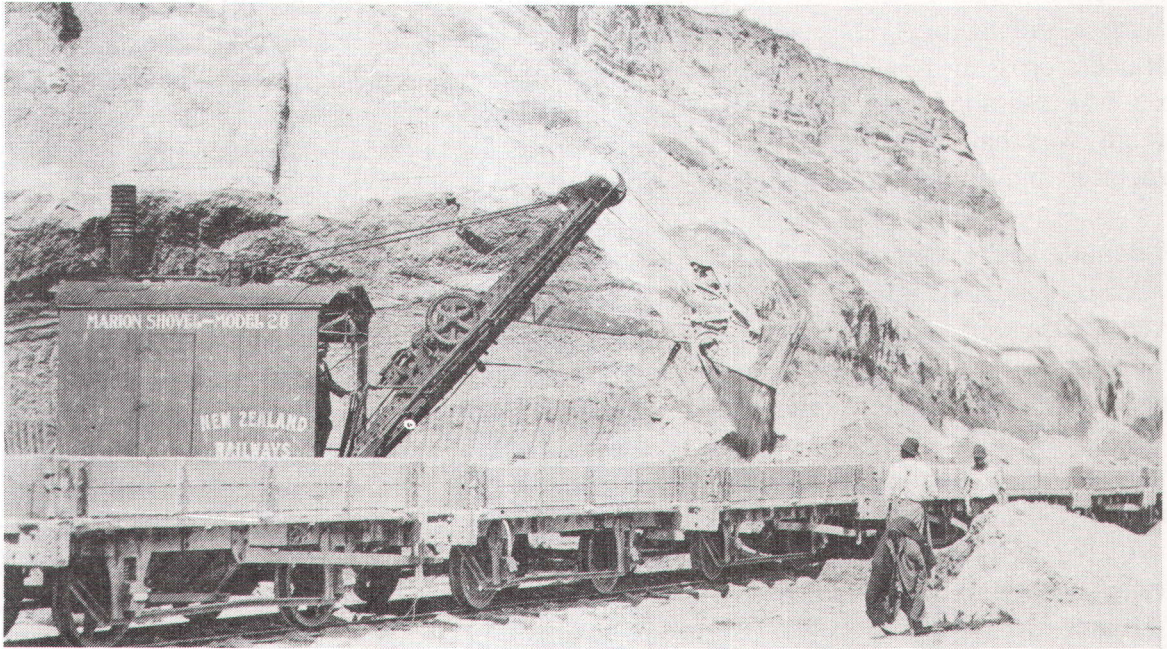
In 1921 the Public Works Department began the construction of the permanent rail bridge over the Tarawera River at Awakaponga. This bridge was keenly eyed by settlers and County Councillors alike and they were not impressed with what they saw as a purely railway bridge. Their apprehension saw expression in a letter from the County Council to the Public Works Department regarding a crossing for vehicular traffic. <sup>(66)</sup> The Department replied that it was considering building a permanent bridge over the Tarawera River. <sup>(67)</sup> Two months later the District Engineer advised the Council that a decision had been made to erect a permanent traffic bridge on the downstream side of the permanent railway bridge. <sup>(68)</sup> This was a definite and a welcome commitment and the Council was prompt to express their thanks to the PWD. <sup>(69)</sup> The promise was fine but no indication was given as to when the bridge would be built so the Council felt obliged to ask in 1923 when the new Tarawera Bridge and filling would be completed. <sup>(70)</sup> The Public Works Department, however, were as good as their word and a new bridge was put under construction, which was near



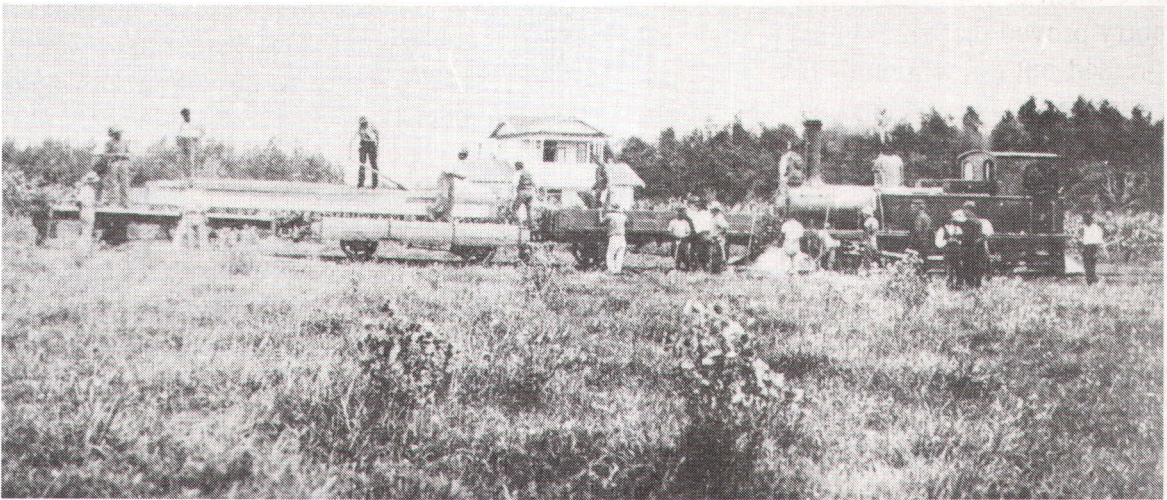
*Awakeri Railway Station, 1924.*



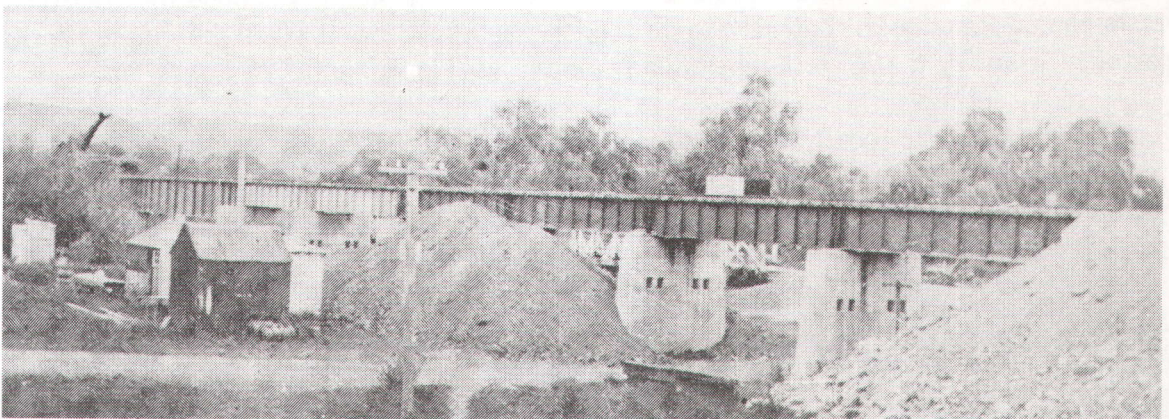
*Putting side rails on the Edgecumbe bridge. It first served as a temporary rail bridge, but became a road bridge after the permanent rail bridge was built in 1925. It was replaced with a new bridge in 1952.*



*Loading ballast material for the railway line at the Awakaponga quarry.*



*Track laying between Edgecumbe and Matata.*



*Construction of the Rangitaiki (Edgecumbe) railway bridge, 1925.*

completion a year later when the Council asked the Department to fill the approaches, or failing a satisfactory reply would require their engineer to attend to the task. <sup>(71)</sup> The Tarawera crossing was at last solved but it was of only limited value until such time as the road was passable from Potter's crossing to Awakaponga. What was more significant, though, was that the two crossings at Awakaponga, for rail and road, were both permanent structures and both in commission in 1924.

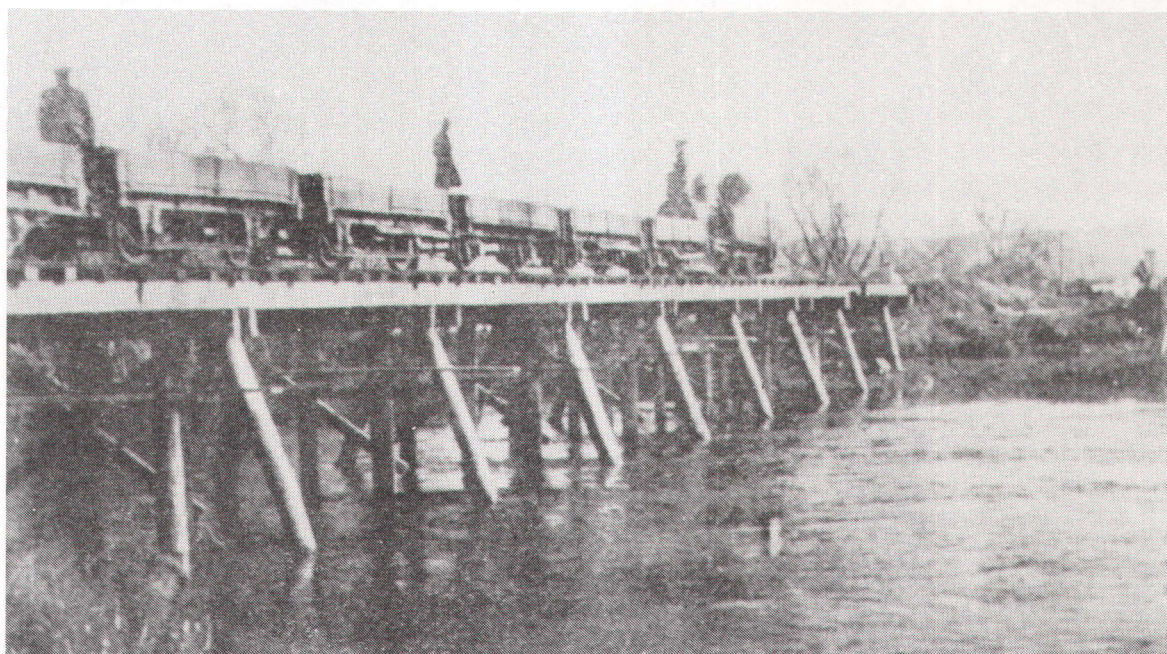
At Rangitaiki the temporary railway bridge was under construction in 1919, and completed in 1920. The first train passed over it on 19 August. The Public Works Department had given an assurance that decking would be placed on this bridge. The County Council was concerned that it was delayed in being available for vehicular traffic and after several months wrote a reminder to the Public Works Department. <sup>(72)</sup> The Department soon rectified the omission and without too much delay added side rails thus making for safety for stock being driven across. This bridge was of some moment for the district for it served both road and rail until 1926. The PWD was asked by the Council to erect approaches for cattle at each end of the bridge in 1927. <sup>(73)</sup> After the rails were lifted the bridge remained in use for another twenty-six years until it was superseded by the present traffic bridge begun in 1948 and opened in 1952.

While the permanent railway bridge was being constructed the settlers and the County Council alike were concerned at the height of the structure. The Council wrote to the PWD asking them to lower the 'Riversleigh' Bridge by seven or eight feet as the low surrounding country proved that an extremely high bridge was unnecessary. <sup>(74)</sup> The Department was not impressed but a few months later they acceded to a Council request to provide a subway on the eastern side of the river as well as on the western side. <sup>(75)</sup>

The Edgecumbe Bridge provided a vital link in the communications so long sought by the settlers. It reached across the River to meet both East Bank and West Bank roads from Thornton to Te Teko and provided direct vehicular access from Awakaponga to Mangaroa. In addition, the Rangitaiki Plains Dairy Company's factory was located at the eastern end of the bridge. The name Edgecumbe seems to have come into use in 1924. Until that time it was either Rangitaiki or Riverslea, sometimes spelt Riversleigh. Invitations sent out by the Rangitaiki Dairy Company asked residents to attend the opening of the new factory at Riverslea on 14 September 1923. <sup>(76)</sup> In April 1924 the Chief Postmaster asked the Whakatane County Council to improve the Edgecumbe-Te Teko Road. <sup>(77)</sup> In September the District Telegraph Engineer approved the opening of a telephone office at Edgecumbe conditionally on the Council guaranteeing to pay the anticipated loss of £11-10-0 in the first year of operation. <sup>(78)</sup> It may well be that the Post and Telegraph Department were responsible for providing the new name to overcome the confusion occasioned by Riverslea, Riversleigh and Rangitaiki. Later the same year the County Council asked the Public Works Department to lower the Riversleigh Railway Bridge at Edgecumbe. <sup>(79)</sup>

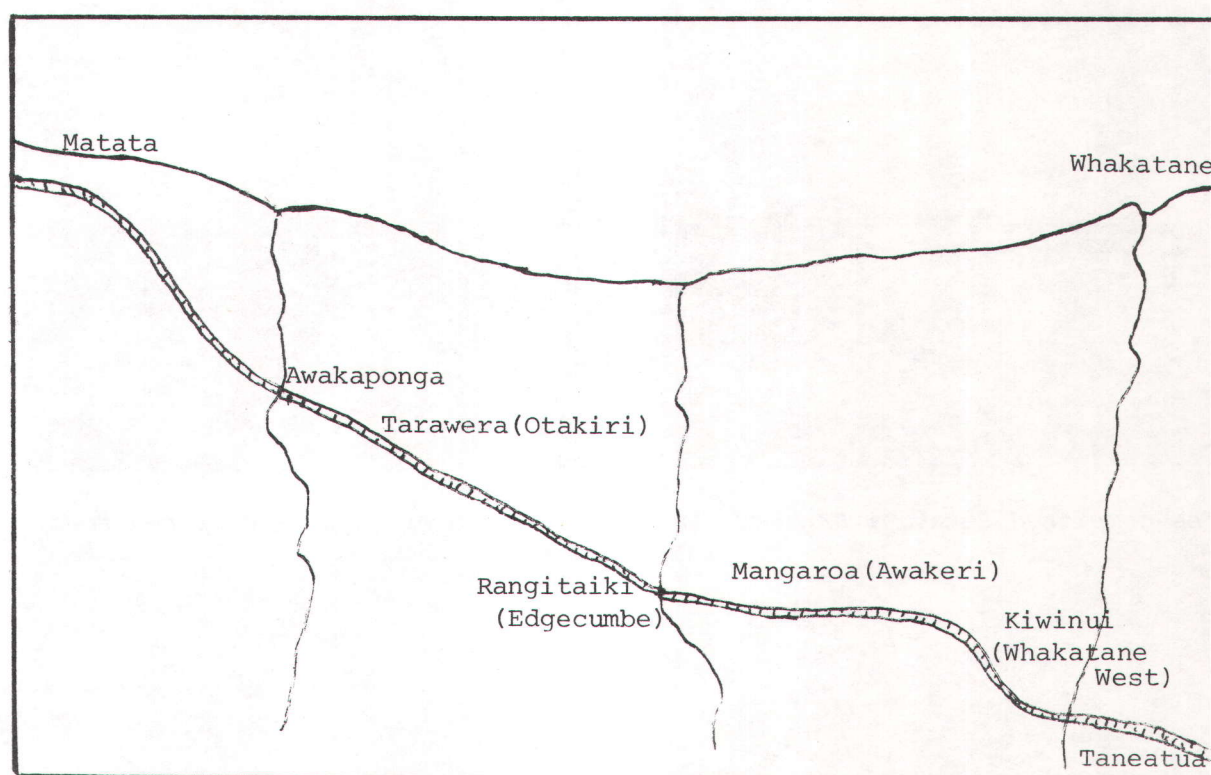
Edgecumbe became the focal point of the plains because of the railway and the bridge and the dairy factory. At a special meeting of the County Council on 27 April 1925 the Edgecumbe Township Plan was approved and a plan for the first subdivision of the Wharfe property on Section 138A considered. <sup>(80)</sup>

As early as 1920 there was interest in the proposed railway bridge as a dual purpose bridge at Pekatahi. The Whakatane Chamber of Commerce sought Council support for traffic

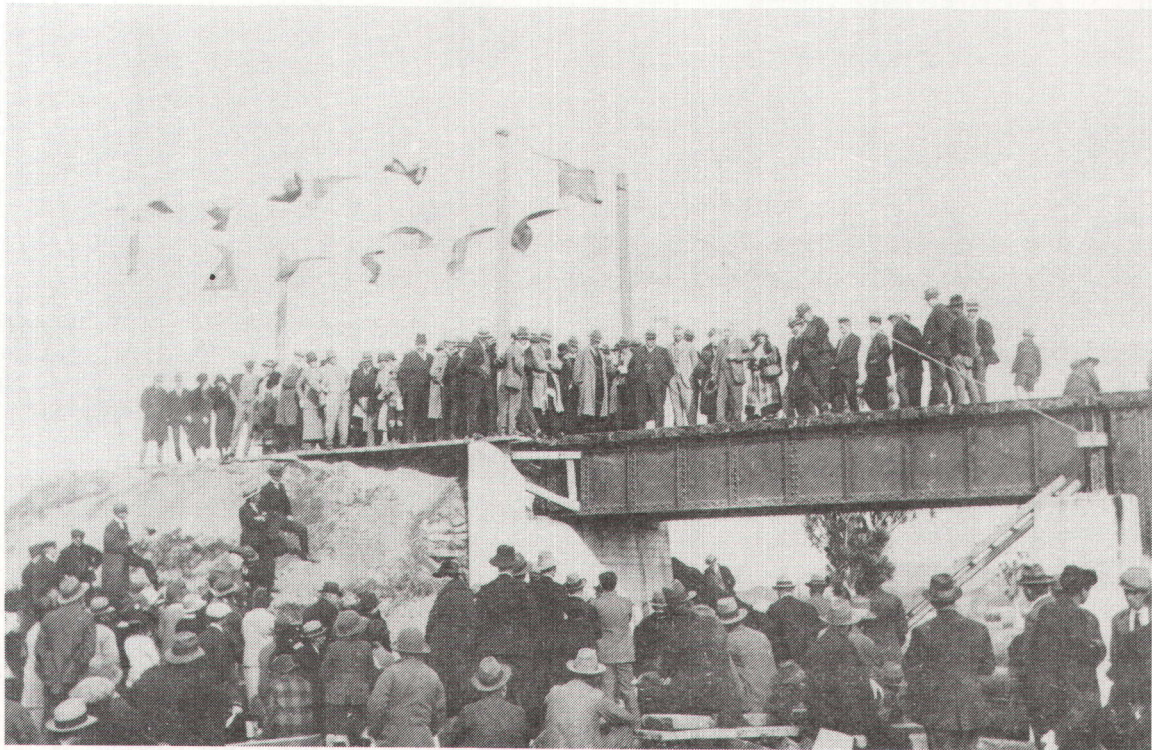


*The first train to cross the temporary bridge across the Rangitaiki River at Edgecumbe.*

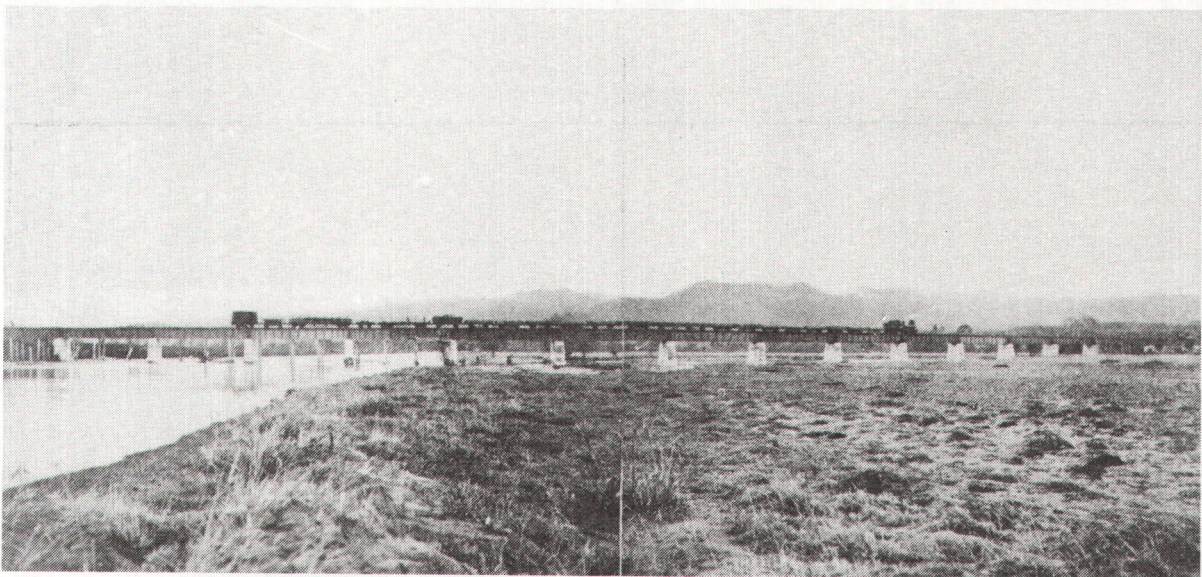
PHOTO: "Weekly News" 19/8/1920



*Railway stations across the Swamp, 1920-1960. Recent names in brackets.*



*The opening of the Pekatahi Bridge, 1928.*



*The completed Pekatahi Bridge. It was later converted to a combined road/  
rail bridge.*

decking on the proposed bridge. <sup>(81)</sup> The County Councillors were themselves anxious to have a decking on the bridge, for a new traffic bridge would be a drain on Council resources, even though it was subsidised.

In 1924 the Minister of Public Works advised the Council that the question of a combined bridge had been examined and the Department found that there would be no saving, and they would therefore construct separate bridges for road and railway. <sup>(82)</sup> The County Council, on receipt of this information, set about seeking a bridge site which would require a bridge somewhat shorter than the 1,200 ft railway one. The Minister was not impressed and told the Council that he would not approve of the projected traffic bridge being shortened or moved from the present proposed site. <sup>(83)</sup>

Early in 1925 the Taneatua Chamber of Commerce asked the County Council to support its application for temporary decking on the railway bridge until a permanent traffic bridge could be built. The Council agreed to do that. <sup>(84)</sup> At the same time the Council decided to enlist the support of the local MP, F. F. Hockly, who promised representations would be made to the Minister. <sup>(85)</sup> A month later the Minister advised that on investigation he found that the type of railway bridge did not lend itself to decking for road traffic, and expressed his regret that the Council's request could not be carried out. <sup>(86)</sup> This revived the traffic bridge plans. The District Engineer estimated that a traffic bridge would cost £20,000, and necessary roading a further £4,000. Councillors discussed the problem further and decided to ask the Minister to visit the site so that decking the railway bridge could be discussed further. <sup>(87)</sup> The Minister advised Mr Hockly he would visit the site of the proposed road traffic bridge. <sup>(88)</sup>

His visit persuaded the Minister to change his mind about traffic decking, and to seek agreement from the County as to their share of the cost. The Council agreed readily and sent its written agreement. At the same time the Council decided to write to the Minister of Railways urging the work of decking be pushed on at the earliest possible date. <sup>(89)</sup> Traffic decking was laid during the winter of 1927. In August the District Engineer asked the Council if it was prepared to find half the costs of the approaches to the Taneatua Railway Bridge. The Council's reply was that since the work was done without reference to the Council the onus should be on the Public Works Department to effect the necessary alterations making the bridge approaches a safe thoroughfare. <sup>(90)</sup> The Council was hard to please, and was not yet finished, for a year later it wrote to the Public Works Department asking them to make provision for passing places on the Railway Bridge. <sup>(91)</sup> The Minister was agreeable to the provision of one passing place. <sup>(92)</sup> The work of widening the centre span was put in hand and completed early in 1929. <sup>(93)</sup>

The saga of the Pekatahi Bridge completed the railway construction across the plains. All huts were pulled down and removed to the Rotorua-Taupo railway, and equipment transferred in the early months of 1929. The railway construction had played a major part in the lessening of the isolation of the plains generally, and of the swamp particularly. It was a vastly different scenario from when Thompson and Campbell began government work in the area in 1910.

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- (24) *East Coast Co-operative Freezing Company Ltd to WCC 15/1/17*
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- (28) *Ibid 9/1/19*
- (29) *Ibid 23/1/19*
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- (43) *WCC Minutes 14/9/20. The terms Thornton and Outlet seem to have been used alternatively or in combination up to this time. With the bridging the use of the term Outlet fell into disuse.*
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## CHAPTER VIII

### THE PRICE OF PROGRESS

In response to representations by the settlers, a public meeting was called at Te Teko on 7 June 1910. The Under-Secretary of Lands attended on behalf of the government. <sup>(1)</sup> Three proposals were put forward for the meeting to vote on:

- (a) Government to take over the swamp from the settlers, drain it, and throw it open to settlement.
- (b) Government to drain the swamp and allow the settlers now on it to have a section.
- (c) Settlers could remain on their sections while the drainage was carried out and pay a drainage rate against the cost. Classification would require each settler to pay in proportion to the benefit received.

The risk that settlers who had done considerable work on their land might lose their properties encouraged the landowners to opt for the third clause, whereas the government anticipated either of the first two would be favoured. <sup>(2)</sup> This settler decision was to have far-reaching effects for a long period. In 1910 however, the consequences could not have been foreseen.

On the basis of the engineering surveys available at the time, it was estimated that the drainage works would be carried out for £50,000. The Superintendent of the State Advances Office was authorised to advance to the Minister of Lands from time to time sums of money, not exceeding £50,000, as were in the opinion of the Minister required. <sup>(3)</sup> In the 1913 Act the authority was transferred direct to the Minister to pay monies into the Rangitaiki Land Drainage Account, but such sums as had been advanced by the Superintendent of the State Advances were to be included in the total of £50,000. <sup>(4)</sup> When increases subsequently became necessary they were authorised by the Rangitaiki Land Drainage Act 1914, which substituted £100,000 for £50,000, <sup>(5)</sup> and the Land and Income Tax Act of 1917 which substituted £140,000 for £100,000. <sup>(6)</sup> Thereafter finance was allotted through Appropriation Acts; in 1918 the set limit was £190,000, and in 1919 the aggregate was not to exceed to £250,000. <sup>(7)</sup>

As rapidly as the engineers pushed on the work towards completion so also did the costs rise till at the end of the financial year in 1925 the cost had risen to £481,202, and still there was work to be finished. <sup>(8)</sup>

The outlay on the swamp rose at an alarming rate. Expenditure during the first three years when operations commenced almost consumed the allotted £50,000:

to 31/3/12	£12,140	
to 31/3/13	£15,203	£27,343
to 31/3/14	£17,873	£45,216

and the Rangitaiki River diversion was not then completed.

to 31/3/15	£15,990	£61,206
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to 31/3/16	£16,875	£78,081
to 31/3/17	£21,675	£99,756

If the swamp was to be satisfactorily drained so that productive farming of the land could be meaningful the work had to be pushed ahead to regain a return on the capital expenditure. Meantime settlers looked on with some apprehension at what they considered slow progress.

Little attempt had been made to collect drainage rates. In 1911 £217-15-7 was collected under Section 7 of the 1910 Act; in 1912 just 5/-, and in 1913 £1-7-6. There were no rate demands in 1914, 1915 and 1916. However rates were levied for 1917/18, and each year thereafter. Settlers were at that time having difficulty paying their County rates so the drainage rates demands came as something of an imposition. Many did not, or could not pay. These settlers were billed for unpaid rates for many years. One of the problems was that the drainage was not sufficiently far advanced for the settlers to get a return from the land. Their holdings were not viable. Considerable areas were still held in large blocks, the owners apparently holding their sections until land prices rose so that in selling they could make the maximum profit.

The effects of inflation and the government advertising of the area as suitable dairying land, along with the drainage works, pushed up land values. The boom following World War I added to the demand for land. Consequently the revaluation in 1919 raised the unimproved value of the land and hence the rates payable. <sup>(9)</sup> Not only was the government looking for a return on the capital expended, but the very nature of the undertaking made costly maintenance procedures essential.

Land sales increased at a more rapid rate after 1918, and many subdivisions of large sections accompanied the sales. Returning soldiers figured prominently amongst the new settlers. They saddled themselves with high mortgage repayments. In addition, they were into dairy farming which necessitated the purchase of dairy cattle, the erection of milking sheds, provision of the necessary machinery, and erection of some subdivisional fencing. Few new blocks had houses so a house could be an additional financial outlay required. County rates were sometimes paid, more often settlers sought day work on the roads from the County Council to work out their rates. If they had not been adequately briefed about drainage rates that item became a shock to their financial situation. It was much more so when the rate of the levy increased. Some of the owners of larger sections found selling their land less of a burden than finding the money to pay drainage rates.

Although there had been some development too little of the land had been grassed; some farms had inadequate or non-existent internal drainage, especially subdivisions from larger blocks. High prices for dairy produce, which had been a motivating factor to buy land, did not last and prices for butter and cheese declined in the early 1920s, thus exacerbating the financial problems of new landholders.

By 1922 the settlers decided that collective action was imperative if they were to seek rating relief. A public meeting was called in the Riverslea School, at which the Rangitaiki Land Drainage Ratepayers Association was formed. <sup>(10)</sup> Mr A Sheat, was elected the first Chairman and Mr Dick Colebrook the first secretary. <sup>(11)</sup> It was decided to ask the Hon. A. D. McLeod, the then Minister of Lands, to make a personal visit to the area. The Minister's arrival coincided with heavy rains. He was a big man and this no doubt helped to push his

feet deep into the soggy soil when he was taken on a conducted tour. <sup>(12)</sup> Being a practical farmer himself the plight of the settlers was not lost on the Minister. It was patently clear to him that government action was desirable and urgent if the capital expended since 1910, both public and private, was to be protected.

There was a great deal of buying, selling and subdivision going on from 1918 to 1925. Attempting to gain an overall estimate of the escalation of rates proved difficult but the following table demonstrates how drainage rates rose from 1921-22 to 1923-24. The same valuations applied in all these years of rates levy, but there were variations in some cases in the classifications.

Section No (AREA ACRES)	Classification		Rates		
	£	£	1921/22 £	1923/24	1924/25
<u>Lot 2 of Sec 85</u>					
161-1-32		A			
106-0-00		C	57-15-9	229-12-4	
267-1-32		A			144-13-4
<u>Sec 53</u>					
199-2-00		A	98-6-2	389-16-3	169-7-0
<u>Part Lot 9 Sec 146</u>					
114-0-34		A	47-2-1	182-15-5	75-18-11
<u>Sec 105 of Sec 145</u>					
81-0-00		A	37-8-1	180-19-1	61-14-2
<u>Sections 162, 163</u>					
512-0-00		A			
144-0-20		A			
60-0-15		C	135-19-9	505-17-10	211-12-4
<u>Section 132 A</u>					
457-2-31		A	152-2-4	603-8-9	250-18-9
<u>Section 60A 3A &amp; 3B</u>					
229-3-00		A	62-9-8	242-14-11	97-9-1
<u>Section 85 Lot 1</u>					
172-2-00		A			
38-3-14		C	49-5-7	200-8-2	95-19-9
<u>Section 121</u>					
120-3-37		A	53-4-0	216-7-2	87-15-2
<u>Section 73 W Part</u>					
100-0-00		A			
50-0-00		B	47-10-2	69-17-4	166-13-0
<u>Section 152</u>					
347-0-0		A	144-1-8	591-11-4	237-13-8
<u>Section 141A</u>					
280-0-00		A	110-16-8	169-6-8	182-6-8
<u>Section 73 E Part</u>					
150-0-00		A	62-6-10	95-5-0	102-16-11

Of the large landholders Thomas Seccombe's holdings were relatively free of land dealings. His properties in 1921-22 were:

Section	74	300-0-00(acres)	A
Section	108	1400-0-00	A
Section	108	600-0-00	C
Part Section	109	1200-0-00	A
Part Section	124	8-0-00	C
Part Section	124	90-0-00	A
Sec 2 of Section	107	66-2-13	B
Block X		19-3-38	C
Section	122	415-2-08	A
Parts Sections	125,127	142-0-00	C

in all a total of 4242-0-19. In drainage rates he was levied:

in 1921/22	£1771-13-0
in 1923/24	£3856-4-2
in 1924/25	£2096-17-10

Rates for drainage struck on the rateable value for the years under discussion were:

1921-22	Class A	6.65d
	Class B	3.80d
	Class C	0.95d
1923-24	Class A	10.16d
	Class B	5.81d
	Class C	1.45d
1924-25	Class A	10.97d
	Class B	7.31d
	Class C	3.65d
	Class D	1.21d

There was a change in the scale of rating. Class D had been added. Class B land, which had been rated at 50% of Class A, from 1924 was rated at  $\frac{2}{3}$  of Class A. Class C, which had formerly carried  $\frac{1}{4}$  of Class B was required to carry  $\frac{1}{2}$  of Class B henceforth. Class D was fixed at  $\frac{1}{3}$  of Class C. <sup>(13)</sup>

On his return to Wellington the Minister pondered what he had seen, and what the ratepayers and settlers had put to him. He persuaded the government to set up a Royal Commission to inquire into a wide range of questions. The members of the Commission set up in April 1925 were the Chairman, Ashley John Hunter, AMICE, Civil Engineer, of Auckland; William Duffus Hunt, Company Manager of Wellington; and Heathcote Beetham Williams, farmer, of Gisborne. Their brief generally was to inquire into matters connected with the land drainage of the district under the Rangitaiki Land Drainage Act of 1910, and into the financial difficulties being experienced by the settlers in the district. <sup>(14)</sup>

More specifically the Commission was directed to inquire into the causes of the financial affairs of the settlers, and the capacity of the lands to bear the charges objected to by the settlers. The Commissioners were to examine the impact of land prices subsequent to the inauguration of the drainage works; to determine whether the works should proceed and if so whether the Rangitaiki Land Drainage Account should bear the cost; what proportion of

the charges to 1925 were chargeable against the State and by what methods the settlers' indebtedness could be alleviated; and whether mortgagees were entitled to any relief. Further, the Commission was asked to determine whether a drainage board should be constituted as the settlers wished, and if one was set up whether it should be subsidised, and what plant should be handed over by the government to the board. The Commission was invited to comment on any other issues arising from these premises and if necessary to make recommendations. <sup>(15)</sup>

The Commission sat in Whakatane during May and at Auckland in June of 1925. The report was due on 30 June, but the Commissioners were granted an extension until 7 July. The timing of the return of the Commission was unfortunate, for its conclusions may well have been modified had the report been compiled after the floods of 1925. Heavy rain raised the Rangitaiki River on 25 June. On 28 June the flood spilled over the eastern banks and continued to do so for six days. <sup>(16)</sup> The eastern area from McLeans to the sea coast was inundated, about 30,000 acres being under water, in some areas up to 8 ft in depth. Stock losses were great and road damage severe. <sup>(17)</sup> One settler whose house was surrounded by water sent a telegram to the local member asking him to represent that the position was caused by the failure of the drainage engineers to stopbank the Rangitaiki River and divert the cut to allow the water to escape as requested by the settlers on many occasions. He also requested that the Royal Commission add flood prevention recommendations to the already completed report. <sup>(18)</sup>

At the Commission's hearing, which commenced in Whakatane on 16 May, Messrs O. Campbell, J. H. O'Connell and R. M. Grant represented the Drainage Department, and Mr D. C. Chalmers the Ratepayers Association.

In opening the case for the Rangitaiki Drainage Ratepayers Association, Mr Chalmers traversed the whole history of drainage and the hopes of settlers when they agreed in 1910 to pay rates to cover the capital and interest charges on £50,000. He contended that the Rangitaiki Land Drainage Bill of 1910 was well and truly discussed in Parliament on the basis of competent departmental engineers reports before it became law. The settlers were led to believe, he said, that the projected works would be completed in three years. Such was not the case and now after thirteen years the land was only just sufficiently drained to permit profitable farming to begin.

No lack of good faith could be attributed to government officers, but an undue optimism in what they could achieve by target dates. Mr Chalmers went on to place the ratepayers' situation in context, alleging that their losses were due to recurrent destruction of the improvements by water; the time required to bring the land into production while rates, taxes, interest charges and living expenses were a charge against capital; the protracted period of the works delayed ripening of the swamp and a consequent loss on beef, which was a necessary prelude to dairying, and the high cost of dairy stock when the land was ready for it; the high prices paid for land in some cases; fear of the ultimate drainage rate, making finance impossible; and the excessive cost of the whole drainage operations. However, while the government had put £500,000 into the swamp the settlers had put in £1,000,000. A further small input would make the area worth £2,000,000. This was too much national wealth to be abandoned. What the settlers still sought was a further outfall for the Kopeopeo drain; floodgating of all dredge cuts; diversion of the Tarawera River; clearing of pumice

from the bed of that river; dredging the drains in the sandy country; and experimental pumping.

Mr Chalmers also pointed out that a substantial amount had been spent on roads and charged to the Land Drainage Account. It was estimated drainage operations, which had been charged to the settlers, would have saved the Railways Department £40,000.

In view of the submissions made the settlers asked that the capital cost of the scheme be completely written off, but not until the whole scheme was finished. The Commission was asked therefore to make no recommendation on that point until the final cost was known. <sup>(19)</sup>

The Chairman of the Ratepayers Association in giving evidence stated that he had bought 200 acres at £40 an acre in 1913. He anticipated having it all in grass within three years. For seven successive years there was a total loss of effort; the floods destroyed the grass he had sown. By 1925 only 60 acres were in grass. His estimated loss was £10,000. The settlers, he pointed out, could not pay drainage rates, and if the government took legal action the settlers would go bankrupt. He thought writing off the capital cost would be a just act because the settlers had put in £12 an acre average over 80,000 acres, or £1,000,000. Writing off £500,000 was a fair quote for work of national benefit. <sup>(20)</sup>

Mr J. W. Sumner in giving his evidence considered the settlers; trouble had been brought about by the prolongation of the period in which the drainage was to have been completed. <sup>(21)</sup> The Hon. J. B. Gow told the Commission that the great trouble was the lack of a comprehensive scheme to begin with. The scheme as it unfolded was therefore much more costly than the original figure estimated. It was hard on the settlers that the burden of partial failure had fallen on them. <sup>(22)</sup>

Several soldier settlers on the Omeheu settlement said that the quality of their land was excellent but that they would have to walk off their properties unless something was done about the Tarawera River. These settlers contended that the river should be diverted. Another settler gave evidence that the continual flooding of good land adjoining the Tarawera River continued by the breaking of banks and caused such losses as to make farming unprofitable. He was insistent that the Department should take more active flood control measures. <sup>(23)</sup> Settlers on the Matuku settlement offered similar evidence. <sup>(24)</sup>

From the evidence submitted by individual farmers it can be seen that not only were they critical of the time taken to drain the swamp but that by 1925 flooding from the rivers had become an issue in itself. Flood control had not been considered in the original plan. Wright in 1893 had not considered flooding once the Rangitaiki was lowered at the Outlet. The Lands Department engineers had thought to control the Tarawera by widening and straightening the stream to permit self-scour. But that had not transpired as they hoped so recourse was had to placing an eastern stopbank along that river, as yet not totally effective. Attempts to partially stopbank the Rangitaiki above the railway line had caused the loss of freeboard lower down, but the channel was too narrow to accommodate a flood of over about 16,000 cusecs anyway. Swamp subsidence allowed more overspill to accumulate and to a greater depth.

The Crown was represented by Mr Meredith at the resumed hearing in Auckland. He

contended that it was manifestly unfair to blame the government for the settlers' troubles. When the land was originally taken up for settlement the government had clearly warned the settlers it would not assist them nor undertake drainage. After twenty years the settlers were in serious trouble and in response to their importuning the government had come to their rescue. After 1911 consistent settler pressure was brought on the government to complete the scheme as expeditiously as possible regardless of cost. The £50,000 he contended, was merely a preliminary cost because no engineer would give such a low estimate for such a major work scheme. He went on to stress that the real trouble was the slump and the land speculation which had preceded it. In that sense the settlers were the authors of their own misfortune. The slump was New Zealand wide and not confined to the Rangitaiki swamp settlers. While some help should be given so that the settlement would not be ruined, to write off the capital charges as the settlers requested would be really making a gift to the mortgagees, something not to be countenanced. <sup>(25)</sup>

Having heard the submissions from the settlers, their counsel, and from the Departmental advocates, the commission retired to consider the evidence and prepare recommendations to present to the Minister, but not before the government had already made a gesture on behalf of the ratepayers. In accordance with the provisions of Section 14 of the Appropriation Act of 1924, ratepayers in the Rangitaiki Drainage District were instructed to make application for a refund of rates for any of the years 1921-22, 1922-23, and 1923-24. <sup>(26)</sup> Accordingly £58,633 was paid from the Consolidated Fund into the Rangitaiki Land Drainage account. <sup>(27)</sup> This had the effect of reducing the expenditure to 31 March 1925 from £539,835 to £481,202. <sup>(28)</sup> This became the total cost of the works as a basis for the Commission's determination of how subsequent costs might be apportioned.

The Commission found that the £50,000 in 1911 was an estimate only, for no complete engineering surveys had been done, nor levels taken. It was also found, in defence of the department, that during the war years conditions had naturally changed, labour and plant costs escalated and machinery was difficult to obtain. Unavoidable delay had been a major factor in increasing interest and maintenance charges.

It was found that the classification rates of 9 : 6 : 3 : 1 for Classes A, B, C, D classifications often resulted, because of valuations, in Class B land paying more rates than Class A land. The Commission pointed out the necessity for some means of appeal by settlers against the classification.

When it came to assessing the quality of the land the Commission found that only 6,000 acres could be classed as alluvial flats, leaving 74,000 acres of either peat land or pumice flats. Of the peat area, it considered much could not be profitably drained, and where drainage did take place the freeboard was quickly lost through shrinkage, generally up to 75% to 80%. The pumice flats on the Rangitaiki were found to be no better than other pumice areas in the Auckland Province, but with the disadvantage that continuous drainage was necessary. Over the whole area, 80% to 90% of the swamp required a large amount of expenditure and development work to bring it into a productive state, and that would take some time to be achieved.

Possible flooding from the Tarawera River was discussed in detail. It was found the river was on the highest part of the land between the Rangitaiki River and the western hills. The water level of the river was 2 ft to 3 ft higher than the surrounding land, and contained only

by low banks and the newly constructed but inadequate eastern stopbank. Apart from the efficacy of this stopbank, constructed only of the sandy material available, the Tarawera flowed through pumice country and with that type of subsoil there was a continual seepage from the river right across the plain which kept most of the land wet, placed a burden on the drains, and contributed to the serious effects from flooding. The settlers in the district had advocated diversion of the Tarawera River from where Hallett's Catchwater Drain entered the river, along behind the low hills, so that the river would enter the head of the Tumurau Drain, and having flowed along that drain would then re-enter the Tarawera River again. The Commissioners were impressed and suggested a further investigation be made by an independent engineer. If this diversion was not carried out then they recommended that the present stopbanks should be substantially increased in size and their river-face protected from scour.

With regard to the drainage works generally, the Commission observed that the great bulk of the works had been carried out. They considered the problem of floodwater in respect of both the Awaitei and the Kopeopeo. The Kopeopeo was open to the Rangitaiki and the Whakatane, with a flood gate on the Whakatane River end. Therefore water which could not escape into the Rangitaiki on the tide could flow towards the Whakatane. During flood time the Whakatane River was sometimes 3 ft to 3 ft 6 ins higher than water in the Kopeopeo Canal, which caused the Canal waters to flood over large areas of low-lying land. The Commissioners recommended diversion of the mouth of the Kopeopeo Canal so that it entered the Whakatane River nearer to the coast, and at near sea-level. They also recommended considerably larger floodgates, and in addition the placing of floodgates on the Kopeopeo Canal West where it discharged into the Rangitaiki River. Construction of this diversion and the two floodgates would prevent intrusion of tidal water and this would allow the water from internal drains to enter the Canal more freely, which in turn would benefit a large area of low lying country in flood times. As to the Awaitei, the Commission observed that all waters from between the Rangitaiki and Tarawera Rivers entered this system. For about four miles from its outlet the fall in the Awaitei was minimal and as a consequence the water had little velocity. Their recommendation was to substantially increase its width from its outlet southwards to Walker's Drain, and to give serious consideration to the construction of floodgates at its outlet to the Tarawera River.

When the Commissioners came to report on finance they considered the total situation from 1910 onwards:

A perusal of the accounts and various details of expenditure up to 31 March 1925 will show that at that date the net capital liability involved in these drainage operations was £481,202; this is apart from the sum of £58,633 for rates that have been remitted, and which the State has paid to the Rangitaiki Land Drainage Account out of Consolidated revenue. This is a subsidy which the State has granted to the venture, and is, as far as we can see, the only subsidy it has given. In addition to the capital sum of £481,202 there is a further capital expenditure that we have indicated as being, in our opinion, necessary to render the present drainage system more effective. We have not attempted to make any detailed estimate of the cost of these additional works, but we are of the opinion that the work ought to be done for a sum not exceeding £40,000. As a set-off against this present net liability the State owns plant and machinery the residual value of which is now, say, £27,000. We are of the opinion, seeing that these drainage works have been the means of effecting a great

saving in the cost of railway construction over a length of at least ten miles, that a substantial charge should be made against the Public Works Department on that account. It is difficult to assess the value of the saving so made, but, taking into consideration the fact that the Public Works Department would either have had to take the line round the foothills, thereby increasing the present length of the railway by some six miles, or else would have had to undertake a partial drainage system of the swamp to permit of the line following its present route, we have come to the conclusion, and recommend, that the sum of £35,000 is not an excessive charge to make on this account.

We are further of the opinion that the cost of making all the main and access roads across this swamp, estimated at £50,000, should be charged against the State.

Deducting these amounts of £27,000, £35,000, and £50,000 from the present net liability of £481,202 leaves a sum of £369,200, to which has to be added £40,000 - the estimate of the proposed additional works - bringing the proposed total liability up to £409,200. Of this amount we recommend that the Government should contribute, by way of £1 for £1 subsidy, the sum of £204,600, leaving an amount of £204,600 as representing the net liability of the settlers as at 31 March 1925.

The drainage area is liable for a rate to cover interest on this sum, and also for a sinking fund to ultimately repay it. This rate we recommend should be fixed at 5%, - or 4½% for interest, plus ½% for sinking fund. In addition to this charge for interest and sinking fund, the cost of annual maintenance has to be provided for. This is estimated by the Drainage Department's Engineer as probably amounting to £7,000 per annum - representing about 2% on the cost of the actual drainage works, and excluding road maintenance. We recommend that of this, or any other amount chargeable for ordinary maintenance, the Government should contribute by way of subsidy £1 for £1 for the first year, 18/- for the second year, 16/- for the third year, and so on until the subsidy is reduced to 10/- for £1, and that thereafter the amount of the Government subsidy towards annual maintenance charges should remain at 10/- for £1. The settlers share of the maintenance charges is to be met by a rate and paid in addition to the foregoing rates for interest and sinking fund. As a set-off against this proposed permanent maintenance subsidy, the Railway Department will be saved the cost of considerable drainage and river maintenance that would otherwise be necessary for the protection of the railway line. <sup>(29)</sup>

In reaching the foregoing conclusions and recommendations the Commissioners had taken into account the disappointing nature of the swamp lands after they had been drained, the disparity between original estimates and the final costs, the fact that under the Rangitaiki Drainage Acts of 1910 and 1913 the settlers were given no opportunity to agree to or protest about the financial liability, the increased costs occasioned by the war, and the fact that government undertakings of a similar nature had frequently been subsidised to some extent.

The situation as the Commission saw it in 1925 was that the land required both time and capital input to make it productive. The only people likely to develop the country were those on it at the time, along with those who were backing them financially. It was a case for those occupiers remaining of salvaging something of what they had put in. In any case huge sums had already been lost by both settlers and their financial supporters. Should the full

interest and maintenance charges be insisted on then large areas would be abandoned and the remaining settlers would find it a burden to even carry the maintenance rate. The Commissioners were of the opinion that as settlers and their backers had lost large sums the State could not hope to get out without a heavy loss. It had to be borne in mind that when the area became more productive the State would get a return in many other ways.

The Commission attempted to investigate the mortgage situation to assist their assessment of settler financial problems. In their report they wrote as follows:

In response to some five hundred circulars sent out to settlers asking them to furnish particulars regarding their financial position in respect of mortgages and so on, only 119 replies were received by the Land Drainage Department. It was promised settlers that any such information supplied would be treated as strictly confidential. Your Commissioners can therefore only here give general results. Of the 119 settlers answering the circular, twelve of them gave no information relative to mortgages, eighteen stated they had no mortgage on their property, while the remaining eighty gave details of their mortgages. These eighty settlers own between them 17,694 acres, and the aggregate amount of mortgages over this area is £349,346, or close on an average of £20 per acre. It may, we think, be assumed of the remaining close on four hundred settlers who failed to reply to the circular that their financial position will approximate more or less closely to that of the other settlers, and that the ratios between land areas and mortgages would be pretty well the same as those above given from the eighty settlers, so that the total amount of mortgages over the whole area of the drainage district may be assessed as being somewhere in the vicinity of £1,000,000. Of the above mentioned amount of £349,346 on mortgage, fully two-thirds is owing to the vendors, and about 10% it is stated, has been incurred for development work alone.

Considering the fact that the land is settled by a first-class body of settlers who have valuable experience, most dearly paid for, we consider the mortgagees will be ill-advised not to make terms with those in occupation, either by writing down existing mortgages or, where possible, finding capital for further development. Should the present occupiers give up their holdings we consider it would in many cases be very difficult to replace them, a great many mortgages have been substantially written down, but much of the land is still mortgaged for a great deal more than it is worth. Mortgagees who know their business will face the position promptly and make adjustments on the basis of true values.<sup>(30)</sup> The Commissioners could not recommend any legislation that would interfere between the settlers and their mortgagees. Any interference with the sacredness of mortgage contracts would create a want of confidence that would be disastrous and would take the Dominion years to get over.

The Commission considered the settlers' request that a Drainage Board be set up when the government drainage works were complete. It could not agree to such a request for the purpose of controlling and maintaining the works so far completed. In fact, the recommendation was that consideration of any proposal to form one or more drainage boards should be deferred for another five years, and that in the meantime the Land Drainage Department should continue to have full control of the existing, and any future work, and also of the maintenance of the present works. Should the government agree to the setting up a drainage board, contrary to the Commission's recommendation, the rate of subsidy

already indicated should apply and any necessary equipment for maintenance handed over and the value charged to the board.

The Commission had no other recommendations arising out of the premises laid down. The Report was slow in being presented to the House of Representatives but on 16 September the Minister of Lands promised it would be laid on the table of the House and the necessary legislation introduced to give effect to the Commission's findings. <sup>(31)</sup>

1925 had been a momentous year. Apart from the additional work on the Tarawera, Awaitei, and the Kopeopeo diversion and floodgates, it saw the completion of the main drainage works. It also saw the railway line completed for works trains, and it saw the completion of the bridging of the three rivers. It was momentous too in that there was a realisation that a price had to be paid for all the development. If there were straws in the wind settlers could sense that the fate of the freezing works, which had failed, was in some way a premonition of the fate of the tenure of their holdings. When a glimmer of hope was ignited with the sitting of the Commission it was all but extinguished with the cruel floods of late June and early July. Life was indeed harsh.

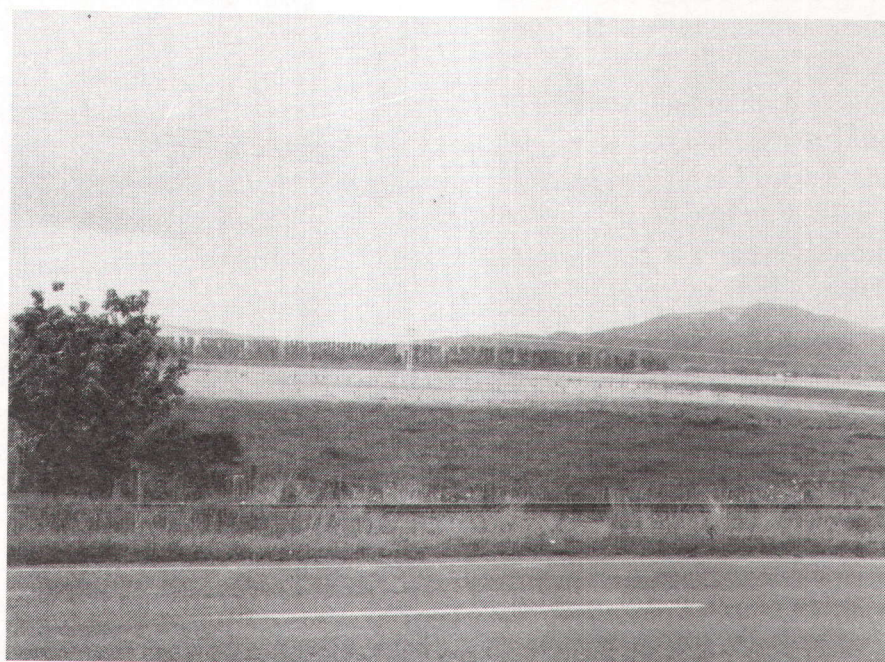
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*In the middle distance is a sand ridge on Section 73.*



*Low lying land in the Te Rahu basin.*

## CHAPTER IX

## THE AFTERMATH OF THE 1925 ROYAL COMMISSION

No time was lost by the Land Drainage Department in applying itself to the recommendations of the Commission. The Tarawera diversion was put aside but No. 8 and No. 9 Priestman dredges were put to work constructing an improved Tarawera stopbank on the eastern side.

<sup>(1)</sup> This work was completed in 1929. No. 17 Monighan was put to work in 1927 on the Awaitei widening and then went on to the Omeheu where widening and deepening was carried out. <sup>(2)</sup> When that was finished No. 17 was moved to assist in the Kopeopeo diversion work which had been commenced in June 1927. By 1930 the diversion work was done and the new floodgate constructed. Three new hardwood bridges were constructed where the diversion crossed roads. <sup>(3)</sup>

While these recommended works proceeded, maintenance continued annually. Attempts were made from time to time to raise the Te Rahu stopbanks to provide some protection from Whakatane River floods. One of the difficulties was that the banks were constructed of wet peat and as the peat dried out it shrank and height was lost.

New and better equipment became available. In 1931 No. 21 Bay City was the only dredge working. The following year No. 28, a Light Bay City Dredge, was brought to the Rangitaiki from the Hauraki Plains. It proved to be most successful. In 1937 No. 30, a new Bay City diesel dragline, began work. No. 17 Monighan was reconditioned and put to work on Reids Canal, and at removing willows from that canal. 1939 saw the introduction of No. 32 Ruston Bucyrus Excavator Model 10, and later in the year No. 33 Ruston Bucyrus Model 17. <sup>(4)</sup>

The recommended Kopeopeo floodgates where that Canal entered the Rangitaiki River were found by engineering survey to be impracticable and the idea was abandoned owing to the risk of washout when the Rangitaiki overflowed. <sup>(5)</sup> The Orini floodgates were constructed and were complete and operational by 1940.

Settler complaints regarding the meander of the Rangitaiki river mouth led to an unsuccessful attempt to reopen the mouth direct to the sea in 1941. Absence of high floods and the action of the waves had caused the meander so that a sand bar 7 chains wide had built up and the river itself had moved its mouth eastwards for 60 chains, thus losing fall. <sup>(6)</sup> During a great fresh in the following year the mouth was successfully reopened on 4 September, using a dredge to cut through the sand bar. <sup>(7)</sup>

With the passage of time settlers were becoming confused as to whether their requests were for adequate drainage or flood control. Whether their demands for flood control were caused by pasture losses in the earlier years, or because of the depredation caused by the 1925 flood, or because of land subsidence is not clear, but in 1935 the Chief Drainage Engineer wrote:

Works designed to eliminate overflow from the Rangitaiki and Whakatane Rivers cannot be considered as part and parcel of a drainage scheme. With the Rangitaiki a scheme of protection would be involving expenditure in excess of benefits to the

drainage area. <sup>(8)</sup>

At the end of February 1944 there was serious flooding from both the Rangitaiki and Whakatane Rivers. The floods affected about 8,000 acres and necessitated the removal of stock for many months. While removal of the water proceeded there was a further heavy flood on 17 March which inundated about 3,000 acres. Because of the length of time some areas were under water, considerable regrassing programmes had to be carried out on the affected land in order to re-establish pastures. <sup>(9)</sup> The focus of settler discontent in such a situation moved sharply from drainage to flood control. The criticism levelled at the Department moved the Chief Drainage Engineer to report:

In the Rangitaiki Drainage Scheme no attempt has been made to control major floods in the Rangitaiki River. Where the natural banks of the river are low, stopbanks have been constructed to confine floods not exceeding the maximum capacity of the river-channel at bank full stage, which is about 20,000 cubic feet per second. Considerably greater flood discharges may be expected to occur with frequencies of fifteen to twenty years. The peak flow during the flood of last March was about 27,000 cubic feet per second. The previous comparable flood occurred in 1925. With floods of this magnitude overflow is severe, with loss to the farming community and damage to drainage and protection works. Works to provide complete protection from the floods would be very costly, and, owing to the nature of the country, it is considered stopbanking to eliminate overflow, is, at the present stage at least, out of the question.

It is considered that the intermittent work previously carried out to improve and enlarge the flood channel of the river could now be safely speeded up. This work would, of course, require to go hand in hand with a regrading of the present stopbanks. During the year a considerable amount of work has been necessary to control the regrowth of willows on the river banks, and an unusual amount of revetment has been required to prevent bank-caving. The large volume of water passing down the river has had the effect of retarding the easterly movement of the river mouth. <sup>(10)</sup>

It is evident that the Land Drainage Department carried out such further works as the Commission recommended where they were feasible from an engineering point of view; in addition the Department continued with maintenance using the most up-to-date machinery and methods available. It is also clear that they were not to be drawn into flood protection schemes for the Rangitaiki and Whakatane Rivers.

Settler discontent did not end with the 1925 Commission. Quite substantial concessions were made as a result of that report. Rates had first been struck by the State in 1917-18. Between that year and 1920-21 rates struck amounted to £35,100 of which £32,700 was paid. In 1925 rates were remitted for the years 1921-22, 1922-23 and 1923-24, amounting to £58,633. Under Section 22 of the Finance Act of 1925 the capital liability of the ratepayers was reduced to £205,600 in accordance with the Commission's recommendation. No rates were collected for 1924-25 and 1925-26. In 1926-27 one half of the rates levied were added to the capital liability.

The interest charge fixed by the Finance Act of 1925 was 5% on the capital charge. The sinking fund remained at  $\frac{1}{2}$ %. As from 1 April 1927 the amount of interest to be recovered by way of capital rates was to be confined to:

- (a) £1,000 for each of the first two years
- (b) The amount per annum thereafter to be increased by £1,000 until 1936-37 when the amount would be £10,000.
- (c) The difference between the amount recoverable as above each year and the amount of interest chargeable on the reduced capital liability to be added each year to the capital liability
- (d) The total capital liability as at 31 March 1937, together with the interest thereon, to be recovered over a period of 50 years. The estimated capital liability as at 31/3/37 was estimated at £280,000.

As the annual charge of interest on the reduced capital liability of £205,000 would be £10,250 it will be observed that the foregoing concession was very substantial, as it not only relieved the settlers of the immediate payment of full interest, but it postponed the recovery of the capital expenditure until the year 1937-38. <sup>(11)</sup>

Despite the fact that the Royal Commission had been of the opinion that ratepayers should begin paying interest and sinking fund from 1925, the government made the above concessions so that settlers could invest a larger proportion of their incomes on the improvement of their lands. <sup>(12)</sup> It was anticipated that these improvements would be in internal drainage, grassing, subdivisional fencing, applying fertiliser, and in some cases providing buildings and acquiring milking plant.

The summary of concessions to settlers was prompted by the receipt of three petitions: from H. C. Tipper and others; A. G. Riches and others; and J. S. Murray and others. The petitioners had been critical of the interest rate of 5% when they were able to show that the Crown had in fact been able to borrow the money for the capital works at 4.033%. The Under-Secretary replied that in any business venture some margin was reasonable for administration expenses such as a rate collection, renewal of loans, and payment of interest to debenture holders. He also pointed out that had a drainage board raised the full £510,000 capital it would have had to pay 5%. In this case the capital had been written down so that repayment would begin on only £280,000. The petitioners drew attention to rating in other districts with particular reference to the Hikarangi Plains. The Under-Secretary admitted that of necessity there were variations which were occasioned by the quality of the land, the efficiency of drainage, engineering difficulties and other local factors affecting any situation. As for Hikarangi the negotiations with ratepayers were only then proceeding. The petitioners were critical of the fact that the subsidy for maintenance recommended by the Commission in 1925 had been withdrawn in 1932 and 1933. The Under-Secretary said that the subsidy was based on a maintenance cost assessment of £7,000 per annum. The average maintenance costs for seven years had been only £5,822 and in 1933 was £4,900. The subsidy had been withdrawn because of:

- 1. The position of State Finances at the time
- 2. The recommendation of the National Expenditure Commission
- 3. The fact that the annual cost of maintaining the drains was decreasing, being approximately £1,000 less each year than the amount estimated by the Royal

Commission <sup>(13)</sup>

The petitioners had asked that the whole financial difficulties of the settlers be taken into account, particularly those difficulties ratepayers had had to contend with during the years of depression. The Under-Secretary noted that the Department was aware of these difficulties and two years previously had notified ratepayers in the Rangitaiki Drainage area who were in arrears of rates that they should lay their position before the Collector of Rates, when concessions by way of remissions or postponements would be favourably considered in genuine cases, provided other creditors were not receiving preferential treatment. <sup>(14)</sup> Although the number of European ratepayers was 493, and 'Native' ratepayers 343, only one applied for relief. The Department was still, in 1934, prepared to give concessions to settlers, based on the merits of individual cases. <sup>(15)</sup>

In a supplementary petition the petitioners stated that the position of ratepayers had been aggravated by a severe flood in February 1934. This was the first flood from the Rangitaiki River since the 1926 overflow. The Under-Secretary, referring to the report of the Chief Drainage Engineer, noted that 6,000 acres were affected by the flood. Of this area 900 acres was in flax, 1,600 acres suffered no damage or was low-lying unimproved land, and 3,500 acres of pasture land was damaged. This latter area, it was remarked, was not suited to the growing of pasture, but being a summer flood more damage was done than in a winter flood. <sup>(16)</sup>

The specific concessions applied for by the settlers:

1. The reduction of interest and sinking fund to £7,000 per annum for 50 years and
2. The Government to restore the maintenance subsidy of 10/-:£1 on annual costs and
3. The Government to pay all rates on Native Lands which are unpaid after two years

were not acceptable requests and the Under-Secretary advised the Clerk of the Lands Committee accordingly. Had they been granted the cost to the State would have been £12,000 per annum based on 1934 costs. <sup>(17)</sup>

The petitions were returned to the petitioners.

As the time was approaching for capital payments to begin, an inter-Departmental Committee, which included a Treasury Officer, fully investigated Rangitaiki Drainage affairs in 1935. It recommended that the final loading on the area should be fixed at the same time that final adjustments were made under the Mortgagors Final Adjustment Act; but it recommended that the accumulated interest be written off as the monetary returns from the lands had been very low during the depression years. <sup>(18)</sup>

In 1936 a deputation from the Rangitaiki Ratepayers Association had requested that the whole undertaking be treated as a national work and the total capital cost be written off, and also that the settlers be given authority to form a drainage board. <sup>(19)</sup> Cabinet disagreed with the deputation's request and suggested that the settlers be advised to apply to the Mortgage Adjustment Commission for consideration of their liabilities. <sup>(20)</sup>

always easy to detect the difference in elevation in the lands, but nevertheless there is a material difference, particularly with respect to considerable areas which require pumping, a crucial matter in this enquiry.

The highlanders seek to change the system of rating from the existing system of classification and valuation to a different method of classification with a fixed rate per acre with the object of disposing of any variations in the ratio of rating caused by valuations. The lowlanders offered no objection to the present system, upheld it, and resisted any change. <sup>(36)</sup> The bone of contention comes about through certain areas in the low lying land requiring pumping, and the fact that the government valuer takes that into account in fixing valuations .... The highlanders say that as such lands cannot be drained by gravitational means and consequently owners must use pumps the owners of such pumped lands should bear their own burden and not receive any concession by means of lower valuations. <sup>(37)</sup>

The Committee found that the cause of pumping in certain areas was a consequence of the drying out of lands by the drainage works, which was followed by subsidence in varying degrees. Highlanders did not dispute that the highlands received benefit from the drainage works.

Mr Burnand referred to vitiating factors, the first of which was the necessity for pumping on the lower areas, something that was never visualised when the scheme came into operation. No pumping was done or needed by individuals for twenty years, and indeed was never thought of in 1910. The objection that had arisen resulted from the adoption of a new system of farming, pumping the lower areas to make them more productive. A farmer was quite entitled to do that but he did it to acquire a greater return. The whole question now was the issue of the cost of his doing so. Rating per acre was the only method acceptable so that the benefit received could be evenly spread. <sup>(38)</sup>

The Committee preferred to examine the problem as one affecting the district as a whole. It observed that subsidence caused by the drainage works was the root of the problem, and that further subsidence could be anticipated. Existing pumped land in 1952 comprised 7,000 acres and on a broad estimate a further 10,000 could be requiring pumping with the passage of time. Had the existing areas not been pumped they would have been destitute of production and have little rating value. But as they are pumped and provide production they become a greater source of rating revenue and so help relieve the rating burden on the remainder of the district. <sup>(39)</sup> If too great a burden were to be placed on pumped lands owners would neglect to apply the pumping process, now and in the future, with a consequent reduction in production from such lands. The Committee therefore found that the principle of allowing for pumping in valuations was correct. <sup>(40)</sup>

In respect of the highlanders allegation that over-drainage of the lowlands caused excessive drying out of the pumice highlands the Committee found that the system of valuations met their objection: if their pumice lands required irrigation to preserve the pasture they could present their cases to the valuer regarding such costs, and if desired make due objection under the Valuation Act. <sup>(41)</sup>

The findings of the Committee were: that no anomalies in the rating system were proved and any alleged ones could be overcome by the present periodic valuations together with the right

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The petitioners had asked that the whole financial difficulties of the settlers be taken into account, particularly those difficulties ratepayers had had to contend with during the years of depression. The Under-Secretary noted that the Department was aware of these difficulties and two years previously had notified ratepayers in the Rangitaiki Drainage area who were in arrears of rates that they should lay their position before the Collector of Rates, when concessions by way of remissions or postponements would be favourably considered in genuine cases, provided other creditors were not receiving preferential treatment. <sup>(14)</sup> Although the number of European ratepayers was 493, and 'Native' ratepayers 343, only one applied for relief. The Department was still, in 1934, prepared to give concessions to settlers, based on the merits of individual cases. <sup>(15)</sup>

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In bringing the problem up for final decision the Lands Department considered the question of capital liability from both the point of view of the government and of the farmers, and in the light of the recommendations of the Royal Commission. The Treasury contended that the Consolidated Fund had already borne fully half of the scheme which had made full use of the land; that this utilisation had added at least the total charge of £280,000 to the value of the land and had benefited the general taxpayers of the Dominion only very indirectly; that if the government reduced their charges it would in most cases merely benefit mortgagors and mortgagees; and that as far as the government was concerned as a mortgagee the State Advances loss has to be carried by the Consolidated Fund.

In favour of the settlers was that the government contribution was not more than the usual subsidy provided for similar large development schemes which indirectly benefited the whole community; and that the area had a very limited value without the comprehensive drainage scheme which was beyond the settlers themselves, but that a much heavier expenditure was required on the farms than on the major works. <sup>(21)</sup>

The Department however held the following views:

1. That as £205,000 was by legislation fixed as the capital debt on the area on the recommendation of the Royal Commission, it must be assumed that at no future date would settlers be burdened with payment of special rates for repayment of an amount exceeding that sum.
2. That in 1927 a graduated scheme of rates was authorised by legislation; the deficiency, being capitalised, now loads the settlers with £75,000 capital debt in excess of what the Royal Commission considered to be a fair charge on the area. This legislation was passed to enable further development to take place, if necessary by the introduction of capital. The breaking in of swamp lands is slow and expensive.
3. That as considerable development has taken place since 1927, possibly by means of State and private capital, the capitalised deficiency, £75,000, becomes a charge ahead of the capital that may have been introduced into the area for development purposes. The £75,000 does not represent State capital spent on the area, but accumulated interest deficiencies.

Having regard to the Treasury view and the settler view, and its own observations, the Lands Department made two recommendations to the Minister: (a) Having carefully reviewed the whole, that the accumulated interest amounting to £75,000 be remitted, and that the interest rate be reduced to the most favourable current rate for similar securities and that the maximum repayment period be fixed; and (b) that as annual maintenance costs have averaged £6,000 over ten years and are likely to rise to £8,000, thus increasing the maintenance rate to 4d in £1 on Class A lands such a heavy impost should be met by retention of the 10/- for £1 subsidy. <sup>(22)</sup>

For the settlers a further concession had been gained. They were, by 1937, in a much more fortunate position with the guaranteed dairy price to assist budgeting, increasing fertility of the land and higher stocking capacities, and a special rate at a competitive interest rate to begin the liquidation of the capital debt. As a bonus the accumulated interest debt was remitted. But their wish to have a drainage board and local control was denied them. For most of them the twelve years of grace between the Commission fixing the capital cost and

the beginning of repayment had been put to good use. But somehow the rejection of their insistent demands to direct their own affairs lingered on and their resentment against the Department continued to fester.

Rising prices favoured farmers during the war years. Depletion of manpower caused some neglect in drainage maintenance but settlers accepted this as a price to be paid. Subsidence however would not wait for war to be fought. What had appeared from the early years of drainage was subsidence of the low areas, and particularly areas of deep peat. In the course of time gravity drainage was gradually lost as the land approached sea level. Pastures became usable only in dry weather in some cases. It soon became apparent that mechanical means of removing water would have to be resorted to in the worst areas of gravity loss. For several years small land drainage pumps had been operated by individual farmers or groups of farmers for the better drainage of these low-lying areas. Settler concern and engineering wisdom pointed to the desirability of assessing the amount of subsidence that could be expected in the future, and what the probable final levels might be when subsidence ceased. A topographical and soil survey of the district was commenced in 1945. <sup>(23)</sup>

The Rangitaiki Drainage Ratepayers Association became intensely interested in this work. The Association sought from the Department, and obtained, permission to appoint a sub-committee to act with the departmental officers in controlling drainage work throughout the district. This sub-committee was an advisory body only but the new situation worked well and only infrequently was the committee over-ridden. But its members did learn a great deal about drainage difficulties and the problems of overall control of the works. <sup>(24)</sup>

In 1948 the Lands Department handed over control of drainage on the plains to the Works Department but the work of the committee continued. Gaining increased knowledge of the area and of the complexities of drainage encouraged the Drainage Ratepayers Association to make a further bid for local control and the setting up of a drainage board. <sup>(25)</sup>

From the beginning of settlement there had been friction between landholders. A good deal of this was occasioned by the lateral lie of the land. There was no way the settlers on the lower sections could get rid of the water until there was more direct discharge into the sea. Therefore those on the lower-lying areas were adamant that river diversions were the first work required. In 1893, following the flood of 1892, the diversion of the Te Awa O Te Atua through the sandhills was the favoured solution. After Arthur Wright made his report there was a difference of opinion as to when the diversion at Okorero should be made. Settlers on the higher land were less concerned with main drain outfalls and more eager to cut drains to cater for their own immediate needs. These needs usually shot the water off their own properties on to the land of settlers lower down. The outcome of all this was an early manifestation of local interests. George Murray, an early settler on Grieve's Road, recorded these comments:

Inadequate efforts at draining created bitterness and ill-feeling between neighbours. With a lack of main outfall drains, the man below objected to the man above him cutting drains that poured water on to the lower property. Sometimes the man on the higher ground was willing to help his neighbour to provide a drain to carry the water past, but it was difficult to find agreement on the proportion of the cost and the location of the drain. There were some court cases on these disputes, and an unfortunate feature of them was the way each man tried to bring in other neighbours

to back up his side. <sup>(26)</sup>

The split between those on the high land and those on the lower land was not the only division. It mattered too whether a settler was on the eastern side of the Rangitaiki, or between the Rangitaiki and the Tarawera, or west of the Tarawera. Community of interest was focused around the service obtained from the river diversions and from the main outfall drains. Further friction accompanied the subdivision of the sections. While the main drainage endeavours had attempted to give an outlet to every section, that was no longer the case when sections were subdivided for dairying. Many a new settler found that his outlet was via a neighbour's drain, and neighbours did not always keep the outlet drains clean.

Centres of local interest also developed round the dairy companies, schools and general stores, as at Matata, Otakiri, Thornton, Te Teko, and Awakeri. These interests, based initially on drainage activities, remain very much in evidence after a hundred years. Edgecumbe was the only addition, based largely on the removal of the dairy factory from Awakeri to Riverslea in 1923.

Unlike many areas in New Zealand where centres and towns grew up round the railway, the railway across the swamp did not invite the establishment of settlements. What the railway did do was draw a more definite line between those on the higher land and those on the low land. For many years the highlanders felt a sense of smugness, being free of ponding and flooding and able to enjoy the fruits of capital improvements without the occasional overspills from the rivers, and without the worries occasioned by subsidence and loss of gravity drainage.

Persistent subsidence caused lower-lying lands to become waterlogged for long periods and where the outlets of the drains were higher than the land several areas were provided with electrically-driven drainage pumps to be used in the wettest parts of the seasons. <sup>(27)</sup> It was not long before the pumps were required all the year round, and further areas were found to require pumping. These areas were all north of the railway line.

Valuations reduced the unimproved values of land that required pumping. It was still Class A land, but the lower valuations took account of the cost of pumping. Naturally enough, in drought periods the pumps could, if necessary, be switched off so that there was sufficient moisture to encourage good grass growth. However in drought conditions settlers on the high land south of the railway would dry out quite seriously and production would fall. At the same time these high land people could, and did, feel incensed that they were paying rates on higher valuations while their pastures faded away.

Despite the good growth in dry periods, the low land farmers were by no means free of difficulties in wet periods. The owners of sections 48 and 49 were a case in point. Loss of freeboard and shrinkage of stopbanks constructed of peat caused flooding of the land, particularly in winter. They had two drainage pumps which dealt efficiently with normal waters, but not with the extra water from overfilled canals and drains. In May 1949 a considerable proportion of their 323 acres had been flooded for sixteen days, <sup>(28)</sup> scarcely a situation conducive to good pasture growth.

It may be fairly assumed that the lowlanders had borne their lot quite stoically. One would

expect that any complaints would have emanated from them. But it was not so. The highlanders were apprehensive but perhaps short-sighted.

Events which precipitated their attack on the lowlanders and the rating system in general had their genesis in the report of the departmental survey levels team which had taken levels between 1945 and 1947, drilled hundreds of bore holes around the plains, and made predictions of what final levels would most likely be. These levels largely confirmed what was already evident to the practised eye: that subsidence was a major problem on the lower land north of the railway, and that the small areas being pumped were but an indication only of what could be the pumping requirements in future years. The Rangitaiki Land Drainage Amendment Act of 1948 confirmed the apprehensions. In that Act the setting up of special areas for subdivisions for drainage by pumping schemes was legalised where not less than half of the occupiers presented a petition.<sup>(29)</sup> The Minister was given power to appoint a person or persons from time to time to classify lands.<sup>(30)</sup> By Order-in-Council the Governor-General was empowered to make additional regulations for giving effect to the provisions of the principal Act where matters of expediency demanded such action.<sup>(31)</sup> Nowhere was there anything which would alter the rating system based on unimproved values.

Several years followed in which the late summer and autumn months were dry which added fuel to the highlanders complaints: they drove from dry pastures through green pastures on their way to Whakatane, or on their way to the coast for fishing. Irrational though their posture may have been, these highlanders became convinced that they were carrying an unfair rating burden, and as the land subsided further and encompassed greater areas they believed their burden would increase remorselessly.

Even the members of the Drainage Ratepayers Advisory Committee could not agree, since some were drawn from the highland group and some from the lowland group. For the lowlanders it was a case of fighting a defensive action to retain the status quo. The debate became acrimonious and refused to go away. Friction developed within the Committee whenever the Ministry of Works local engineer made an engineering decision:<sup>(32)</sup> it was seen as favouring one side or the other.

In this situation the government decided to set up a Committee of Enquiry to investigate the incidence of Drainage Rating in the Rangitaiki Land Drainage District. The members of the Committee were Mr J. Morling, who was a retired Stipendiary Magistrate, as Chairman; Mr E. Taylor, formerly Chief Drainage Engineer; and Mr J. M. Alexander.<sup>(33)</sup> The parties to the enquiry were the highlanders, the lowlanders, and the owners of lands in Edgecumbe Township. Mr Burnand, Solicitor, represented the highlanders and the Edgecumbe Township owners; Mr Cooney, Solicitor, represented the lowlanders; Mr Gordon appeared to represent the Valuation Department; and Mr Amodeo, Solicitor, represented the Lands and Survey Department and the Ministry of Works, and appeared for the purpose of giving such elucidation and assistance as might be desired.<sup>(34)</sup> The hearing at Whakatane occupied two days, on 21 and 22 October 1952, and on 23 October the Committee inspected the district and the various drainage works therein in company with Mr E. C. Haultain, representing the highlanders, and Mr I. M. Withy, representing the lowlanders.<sup>(35)</sup>

At the hearing no person appeared to present an individual cause for complaint on his own account. There were the two broad groups, namely the highlanders and lowlanders. The terms are not altogether appropriate. To the inexperienced eye it is not

always easy to detect the difference in elevation in the lands, but nevertheless there is a material difference, particularly with respect to considerable areas which require pumping, a crucial matter in this enquiry.

The highlanders seek to change the system of rating from the existing system of classification and valuation to a different method of classification with a fixed rate per acre with the object of disposing of any variations in the ratio of rating caused by valuations. The lowlanders offered no objection to the present system, upheld it, and resisted any change. <sup>(36)</sup> The bone of contention comes about through certain areas in the low lying land requiring pumping, and the fact that the government valuer takes that into account in fixing valuations .... The highlanders say that as such lands cannot be drained by gravitational means and consequently owners must use pumps the owners of such pumped lands should bear their own burden and not receive any concession by means of lower valuations. <sup>(37)</sup>

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The findings of the Committee were: that no anomalies in the rating system were proved and any alleged ones could be overcome by the present periodic valuations together with the right

of appeal; that the levying of rates in the district based on the unimproved value of the land and in accordance with the classification was fair and equitable; and that the present system of classification (which was not contested) was satisfactory, and that a change to rating on an acreage basis would not be in the best interests of the district. <sup>(42)</sup>

If there was one thing that was abundantly clear it was that subsidence was the basic cause of most of the dissatisfactions and that had been outlined in simple language by the Committee of Enquiry. Subsidence would not go away. The Rangitaiki Ratepayers Association would continue along, the acrimony still below the surface, picking up expertise through liaison with an engineer with whom they could not always agree, and turning with ever increasing vigour to that long sought solution to their drainage problems: a drainage board under local control. They were to use every endeavour towards this end for the next four years. Though there might be acrimony and friction occasioned by neighbour disputes, rating valuation, classification, high and low, and floods, all factions could and did function as a unit when they viewed the common enemy, the government. Local control was the panacea of all ills as far as drainage was concerned.

Ministry of Works operations under contract to Lands and Survey may well have been found wanting. There was dissatisfaction over the old machinery, over the inertia when it came to getting drains cleaned, and apparent indifference to the urgency for the construction of new and necessary pumping schemes. <sup>(43)</sup> The ratepayer criticism was probably legitimate, but it should not be seen in isolation. It was not in itself enough to create a demand for local control but the situation did add fuel to a fire which had been smouldering since the rates were levied in 1919. When the government was doing a good drainage job it could not please the ratepayers: when it did an inferior job the outcry was immediate and prolonged. In 1956 the government gave way and a deal was made.

The Rangitaiki Land Drainage Bill was debated in the House of Representatives on 11 October 1956. A perusal of the debate, which was neither long nor contentious, reveals an abysmal lack of knowledge by parliamentarians of the whole process of drainage on the swamp. The clear impression emerges that the government, with opposition support, was quite anxious to quit itself of the problems of Rangitaiki drainage. <sup>(44)</sup> In moving the Second Reading the Minister of Lands <sup>(45)</sup> said:

This bill is designed to give back to the district the opportunities that the people sought in 1908 .... The first board will comprise the committee of the Rangitaiki Drainage Ratepayers Association, an active body with which the Department has had many discussions. The members of the committee have wide knowledge of the problems involved. This body has proved to be very active in looking after the interests of the landowners in the district. Its members have proved themselves to be responsible citizens and it was considered with their wide knowledge no one was more fitted to control the destinies of the board in its initial stages.

The previous Minister made his contribution:

The original drainage board set up in 1908 was faced with some terrific problems of which it had had very little experience .... During the period I was Minister of Lands drainage committees were set up and I take this opportunity of paying tribute to them for the work they have done .... The maintenance of drains became

increasingly difficult because as the peat subsided in the drainage area the surface of the farms tended to take on a contour in line with the solid land beneath the peat .... There were many complications and problems of that kind, but I think the farmers have now found the answers to them. Certainly they are to be congratulated on their courage in undertaking the total administration of the area .... There is always more criticism of an outside authority, whether it be a local body or the Government, which is handling affairs in a district like this than when some responsibility is given to the local people themselves. I certainly congratulate these people on undertaking the work. <sup>(46)</sup>

The local member observed that:

Since then [1910] the responsibility for the carrying out of work and maintenance, the collection of rates, and so on, have rested with the Department of Lands and Survey. In more recent years the Ministry of Works has been doing some of that work, and while I do not want to condemn what it has been doing, it has been evident for some time that the local people were not entirely satisfied with what was being done. They developed the idea that they could do the job better themselves .... <sup>(47)</sup>

The ratepayers were nothing if not persistent. In 1925 they had assailed the government over the capital cost of the works; in 1934 they had sought reduced interest and sinking fund payments and maintenance subsidy restoration; in 1937 it was the issue of capitalised interest; in 1952 it was valuation; now in 1956 it was maintenance performance. This time they found the key that unlocked the door to local control. The Bill passed its Second Reading without dissent, and the formal Third Reading on 24 October 1956, the Act to become effective on 1 April 1957.

## REFERENCES

- (1) *Eng Rep 1927*
- (2) *Ibid 1929*
- (3) *Ibid 1930*
- (4) *Ibid 1933-39*
- (5) *Ibid 1941*
- (6) *Ibid 1941*
- (7) *Ibid 1943*
- (8) *Ibid 1935 (verbatim section)*
- (9) *Ibid 1944*
- (10) *Ibid 1944 (verbatim section)*
- (11) *Memorandum Under-Secretary of Lands to Clerk of Lands Committee House of Representatives 7/8/43*
- (12) *Ibid*
- (13) *Ibid*
- (14) *Ibid*
- (15) *Ibid*
- (16) *Ibid*
- (17) *Ibid*
- (18) *Memorandum for the Minister of Lands on Rangitaiki Land Drainage 7/4/37*

- (19) *Ibid*
- (20) *Ibid*
- (21) *Ibid*
- (22) *Ibid*
- (23) *Eng Rep 1945*
- (24) *I. M. Withy Private paper. Mr Withy was for many years a member of the sub-committee*
- (25) *Ibid*
- (26) *Murray, George J, : The Story of the Rangitaiki*
- (27) *Eng Rep 1936*
- (28) *Palmer, Bryan: Petition to Hon. C. F. Skinner, Minister of Lands 25/5/49*
- (29) *Rangitaiki Land Drainage Amendment Act 1948 Clause 3*
- (30) *Ibid Clause 3*
- (31) *Ibid Clause 5*
- (32) *The Engineer in charge was H. L. Briffault*
- (33) *Report of Committee of Enquiry set up to Investigate the Incidence of Drainage Rating in the Rangitaiki Drainage District 1952*
- (34) *Ibid*
- (35) *Ibid*
- (36) *Ibid*
- (37) *Ibid*
- (38) *Ibid*
- (39) *Ibid*
- (40) *Ibid*
- (41) *Ibid*
- (42) *Ibid*
- (43) *A. W. Tassell - Conversation*
- (44) *See New Zealand Parliamentary Debates Volume 310 13 September to 26 October 1956 pp 2384 -2390*
- (45) *Hon. E. B. Corbett MP*
- (46) *Hon. C. F Skinner MP*
- (47) *Hon. Sir William Sullivan MP*



The Tarawera River outlet. In the distance are the Rurima Rocks. In the left foreground is the western groyne constructed to minimise the river wandering along the beach.

## PART THREE

### CHAPTER X

#### THE THIRD DRAINAGE BOARD 1957-1989

##### (i) The Years of Indecision

The Rangitaiki Land Drainage Act of 1956 put in place the legislation necessary to pass control to a drainage board. The new Drainage Board took office on 1 April 1957. There was no election, the first members being appointed by the Minister of Lands, and they were to hold office until the first triennial local body elections. These elections were due in 1959. What the Minister did was to appoint all the members of the Ratepayers Association Advisory Committee, nine in all. <sup>(1)</sup>

They were: E. C. Haultain, J. P. Caulfield, W. T. Law, I. M. Withy, S. G. Ker, A. O. Marx, H. E. Missen, J. E. Rae and W. M. Reynolds. <sup>(2)</sup> An elected Board, when the time came, would consist of seven trustees.

The New Zealand Gazette of 4 April 1957 gazetted the Board of Trustees as a legally constituted body as from 2 April. The first meeting of the new Board was held in the Whakatane County Council Chambers at 10 am on 3 April. Mr E. C. Haultain was elected to the chair. <sup>(3)</sup>

A good relationship was established with the County Council. From it the Board purchased the engineering services of the County Engineer, A. W. Tassell, and secretarial services in the person of J. D. Carling. Rates collections services were also provided by the County Council. <sup>(4)</sup>

Although the new Board members believed they had gained considerable expertise in drainage matters from working with engineers from the Lands Department, and more recently from the Ministry of Works, they very soon found there was more to land drainage than criticism. For the first few years they were devoid of policy and because of that they became involved in the minutiae of actual drainage maintenance. It had been easy to be critical of government officials, and to resent the fact that ratepayers found it difficult to have their complaints attended to. The new Board very soon found they were immersed in trivia.

Capital liability repayments since 1937 had reduced the capital debt from £205,600 to £150,000. The government were generous again and agreed to write this down to £135,000, <sup>(5)</sup> to be paid off over 30 years, the annual payment, including interest at 4%, to be £7,807-1-4. The Board was required to execute a debenture in favour of the Crown. <sup>(6)</sup> In return, on receipt of the debenture, the assets to be vested in the Board were all the lands, easements and other interests in land, drains, pumps, machinery, tools, implements and drainage works owned by the Crown in respect of the drainage system carried on by the Crown at the time the Act came into operation. <sup>(7)</sup> An overdraft of £26,000 was arranged with the ANZ bank so that drainage works could proceed.

Mr J. D. Buddle was appointed the Board's solicitor.

E. N. Magee was appointed foreman of works, to operate from Thornton. Insurance for

vehicles and Employers Liability was arranged through State Insurance. House rentals for Board houses were fixed. The Board cast its eye over the assets acquired and was satisfied with the deal it had made. Maintenance was to be subsidised at the old rate and the Soil Conservation and Rivers Control Council could be expected to subsidise capital costs on application. The New Zealand Land Drainage and River Boards Association admitted the Board as a member of that organisation. Mr H. O. Cooney, Solicitor of Tauranga, agreed, in consultation with Mr Buddle, to write the by-laws for the new Board. <sup>(8)</sup>

If the start was auspicious it may be questioned why the performance was mediocre.

Board members, as Ratepayers Association officials, had long been critics of the fact that ratepayers did not have adequate channels for complaint and redress. From 1957 they were swamped with complaints and demands for action. It was decided to extend the services of the Board, that is, to take over some drains which had hitherto been farmers' drains, and maintain them. But there was no criteria laid down to work on, which increased the complaints.

The Putauaki Maori Block concerned the Board for it was outside the Board's jurisdiction yet discharged its water into Board drains. The Board petitioned the Governor-General, under the Land Drainage Amendment Act of 1913 to have the Putauaki Block included in the Rangitaiki Land Drainage District. <sup>(9)</sup> In August it was found that the Governor-General's consent was not necessary, but that the application might be lodged with the Local Government Commission under the Local Government Commission Act of 1953. <sup>(10)</sup> An area of 4,100 acres was involved. The Board was anxious to have the area gazetted so it would collect the rates and to this end addressed itself to the Director-General of Lands. <sup>(11)</sup> The Order in Council was published on 1 May 1958. <sup>(12)</sup> With this additional area included, the Board had not only extended its services and increased its rates take but also solved a problem which had rankled for some years.

Investigations into the possibility of constructing a hydro dam at Matahina encouraged the Drainage Board to look for flood control measures being incorporated in any dam eventually constructed. There was, for a time, an outside possibility of a hydro dam on the Whakatane River too. <sup>(13)</sup> These dams were not drainage matters. The Whakatane project did not eventuate but the Matahina one proceeded. In response to a letter to the District Commissioner of Works, the Board was advised that the Commissioner was not impressed, as to combine reservoir storage with hydro would be greatly in excess of the cost of flood protection by normal practices such as stopbanking. <sup>(14)</sup> The Hydrology Engineer of the Waikato Valley Authority provided the Board with an outline of the Nissen plan. This plan stated that in India and America flood control was normally part of any hydro scheme. Where the storage was limited and the additional height was not possible a system of spilling was worked out and operated. Mr Nissen thought such a scheme could be worked out and operated. The Engineer recommended a proposal be submitted to the Minister for his consideration. <sup>(15)</sup> The outcome of several years debate was that the State Hydro-Electric Department agreed to spill water prior to the arrival of the flood peak so that limited storage was available to take the top off a flood. For the Board spillage had to be controlled as too rapid a rise in the river level resulted in slumping of the river banks and consequent partial obstruction of the channel. Control of the rivers passed to the Eastern Bay of Plenty Catchment Commission from October 1961 <sup>(16)</sup> but the Board continued to maintain its interest in possible flood control measures which might be exercised from the projected

## Matahina Dam.

The Board became involved in a number of squabbles between ratepayers, <sup>(17)</sup> and between itself and ratepayers. <sup>(18)</sup> In the latter case the Board pursued an adverse judgement by a Magistrate to the Supreme Court and lost the case, owing to deficient by-laws. Other issues arose over the haphazard extension of services and in obtaining ratepayer consent to the provision of fencing and to the shares to be observed between parties in the cleaning of drains. On occasions these disputes became acrimonious and of lengthy duration and involved sub-committees of the Board in attempting to provide mediation services.

The Waioho Stream diversion was the subject of representations from the Te Rahu Settlers Committee. <sup>(19)</sup> The Engineer was asked to bring down a report urgently. His report was based on that of Taylor in 1947, a scheme which at that time would have cost £26,250 to protect 2,750 acres, but which in 1958 would have cost £400,000. Briefly, the scheme envisaged a new course for the Waioho to the Whakatane River; the diversion of hill water from the Te Rahu Canal via a new canal with an outlet at Thornton to the Whakatane River; diversion of the Otarere, Greenups and Mangaroa drains to a new outlet at Thornton; and a further diversion to take Yeoman's and the Te Rahu-Waioho hill catchment to the new Waioho. The Engineer considered implementation of the Taylor scheme would cause more serious flooding for the Borough and problems with both the Orini and Kopeopeo Canals. He therefore considered the scheme not justified. <sup>(20)</sup> Such a decision was cold comfort to the Te Rahu settlers. The Board invited Mr W. R. Boon to address their December meeting. He was an early settler in the area and outlined the works performed in the early days and the effects of such works. <sup>(21)</sup> The engineer came back after two floods in December with the comment that factors which could eventually affect the Taylor Scheme would be State hydro-development and the projected formation of a catchment authority. <sup>(22)</sup>

A problem of the erosion of the Maori cemetery at the eastern mouth of the Tarawera was satisfactorily resolved when the Arawa Trust Board came up with their half-share of the cost of the control measures.

The Board received petitions from several groups of ratepayers to have investigations carried out with a view to having communal pumping schemes installed. Prominent among these were the Gow-Colebrook-Greigs Road area; the Missen-Wylds-White area; and the Power-Grant-Reynolds area. When the Board began its work there were already forty-four pumping stations but subsidence and changing land contours required both the upgrading of old schemes and the installation of more communal stations, along with the survey and preparation of entirely new schemes. Because of the large areas involved, consulting engineers had to be called in to avoid delays when the local engineers were called upon to work beyond capacity. Pump schemes of a communal nature required complicated legal procedures to be followed before the works were actually commenced. Once authorised each scheme had to be administered separately by the Board's administration staff. It was never easy to get a scheme going, for although by law all members in a given area were required to participate there were always some who had to be coerced. <sup>(23)</sup>

Weed control in drains was a growing problem, but not a new one. The Board had little success with their experiments in chemical control, and they were dissatisfied with the aquatic weedcutter which to them was merely haircutting. <sup>(24)</sup> The extent to which drains and canals were affected by weeds may be seen from the infestation which had to be dealt

with in 1962. The detail is interesting:

	Chains
Awakaponga Canal	247
Awarua Drain	84
Western Drain (part)	255
Tarawera Western	506
Awaiti Canal	176
Awaiti Road Canal	113
Omeheu Canal (part)	245
Taumurenuui Drain (part)	110
Te Rahu Canal	184
Awakaponga Drain	41
Campbells Drain	98
Section 109 Canal	183
Government Drain East	105

These drains were all machine cleaned. Two drains handcleaned were:

Section 30G	21
Eastern Drain (part)	140

The engineer recommended the continuation of dredge cleaning.<sup>(25)</sup> Nevertheless the Board continued to discuss and to seek improved and less costly methods of control. Better results elsewhere for chemical control methods were eagerly grasped on for discussion. The introduction of carp into canals was another method claimed to be successful but the pros and cons continue to be debated after thirty years with no final decision taken so far.

Since there was no other authority to undertake river control work until the establishment of the Catchment Commission, the Drainage Board was obliged to carry out the necessary works. Its main problem was the Rangitaiki River. The major works were bank protection with rip-rap rock where there was serious erosion, and removal of willows which were prone to fall from the banks into the stream and thus cause channel constriction. From a drainage point of view the water had to be got to the sea as rapidly as possible.

A perennial problem was the river mouth of the Rangitaiki, and to a lesser extent that of the Tarawera. The Tarawera was inclined to wander both to the east and the west, but the Rangitaiki moved to the east as the sand bar built up. Loss of momentum at the river mouths caused the level of the water to rise at normal flow levels. In the case of the Rangitaiki the 2 ft rise had a marked deleterious effect on the discharge of the outfall drains. The Tarawera suffered, but not to the same extent as the Rangitaiki. However, a change of course at the mouth of the Tarawera in the spring of 1957 warranted immediate action. Work was commenced at once to construct a groyne at an estimated cost of £3,000 at a 3:1 government subsidy. An inspection with H. L. Briffault, Ministry of Works, and Mr Andrew, Resident Engineer, led to a request for the chairman of the Soil Conservation and Rivers Control Council to acknowledge the serious nature of the problem.<sup>(26)</sup> The western groyne stabilised the river for a couple of years but then the meander to the east began. The river and the tide action together threatened the Maori cemetery as well as having a negative effect on the contributing drainage canals. Following the engineer's proposals and request for a subsidy

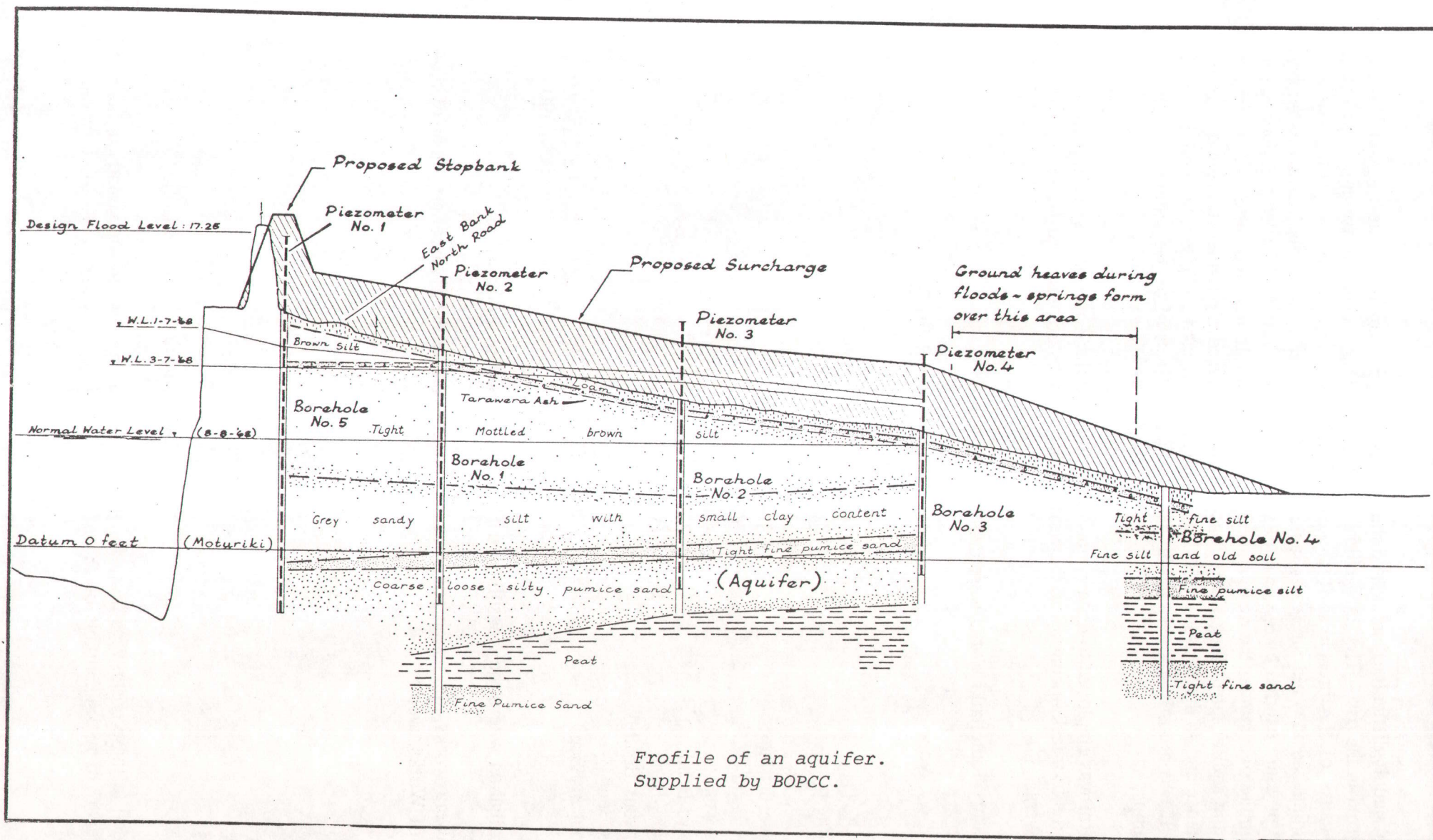
from the Soil Conservation and Rivers Control Council <sup>(27)</sup> a contract was let to Sykes and Paterson for £4,523 for the Tarawera causeway and restoration of the eastern groyne. <sup>(28)</sup> The river continued to give concern at the mouth and by 1964 had drifted away westwards with a consequent loss of head in the basin. Proposals for the western groyne were put to the Catchment Commission. It was anticipated a further expenditure of £3,180 was required. <sup>(29)</sup>

Attempts were made to stabilise the Rangitaiki mouth from time to time but without much success. A groyne, to cost £20,000, was proposed in 1960. <sup>(30)</sup> By the end of the year the mouth had stabilised with the groyne constructed but the relief was only temporary; the river crept round the front of the groyne to the east and had to be diverted back again. <sup>(31)</sup> The engineer considered that the groyne would require to be extended by 300 ft to be successful. The cost would be £10,649. Soilcon agreed to a 3:1 subsidy for the work. <sup>(32)</sup> Stabilising the mouth had a beneficial effect for day to day drainage but it did little to prevent overspill, and these years were years of quite considerable floods. The answer seemed to lie in a comprehensive scheme of stopbanking for the three rivers, a work outside the functions of a drainage board.

Each time there was overspill larger and larger areas were inundated, and because of subsidence inundated to a greater depth, which therefore meant longer periods when pasture was under water. When these floods occurred dewatering had to be achieved by mechanical means. Increasing weight of water in flooding applied greater stress to the stopbanks, a serious situation especially with the Te Rahu, and on occasions the result was collapse of the stopbanks.

There was serious flooding on 25 and 26 February 1958. The Whakatane River reached a height only 12 ins lower than in 1944, and at Te Teko the Rangitaiki was within 2 ft 6 ins of the 1944 levels, but at Edgecumbe and Thornton was only 4 ins below the highest recorded peak. The Rangitaiki overflowed at Pepperells and at Snellings and in numerous other places. The Te Rahu basin was so high that a cut had to be made in the eastern stopbank to relieve the pressure from the Whakatane River. Large areas of the lowland were flooded from both rivers. In the Waioho-Te Rahu areas 90% of P. Howell's farm was under water, 90% of H. Quayle's and 78% of Rae Bros. <sup>(33)</sup> In March 1962 there was severe flooding over the whole of the Board's area, following heavy and sustained rainfall, 12.17 ins being recorded at Thornton over nine days. Pumps were tested beyond their capacity to deal with the deluge. Ponding occurred and pastures were lost. One of the worst affected areas was Greigs Road, most of this water coming from the overspill of the Tarawera River.

Two months later there was serious flooding. Although the Rangitaiki River was not in high flood the river broke out at Reynolds in Section 48 at 4.30 pm on 21 May 1962. Within a short time a large proportion of the flood was flowing through the gap and away on to the low lying land to the east. Immediate action was taken to have the gap closed. This entailed hiring a fleet of trucks to work day and night to cart rock fill from Awakeri. By 28 May the gap had been closed but before the inundated land could be pumped dry heavy rain set in and a larger flood came down the river. On June 1 the river broke in the same place again, and later broke through the Kopeopeo Western Canal. Again the gaps had to be closed. At the same time the Tarawera breached its eastern bank at Bartons and Whites, flooding large areas between the Rangitaiki and Tarawera Rivers. This breach was sealed by the Ministry of Works. <sup>(34)</sup>



It was not unduly difficult to understand the collapse of pumice banks on the Tarawera. Such had occurred in the past. The Rangitaiki was different. Engineering investigations revealed that the cause of the breach at Reynolds was due to overpumping prior to the flood. Overpumping had lowered the water table and dried out the land. This had increased the hydraulic pressure exerted by the level of water in the river. An aquifer led the river water away from the river, under the road, and beyond for about four hundred yards. Water which had kept the aquifer latent for so long, once removed, caused the lightened ground to offer less resistance and so the aquifer erupted, the intervening ground collapsed, and the river had its way. It was a costly but a valuable lesson into the effects of over-draining through the use of pumps.

A local firm was employed to drive timber piling to close the Kopeopeo Western breach. <sup>(35)</sup> That was a minor task in contrast to the works required to restore and improve the Rangitaiki and Tarawera.

The necessary Rangitaiki works were detailed as follows:

Work	Cost £	Subsidy	
Reynolds Gap	300	Free	
Reynolds Pump	2,100	3:1	
Gibbs Bend	2,600	3:1	
Holdsworths No 2	2,100	3:1	£ 7,100
Robins Road	1,050	3:1	
Greigs Road	1,400	3:1	
Conways Bend	700	3:1	
Simpsons Bend	2,000	3:1	
Thompsons Bend	2,940	3:1	
Mokos Bend	2,800	3:1	
McCrackens Bend	400	3:1	£ 11,290
		Total	£18,390

It was a situation where the Consolidated Fund would be heavily drawn on.

The Tarawera works, for which approval had been given by the Hydraulic Officer of the Ministry of Works, were:

Place	Cost £	Subsidy	
Moodys	300	3:1	
Travis	500	3:1	
Smiths	1,000	3:1	
Busbys	300	3:1	
Gardiniers	300	3:1	
		Total	£2,400 <sup>(36)</sup>

To be added to these costs were those for pumping water from several thousands of acres, and the repair of internal drains on the properties of N. F. Reynolds, W. M. Reynolds,

I. McLean, O. Pedersen, P. Barton, P. Jessup, F. C. Rawson, and B. P. Palmes. An assessment of these repair works was presented to the Eastern Bay of Plenty Catchment Commission. Many individual farmers had also been heavy losers.

Further flooding occurred in early December of 1962. At Thornton 10.51 inches of rain fell in three days. Flood pumps throughout the district were overwhelmed and could not cope. It had been considered desirable to bring the new Greigs Road pump into operation before the scheme was completed. Fortunately the calculated risk paid off.<sup>(37)</sup> These floods brought the usual requests for further stopbank protection and for special pumping areas. Flooding at any time was a serious problem for farmers, but flooding at the height of the dairying season was immeasurably worse.

The district was inconvenienced by floods again in March 1964. Most damage on this occasion came from the Whakatane River which rose to a discharge of 60,000 cusecs. There was subsequent breaking of canal banks and extensive flooding of lowlands. Again on 8 and 9 July 1964 both the Rangitaiki and Whakatane Rivers were in high flood. The Te Rahu basin and canal banks again suffered severe damage, and a subsidy for flood pumping was considered as the 1962 situation had set a precedent.<sup>(38)</sup>

Flooding was a problem to the Board, mainly because they had to remove the surplus water. From 1958 to 1964 they had perhaps been unfortunate in that serious flooding was more prevalent than in the immediate past years. But nevertheless by 1964 the Board's whole performance was coming under increasing criticism. They did not favour a Regional Authority for the Bay of Plenty.<sup>(39)</sup> They were lukewarm towards the Catchment Commission. Only minimal progress had been made with regard to communal pumping schemes. There was no definite policy regarding the extension of services. The old high/low feeling had not been laid to rest. In fact, prior to the first election in 1959 three prominent settlers had waited on the Board to present a case for the subdivision of the Tarawera area into north, central and south, so that a preponderance of high-land men could not be elected.<sup>(40)</sup> The Board advised the petitioners that if the voting revealed any loading they would take remedy along the lines suggested by the petitioners. There was too much attention given to old friends.

That the Board should get down to some basic policy was made clear to it when W. J. Mitchell<sup>(41)</sup> gave an opinion on obstructions. The essence of the submission was:

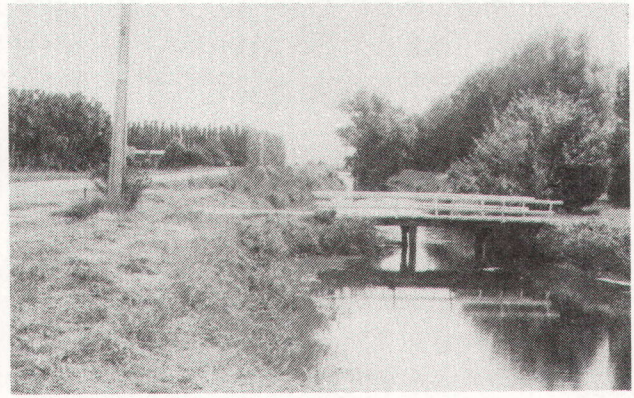
1. The Board had authority over obstructions in private drains as well as drains vested in the control of the Board.
2. The Board should use the provisions of the Land Drainage Act of 1908 rather than the Board's by-laws for coercion.
3. The Board's work is to drain water from land whether it has fallen from the sky or flowed on from higher land.
4. The Board has had to work on flood control because there was no other local authority to do so.
5. Protection of land from intrusion of river water is the function of River Boards.<sup>(42)</sup>

Ratepayer dissatisfaction continued to grow. In April 1964 D. J. Jamieson and twenty other ratepayers waited on the Board to criticise the flooding, and to hear the Board's intentions.

<sup>(43)</sup> The Board's response was to continue the discussions on two long-running disputes

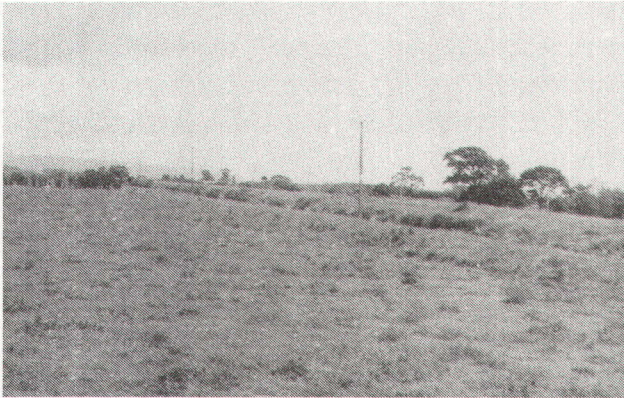


*The Te Rahu Canal and stopbanks.*



*The Western Drain and a farmer's access bridge.*

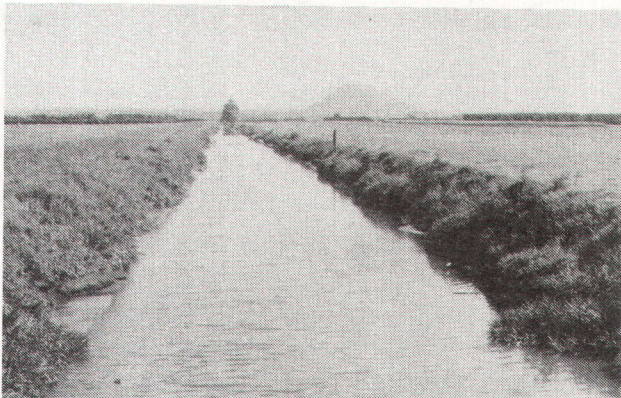
PHOTOS: The author, 1990.



*Land level and stopbanks in Section 69.*



*Confluence of the Western Drain with the Kopeopeo West (LEFT) and the Kopeopeo Canal (RIGHT).*



*Omeheu Canal.*



*Kopeopeo Canal across Section 69.*

between neighbouring farmers. <sup>(44)</sup> When the catchment engineer reported on a proposal to erect a temporary stopbank on the eastern side of the Whakatane River to assist Borough protection, the Board expressed its disapproval of piecemeal work and urged the Commission to get on with the major work for the River. <sup>(45)</sup> Then in July 1964 the Catchment Commission wrote to advise the Board that Soilcon would no longer pay subsidies to cover single farm pumping schemes. <sup>(46)</sup>

The Board was swamped with more than water. Up to this time the engineer <sup>(47)</sup> had carried out his professional duties faithfully without interfering in the Board's affairs. There is no indication of his frustrations in his carefully written reports but his subsequent actions reveal that he thought it more than time that some definitive guidelines were established.

He began by suggesting an order of priority for the projected pumping schemes: these were:

1. Reynolds and Awakeri Farms
2. Hyland/Baillie
3. Luxton's Valley
4. Mexteds
5. Pedersen
6. Turnbull/Richardson
7. Thompson/Ernest
8. Ker/Cleland. <sup>(48)</sup>

The Board had taken a decision to have the engineer report on drain maintenance, a matter which it must be conceded was long overdue. Alan Tassell was, as usual, thorough and professional. His report was far reaching and established a basis on which successive boards were able to formulate and evolve policy. The report, dated 28 October 1964 is here printed in its entirety for it is, in the long years of drainage on the Rangitaiki, a quite remarkable document.

1. Introduction:

At present the responsibility of the Board for the maintenance of drains within the district is based on a schedule accepted by the Board when it assumed control in 1957. This schedule was originally prepared by the previous administrations, the Lands and Survey Department and later the Ministry of Works. Except for subsequent, minor, amendments by the Board, it has remained the accepted list of drains and canals regularly maintained at the present time. The total length of drains and canals is 160.1 miles.

2. Present Policy on Drain Maintenance:

Present policy on drain maintenance has apparently been based initially upon the principle of a Board maintained outlet for each 500 acre block of land. From this principle the maintained schedule has grown over the years, until the present schedule appears to bear little resemblance to the original principle.

Each administration has periodically amended the schedule with extensions and amendments as altered conditions have arisen, but there has not been an overall attempt to completely revise the maintenance programme.

It is understood that prior to the Board assuming control the policy of the previous administration was to seek drain deletions rather than extend the maintenance system. This policy was particularly directed towards drains within the pumping scheme areas.

The present schedule is, therefore, overdue for a general revision and this report is the result of a Board direction to investigate and report on the matter.

### 3. Reasons for a Revision:

Over the past few years the necessity for a revision has become increasingly apparent due to these main factors:-

- (a) Closer subdivision of the Board area with consequent intensified farming requiring improved drainage.
- (b) Altered physical conditions of the land, particularly in the northern area where subsidence due to peat shrinkage has resulted in the installation of pumping schemes and the construction of stopbanks.
- (c) Consolidation of pumice land due to heavier stocking thus reducing the degree of soil infiltration previously available.
- (d) Changes in land use from rough grazing of dry stock to straight dairy production and in some cases market gardening.
- (e) The obligation to review a programme of maintenance which has remained largely static for so many years compared with other rapid developments in the area.

### 4. General Principle of Revised Schedule:

It is difficult if not impossible to formulate set principles upon which to base a maintenance schedule for an area of the size and complexity as that administered by the Board. However it is essential that such a programme should be based on some form of general rules provided they are not regarded as inflexible. The interpretation and application of these rules should be solely at the discretion of the Board, and departure from them when considered necessary a recognised feature and without prejudice.

The following broad principles are, therefore, suggested and, in fact, have been adopted in drawing up the revised schedule.

- (a) Gravity Outlets:  
Provision for a satisfactory gravity outlet for each independently owned holding provided it is of a minimum area of 100 acres.
- (b) Pumping Areas:
  - (i) Provision for a maintained internal pump drain from the main pump station to the boundary of each property on properties aggregating a minimum area of 100 acres.
  - (ii) Provision of a maintained gravity outfall drain for all approved pumping stations.

It is stressed that these two provisions are to apply only to those pumping

stations or schemes already functioning which would meet the requirements of the Board. Those to be installed in the future would also require prior Board approval.

- (c) Board land Bordering Hill Country:  
Special consideration to be given to those properties within the Board's area which border hill country outside the area and through which this hill country or "foreign" water passes en route to Board maintained canals and drains.

5. Reasons Supporting Suggested Principles:

The reasons advanced to support the suggested revised principles are as follows:

- (a) Gravity Drains:  
The provision of Board maintained gravity outlets for blocks of 100 acres is in accordance with the direction of the Board to provide increased drainage following the closer subdivision within the district (see paragraph 3{a}). The figure of 100 acres has been taken as representative of a typical economic dairy unit in this area.

- (b) Pumping Scheme Drains:

- (i) The present system of maintenance of drains within pumping areas is loose and has no standard application to the many areas involved. Pumping is playing an ever increasing role in the development and economy of the Board's district and ultimately, it is estimated that 35,000 acres or 40% of the Board's area will require pump drainage. Installation costs are now normally subsidised by Government funds but these schemes are not normally designed to meet conditions of abnormal rainfall and major flooding, hence compare unfavourably with gravity drainage. A continually recurring maintenance cost is also an additional imposition carried by participants in these schemes.

For these reasons it is considered that approved pumping areas should, at least enjoy the same basic privileges as those extended to gravity drained land.

- (ii) The provision of a maintained outfall drain for each approved pumping installation is, at present, a generally applied principle but there are one or two isolated cases where this is not being done. The extension of this provision to all approved schemes is only reasonable.

- (c) Hill Water:

There are a number of properties on the margin of the Board's district which have quite large hill country catchments discharging through farm drains before entering the Board's maintained drains and canals. Most of these hill catchments are outside the Board's area and can, in some instances, cause considerable embarrassment to the lower land through siltation and flooding. The Board has already favourably considered some of these cases and the revised schedule incorporates further extensions of this nature.

6. Maori Land:

There are a number of areas in the district where Maori ownership predominates. Often fair-sized areas of land are fragmented into small awkwardly shaped sections where the existing pattern of drainage and ownership is confusing.

These areas are concentrated in the Te Teko, Matata and Piripai-Paroa-Poroporo districts. Most areas are reasonably provided with Board maintained drains but in some further field investigation will be necessary before any extensions can be recommended. The revised schedule incorporates few recommended extensions in these areas but further consideration can be given as field investigations are undertaken.

7. Roadside Drains:

There are innumerable drains alongside roadside reserves. A number of these drains are already maintained by the Board and the Whakatane County and Ministry of Works assume responsibility for the maintenance of a limited number where they affect the adjacent road. In the majority of cases, however, these drains are either irregularly maintained by adjacent property owners or are left in a state of neglect. Invariably they are difficult to maintain by machine due to roadside hedges, fences and service poles, together with the lack of room for the operation of the machines and disposal of spoil. In a number of cases these form an essential part of the internal drainage system of adjacent properties.

The responsibility for the maintenance of roadside drains would be best referred to the Board's solicitor for an opinion.

However, it is the writer's opinion that the Board should not consider them as a separate issue but only in the context of an overall revised drain maintenance system. Since the Board already assumes responsibility for the maintenance of some 37.5 miles of drains adjacent to roadsides, an extension of this service, unless forming part of the overall system, is not warranted.

8. Extent of Revision:

The recommended revised schedule entails the following approximate amendments:-

(a) Additions:

Extensions to existing Board maintained gravity drains	626 chains
Additional gravity drains (not maintained by Board at present)	939 chains
Extensions to existing Board maintained pump drains	62 chains
Additional pump drains not at present maintained by Board	525 chains

(b) Reductions:

Deletions to existing Board maintained gravity drains	465 chains
Deletions to existing Board maintained pump drains	31 chains

(c) Actual net increase	1650 chains
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9. Estimated Cost of Revision:  
Based on the amended schedules as listed in Clause 8, the annual cost of maintenance of these extra drains is £1,250.
10. Conditions upon which extra Drains will be taken over:  
The following should apply to all recommended extensions to the drain maintenance programme before they are officially accepted as Board drains.
- (a) The drain to be put in a satisfactory condition to the approval of the Board Engineer.
  - (b) Trees, stumps and fences to be removed or set back in the case of fences to enable the drain to be maintained by machine. Lateral drains to be provided with suitable crossings where considered necessary. All of this work to be carried out to the Board Engineer's satisfaction.
  - (c) No responsibility to be taken by the Board for bridges or culverts over or in the drain. Should an existing structure be unsatisfactory in the opinion of the Board's Engineer, such structure to be modified to meet the requirements of the Board.
  - (d) Subject to the above conditions being complied with beforehand the drains to be taken over as from 1 April 1965. Any proposed extension not in a satisfactory condition by that date, as determined by the Engineer, would be taken over progressively as the Engineer certifies that it meets with the above conditions.
11. Maintenance Subsidy:  
The Board at present enjoys a subsidy on its maintenance works of £1:£2 with a total subsidy of £6,000 allocated yearly.

Maintenance expenditure since the Board's inception is as follows:-

1957-58	£21,000
1958-59	£19,600
1959-60	£20,800
1960-61	£19,100
1961-62	£23,300
1962-63	£20,700
1963-64	£21,200

Figures quoted are to the nearest £100 giving an average yearly expenditure of £20,800.

With the Board offering an expanded programme of drainage it could be an opportune time to request that the maximum subsidy of £6,000 be raised to an actual figure based on yearly expenditure at a 1:2 subsidy rate.

12. Conclusion:  
If these recommendations are accepted it is suggested that a new system of drain numbering be instituted as from 1 April 1965. The present system has no logical

basis of preparation.

It is not claimed that the recommendations contained in this report are the ideal and final solution to the question of drain maintenance. Some anomalies will still exist and with major river schemes in the course of preparation further amendments will almost certainly be required.

The claim is made however that an attempt has been made to remove the obvious anomalies and provide an increased service to Board ratepayers.

Improvement is a continuous process and as development of the Board area increases there is no reason why further consideration to an improved service could not be given at later stages.

A. W. Tassell  
Board Engineer.

Two months after the report was presented, the Board's solicitor provided the answer to the vexatious problem of roadside drains. The text of the letter reads:

By virtue of Section 25 Land Drainage Act 1908 (now replaced by Section 47 of the Finance Act 1933) the Board has a duty to see that all drains in its or under its management are kept in order, and it may require the owners of land along the banks to do the work under Section 62.

In the 1911 Supreme Court case, *Henry v Piako County*, it was held that all the drains in a Board's area are under its management.

Section 273 of the Public Works Act, which comes at the end of a series of sections conferring on Counties jurisdiction over drains, says that nothing in the Public Works Act shall be deemed to control or alter any of the provisions of the Land Drainage Act 1908, or to authorise any interference by any County Council with any drains or other works under the control of any Board constituted by or under the said Act without the consent of such Board. This section makes it plain that the Board has the jurisdiction over roadside drains, not the County Council.

Section 62 (1A) (b) of the Land Drainage Act 1908 deals with the problem of roadside drains, arising from the fact that there is a farm on one side of these and a road on the other, and by the normal application of the Act one would expect the roading authority to be partly liable for the maintenance of the drain. This section provides as follows:-

'The occupier or owner of land adjoining a road shall be deemed to be the occupier or owner of the land on the banks of any watercourse or drain running upon such road where such road fronts the land of such occupier or owner, unless such watercourse or drain had been artificially constructed by the local authority for the purpose only of draining the surface of such road.'

This gives a clear answer to the problem. Unless the drain has been artificially

constructed by the local authority for the purpose of draining the surface of such road then the farmer is considered to be the owner of the land on the banks and he is liable for the maintenance. <sup>(50)</sup>

While the Tassell Report had provided clear guidance for the Board and the Mitchell opinion clarified the position regarding roadside drains, it was still a matter of contention as to what optimum drainage of the land was. Discussions amongst interested farmers led to a letter seeking Board participation in an experiment to determine optimum water table levels through the setting up of investigative experimental plots. <sup>(51)</sup>

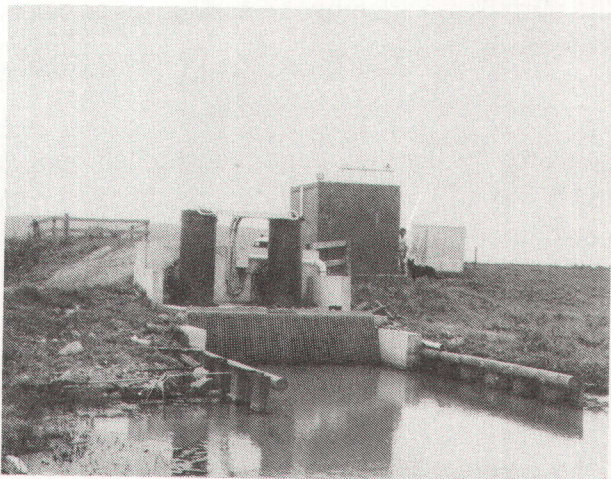
In this case the Board was favourably impressed, if not so much with the experimental plots, then with the notion of optimum water table levels. This was getting at the essence of drainage as it affected land users and aided production. A meeting was called by the Board on 12 May 1966, presided over by the then Chairman, Mr John Murray. In addition to Board members and officials present were Dr R. Northey, N.Z. Soil Bureau, Wellington; Mr W. A. Pullar, DSIR, Whakatane; Mr R. Hewitt, Department of Agriculture, Whakatane; Mr van der Elst, Department of Agriculture, Rukuhia Soil Research Station, Hamilton; Mr R. Cochrane, Senior Lecturer in Geography at Auckland University; Mr E. D. Revington, Chief Engineer, Bay of Plenty Catchment Commission; and Mr I. McLean, a prominent local farmer and writer of the letter in which the question of water levels had been raised. <sup>(52)</sup>

Each of the visitors spoke at some length about land drainage and optimum water retention levels. Various methods of control were discussed from pumping to irrigation. Mr Tassell provided an outline of the whole of the drainage endeavours and acquainted the visitors with some details of local problems from an engineering point of view. Mr McLean spoke on the problems of subsidence and the difficulties farmers had in locating internal drainage systems. Mr Pullar dealt more fully with the problems consequent on the peat basins and the variable soil types. Because of these problems it was not possible to have a comprehensive scheme for large areas to maintain stable water table levels.

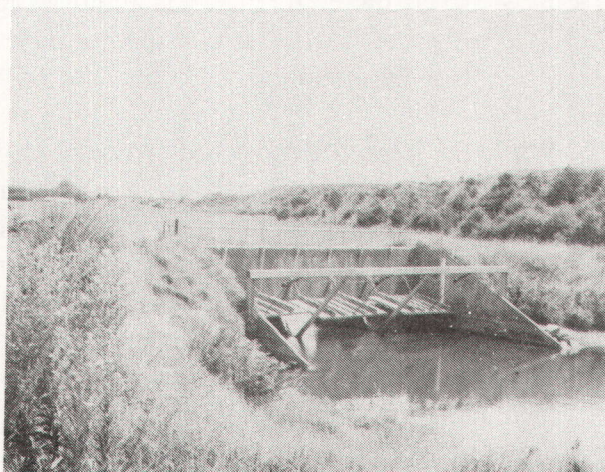
The entire discussion was highly regarded by the group at the meeting. What it did for the Drainage Board was to heighten the awareness of the entire problem of water table levels in the provision of optimum drainage so that more grass could be produced, and more cattle could turn the grass into production. This was the real objective of land drainage.

The Tassell Report, the Mitchell solution to roadside drains, the McLean letter on water levels, and changes in Board personnel led to an end to the period of indecision. Of a certainty there would be more problems in the future but there was now a blueprint to work on, to either accept or reject, but nevertheless a clear direction to pursue.

In April 1965 W. M. Reynolds resigned to go overseas to work under the Colombo Plan in the Philippines. He had been a Board member since 1957, and for a time Deputy Chairman and also Acting Chairman. In September 1965 I. M. Withy resigned. His work began with the Ratepayers Association Committee in 1924. He had thus spent 41 years in service to the ratepayers, and although a man with a comprehensive knowledge of the swamp and a good relationship with all the ratepayers, had on occasion found himself the champion of the lowlanders. <sup>(53)</sup>

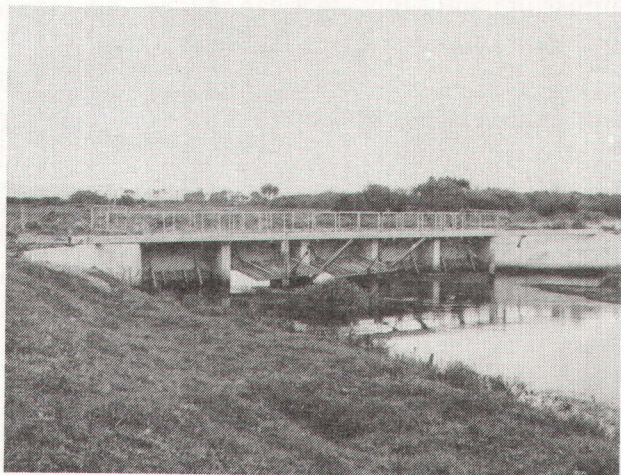


*Omeheu pump station - the intake.*

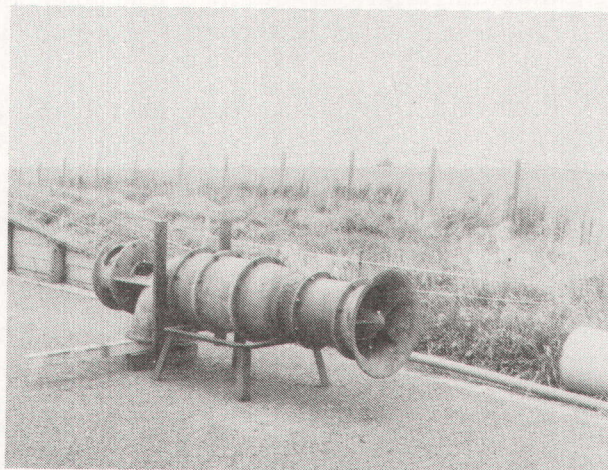


*The Kopeopeo floodgates.*

PHOTOS: The author, 1990.



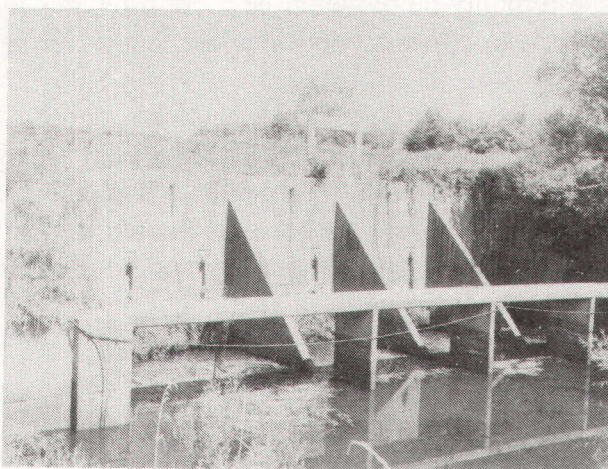
*The Awaiti floodgates constructed after the 2 March 1987 earthquake. Completed and officially opened 2 March 1989.*



*A pump after repair work has been completed.*



*Waioho Canal and stopbank.*



*The Te Rahu floodgates.*

## (ii) The Years of Change

The advent of the Catchment Commission in 1961 gradually brought a profound change in the work of the Drainage Board. If the Board continued to control the Rangitaiki and Tarawera Rivers, it was under the authority of, and on behalf of, the Catchment Commission. The Board itself was just a little sceptical about the intentions of the new body, particularly when little progress appeared to have been made. The Commission, however, was busily engaged in preparing the ground for its first major work, the Whakatane River Major Scheme. The second task that the Commission proposed was the Kaituna River Scheme, again a disappointment to the Board, which was still charged with the flooding problems emanating from the Rangitaiki and Tarawera Rivers and the consequent disruptions floodwater caused to ratepayers. In the event the Commission, by increasing its staff and obtaining more funding, was able to undertake the Kaituna and Rangitaiki schemes simultaneously.

Although the Commission took over the three rivers and the major canals it was anxious to have a good working relationship with the Board and to utilise the Board's personnel and equipment in a maintenance role. The canals taken over were the Te Rahu to the Edgecumbe-Awakeri Highway, Reids Canal to the same highway, the Waioho, Kopeopeo Eastern, Awaiti, Awakaponga, Section 109 and the Omeheu Canal. Authority to maintain these canals on behalf of the Commission was contained in legislation, by which Soilcon could delegate such authority. Soilcon chose to do so under Section 17A of the 1908 Act; the Board therefore was enabled to maintain works constructed under the Catchment Commission, but this applied to canals and not to rivers. <sup>(1)</sup>

Despite this the Board was not too certain about its future, as the chairman remarked in his annual report. <sup>(2)</sup> However a good relationship was eventually established between the two bodies and the Board continued to carry out maintenance for the Commission as well as its own drain maintenance.

Perhaps, in looking to the future, the Board was seeking to justify its continued existence, which despite the agreement with Soilcon, did not appear auspicious, for the engineer proposed a revision of Board maintenance policy to enable each holding of 50 acres or more to be given an outlet. <sup>(3)</sup> On the other hand the engineer may have had a premonition of considerable changes in land usage.

While the Whakatane Major Scheme was in progress investigations were commenced by the Commission into the Rangitaiki Scheme. It was widely believed locally that seepage from aquifers was a serious problem with the river. On testing the banks of the Rangitaiki with piezometers to record water pressures it was found that there were not nearly so many of these beds as assumed. Two areas recorded pressures considerably higher than elsewhere: at Reynolds on the right bank, and at Greig's Road on the left bank. The Commission therefore requested that pumping levels should be kept as high as possible at all times at these sites, but more particularly when the river was rising, otherwise conditions could be created that would lead to piping from the main river. <sup>(4)</sup> Ratepayers on low land anxious to have pumps removing water had no trouble finding fault with the Commission on this score. At almost the same time the Board was advised by the Commission that there had been widespread slumping and slipping of the Rangitaiki River banks during the draw down for filling the Matahina Dam. This confirmed what ratepayers had already communicated

to the Board. There were three areas of particular concern where permanent damage had occurred: Sullivan's Bend, McCrackens's Bend, and in an area adjoining Reynold's property.

<sup>(5)</sup> Since the Whakatane Scheme was far from completed, and the Rangitaiki Scheme only under investigation there was general unease. The Commission had no money for river maintenance works, but only for new works. The burden of maintenance and improvement of the two rivers therefore continued to fall on the Board and ratepayers at a time when the incidence of flood water might well be considerably worsened. Indeed there was not long to wait for in the flood of 3 and 4 February 1967 both the Whakatane and Rangitaiki Rivers overflowed, flooding 3500 acres from the Whakatane and 3000 acres from the Rangitaiki. Bank breaches occurred in the Waioho, Te Rahu and Reids Central Canals. Breaching of the stopbanks was necessary to aid the escape of floodwaters. There was serious erosion in some of the Board's drains. <sup>(6)</sup> Each flood placed the Board in a no-win situation: it was trying to get along with the Commission despite what it saw as slow progress, but it was increasingly pressured by ratepayers who wanted action.

The sorely tried Board was faced with a new problem as the result of a storm on 10 April 1968. <sup>(7)</sup> In spite of the Board's previous efforts to encourage landholders to remove trees from drain banks, such endeavours had had little success. In this storm over 1000 bluegum trees were down in drains, across them or beside them, thus impeding the flow of water. Within the Board discussion ensued as to whether there would be a subsidy available for the tree clearance since it was not flood damage. It was decided to issue legal notices immediately to all property owners to clear trees from Board drains, and that the engineer apply to Soilcon for a subsidy for the removal of trees from Board drains. <sup>(8)</sup> Notices to clear trees under Sections 27 and 62 of the 1908 Act were prepared by the Board's Solicitor. That was not the end of the damage. The storm dealt harshly with the groyne at the Rangitaiki mouth where the damage repair required the expenditure of £10,404, at a subsidy of 3:1. <sup>(9)</sup> The government also agreed to pay a 3:1 subsidy to farmers to clear trees from drains. <sup>(10)</sup>

There was a glimmer of relief. In April 1970 the Catchment Commission advised the Board that the Rangitaiki Major Scheme had been approved by the Government with a 3:1 subsidy on the total estimated cost of £2,429,000. <sup>(11)</sup>

The Board had scarcely time to receive the news with relief when a flood in June 1970 inundated Poroporo and the Te Rahu area from Waioho, filled by the Whakatane River. Auxiliary pumping had to be called in to disperse the ponding. The land was barely drained of water when the catastrophic floods of 14 and 15 August 1970 caused their havoc. All three rivers overflowed to a serious extent:

Prior to river overflow heavy local rainfall caused the Omeheu and Awaiti to overflow and flood the adjacent farmland. Overspill of the Rangitaiki added to the existing flood.

Work on the Whakatane Major Scheme kept the Whakatane flood to the east of the Te Rahu Canal. The Rangitaiki River was contained on the western side of the Western Drain and Kopeopeo Western Canal.

Between the Western Drain and the Rangitaiki River there was extensive flooding from Pepperell's Bend northward to Thornton.

A piping failure occurred on the left bank of Reid's Canal in Pedersen's property.

West of the Rangitaiki River flooding was confined to the area north of Kokohinau and westward to Awaiti Road. The main areas to suffer were the Omeheu Settlement Block, Eveleens/Gilligans, and Greig's Road.

There was severe erosion of Reids Central Canal and siltation in the McLean's Road area was serious.

The Estimate of costs for Restoration Work was:

Item	Cost \$	
Reids Central		
Pedersen's Break	5,000	
Reynold's Break	3,500	
Miscellaneous Cuts	500	
Repair Culverts	500	
Erosion Control	1,500	
Drain Siltation	500	11,500
Omeheu Canal		
Omeheu Settlement Block	1,000	
Miscellaneous Cuts	1,000	
Drain Siltation	500	2,500
Tangaroa Drain		
Replacement of Culverts	1,000	1,000
Old Rangitaiki		
Repair of Breach	500	
Emergency Pumping ;		
1700 hrs at \$3	5,100	
Contingencies 5%	1,030	21,630
Add Vickery's Floodgate from June Flood	<u>4,000</u>	
		25,630 <sup>(12)</sup>

The final estimate was \$23,300 on which a subsidy of 3:1 was sought. <sup>(13)</sup>

These floods increased the demand for new pumping schemes which all required investigation and hence a need to establish priorities. <sup>(14)</sup> There was an awareness by the Board that although pumping was an answer, too much pumping increased the drying out of the peat surface and that in turn caused more subsidence. The more water that was pumped from the lower lands also affected the water level retention rate on the higher lands.

In the interim, while the Chairman's Report of 1970 referred to the future of the Board as being somewhat obscure, <sup>(15)</sup> new pressures were building up. In a flood of 15 and 16 May 1971, heavy local rain and the Rangitaiki overflow at Pepperell's caused extensive surface

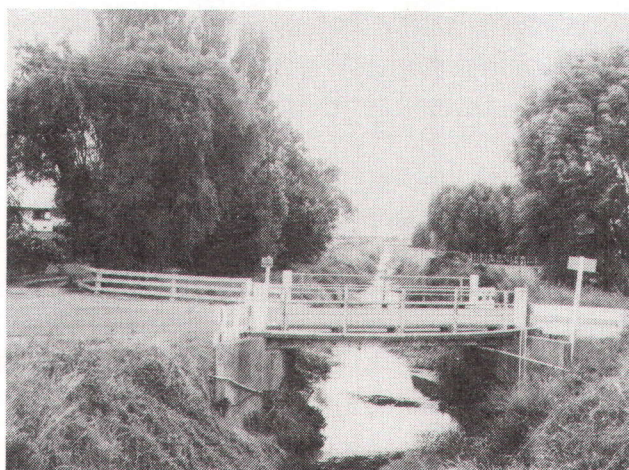
flooding. On 10 June the Tarawera broke through on the left bank 90 chains downstream of the Edgecumbe-Matata Road.<sup>(16)</sup> The settlers were angry and frustrated, even more so when the engineer recommended that except for the Leaming/Law Bend no other river works be carried out in view of the major scheme coming up.<sup>(17)</sup> At the same time the Board received a deputation of settlers from the Orini and Kopeopeo Canals area to discuss the problems associated with the Whakatane Major Scheme. They considered the Orini and Kopeopeo floodgates were not opening soon enough after heavy rain, and that in any case the water table level had been increased since the Major Scheme was implemented. The Engineer stressed that little could be done until the whole scheme was settled. The situation pointed up how solving a major problem could create smaller ones.<sup>(18)</sup> One member stated that the Commission seemed to be taking the responsibility for flood protection only and leaving the Board to deal with farmer problems.<sup>(19)</sup>

That the farmer complaints had substance was recognised by the Catchment Commission when their engineer wrote to the Board to advise that existing drainage was not adequate in the Rewatu Road area and suggesting the Board extend their investigation into the drainage of the Kopeopeo and Orini Canals to include all land west of the Whakatane River.<sup>(20)</sup> The Board agreed to have its engineering staff carry out the necessary investigations when opportunity occurred. The farmers returned to the attack when a meeting was arranged in January 1973 to discuss ponding. On this occasion they stressed they were not critical of flood control but only of surface water which could not escape in heavy rain.<sup>(21)</sup> But better times were coming after a wet decade. One settler wrote to the Board in March 1973 wanting the Orini held at a higher level to prevent the land drying out in dry weather. He had never seen the Orini so low.<sup>(22)</sup>

1973 can be seen as a vintage year in some respects. It marked the end of floods and floods had been such a large part of the settlers' lives since 1892. 1973 also ushered in a long period of relatively dry years following in succession. It also marked the beginning of the Rangitaiki/Tarawera major scheme. While the Board may have continued to question its place in the total drainage scheme, it provided a vital link between landholders and government agencies. On another note 1973 brought the retirement of Alan Tassell who had been a significant personality since the inception of the third Drainage Board. These were indeed years of change. As yet there had been only a slow development in market gardening. But from 1973 there came horticultural interests which were to try the Board in many new ways.

The success of kiwifruit growers in and around Te Puke, and the high returns per hectare there, encouraged horticulturalists to look further afield for suitable land. No doubt the Bay of Plenty was popular because of its climate. Confidence was stimulated in this area of the Rangitaiki because the major schemes would control flooding. Some local farmers with small experimental plots had already been successful. The demand for land forced up land prices and subdivisions proceeded apace. From the point of view of drainage, the old system of providing an outlet for every 100 acres, and holding the water table at around 0.6 metres was about to be challenged by the demands of the new land users.

While some of the new subdivisions were adjacent to existing drains a much larger number had no outlets so provision had to be made by way of recommending easements within the subdivision. Within the Board's area the District Council referred each proposed subdivision to the Board for comment and drainage requirements. Many of the new landowners were



*Tarawera Western Drain which disposes of seepage from the Tarawera River.*



*Raised railway embankment on the Plains. Awakaponga in the background.*



*Tarawera stopbank showing toe-loading to minimise seepage.*



*Tarawera River, the eastern stopbank at Otakiri.*

PHOTOS: The author, 1990.



*Canal at Section 109.*



*Confluence of the Tarawera Western Drain (RIGHT) and the Awaiti Canal.*

taking up their allotments in dry years and had no knowledge of what wet conditions could demand of them. Subdividers were often reluctant to set aside land for drainage easements.

The Board had other difficulties with owners of horticultural blocks. With the high prices paid for land and the high returns available for kiwifruit the tendency was to plant shelter belts, and occasionally to erect buildings, on drainage easements in contravention of the Board's by-laws. There was also the problem of entrance ways crossing Board drains where adequate channels had to be maintained for water discharge.

In addition to kiwifruit, which was the predominant horticultural crop, there were boysenberries, asparagus, and several orchards with such fruits as pears, peaches and nectarines. In each case the water requirements were different and so also were the considered optimum water tables.

Overdrainage had concerned the Board since the drier years began in 1973. Many recent settlers were unaware of the effects of a wet season or even a severe storm of comparatively short duration, let alone the 100-year flood. <sup>(23)</sup> Settlers, despite the major river stopbanking works, were being lulled into a sense of false security. When the Otakiri settlers and orchardists were seeking methods of irrigation and water retention services one old settler wrote:

With the Tarawera River under control and Onepu a dairying district, some of the settlers there contended that they should not have to pay the same drainage rates as those on former swamp areas. Had these men seen their land in 1909 and 1910 they would have thought it was a lake. <sup>(24)</sup>

Nevertheless the Board convened a meeting at the Otakiri Hall in July 1978 where settlers could meet a panel of experts to discuss water retention. Attending the meeting were M. J. Cartwright, Farm Advisory Officer in Agricultural Engineering, who had written a report; M. O'Connor, Research Scientist, Ruakura; Bruce Collar, Ruakura Research Scientist; and Brian O'Neil, Ministry of Agriculture and Fisheries, Rotorua.

Mr Cartwright confirmed that if water table levels were too high in winter root damage was caused, which affected summertime production adversely. The lowering of the water table at Otakiri did not cause permanent soil damage because in that area there was no peat to dry out. Varying water table levels were discussed and comparisons made with trials on the Hauraki Plains. At the conclusion of the meeting the Board was requested to investigate and report on the possibilities of establishing a community irrigation system. A problem associated with such a scheme brought into focus evaporation, soil water retention, and run-off into Board drains and thus the likely adverse effect on landowners on the lower-lying lands. <sup>(25)</sup>

The Otakiri meeting led the Board to discuss future policy over the next twelve months. In October 1979 the Chairman presented a paper on the Board's policy. The main points made were as follows:

Over the past 60 years a floating swamp has been turned into pasture land except for 10% which still requires drainage by pumping and which is part of the continuing

Board programme.

The area is divided by the railway line into the pumping and non-pumping divisions.

The policy of maintaining open waterways is to clean the canals first, then the drains serving pumping stations and finally the gravitational drains south of the railway line. Therefore when a storm strikes there is an element of chance as to which drains have been most recently cleaned.

The Board provides a drainage outlet to the last property boundary of 100 acres or more and generally provides only one outlet for each property.

When a storm strikes flooding and pasture damage can occur as the drainage system is not designed for such storms. With pastoral farming there are losses but recovery is fairly quick and production soon returns to normal.

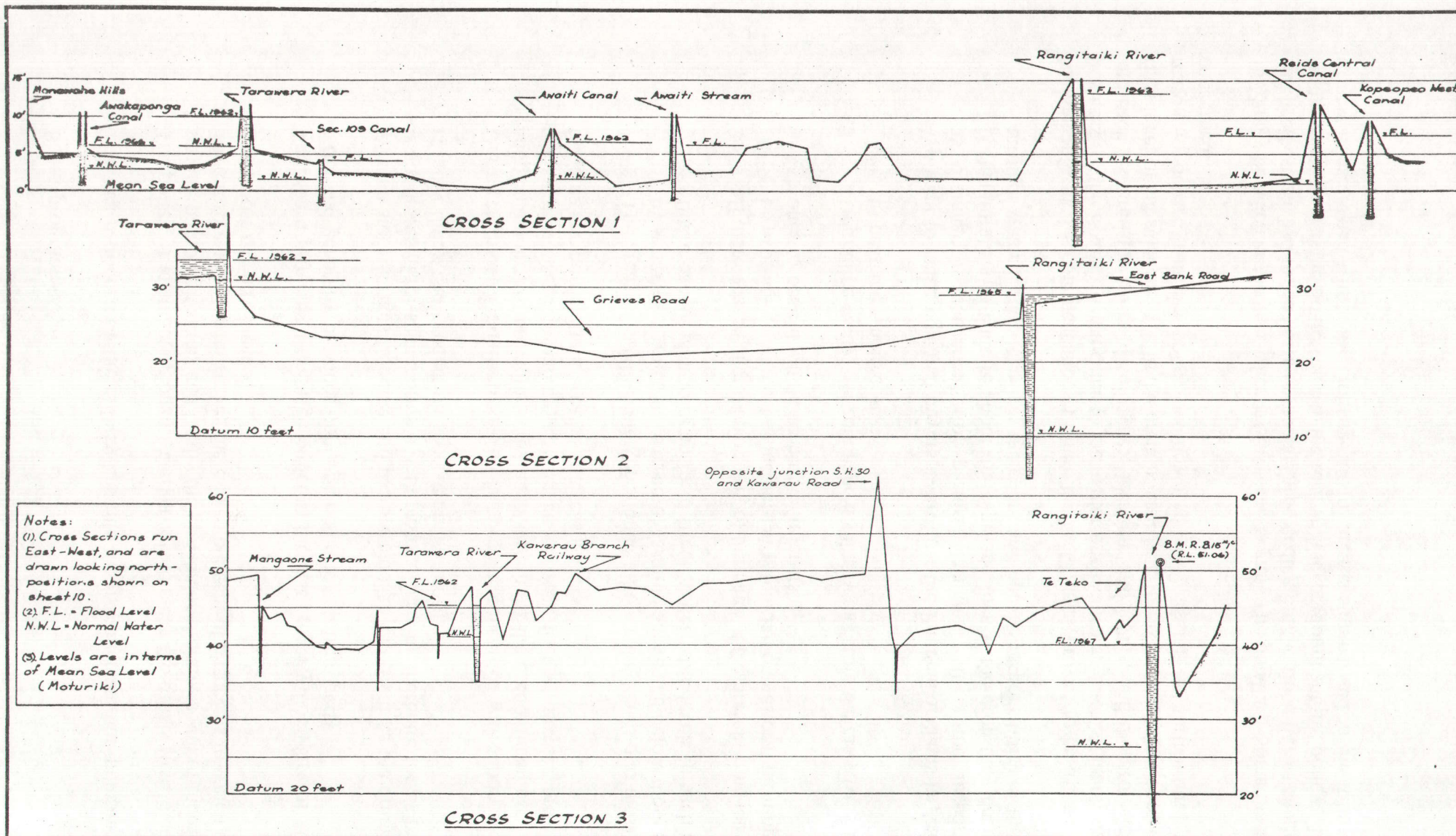
During the past 18 months the Board has become concerned with subdivisions and has adopted a policy of providing a drainage system for the predominant use. The Board does not envisage providing a drainage network to give greater protection from flooding for horticultural areas. The reasons were:

1. The areas of subdivision were dotted all over the Plains and most are served by waterways which have pastoral farming above and below these areas. The Board cannot plan to drain for difficult water table levels in such a situation.
2. If there was a general upgrading of drainage at the present time the cost would be exorbitant and most of the burden would fall on pastoral farming, while the ones to benefit would be horticulturalists.
3. Upgrading would not command a subsidy therefore the ratepayers would have to bear the whole cost.

We want to make potential buyers aware that the Rangitaiki Plains is geared, as far as drainage is concerned, for pastoral farming. It is the responsibility of horticulturalists to enquire about drainage and then if the crop they decide on fails through water levels, then it is their loss and not the responsibility of the Board.

Making informed recommendations to the District Council proved to be a time consuming business for the Board when it came to the matter of easements. Each situation was different and each required the study of soil types, location, and levels, and the projected probable final level of subsidence. While the predominant land use is pastoral the Board has seen no reason to depart from its policy set down in 1979 as far as horticultural units were concerned.

1973 may be taken as the year when subdivisions began to be popular. Some market gardens had been established in the years immediately preceding but the flood tide of subdivision was being reached when the Board came to the fore with its predominant use policy. The number of new titles created within the Drainage Board area is summarised in the following table:



Profile of the Rangitaiki and Tarawera rivers. Supplied by BOPCC.

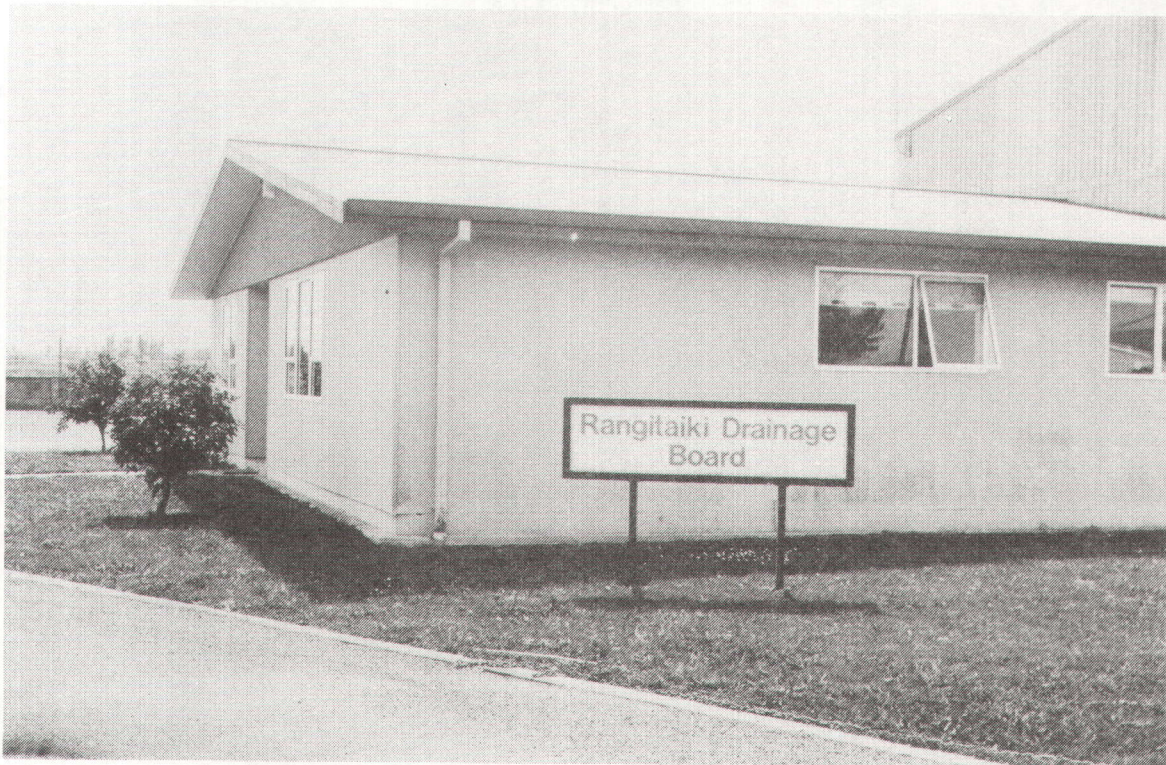
Year	New Subdivisions
1973	10
1974	7
1975	14
1976	8
1977	19
1978	52
1979	90
1980	81
1981	117
1982	80
1983	26
1984	31
1985	45
1986	42
1987	76
1988	45
1989 (to 2 June)	<u>19</u>
Total	762 <sup>(26)</sup>

If the average subdivisional area is about seven hectares, then horticulture/orchards occupy about 14% of the plains area. Pastoral farming accounts for the other 86%.

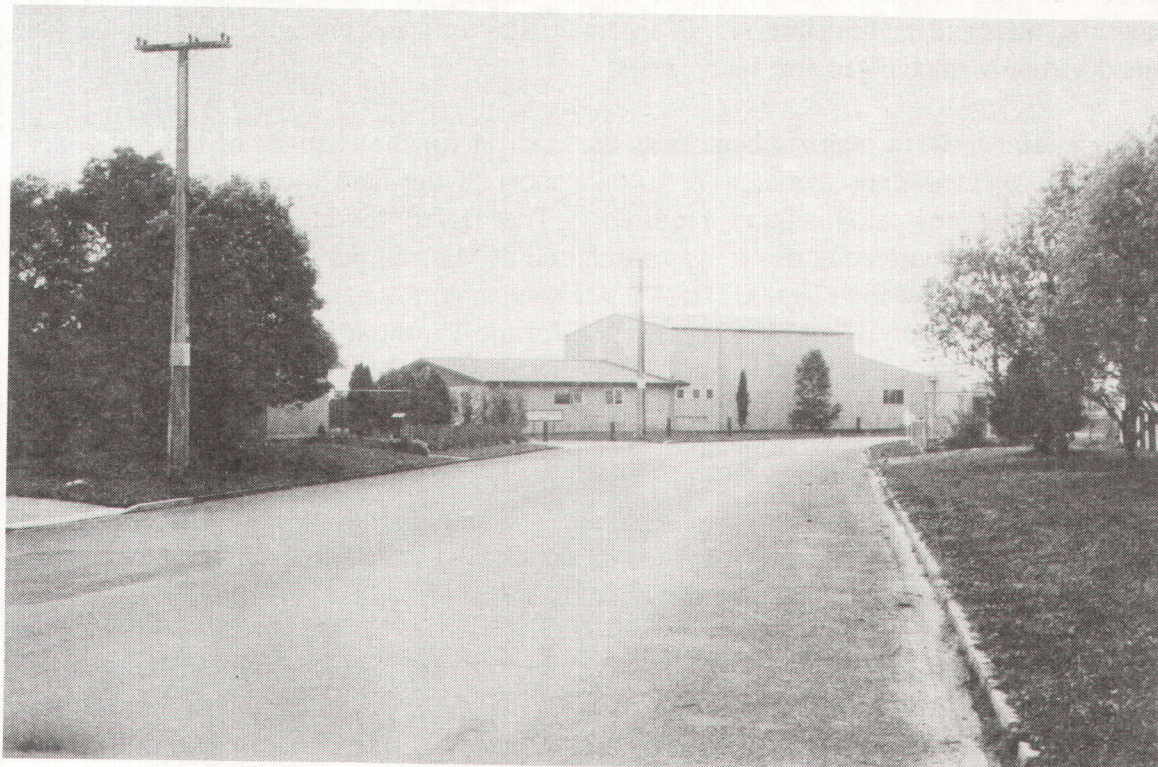
When the Lands Department commenced drainage operations in 1911 land and buildings at Okorero were purchased from Alfred Thorne. The engineer, Owen Campbell, established himself there, and in the course of time workmen's quarters were added. The smithy and engineering workshop were established at Matata in 1913. Campbell had a telephone line to Matata. It was because of delays caused by sending equipment to Auckland for repair that the Matata Depot was set up. That situation remained unchanged until at the end of 1917 Treseder had the machine shop moved from Matata to Thornton, thus centralising engineering, men and administration. With some additions and changes the establishment remained virtually unchanged for many years.

The Rangitaiki/Tarawera major scheme was the catalyst for the changes of the last sixteen years. The projected river works were to take most of the land owned by the Board at Thornton for the new stopbanking required. The Board therefore set about finding alternative land. A fourteen-acre site was purchased at Main Street in Edgecumbe from the Kauri Timber Company for £18,000. Ken Civil conducted the negotiations with the Board on behalf of the Company. <sup>(27)</sup> Full compensation for the Thornton land of 32 acres was paid at \$33,000. <sup>(28)</sup> The sale and purchase at Thornton was conducted by the Ministry of Works Purchasing Officer. <sup>(29)</sup> A strip of the new land was required by the Catchment Commission for the new western Rangitaiki stopbank. When this land was surrendered, (an area of 2.6 hectares for \$8,800), the Board accepted a scheme plan of Keith B. Magee and Associates for development of the property. <sup>(30)</sup> Industrial and residential sections were offered for sale. <sup>(31)</sup> Section sales were deferred temporarily until the plan was deposited and the internal road (Ngaio Place) was legalised under the Public Works Act of 1928. <sup>(32)</sup>

By 1981 the Board was facing mounting criticism while operations were seriously hampered



*The Rangitaiki Drainage Board offices (ABOVE) and workshop (BELOW) at Ngaio Place in Edgumbe, 1989.*



by the inadequate facilities remaining at Thornton. Assistant engineers were employed on a part time basis. The foreman had been indisposed for a time, and then had died. There was no overall supervision of staff. Pumping schemes and maintenance of pumps were demanding more time. In response to this situation the Board made the wise decision to appoint a Works Supervisor. <sup>(33)</sup>

That the new man was not impressed goes without saying. It so happened that his expectations of better working conditions and administrative convenience agreed with the Board's decision to get on with a new depot on the Edgecumbe site. <sup>(34)</sup> Plans were prepared and tenders called for the building of the new depot. On 9 June 1982 it was resolved that the Board proceed with the construction of the new depot and two houses and that the staff initiate action to raise a loan of \$175,000. <sup>(35)</sup> In February 1983 the Local Authorities Loans Board consented to a variation of conditions allowing the Board to borrow \$100,000 for a period of less than six years. At the same time the National Provident Fund advised the Board that their application for a loan of \$175,000 had been approved. <sup>(36)</sup> The tender of W. E. Hanlen Ltd was accepted for the work.

The new building was opened officially on 10 June 1983 by F.J.H. McCracken, who had been a Board member for 18 years, and Chairman from 1968 till 1980. <sup>(37)</sup> The new depot consisted of a large meeting room with attached kitchen, two offices, showers and toilets, a storeroom, a two-bay workshop with ancillary rooms, and vehicle parking bays. Outside there was an extensive sealed yard and a loading and unloading ramp. The move from Thornton to Edgecumbe was in progress from late May and the first Board meeting in the new depot was held on 20 June 1983. <sup>(38)</sup> The final stage at Thornton was reached when the Board offered to pay the Lions Club \$1,000 to clear the site, including the removal of the concrete, an offer accepted by the Lions, who agreed to do the work as soon as possible. <sup>(39)</sup>

Despite the new major stopbanking programmes which eliminated flooding from the rivers, the twin problems of seepage and flooding from rainwater continued and subsidence went on, in some pumped areas at an accelerating rate. The greater the rate of pumping the more rapid was the contraction of peat and thus the need for pushing the probes lower. Excessive pumping when hydraulic pressures were high could and did result in heaving and increased the danger of blow-outs. This was a particular problem in areas near the Te Rahu and the western areas of the Kopeopeo Canal.

I have stood on land where there were up to 25 acres of this heaving where large bulges appeared on the surface of the land. In major blowouts on the Te Rahu lumps of peat half the size of a house might be lifted. In these situations the pumps must be switched off immediately to try to reduce the hydraulic pressures. It is folly to do otherwise. <sup>(40)</sup>

In one case where the Board was requested to offer comment on a proposed subdivision its favourable recommendation was withheld for the following reasons:

1. A need to raise the stopbanks to prevent flooding
2. To pump the area would dry out the peat, causing shrinkage
3. To raise the stopbanks would create weight on the land and add to the shrinkage rate
4. Added water pumped into the Te Rahu Canal would depress the level of

stopbanks calling for more weight to be added. <sup>(41)</sup>

Of the three methods available for controlling heaving:

- (a) surcharging with soil
- (b) surcharging with water and
- (c) switching off the pumps,

the first was too costly, the second impracticable, and the third was unacceptable to landowners in the affected areas. It is a problem yet to be resolved.

The difficulties caused by uneven subsidence were not easily dealt with. Naturally enough, the farmer on the lowest land wanted a water retention level suited to his farm. Water tends to find its own level so his pumping could and did have adverse effects on neighbouring land. The peat on those lands dried out and shrank, giving further need for pumping. It was a baffling problem. Pumping schemes went ahead at an increased tempo during the last decade until almost all the land north of the railway was subject to pumping. And the underground water still seeped down from the hills. The whole problem of this seepage had been foreseen many years ago by George Murray who wrote:

We hoped to run a catchment drain along the southern boundary to cut off the water that came down from the swamp above but winter was on us before we got that far .... When the ten foot catchment drain was finished I levelled the spoil to make a roadway. <sup>(42)</sup>

Those on the lower country wanted the Rangitaiki put straight out to sea and thought very little more drainage would be needed. Those on higher levels realised that so much water came down, by streams from the hills, by subterranean soakage and rainfall that more was needed to drain the swamp than just the cutting of the outlet. <sup>(43)</sup>

Catchwater drains were good thinking but they only tapped water to the depth of the drains. Seepage went much deeper, especially in the western area where there was more loose pumice in the subsoil. So while catchwater drains carried off some of the seepage, deep seepage continued to appear, coming to the surface at lower levels, particularly now in the Thornton West area. The problem of seepage was exacerbated when gravity drainage was lost through subsidence.

The demand for pumping schemes was a continuing one. There was also the necessity to upgrade existing schemes to cope with added quantities of water. From its inception the third Board had grappled with the problem. Not all farmers in an area wanted to join a scheme. Capital costs were high, although subsidies were provided. There were delays in getting surveys and classifications carried out, and in getting plans and specifications drawn up and in having the works carried out. Because of the pressure of local County Council work which kept their engineers occupied, it was frequently necessary to call in consulting engineers. Murray North and Partners, Harrison Grierson and Associates, and Newton King were employed on these investigations and planning.

So intensive was the development of pumping that by October 1989 there were 42 pump

stations with a total of 73 pumps serving 17 000 hectares of the plains. Maintenance day by day is carried out by a caretaker appointed by the group. His main task is to keep the weed screens clear, grease the pumps, keep the station tidy, and to report any abnormalities to the Works Supervisor. Six-monthly service inspections are made together with an electrician who services the electrical equipment.

Pumping stations functioning in 1989 were:

Station	Locality	No of Pumps
Omeheu West Scheme	Edgecumbe-Matata Highway	1
Bull Scheme	Braemar	2
Omeheu Adjunct Scheme	off Edgecumbe-Matata Highway	2
Pedersen-Van den Top	off State Highway 2	2
Platt's Drain-Grant Scheme No 1	off State Highway 2	1
Reynolds Scheme	off East Bank Road	3
Robin's Road Scheme	Robin's Road	1
Longview-Richland Scheme	off Gow's Road	1
Richardson Scheme	off Gow's Road	1
Wainani Scheme	off Powdrell's Road	2
Thompson-Ernest Scheme	off Awaite North road	2
Travurzas Basin Scheme	off Te Rahu Road	2
Withy Scheme	Awakaponga	2
Noord-Vierboom Scheme	off State Highway 2	2
Murray Scheme	off East Bank Road	1
Murray/Pratt Scheme	off East Bank Road	1
Poplar Lane Scheme	Poplar Lane	2
van der Hulst Scheme	Poplar Lane	2
Angle Road Scheme	Luxtons road	2
Wylds Scheme	Powdrell's Road	2
Lawrence Scheme	State Highway 2	2
Robinson Scheme	State Highway 2 Matata	2
Martin Scheme	State Highway 30	1
Foubister Scheme	Powdrell's Road	1
Platt's Drain No 3 Scheme	off Powdrell's Road	2
Awakeri Farms No 2 Scheme	State Highway 2	2
Kuhanui Scheme	off East Bank Road	2
Baird/Miller Scheme	off State Highway 2	2
Burt Scheme	Matata Highway	3
Awaite Scheme	Greig's Road	2
Awakeri Farms No 1 Scheme	Powdrell's Road	1
Greig's Road Scheme	Smith Road	2
Hyland/Baillie Scheme	Robins Road	1
Mexted Scheme	Smith Road	2
Gordon Scheme	State Highway 2	2
Luxton's Valley Scheme	Powdrell's Road	2
Massey No 1 Scheme	State Highway 2	2
Massey No 2 Scheme	State Highway 2	1
Massey No 3 Scheme	State highway 2	1
Mexted/Burt Scheme	off State Highway 2 Matata	2
Hall Scheme	off East Bank Road	2
Omeheu Scheme	Soldiers Road, Edgecumbe	2 (44)

In 1980 a Committee had been set up to organise a Rangitaiki Settlers Memorial and a trust account opened at the ANZ Savings Bank. The secretary was L. V. Hansen and the trustees M. E. Law and C. J. Hammond. The Drainage Board had been holding in trust \$40.49 from the disbanded Rangitaiki Rifle Club which was destined for such a memorial and on the appointment of the Committee the Board decided the time had come to hand over that money.<sup>(45)</sup> Eighteen months later the Board was asked to comment on the wording to go on the proposed memorial, to be erected at Thorton. While the Board decided it would not contribute to the sign it did discuss the suggested wording. It decided three items should be deleted:

reference to hostilities, reference to the Canterbury settlers, and reference to the depression. It was emphatic that further reference to the Rangitaiki diversion should be made with comment about the drop in water level, some reference to the arrival of the Dalmatians

which was thought to be in 1915, reference to the first pumping station at Reynolds, and significance of the 1956 Act should be explained as 'land drainage was handed back to local control'. <sup>(46)</sup> The discussion seems to reveal more about the introverted thinking of the members than about what should fittingly be entered on a memorial.

Occasionally the Board was commended for doing a good job, but such compliments were all too rare. It was refreshing to have a letter from a ratepayer expressing satisfaction at the excellent job done in cleaning the top end of the Western Drain. <sup>(47)</sup> Such compliments were few and far between. The Board believed it fulfilled a vital role in providing a service to ratepayers but it seems few ratepayers appreciated the service provided, and spent time in fault-finding and criticising.

During 1983 and 1984 the Board had to deal with serious siltation problems created by clear felling and tree planting in the Kiwinui Block. The drains most seriously affected were the Otarere and Mangaroa; these fed the silt into the Te Rahu Canal, a major drain servicing a large area. <sup>(48)</sup> The problem was handed over to the Catchment Commission for reference to Soilcon. Siltation was always problem enough near the catchment drains; clear felling increased the problem a hundredfold.

Inflation and escalating costs of the administration and engineering services provided by the District Council led the Board to consider setting up its own offices and carrying out its own administrative duties. <sup>(49)</sup> Actual costs and projections were:

Service	82/83 \$	83/84 \$	84/85 \$
Administration/Secretarial	9,106	11,446	9,937
Rate Levy and Collection	8,242	9,095	9,148
Accounting/Wages	7,411	8,613	9,514
Engineering	<u>41,950</u>	<u>45,460</u>	<u>42,700</u>
Totals	66,709	74,614	71,299 (50)

A decision was taken in February 1985 to set up the Board's own administrative and accounting functions at its offices at Ngaio Place as from 1 April 1985. George Davis, who had retired from his position as secretary of the Rangitaiki Dairy Company, was appointed as secretary. <sup>(51)</sup> There was a measure of Board dissatisfaction with the availability and costs of the engineering services despite the chairman's discussions with the District Council. <sup>(52)</sup> The Board continued to explore other avenues and in 1986 appointed J. A. Jones, Chief Engineer to the Bay of Plenty Catchment Commission, as Chief Engineer to the Board. D. G. Pemberton was delegated as the engineer to provide the actual engineering services. <sup>(53)</sup> Mutually satisfactory details were worked out regarding the payment for these services.

From these changes the Board carried out henceforth its own administrative duties, paid its wages, proposed estimates and prepared annual accounts and provided the administrative services for each of the pumping schemes. The District Council continued to levy and to collect rates on behalf of the Board.

Life was full of problems for the Board. In July 1985 the Catchment Commission, having

received the information from Soilcon, advised the Board that the grant assistance on capital works was to be reduced from 50% to 35% and maintenance subsidies were to be discontinued. No date was specified. <sup>(54)</sup> There was a prompt response from the Board, stating that immediate withdrawal would create serious maintenance problems as the estimates for the year were already defined to cover the necessary maintenance. It was suggested by the Board that if necessary the capital grants should be suspended and the maintenance grant maintained. <sup>(55)</sup> The subsidy on drains maintenance had been reduced from 33% to 30% in 1981 and since then the necessary adjustment had been made. Now the Board was determined that keeping their assets in good order was a vital issue and if savings had to be made by government direction there should be some warning so that the productivity of the plains was not threatened. Soilcon decided to continue the maintenance subsidy but at 25%, not 30%, the new rate to be operative from 1 April 1986. The matter did not rest there by any means for in May 1987 Soilcon advised the Bay of Plenty Catchment Commission that grants for drainage maintenance were cancelled as from 1 April 1987 as maintenance of drains was almost entirely for individual benefit. <sup>(56)</sup> Once again there was protest that such action should be taken during a financial year when works were already planned. But on 12 June the Catchment Commission wrote to the Board to advise it that full maintenance funding - at the 25% level - would be available for 1987-88, but that thereafter consideration to other options should be given for 1988-89. <sup>(57)</sup> The categories of works for which capital grants could be applied for did not include any that the Board had in view so that by March 1989 capital works did not attract a grant, and maintenance assistance for both drains and pump stations was withdrawn.

The Tumurau Lagoon caused problems for the Board when unidentified enthusiasts placed sandbags, held in place by netting, on the weir thus raising the level to 6.8 metres, and interfering with the water level on the adjacent farm lands which became waterlogged at a level exceeding 6.38 metres. The farm property was being adversely affected. <sup>(58)</sup> The matter was taken up by the Catchment Commission but the Board was obliged to return to a consideration of the problem because the Tumurau drain ran through the lagoon and raising the water level led to a proliferation of weed growth, notably hornwort and raupo, which in turn caused silting up and further exacerbating the drainage problems. <sup>(59)</sup> The Tumurau controversy went to a Water Rights Tribunal hearing, which allowed the dam for a ten year period, provided the height was maintained between 6.65 and 6.80 metres, the height to be clearly marked by a gauge to be constructed and installed for the purpose. <sup>(60)</sup> The grantee of the Water Right, the Department of Conservation, was to provide detailed plans and proposals for an alternative water outlet for two adjacent landowners. <sup>(61)</sup> The Department of Conservation formally requested the Board to undertake the design work. Staff ensured that this synchronised with the design work for the proposed pump station upstream. <sup>(62)</sup>

The Board was occasionally accused of negligence. On one occasion a berry farmer wrote to the Board, three months after the event, claiming a loss of \$21,775 because a floodgate had not been operating during a period of heavy rain. The Board was sympathetic but puzzled as to why such a long period had elapsed before being notified, and agreed that under the circumstances it could not be held responsible. <sup>(63)</sup> It was pointed out that although all Board facilities were periodically inspected the Board depended on ratepayers notifying the Works Supervisor promptly when any drain, culvert or floodgate was not operating efficiently.

A normal function of weed control in canals near the sea was to open the floodgates

periodically to allow saltwater to invade the canals. This method of control was objected to in the Kopeopeo-Orini area by a horticulturalist who claimed the resulting salinity was detrimental to his crops. <sup>(64)</sup> The offended ratepayer eventually took his case to the Ombudsman whose investigations were painstaking and thorough. His decision was that the complainant had no claim on the Board. <sup>(65)</sup>

The Board was astonished to receive a letter in June 1982 in which a ratepayer stated his intention to fill in a section of the Orini Canal to gain access to part of his 5.4 hectare property, which stood astride the Canal. Alternatively he would provide every assistance to the Board to erect a suitable load-bearing bridge across the canal, provided no cost to the owners was incurred, should this be preferred to a complete blocking of the canal by way of solid fill. <sup>(66)</sup> After a discussion the Board directed its engineer to reply to the letter. The engineer wrote as follows:

I have to hand your letter dated 21 June and must firstly express my surprise at your stated intention to fill in a section of the Orini Canal to obtain access to your property. Such action could best be described as malicious destruction which in terms of the Land Drainage Act of 1908 carries a maximum penalty of three years imprisonment.

The tenor of your letter indicates that you have little knowledge of the waterway within your property, its function, or the time and the reasons for its construction. Firstly the works were not carried out by this Board which has only been in existence since 1956 and past records show that the works were undertaken by the Department of Lands and Survey sometime between 1915 and 1930. These works were carried out under the terms of the Rangitaiki Drainage Act 1910 (since repealed). I do not dispute that the works were constructed on private land as this is common for most public drains within the area and quite lawful in terms of Section 23 of the Land Drainage Act 1908. The question as to whether or not compensation was paid, is, at this point in time, immaterial as Section 29.2 of the same Act states that claims for compensation must be made in writing within twelve months of the time when such claims arose. Even if the Board had been responsible for the works it could not consider claims for compensation dating back in excess of fifty years. In any event it is doubtful if compensation would have been awarded as betterment would most likely have been assessed as higher value than the loss of land.

Your comments on rating are noted and I would like to point out that the Board has adopted land classification for rating purposes, the classification taking into account the effects of the Board operations on individual areas. The fact that your property is classified B and the bulk of the lower plains area is A would indicate that any adverse effects have been taken into account to give a lower rating to the property.

With respect to provision for access it would appear that at the time the works were undertaken the landholding situation was totally different to that pertaining today with the entire Piripai area being held in one block. With this situation adequate access would have prevailed. Subsequent partitioning and subdivision has taken place progressively to give the present collection of small holdings. If any provision for access should have been required, this would have been the responsibility of the subdividing landowner. I would point out that the property you own was created by

subdivision of a larger allotment in 1966.

To summarise:

1. The Board does not accept any responsibility for the construction of physical access to your property.
2. Any attempt by yourselves or your agents to dam or in any way restrict the flow of the Orini Canal will be the subject of immediate legal action by the Board.
3. Any structure across the Canal shall require the approval of the Board's Engineer in writing prior to commencement of the work. <sup>(67)</sup>

While this may have been an extreme case of threat to interfere in legal drainage works, it also vividly underlines the gap between the wisdom of the early legislators and the demands of the new horticultural farmers.

Since 1950 pumping of the lower lands had been a feature of drainage activities. Continued and escalating subsidence had been much in evidence since the third Board's inception in 1957. The pumps normally could be expected to have a life of at least forty years. During such a long period the manufacturers made modifications to the pumps. Users or agents were therefore faced with the problem of carrying a large assortment of spares, some of which might never be used, or of obtaining spares from the firm when these were required. Neither situation was ideal. In 1984 the Board considered the problem and in its wisdom decided to install a totally new make of pumps. These were Flygt pumps, of Swedish design and manufacture. Ten of them were acquired and placed in position. The pump had been tested for performance both in Sweden and in England. The prognostications were good but on installation in the pump stations the submersible pumps performed abysmally. <sup>(68)</sup> There followed a long series of correspondence with the New Zealand agents. <sup>(69)</sup> It transpired after examination and further trials that the pumps, although tested, had not been tested for performance under similar conditions to those existing in the Rangitaiki pump stations. Eventually the agents accepted their responsibility for the deficiencies and had them corrected at their expense. The pumps continue to work well but being submersible, and heavy to lift for maintenance, present more problems than do the original MacEwans. No more Flygts were purchased. When the last pump station constructed by the Board was built, the Baird/Miller station in 1986, MacEwan pumps were installed. <sup>(70)</sup>

In this changing of pump brands the Board must be judged at fault in that it accepted the performance data provided with pumps without field trials to assess how they worked in practice. It was the Board's misfortune that it could not get a field trial until a pump had been purchased. <sup>(71)</sup>

Some farmers were far from co-operative. Dead stock were a continual problem, despite threats to prosecute offending farmers who dumped the carcasses in drains and canals. In 1981 it was a matter of real concern to the Board when it was found some of the animals had been diseased. <sup>(72)</sup> Whatever efforts the Board made, it has been impossible to identify the owners of dead stock when ear tags have been removed prior to disposal. Dumping dead stock in drains is a problem which refuses to go away. The usual procedure is to bury the carcasses after they have been retrieved, and to charge the landowner on whose property the

animals have become stranded for the plant and machinery required for the burial. <sup>(73)</sup>

By 1986 the Board was performing well; the years of change were bearing fruit. The Tassell report had set the pattern. The move to Edgumbe and the setting up of its own administration centralised Board activities. The appointment of a works supervisor who reported directly to the Board enabled the works programme to be carried out more effectively and Board members kept in touch with day by day requirements and ratepayer expectations. Older and more conservative- thinking Board members had given way to younger and more progressive men attuned to the changing needs in drainage patterns. The major river schemes had removed the threat of river flooding. In no small measure the agreement with the Catchment Board regarding engineering services added a new dimension, as did the cordial relationship with the Catchment Board itself. The Board, with some justification could claim to be providing a worthwhile service to the community generally and to the ratepayers particularly.

### **(iii) Beyond The Board's Control**

The Board could feel some sense of achievement. The National Provident Fund advised in June 1986 that the \$100,000 loan on the depot at Edgumbe was repaid. <sup>(1)</sup> In March of 1987 the final payment of \$15,614.13 was made to clear the \$270,000 debt to the Department of Lands and Survey. On the second loan from the National Provident Fund there remained owing only four payments of \$9,317.23, which was cleared in 1989. <sup>(2)</sup>

In retrospect there could have been a premonition of things to come. In August 1986 the Board meeting, by invitation, was addressed by an insurance broker and a valuer. They explained to members the reasoning behind the apparently high values placed on pump station buildings and answered questions relating to insurance on these. The broker emphasised the necessity for regular inspection by caretakers of the pumps under their control, especially after flooding or earth tremor. It was left to the engineer to value the contents of each station as for Reinstatement Insurance it was a requirement that this be done by a registered engineer and confirmed by the Earthquake and War Damage Commission. He would then submit his figures to the broker to work out premium rates at various valuations and these would be presented to the Board for consideration. The Board in the meantime resolved that each caretaker be written to and requested to inspect their stations and outfalls after any major rainfall and earthquake in the light of foreseen changes to insurance policies. It was agreed an extra paragraph be added to the letters directed to those caretakers who, in the opinion of some Board members, failed to carry out the duties for which they were responsible and for which they were paid the caretakers allowance. <sup>(3)</sup> The valuation revealed that the Total Reinstatement Value for 36 stations was \$2,141,200, and the Indemnity Value was \$1,241,050. <sup>(4)</sup>

The Board was keen to obtain aerial photography of the plains area. Both the District Council and the Power Board advised that they would be interested in contributing towards the project and would discuss provision in their estimates for the ensuing financial year. The engineer reported that the cost of six plastic-covered mosaic plates for attachment to a wall would be \$3,500. He recommended the Board make provision from 1987-88 funds. It was

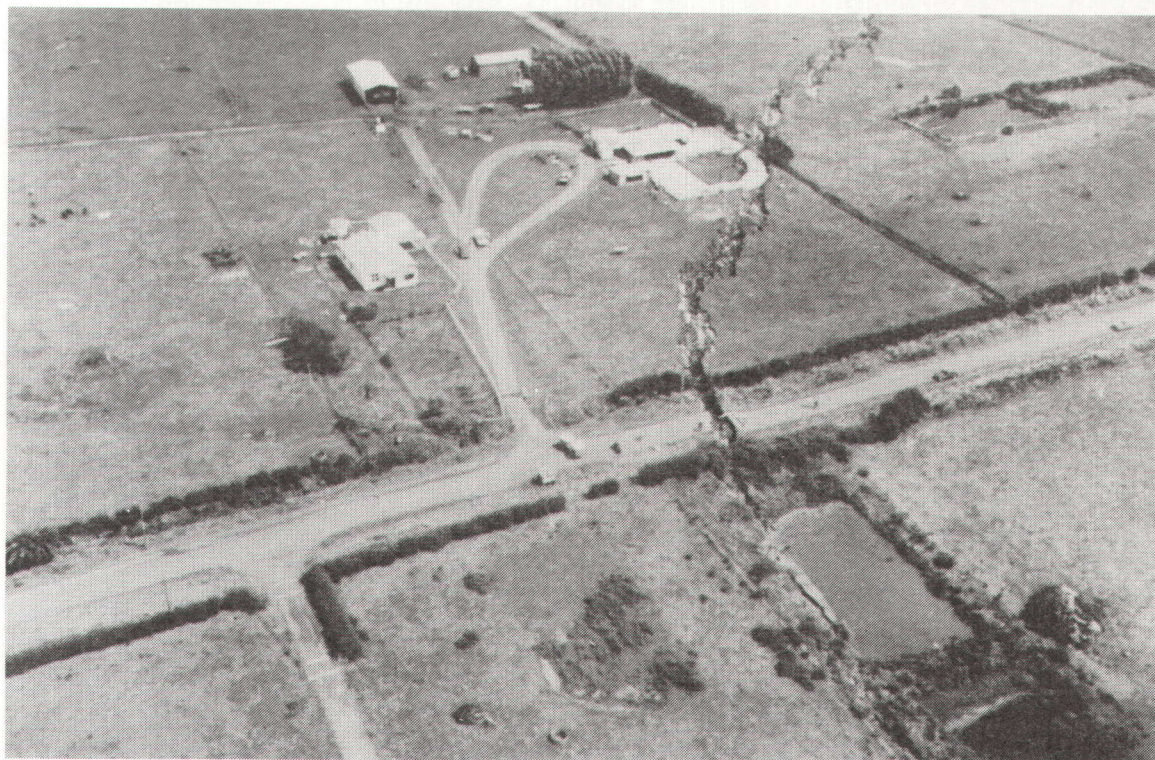


*The earthquake caused the land to subside, exposing the stumps of an ancient forest in the Rangitaiki River below Te Teko. Considerable height had to be added to stopbanks for flood protection.*

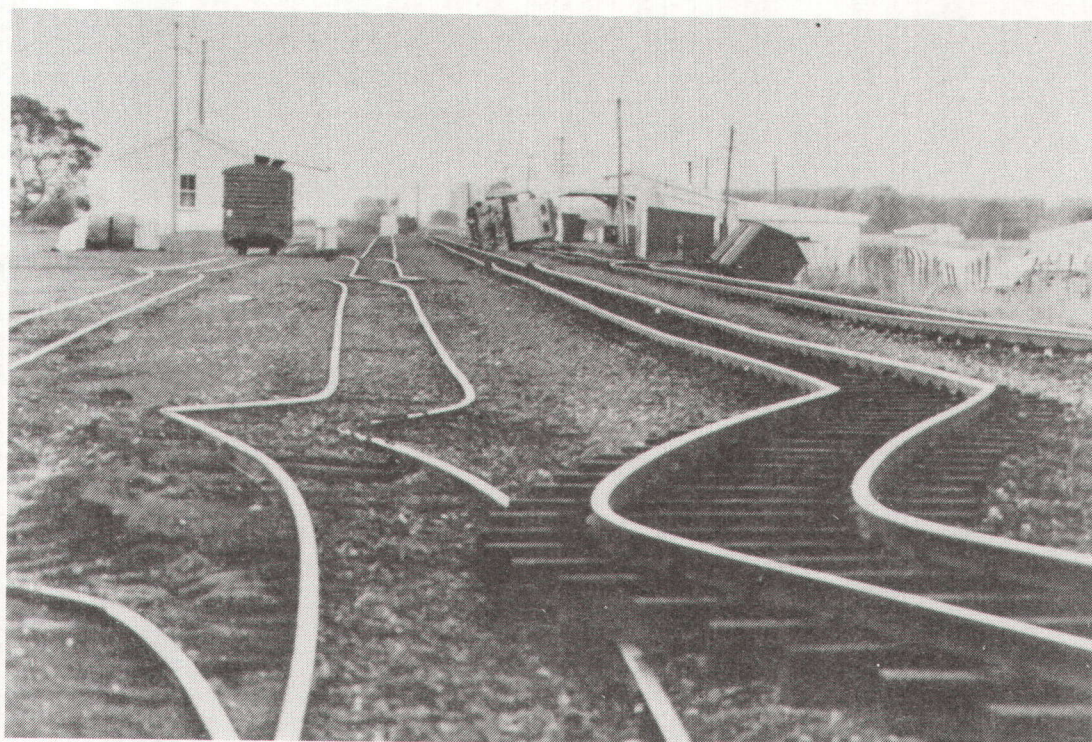
PHOTOS: The author, 1990.



*Building up the western stopbanks along the Rangitaiki River near Edgecumbe after the earthquake.*



*The 2 March 1987 earthquake caused a 7 km fissure to open up across the Plains; the land dropping up to 2 metres in places. Above the fissure crosses McCracken Road.*



*Earthquake damage to the Edgumbe railway yards.*

anticipated the flying for photography would take place in February and March of 1987. <sup>(5)</sup>

In the event neither the insurance cover had been updated nor the aerial photography completed before both were rendered essential. On 2 March 1987 the Edgecumbe Earthquake rocked the Bay of Plenty. The damage was severe in the plains area. The earthquake, which measured 6.3 on the Richter Scale, was the most severe in a populated area in New Zealand since the Napier earthquake of 3 February 1931.

For many years drainage engineers and landholders had been perforce obliged to come to terms with an accelerating degree of subsidence. With the earthquake there was subsidence with a vengeance, not over fifty years, but in less than fifty seconds. The subsidence was not even: it varied from a few millimetres to over two metres. But for drainage it was a disaster in an area where drain depth had been meticulously monitored and maintained over long years of human endeavour.

Following the earthquake the Board's engineer began collecting information immediately. The Board itself did not meet until 25 March 1987 when it sent a letter to the Civil Defence Authority objecting to the total takeover of the Board's premises after the earthquake, and the non-availability of its own telephone line. It was resolved at the same meeting that no further pump scheme meetings be held until all earthquake reports were to hand; it was resolved also that the Board be advised of anyone implementing emergency outlets since the earthquake; and a paper was presented for the Board's consideration of saltwater flooding on the plains in the aftermath of the earthquake. The Works Supervisor reported on temporary repairs to five pump schemes. He also made the following observations:

After the earthquake rapid pump station repairs were totally beyond the Board's resources. Labour from the Catchment Commission under the capable direction of Peter Anderson was much appreciated as was the constant contact with Greg Pemberton. The earthquake has proved the substantial benefits to be derived from the Board's association with the Commission in any disaster. Staff from both organisations were deployed over a large area of the Plains with the least possible delay. Constant radio contact saved duplication of inspections and the continual updating of observations and developments, and bringing areas of concern to notice. These co-operative endeavours assisted staff morale. <sup>(6)</sup>

The engineer reported in full about the assessment and repair of damage caused by the earthquake. By 16 March a comprehensive report on the effects and cost to the Board and Catchment Commission had been sent to the National Water and Soil Conservation Authority in Wellington. Extracts and costings of repairs to various pump stations from this report were circulated to members for perusal, estimating a preliminary figure of \$104,090. Approval by the government of an 80% subsidy had been received and the Board then needed to consider the raising of the local share of 20%, or \$20,818. <sup>(7)</sup>

After such an upheaval with the consequent changes in the topography of the land evident to the eye, first impressions were that many drains were flowing backwards. This proved to be incorrect: in the event only Smith's Drain, discharging into the Tarawera West, had to be regraded for a couple of kilometres. It was difficult to undertake remedial work where water levels were higher until the Survey and Lands Department surveyors had re-established the benchmarks which had been lost. <sup>(8)</sup> On 14 April 1987 the engineer reported to the

## Board:

The Bay of Plenty Earthquake Assistance Committee has requested the Commission to co-ordinate ground level survey information on the Plains. Because of the extent of land subsidence we are hoping the entire area can be contoured or at least spot levelled using aerial photography. Even using aerial photography the job is a major one; negotiations are under way with the Department of Survey and Land Information and two aerial survey companies. It is hoped that levels can be established to say  $\pm 15$  cm; the advantages to the Board are obvious. <sup>(9)</sup>

In almost every case some, but not all, gravity had been lost. The real problem was that the subsidence allowed the tides to intrude further inland and to hold back the flow of water. Canals and drains therefore had their freeboard taxed and in some places freeboard was totally lost where local subsidence was severe. Until the benchmarks could be re-surveyed there was little point in the Board undertaking or attempting substantial works.

While some landholders were openly critical of the delays, there were some who accepted the situation and sought the Board's advice on remedial measures. One farmer wrote:

There is a subsidence in excess of two metres at Kokohinau. I would like advice on the efficiency of the drainage outfall, and also on who will be responsible for any modification to the drainage system which may be required. <sup>(10)</sup>

Another farmer wrote:

I request advice re drainage following the earthquake. My land has suffered considerable subsidence. In the southern section more fall is required into the Mangaone Stream. The swamp on the northern portion of the farm both east and west of the Tumurau Canal has sunk and 80-100 acres have little freeboard. A further 100-200 acres yet to be developed has now no natural fall at all. As such a large area is affected I request an early meeting with Board officers. <sup>(11)</sup>

The magnitude of the disaster was soon realised in the days immediately following the earthquake. It involved much more than drainage. While the Earthquake and War Damage Commission set to work to provide the means of restoration for housing, business and industry, there was an intensive area of farmland to be restored which lay outside the Commission's field of activity. The extent of the damage was beyond the resources of the farmers to restore.

On 11 March 1987, a meeting was held at Civil Defence Headquarters in Edgecumbe with the objective of setting up a Committee to manage such government funds which might become available to assist earthquake restoration. This was the Bay of Plenty Earthquake Restoration Committee. <sup>(12)</sup>

The establishment of this committee, which carried out restoration works under the style of the Adverse Events Committee (AEC), relieved the Drainage Board of further involvement in restoration works except that required to be done to Board pump stations. There were 18 of these which required major repairs: six each were restored by the Bay of Plenty Catchment Commission, the Drainage Board, and Harrison Grierson and Partners. <sup>(13)</sup>

Such works as were carried out by the AEC, with advice from the Board's engineer when requested, became an integral part of the drainage system and were eventually returned to the Board for maintenance. In effect, on 2 March 1989, two years exactly after the event, the assets and liabilities of the AEC were vested in the Rangitaiki Drainage Board. A full list of these works, corrected to 31 December 1988 was:

### MAJOR WORKS

Contract Number	Contract Title
AEC 1	Poplar Lane/Riverslea Road Pumping Scheme
AEC 2	Putiki Outlet Works
AEC 3	Crystal's Drain Culvert
AEC 4	Omeheu Adjunct Pump Station
AEC 5	D. Murray's Pump Station
AEC 6 & others	Old Rangitaiki Excavation and Cleaning
AEC 7	Omeheu Adjunct Pumps and Electrics
AEC 8	D. Bull Pump Station
AEC 9	Kopeopeo Western Drain Restoration
AEC 10	Awaiti/Omeheu Tide Gates
AEC 11 & others	Awaiti/Omeheu Stopbank Restoration
AEC 12	B. Brownless Pump Station
AEC 13	Longview/Richlands Pump Station
AEC 14	Omeheu No.2 Pump Station
AEC 88/2	Kopeopeo Canal Sluice Gate

### MINOR WORKS

Cambie Drainage Pump Station  
 Larsen Drainage Pump Station Restoration  
 Gow Drainage Pump Restoration  
 Oppenhuis Drainage Pump Station  
 Replacement of Damaged Culverts or installation of small floodgates on culverts  
 Mobile Flood Pumps for emergency pumping  
 Flood Pump for access at strategic locations  
 Awaiti-Omeheu Study (Canal restoration)  
 Thornton West Catchment Study (Drainage Options)  
 Repair Work to two deep artesian bores. <sup>(14)</sup>

For some few years there had been a vague suggestion that means should be found to relieve the lower end of the Western Drain to provide more freeboard in flood situations. Subsidence in the lower area as the result of the earthquake forced reconsideration of this work on the Board. The solution was to divert floodwater from the Western Drain into Reids Canal. At the end of 1988 an accommodation for land compensation was reached with the major landowner <sup>(15)</sup> and this paved the way for the construction of a floodway along the south side of the railway from the Western Drain to Reids Canal.

The annual conference of the New Zealand Land Drainage and River Board's Association was held in Whakatane in May of 1989, a first and a last for the Drainage Board. The Board's chairman was elected chairman of the Association. <sup>(16)</sup>

Details of the conference were arranged by the Board's Secretary, Gaynor Hyde, who had succeeded George Davis on his retirement on 31 May 1987.

At its meeting on 14 September 1988, the Board received and discussed the Local Government Reform Procedural Flowchart and Timetable. The Board addressed the Co-ordinating Committee on Local Government, stressing that its preferred option was to remain a special purpose authority to continue providing a high standard of service to its ratepayers. Its second preference was an elected drainage committee with strong ties to the water and soil management section of the new Regional Council. <sup>(17)</sup> The chairman of the Board reported on his visit to Mr Elwood's office in Wellington. It appeared at this stage that the Rangitaiki Drainage Board would be abolished. <sup>(18)</sup> At the November meeting the chairman reported he had had a meeting with Mr Elwood in Hamilton on 19 October and it now seemed certain that the functions of the Drainage Board would come under the new Regional Council. <sup>(19)</sup> Regardless of the Board's sentiments the tide of Local Government reform was pressing on. The Board, at its December meeting, received notification of the structure of the transitional committee of the Bay of Plenty United Council. The Board was represented by the chairman, who had a voting right, and the secretary, who was a non-voting member. In the absence of the chairman the deputy-chairman had the voting rights. <sup>(20)</sup> The transitional committee proceeded with its statutory obligations. A general manager was appointed. <sup>(21)</sup> The next appointment was of the Director of Rural Services and Implementation. <sup>(22)</sup> It was into this division of the Regional Council that the Rangitaiki Drainage Board was absorbed on 1 November 1989.

In retrospect, the third Drainage Board passed through three phases. The first was under the leadership of E. C. Haultain and W. T. Law during which it was clear that the Board perpetuated the old divergences of opinion between the highlanders and lowlanders, practically devoid of any real policy other than criticism of the Lands Department and Ministry of Works. The Board could not, or would not, realise that drainage control and maintenance had become a complicated and serious set of operations. Drainage became an old boys club playing with a new toy; if that was what local control meant they were not fulfilling the high hopes of ratepayers.

It was the Tassell Report which produced the blueprint and policy for the third Board. This introduced the second phase. The policy was slow to be implemented but under the leadership of F.J.H. McCracken there was clearly a conscious attempt to function as an adequate local body and to come to terms with the essentials of coping with changing situations. Even so, really effective operations were thwarted by the method of administration divorced from direct Board control, and part-time engineering placed under stress by overwork. Added to this was lack of overall control of the works authorised by the Board. In spite of this the McCracken years must be seen as a real introduction to the provision of a proper service to ratepayers by the Board. When P. M. Withy became chairman, the third phase was ushered in with the appointment of a Works Supervisor directly answerable to the Board, the establishment of the new depot at Edgumbe and the setting up of its own administrative system. The Board was then able to provide what the ratepayers had for long sought and so eagerly awaited. Alas for the Board, though, it was soon to be presented with an emergency outside its competence to cope with unaided.

Scarcely had that situation passed when the reform of local government threatened the very existence of the Board as a local body.

Was the third Board an essential local body in the organisation and control of drainage works? F.J.H. McCracken had asked the question several times during the 1970s. <sup>(23)</sup> Could some other body perhaps have done the drainage job as well, or better? The answer must be that the Lands Department had constructed and maintained an efficient system over 37 years. For 10 years the Ministry of Works continued the task in the same manner. During those nigh on 50 years the greatest progress in the district had been made.

In its early years the third Board was lamentably short of policy. When a crisis struck in 1987 restoration was beyond the third Board's resources. From 1990 the Board was no longer required. The answer must be that the third Board was not an essential body. Its work could have been continued by the appropriate government departments, or it could have been carried out exclusively by the County Council.

Ratepayers received the service that they were willing to pay for. Unfortunately the benefits often fell unequally and the old divisions amongst farmers died hard. It was to the credit of the Works Supervisor that he came to deal with a drainage system for the Board, and not with individual foibles. It is impossible to gain a perspective on the rating system for there were many distortions: some of these since 1925 were capital and maintenance rates, special and general rates, capital grants, special grants, maintenance subsidies, periodic land revaluations, and the borrowing and repayment policies of the Board. While farmer input to the national wealth from the plains was considerable, there was also a tremendous taxpayer input into the total project which made land use viable. Preoccupation of landholders and Board members with their day-to-day affairs blurred the significance of the national contribution. Government input into the Rivers Major Schemes, and more recently the earthquake restoration, reminded thinking ratepayers that they were not the only source of revenue. Such contributions also reminded outsiders that they had an interest in the future of their investments. If the Board had a myopic view of its small world it could not blame others for a more rational assessment.

Viewed from within the Board could persuade itself of its essential function. Viewed from without it was, except for a brief period in the early 1980s, a mediocre body doing a job which could well have been done by some other authority and in all conscience perhaps done more efficiently and effectively. The long arm of reform could not pass it by. Harold McCracken had his question answered.

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- (22) *RDB Eng Rep 13/2/59*
- (23) *RDB Special Meeting 2/2/60. Platt's Drain Area Scheme is an example*
- (24) *RDB Eng Rep 6/3/62*
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- (26) *RDB Minutes 8/10/57*
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- (40) *N. F. Reynolds, T. M. Grant and G. H. Checkley, RDB Minutes 19/3/59*
- (41) *W. J. Mitchell, Solicitor, was deputising for J. D. Buddle. Mr Mitchell was appointed the Board's solicitor on 8/2/63 when Mr Buddle resigned the position because of overwork in his practice. Mr Mitchell was later appointed to the Courts as Judge Mitchell.*
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- (43) *Deputation 23/6/64*
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- (45) *RDB Minutes 9/6/64*
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- (50) *Letter W. J. Mitchell to RDB 8/12/64*
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- (52) *RDB Minutes 13/4/65*
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(ii) The Years of Change

- (1) *RDB Minutes 13/9/65*
- (2) *Chairman's Report to Board 9/11/65*
- (3) *RDB Minutes 13/9/66*
- (4) *Letter BOPCC to RDB 16/11/66. Piping was the waterflow through an aquifer bed which might collapse the river bank if the hydraulic pressure was high, as had occurred at Reynolds in May 1962.*
- (5) *RDB Minutes 2/12/66*
- (6) *RDB Eng Rep 23/2/67*
- (7) *Commonly referred to as the Wahine storm. The inter-island ferry Wahine was caught in the storm as it entered Wellington Harbour in the early morning, was driven on to Barrett's Reef, subsequently floated up the Harbour and later in the day capsized and sank, 51 lives were lost.*
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- (36) *Ibid 9/2/83*

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- (46) *Ibid 14/4/82*
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*Matahina Dam and lake on the Rangitaiki River.*

## CHAPTER XI

### THE GROWTH OF FARMING

Whatever the Canterbury pioneers had in mind as to how the swamp could be farmed, there was no doubt in the public mind that very soon such a fertile area would become highly productive. One report, in referring to the possible Rangitaiki outlet channel, surmised that if the diversion was cut and a few drains dug and snags removed, steamers of 100 tons could reach a wharf at Te Teko, and in two or three years several such ships would be required to carry away the maize and other produce the land would bring forth. <sup>(1)</sup> The Auckland Star was more enthusiastic and imagined that when the land was drained it would be fitted for producing maize in enormous quantities:

Indeed, if the drainage is set about in a proper manner, it would not surprise us if a million bushels of maize be not produced annually in the course of a few years on this great tract of now useless land. <sup>(2)</sup>

Such were the dreams. Despite the efforts of settlers the swamp was destined to produce little other than disappointments for many years. The earliest attempts at getting a return from the land came from grazing beef cattle. This was a good move, for the land was quite useless until it was consolidated. Heavy cattle were the cheapest and most effective means of providing the consolidation. Grazing cost money because some fencing was necessary. Posts and wire had to be obtained from outside sources and transported by barge or launch to the required sites. Early fencers took posts in small boats, and as they rowed along pushed the posts into the soft swamp. The wires were strung up, usually two to begin with and as the swamp consolidated further lower wires were added as necessary. <sup>(3)</sup> Most of the stock was store cattle and these were sold to farmers in the Waikato for finishing as the rough swamp growth was not entirely satisfactory for fattening animals. Over most of the swamp grazing remained the main land use for thirty years. The Lands Department found droving cattle along the surveyed roadways a good method of consolidation and so encouraged landowners to move their stock by road.

Dairying was slow to develop. Around Whakatane there were a few small farms which produced home-made butter. This was sold to local stores and it was sufficient to satisfy the local market. However, there were those who saw a future in dairying for the whole swamp area.

At Matata the Burt Brothers took the lead in organising a group of interested farmers in setting up a dairy company. The Articles of Association were drawn up and the Company officially formed on 3 August 1909. The Shareholders, and the number of shares each held, were, Arthur John Parkinson 50, Peter Campbell senior 50, Charles Bertram Cuff 15, William Henry Newdick 20, Harold Cuff 10, Thomas Hanon 50, and Frederick James Burt 50. <sup>(4)</sup> Their factory was built at the western end of Matata township. By 1910 it was manufacturing butter. The first consignment was shipped to Tauranga by the ketch Wave and transhipped the following day per the steamer Aupori to Auckland. Considering Matata did not have a large or developed hinterland it was a bold venture. Most of their supply perforce came from the area immediately around Matata and such of the Manawahe area as was being developed. There was some small dairying at Otakiri but transport of cream was

a problem. Mr T. Hallett wished to get his cream to Matata so he wrote to the factory manager at Matata making enquiries. The manager replied on 11 January 1912:

Re cartage of cream for next season at present I do not know whether by road or launch would be best and would require to go over the ground to find out. Cream would need to be delivered at factory 3 times a week, that is every other day during the cooler months. Perhaps a daily delivery would be necessary during the heat of summer, but that would depend largely on the amount of care taken to keep the cream in good condition on the farms. In any case the cream will be received every second day while it is in such a condition that a first grade butter can be made from it.

Regarding the hours of delivery that question must necessarily be left open until we are better acquainted with the conditions but we would like the cream to arrive here about midday. As to price for butterfat it is rather early to make a definite offer but I think with the increased supply we are likely to have next season we will be able to pay out at least 10 pence per lb for the whole season. <sup>(5)</sup>

Hallett may have had other motives than the disposal of his cream: the price may have been of more significance as at the time the Tarawera Co-operative Dairy Company Limited was to have its Articles of Association drawn up. These were signed on 27 July 1912. The subscribers and shares taken up by each were: Thomas Stainton Garrett 30, Arthur Herbert White 50, Clarence Henry Forbes 25, William Augustus Limbrick 30, Guy Harris Black 50, Larcy Lewis 50, Robert Arthur Torrens 25, and William Thomas Black 40. The Tarawera Company manufactured cheese. <sup>(6)</sup>

In the meantime Messrs Kirk and Carter, butchers, of Whakatane decided to set up a dairy factory in Valley Road. This was the Arawa Dairy Company. <sup>(7)</sup> By 1912 it was clear that dairying was the most likely land use for the future. It required confidence at the time to set up three processing plants, but that confidence was not lacking.

Large quantities of flax grew naturally on some parts of the swamp. Flaxmilling was carried on at several mills. While flax might return an income of sorts it was no answer to long-term development. Cutting and tying was labour intensive but it was difficult to get labour because of the trying working conditions. Most of the labour was supplied by Maori, and they did not care for working in the wet conditions. Prices for flax fluctuated considerably. Although there were minor attempts to farm flax it was not a viable land use except to get a temporary return from land clearance work.

Transport of milk and cream was difficult. George Colebrook had taken his cream along the Awaitei by launch to Matata but it was an exceedingly difficult journey. When Kirk and Carter began their factory the cream was taken by packhorse to the Rangitaiki River where it was picked up by a launch operated by Seccombes. Seccombes milked a large herd on Section 138A. They took their cream and that of others to Thornton where it was off-loaded and taken by wheeled transport to the Arawa factory. <sup>(8)</sup> Bill Brizzle provided the horse-drawn transport. <sup>(9)</sup>

The Land Drainage Engineer, noting the progress since the works began in earnest in 1911 had this to say in 1913:

These works are now well in hand and the benefits that will result from the scheme of drainage are fast becoming apparent. The country (particularly the southern half) is being rapidly unwatered and turned into pasture land, a noticeable feature being the sweetness of the country and the ease with which it is 'brought in'. Settlers are as yet mostly engaged in cattle raising and fattening (the swamp being already noted for its fat bullocks) but the whole area must eventually become dairying country. A cheese factory has already been opened on the co-operative system, the suppliers being all swamp settlers, and the butter factories at Matata and Whakatane are each drawing supplies of cream from settlers on the swamp lands. <sup>(10)</sup>

A year later the engineer reported that future prosperity of the area was already apparent. Settlers right throughout the district were happy and contented with the outlook. There was not a single settler who was not improving his holding. The amount of butterfat was increasing daily: the co-operative cheese factory on the Hallett Estate was on a payable footing and the butter factories at Matata and Whakatane were drawing increasing supplies. However, it was noted, until the farms were properly broken in cattle raising would be the principal industry. In the first three months of 1914 £11,000 worth of fat stock had been driven off to the works in Auckland, and a shipload to the Whangarei Works. Settlers were talking of £26 an acre for unimproved country. One unimproved block on the low lying country had recently sold for £20-10-0 an acre. This indicated, at a conservative estimate, that the unimproved value of the district was in excess of £1,000,000, for a drainage expenditure to date of £45,000. <sup>(11)</sup>

As yet the Outlet had not been completed, thus hopes were high as regards the success of the whole venture. If the war clouds were gathering in Europe the sun still shone brightly over the promise of successful farming on the swamp.

By 1915 the events in far-away Europe were having some impact on developments on the swamp. Higher prices for beef encouraged more farmers to retain their holdings rather than subdivide and reap the benefit of higher land prices. The engineer, disappointed that dairying was not proceeding at any great rate, did nevertheless acknowledge that beef cattle were essential for the crushing and consolidation process. In any case, he understood that settlers on large holdings would be reluctant to resort to milking with its ties and labour problems when they were already prosperous and were likely to be even more so when land values rose with the advent of the East Coast Railway and the harbour improvements under way in Whakatane. He applauded the preliminary moves to establish a freezing works in Whakatane for by 1916 he estimated 10,000 head of fat cattle would be driven off the swamp. <sup>(12)</sup>

War had sent up the demand and prices for beef.

A year later the engineer was at pains to explain that the country required a good deal of crushing before it was laid down in the permanent pasture so necessary for dairying. Such crushing was most economically carried out by heavy stock. The report went on :

The settlers have to be congratulated on their energy and foresight in the progress already made towards the erection of freezing works. Experts were appointed to inspect the whole of this coast and select the most suitable site for the erection of freezing works, and after carefully going into the question selected a site on a corner of the Rangikitaiki Plains adjacent to the Whakatane Harbour and Township .... A

co-operative company has been formed, the necessary capital subscribed, and in all probability the works will be opened for the receiving of stock some time during the coming summer.

The production of butterfat is also on the increase and since last report another cheese factory has been erected and put into operation at Mangaroa. However milking is not being resorted to to the extent one would expect, but I am sure that this must eventually become dairying country. With the country as prosperous as it is now and labour unprocurable there is little inclination to milk, but the time must come when settlers will subdivide their present large holdings and make milking the principal industry.

With the increasing farm and dairy produce exported and the large quantities of farm implements and material generally imported, it is only natural that efforts are being made to improve the shipping facilities. The Whakatane Harbour Board is alive to the needs of the district and has recently raised a loan of £35,000 for the improvement of that harbour, which apparently will become the harbour for the district. Considerable shipping also enters the Rangitaiki Outlet and auxiliary boats up to 120 tons capacity are continually in and out of the port with fencing material and generally non-perishable goods. At Matata the shipping is also considerable, though not perhaps to the same extent. <sup>(13)</sup>

There can be no question that by 1915 progress by any standard had been quite remarkable since the Lands Department had commenced operations. Already two butter factories and a cheese factory were operating, and proposals were well in hand to establish a freezing works and a further cheese factory. Pasture land was much in evidence around Mangaroa and northwards along the Te Rahu towards Poroporo, the result of effectively lowering the water level by dredging the Te Rahu-Mangaroa Canal. Widening and deepening the Western Drain, Eastern Drain and the Eastern Boundary Drain also contributed to earlier development than in the western area. On the western area between the Rangitaiki and Tarawera Rivers, despite attempts at fencing, there were large areas of Crown land and poorly fenced land over which the cattle wandered at will. When the Chief Drainage Engineer visited the district in October 1913 he was not impressed, particularly when he saw first-hand that cattle were treading in the Awaiti, and other drains. He promptly wrote a pointed letter to the Whakatane County Council informing the settlers of his concern.

C. S. McCutchan, when he became aware of Thompson's displeasure, himself wrote to the County Council about damage to drains between the Rangitaiki and Tarawera Rivers from the sea to the Rotorua-Te Teko highway. <sup>(14)</sup> The result was a meeting which most of the landowners attended. They were T. Hallett, J. B. Gow, A. Hawken, W. Garrett, A. H. White, C. U. White, G. Murray, A. Wilson, C. Lewis, E. Witthaus and C. McCutchan. It was reported to the meeting that J. B. Thompson insisted that action be implemented to protect public drains. Archer Hawken was appointed ranger, and a temporary pound was found at Te Teko wherein he might impound the offending animals. The meeting urged the County Council to construct a permanent pound.

A meeting of settlers in the eastern area was called for 28 April 1915 at the home of John Sumner. In attendance in addition to Sumner were C. J. Luxton senior, C. J. Luxton junior, F. L. Sumner, A. B. Barr, G. Greenup, A. C. Martin, A. L. Luke, W. Taylor, J. Judge,

E. Hooper, F. E. Walker, R. J. Bentley and Joseph Smith. The meeting resolved that a co-operative dairy factory be established and a suitable site selected, and that the interim directors be elected. The Articles of Association were signed on 6 September 1915, the Directors and their shareholding being John William Sumner 100, William Taylor 50, George Greenup 120, Charles James Luxton junior 50, Richard James Bentley 100, John Rockleigh Judge 20, and Alan Crichton Martin 120. Cheese production began at the Mangaroa site in October 1915. There were thirteen suppliers. Production in the first ten months of operation was 59 tons. In the succeeding three years output fell slightly at 57 tons for 1916-17, 54 tons for 1917-18, and 53 tons for 1918-19. <sup>(15)</sup>

In 1919-20 the Rangitaiki Plains Co-operative Dairy Company Limited, as the new factory was styled, switched to butter production at the same site. Production figures at Awakeri were 1919-20, 61 tons; 1920-21, 131 tons; 1921-22, 352 tons; and 1922-23, 573 tons. The rapid increase in production paralleled the subdivision of many of the larger holdings when land prices reached high levels at the end of World War I. There was also a fall off in support for Arawa, which was not a co-operative factory. Matata factory had fallen by the wayside, and since 1920 there had been road transport to either Awakeri or Tarawera after the two Outlets had been bridged.

As the network of roads was constructed and improvements made farmers found it easier to transport their milk. When the Awakeri factory turned to butter William Brizzle collected the cream by horse-drawn transport. The first motor lorry was purchased in 1922 but it proved too heavy for the state of the roads at that time, so it was exchanged for two smaller lorries. As the demand for cream collection grew more trucks were added to the fleet. <sup>(16)</sup>

Such was the growth of dairying that in 1920 the Rangitaiki Dairy Company began to plan a move to Riverslea, which in addition to being more central offered good drainage and a good supply of water. An offer to amalgamate with the Tarawera Company was rejected by Tarawera, which continued with its cheese manufacture.

The Rangitaiki Company purchased land from Holdsworth Bros, who had purchased Reid's property. In 1923 a factory was built and machinery installed which could process up to 1,500 tons of butter annually. This fine new factory was opened on Friday 23 September 1923 by F. F. Hockley MP. For the district it was a red letter week, for the previous day the Whakatane Hospital had been opened by Sir Maui Pomare, the Minister of Health.

Development of dairying was quite remarkable on the plains following subdivisions of the 1918-25 period. It also coincided with the demise of the freezing works in 1924 and the remissions of rates and drainage charges which followed the 1925 Royal Commission.

In this table output from the Rangitaiki factory at Riverslea (called Edgecumbe after 1924), shows the growth:

Butter	Tons
1923-24	706
1924-25	942
1925-26	1,029
1926-27	1,390
1927-28	1,618

1928-29	1,955
1929-30	2,334
1930-31	2,514
1931-32	2,983

Galatea first sent a small quantity of cream to Rangitaiki in 1927 but this amount did not increase greatly until the soldier settlement there after World War II. After it went into liquidation in 1928 Tarawera joined Rangitaiki by amalgamation. A few disaffected settlers organised the Otakiri Dairy Company, <sup>(17)</sup> a co-operative, after the Tarawera liquidation, but in 1931 Otakiri joined in with Rangitaiki.

The significance of subdivision and dairying, which went hand in hand, was vividly outlined in the reports of the drainage engineers. Their earlier disappointments have been noted. The 1919 report observed:

One great drawback to the general appearance of the unwatered country is the large holdings, several settlers have a considerable acreage on which not even temporary drains have been constructed, thus spoiling the general appearance of the whole block. However now that several properties are being cut up smaller and changing hands at high figures, more work will of necessity be done on the land to give return for the outlay, hence in the future the appearance of the country should be very much improved under active cultivation. A great deal of fall has been taken up in many drains, and the improvement in the drainage is increasingly apparent; land that a short time ago was in raupo and flax is now carrying good maize and grass. <sup>(18)</sup>

The trend already evident continued; in the following report in 1920 the engineer said:

The year has been one of marked progress on the swamp. More especially is this to be noticed in those districts where the larger properties have been subdivided; here the influx of new settlers, many of them returned soldiers, has shown the most satisfactory results, and land which for years has lain idle, chiefly because of the incapacity of single men to deal with the hundreds and sometimes thousands of acres they own, has now been drained, cleared, and sown down in grass and crops. An abundance of fall is now available and settlers are taking advantage of this to deepen their private drains. <sup>(19)</sup>

The key to the whole drainage pattern was the provision of adequate outfalls. In practice the Lands Department gave drainage access to each 500-acre section. Private drainage drained the land. There were many reasons why the land remained wet: the seepage problem, type of soil, internal levels, vegetation, and distance from outfalls. Some of the problems associated with internal drainage were outlined by George Murray, who has left a good account of the difficulties he encountered and the measures he took to make his land productive. He began work on his Sections 151, 152 and 156 in 1906, long before the Omeheu Canal was cut. Although there was fall it was by no means adequate. Murray, however, had a practical and businesslike approach to the problem of dewatering his land. His methods were those which set a precedent for on-farm drainage, and for making the land productive. While negotiations were under way for the land purchase Murray was already making plans. His endeavours are best told in his own words:

In the meantime we had arranged with the Drainage Board that we would put in the ten foot outfall drain to the Omeheu Channel. In the first week of November [1906] we went to Te Teko to see about labour, and asked McGarvey's advice about suitable men. He knew just the right man to take charge of the work for us, Guy Witchell, who had been on the survey, and had since been in charge of Grieves' draining operations .... We were fortunate to have him. He knew his work and he knew the Maoris at Matata and Te Teko and could choose his men. He acted as foreman for us from January to May, and I was able to learn a lot from him, not only about draining but also about the reliability of the workers available. This stood me in good stead when I took charge of the draining myself. When the government took over the drainage, Guy Witchell was drainage overseer for some years .... That summer and autumn we put in about 140 chains of drain, ten feet wide and three foot six deep, up the drainage reserve and along the eastern boundary. We hoped to run a catchment drain along the southern boundary [of Sections 156 and 152] to cut off the water that came down from the swamp above but winter was on us before we got that far. The Maoris had a wet time of it when we started on the outfall. The top of the Omeheu Channel was blocked with raupo and it is great stuff for checking the flow of water. To get some freeboard the Maoris were dragging raupo out of the channel for some distance down the stream .... By the end of August I returned [from Opotiki] ready to begin the catchment drain and some smaller drains within the property. Although far from being drained, the property was mostly cleared of surface water and I could get in dry shod. When the ten foot catchment was finished I levelled the spoil to make a roadway .... <sup>(20)</sup>

Internal drains on the raw swamp were not by any means the total answer to development. However much the water level was reduced, there was still only the swamp growth and the great necessity for consolidation of the land. George Murray saw the need for ploughing the land, first of all to prepare the soil for grassing, and second to dispose of the swamp growth, especially the tea tree which followed burning of the swamp grass, and to bury the Tarawera ash and bring up the good soil. He had had experience of successful ploughing before he came from Opotiki and he foresaw the advantages of using a heavy swamp plough. He wrote:

Clearing tea-tree of up to three feet high was heavy work and it would be too green to burn for some years. A heavy swamp plough could turn a furrow wide and deep enough to bring up the good soil from beneath the Tarawera ash, and to bury both ash and tea-tree. Thomas Hallett had two or three hundred acres growing tea-tree like ours ... he had a heavy swamp plough from the South Island and was trying to plough it in .... I thought that for this job a heavy swamp plough would be just the thing, with a heavy loop chain to drag the growth under a deep furrow, and with six horses to pull it .... The ploughing was harder and took longer than expected. In places there were stumps in the ground from old forests. On some higher knolls pumice boulders had been stranded, some were four to five feet in diameter and on these we used gelignite .... In some places tea-tree had been flattened down and was in a tangled mass beneath the Tarawera ash. Some of it was as thick as my arm, and being wet but covered from the air, it had not rotted. I carried an axe and a spade on the plough .... By the end of March I had twelve acres ploughed and worked and sown down in grass. By turning over a big furrow and dragging a heavy loop chain, the tea-tree had all been buried .... In 1911 we bought our own swamp plough and

I ploughed another twenty-five acres .... By 1912 swamp ploughs and six-horse teams were in use on many sections. A. C. Sutherland used a bullock team with his plough. He liked bullocks better for the soft going on his land. <sup>(21)</sup>

George Murray was generous with his advice. He had good neighbourly relationships with Thomas Hallett and the Grieve brothers. In 1912 we find him riding down to Martins on Section 69 and discussing the breaking in of the swamp land. Four Martins were at work, usually one was ploughing, two were digging drains, and one was either cutting flax or fencing. The Martin diary is a record of their daily work from 1911 to 1914. For the 2 April 1913 the entry reads:

Alan draining. Neil finished discing and harrowing for the first time. Aleck cutting manuka and I spading flax.

For 8 May 1913:

Alan draining. Aleck and Neil cutting flax. I ploughing. Mr McFarlane was here for dinner. Valuing the place. Neil went home and coming back.

For four successive working days in March 1914 the diary records:

20th. Father came out. He and Alan sowed the paddock at top end of ridge down in grass. I harrowing behind them. Sowed 13 acres, sowed a little over two bags.

21st. Father and Alan sowing No 1 paddock on swamp down in grass. I harrowing. Sowed 17 acres.

23rd. Wet morning. Alan finished ploughing a little bit over the ridge for sowing tares and oats. I gave it two double discings, three strokes with the harrows and a roll.

24th. Alan sowing in the tares and oats over the ridge here. I ploughing in No 3 paddock on the swamp with six horses. Alan and I going down to Mr Ravn's farewell social. Wet night.

On 28 July 1914 the diary records:

Bought from Luxton

8 heifers at £5 each

1 at £2-10-0

4 at £3-0-0

During September 1914 the grass seed mixture for 20 acres was recorded. The rate per acre was 32 lbs mixed as follows:

Cocksfoot	6 lbs
Timothy	2 lbs
Ryegrass	10 lbs
Italian Ryegrass	10 lbs
Alsike	1½ lbs

Cowgrass	1½ lbs	
White Clover	1 lb	(22)

George Murray explained that settlers on similar country were using the same methods for breaking it in. The cattle were fed on turnips from June, the turnips being fenced off in breaks, but allowing the cattle a run off which not only provided roughage but further consolidated the swamp. Murray is generous: he does not state the obvious, which was that his methods were adopted by other settlers. He does tell, though, that dairying was becoming the obvious use for the land since flax farming was falling away and dairying offered a better return on development than did fat cattle. To that end the Hallett property was subdivided into dairy farm units during 1911, and shortly afterwards the Tarawera Co-operative Dairy Company was established. <sup>(23)</sup>

Down on the lowland Martins too were sowing turnips on quite a large scale. The diary entries reveal for December 1913:

- 8th      Alan took home a load of manuka for firewood and fetching turnip manure for his back load. I watered cattle, cutting out the thistles and pulling out docks in where the young grass and rape is in No 1 paddock on the swamp.
- 9th      Alan and I fixing drill. Alan pulling docks out of the oats on the swamp. I finished rolling turnip ground on the swamp next the ridge by the road and started rolling the other turnip paddock on the swamp in No 3 paddock.
- 10th     Alan cutting manuka stakes for fencing of turnip paddock in No 3 on the swamp. I rolling the turnip ground.
- 12th     Alan and I drilling in the turnips in the next paddock No 3 on the swamp. I finished the rolling.
- 13th     Alan and I finished drilling in the turnips with Bonedust manure. Sowed 8½ acres = 14 acres for No 3 paddock. <sup>(24)</sup>

These entries indicate the effort and the care with which the crops were managed. Turnips were obviously a major crop in the breaking-in process, whether the settler was on the higher land, as George Murray was, or on the lower land as Martins were.

On-farm drainage was a slow and tedious business. In many cases, when subdivision began, a new settler would find himself at the mercy of the man lower down for his outlet. Quite often the lie of the land required more than one outlet. Initially internal drains were often shallow affairs to drain away the surface water. As time went on and consolidation took place the fall would necessarily have to be taken up. This in its turn frequently depended on the goodwill of the neighbour whose drains provided the outlet. Effective drainage depended on adequate and regular maintenance.

The number of drains required on any one landholding was variable. The nature of the subsoil, the direction of the seepage and the contour of the land were all matters for

consideration. With the best available internal network even the most efficient farmers could find themselves waterlogged in periods of excessive rainfall. The temptation was always to dig more drains. As the land was consolidated and the fertility increased the land surface tended to become sealed by the tramping in of vegetation and by the sealing effect of animal dung. Concurrent with this over considerable areas was the subsidence as an outcome of the drying out of peat through normal drainage processes.

Notwithstanding these very real difficulties it was the internal drainage on farms which, along with the cultivation and sowing of permanent pasture, made the growth of the dairying possible to the extent that it developed during the 1920s. That period laid the foundations for the future large increases in output. If farmers were becoming more prosperous during the years immediately after the depression, they were reaping the benefit, in large measure, from their own physical efforts to effect adequate on-farm drainage in the previous decade. Production figures from the Rangitaiki Dairy Company illustrate the increasing output from farms on the plains during the decade from 1932-33:

<u>Year</u>	<u>Butter tons</u>	<u>Cheese</u>
1932-33	3,402	
1933-34	3,674	
1934-45	3,726	
1935-36	3,662	
1936-37	3,913	
1937-38	4,832	
1938-39	4,059	
1939-40	4,606	
1940-41	5,103	
1941-42	3,689	1,061

In 1941-42 at the request of the government, to meet wartime needs, there was some cheese production. Despite the restrictions of the war years, particularly in the supply of fertiliser and the shortage of labour, and the great flood of 1944, the Rangitaiki Company's output continued to grow, in great measure because of the cumulative effects of drainage and increased soil fertility. Five-yearly intervals reveal the growing output:

<u>Year</u>	<u>Butter tons</u>	
1942-43	4,641	
1947-48	5,309	
1952-53	6,513	
1957-58	7,577	
1962-63	7,639	(25)
1967-68	9,882	
1972-73	10,256	(26)
1977-78	11,476	
1982-83	13,509	(27)

Allowing for the fact that about 580 tons was supplied from Opouriao in the amalgamation year in 1964, which naturally increased with time, and the supply from Galatea, which represented 25% of the output up to 1985, the increase from the plains area has been steady despite the hectares given over to horticulture. <sup>(28)</sup>

The 1984-85 output of butter, which was the last year before amalgamation with the Opotiki Co-operative Dairy Company, was 13,919 tonnes. Since then the amalgamation, the destruction of the Rangitaiki factory by the 2 March earthquake in 1987, and amalgamation with Te Puke to form the new Bay Milk Products Company makes the continued growth from the plains rather more difficult to assess.

While there were many reasons for the astonishing growth in output from the Rangitaiki factory, including the use of fertilisers, better stock breeding and management, herd testing, shelter belts, pasture management, and flood control, the significance of on-farm drainage, including the installation of commercial pumping schemes, cannot be denied. In a sense the prosperity of the plains assured, and continues to assure, the prosperity of the whole district.

If on-farm drainage made the great dairying project a success, then a lack of it caused settlers to accommodate themselves to the raising of fat cattle. The difficulty of getting cattle to a freezing works brought about a situation where a local freezing works was contemplated. At that time dairying was in the process of development only on the fringes of the swamp. Even so, there was room for both beef and dairy farming. Owners of the larger sections were the main beef men. Cattle raising, where animals could, and did, roam at will over large areas, obviated the need for subdivisional fencing and on-farm drainage. At the very time when the Mangaroa farmers were meeting to set up the Rangitaiki Plains Dairy Company in 1915, another group was meeting to set up and operate a freezing works.

At a meeting in Whakatane, addressed by W. D. Powdrell, there was an enthusiastic response to the proposal that shares be subscribed. £100,000 was required. The proposed works was to take cattle and sheep from the whole Bay of Plenty, from Katikati to Cape Runaway, including inland to Rotorua. Whakatane farmers seem to have been more enthusiastic than those elsewhere. Totals subscribed from each area were:

	£		£		£
Te Teko	21,800	Katikati	800	Opotiki	7,600
Whakatane	25,000	Tauranga	7,850	Waimana	9,600
Matata	5,050	Pongakawa	7,400		
		Te Puke	19,600		
		Rotorua	2,000		
	<hr/>		<hr/>		<hr/>
	£ 51,850		£ 37,650		£ 17,200

Settler subscribers on the swamp were:

	£
T. Secombe	5,000
C.F. Reid	5,000
A.E. Hawken	3,000
Murray Bros	3,000
A.C. Sutherland	2,000
E.G. Sutherland	2,000
D.C. Martin	2,000
A. Allan	2,000
W.G. Platt	1,500
	<hr/>

£ 25,500

The East Coast Co-operative Freezing Company Limited held its first annual meeting on 7 June 1916 when the directors elected were H. J. Gill, W. H. Patterson, A. C. Sutherland, L. W. Sisam, D. McCracken, P. Keegan and W. G. Platt. The works were constructed and the official opening was performed by the Prime Minister, W. F. Massey, on 11 December 1917. In its first full year of operation in 1918 the works made a small profit, but thereafter annual losses forced the company into liquidation. In 1922 the plant did not operate, but the liquidator reorganised the company. 1923 and 1924 saw the restructured company in further financial strife which brought about its collapse. <sup>(29)</sup>

Anton van der Wouden in an article has discussed the reasons for the failure of the freezing company. It was primarily because insufficient numbers of stock were available for processing. <sup>(30)</sup> The works could not compete when rates and high land prices brought about subdivision and land sales. New farmers who settled in the district were intent on dairying on the smaller units, and on-farm drainage to increase carrying capacity saw a sharp decline in fat stock numbers. At the same time, the advent of the railway made the transport of stock possible towards works where there was a more lucrative return. High butterfat prices encouraged the growth of dairying at a time when the new freezing works was struggling to survive. It could be said that off-farm drainage made fat cattle raising possible but that on-farm drainage saw its virtual disappearance from the plains.

On-farm drainage had a profound effect on the fortunes of the Whakatane Harbour Board too. Initially the Board wanted the Tauranga-Taneatua railway pushed ahead, with a branch line to the port at Whakatane. It was anticipated rail would deliver goods to the wharf for shipping to Auckland. <sup>(31)</sup> When the Freezing Works was being constructed the Harbour Board borrowed £42,000 for harbour and river improvement works, expecting to recover the outlay from the anticipated revenue from increased shipping generated by the new works. <sup>(32)</sup> In the early 1920s the demise of the Freezing Company, and the coming of the railway, yet without a branch line to Whakatane, posed a serious financial problem for the Harbour Board.

If the Harbour Board was to extricate itself from an unenviable position, it would have to seek out the trade in dairy products. But its record in handling dairy produce had been only at best mediocre since the export of butter was first recorded in 1902. Storage facilities were woefully inadequate, there were no cool store rooms, and there were frequent complaints of rats eating cheeses. By 1922 it was patently obvious that the growing dairy produce had to be properly catered for. A cool store was erected in 1923. Then followed a complaint that the Northern Shipping Company was carrying pigs and dairy produce as deck cargo. The next shipments of dairy produce were shipped below the hatches but with stock on the deck above. The Rangitaiki Company produce had been down-graded by inspectors in Auckland because livestock had been carried on the deck above. <sup>(33)</sup> As a result of this episode the Rangitaiki Company took a decision to rail its produce to Tauranga for shipment. The Harbour Board and its supporters did not take kindly to preference being given to rail:

The freighting of the Company's butter to Auckland, was in the earliest days a controversial issue between shareholders and the Board of Directors. Many meetings, with Ian B. Gow as advocate for rail transport, were held, and at times feelings ran high between suppliers and the Board. In June 1928 the Board finally accepted the offer of the Northern Steam Shipping Company to ship our butter to Cool Store, Auckland, and contribute towards the cost of erecting a cool room at Whakatane

Wharf. Such was the feeling engendered, that this subject was again opened for discussion, and in 1935 a postal ballot was taken. The decision, however, was in favour of sea transport, and so it continued for many years showing substantial savings to the Company. With a greatly increased tonnage of butter, the infrequency of boats occasioned by bad weather, the shortage of cool storage space, and finally the change from wooden to cardboard containers, it eventually became imperative to change to rail, though at an increased cost. This [change] took place in 1958 after 30 years during which time our produce had increased from 1,618 tons of butter to 7,576 tons, and 4,849 tons of milk powder. It is important to place on record, that since rail transport has been used, the Company's produce has arrived promptly and without deterioration at the Cool Store in Auckland. <sup>(34)</sup> In the post-earthquake period the use of rail transport for the Company's produce was discontinued in favour of road transport. <sup>(35)</sup>

Shortly after the Rangitaiki Company withdrew from the Whakatane port, the Opouriao and Waimana Companies found reasons for their withdrawal also. The loss of the dairy produce trade was a serious blow to the Port of Whakatane; it was soon followed by the cessation of the shipping service. The service which the Harbour Board and the Northern Steam Shipping Co. had been able to offer eventually proved inadequate in terms of the increasing hygienic standards demanded and the competitive freight rates offered by the railways which could not be matched by sea transport. <sup>(36)</sup>

Admittedly there was a multiplicity of reasons for both the collapse of the Freezing Works, and the withdrawal of the shipping service to Whakatane, but the underlying reason was the on-farm drainage, which in the first case turned farming from beef cattle to dairying, and in the second case brought about an astronomical increase in dairy produce which could not satisfactorily be handled at the local port by such coastal shipping as could use the port.

The following tables illustrate the major uses of both the Whakatane port and the railways. In the port bar graph the dependence on dairy products for profitable shipping is discernible at a glance. Butter was railed to Tauranga.

Butter, and other milk products, virtually ceased to pass over the Whakatane wharf in 1959 after the Rangitaiki Company finally turned to rail. The cheese in 1959 was from Waimana and Opouriao. Motor spirits, which had been a major import, was sharply reduced when tanker transport commenced from the new bulk depot at Mt Maunganui in 1959.

The Railways Table is more difficult to interpret since in the statistics cattle and calves are a single category, as are sheep and pigs. The figures do point out, though, a growth in livestock numbers. Edgecumbe had a notable growth in timber railed out, particularly from 1946 with the establishment of the Tunnicliffe Timber Company's yard and planing mill. Public passenger transport dropped sharply after 1951 when imports of new cars increased in the post-war period. A considerable increase in the tonnage of other goods arriving at Taneatua parallels a falling off in the amount coming inwards over the Whakatane wharf, as well as underlining the demands of a rapidly rising population in the town.

The extent to which railways and road transport eroded the shipping service becomes clear. Whichever way a view is taken, the most vital industry in the district was the dairy industry and that was built upon the on-farm drainage and the efforts of settlers individually and collectively. Other land uses of a limited nature might, and did, appear, but their viability was built on the network of public and private drains already in place. Eighty years on, the vision of the Burt Brothers and their associates has borne abundant fruit. Yet that vision too

	1930	1930	1931	1936	1941	1946	1951	1956	1961	1946 only Whk Road Wervices
1st Class (No)	16 4	798(s)* 219(r)	107 681	39 199	66 372	350 1,018	149 420	134 324	41 4	1,104
2nd Class (No)	355 209	8,422(s) 4,042(r)	1,441 14,425	2,015 23,385	3,343 16,005	5,075 21,312	1,978 13,459	1,343 6,046	283 83	4,374
Cattle/calves (No)	3,151	6,474	16,961 7,646	30,703 17,643	28,736 25,252	31,461 19,771	34,104 25,059	41,171 32,691	35,914 28,170	0
Sheep/pigs (No)	42,984	50,987	58,989 62,756	63,441 76,833	67,340 95,063	48,562 66,897	39,827 64,753	36,678 75,296	30,348 70,969	0
Timber (sup ft)	636	0	1,059 0	20,283 260	68,340 392	51,599 729	162,849 1,458	117,156 99	110,997 552	36
Other Goods (tons)	1,804	8,534	6,347 3,908	2,354 1,254	14,131 689	19,754 1,181	22,693 2,591	37,589 5,169	49,103 8,273	573
Ord. Passengers (£)	403	5,846	874 4,516	786 4,422	1,563 5,257	2,370 5,078	1,095 2,928	813 2,161	359 116	4,735
Parcels, Luggage Mails (£)	100	169	218 257	229 302	200 168	249 221	228 211	148 112	Not recorded	283
Total Goods (£)	5,822	8,853	11,972 8,593	18,195 6,932	51,927 13,426	59,788 9,998	144,240 17,678	202,330 37,660	326,776 51,101	1,659
<u>INWARD</u>										
Cattle/calves (No)	355	3,193	2,218 1,567	1,642 1,119	2,263 1,395	1,448 1,044	2,016 1,580	2,440 1,035	871 786	6
Sheep/pigs (No)	946	1,041	1,052 290	1,115 279	2,525 365	10,956 819	13,220 1,903	4,896 2,536	2,116 490	0
Timber (Sup ft)	448	3,572	1,212 1,481	223 353	388 844	1,134 275	151 1,937	2,675 32,192	560 2,435	45
Other goods (tons)	2,743	11,331	8,789 8,191	12,884 11,238	20,316 61,525	21,561 54,173	29,340 70,447	886 78,558	28,707 113,099	2,541

NZ Railways outwards and inwards statistics (five year intervals) from 1930-61, for both Edgecumbe and Taneatua Stations (Edgecumbe information in left hand of each column. 1930 statistics from 1929 year, first after FWD handed line to Railways Dept. Possible distortions could be claimed as result of depression and World War II.

\* (s) = single (r) = return

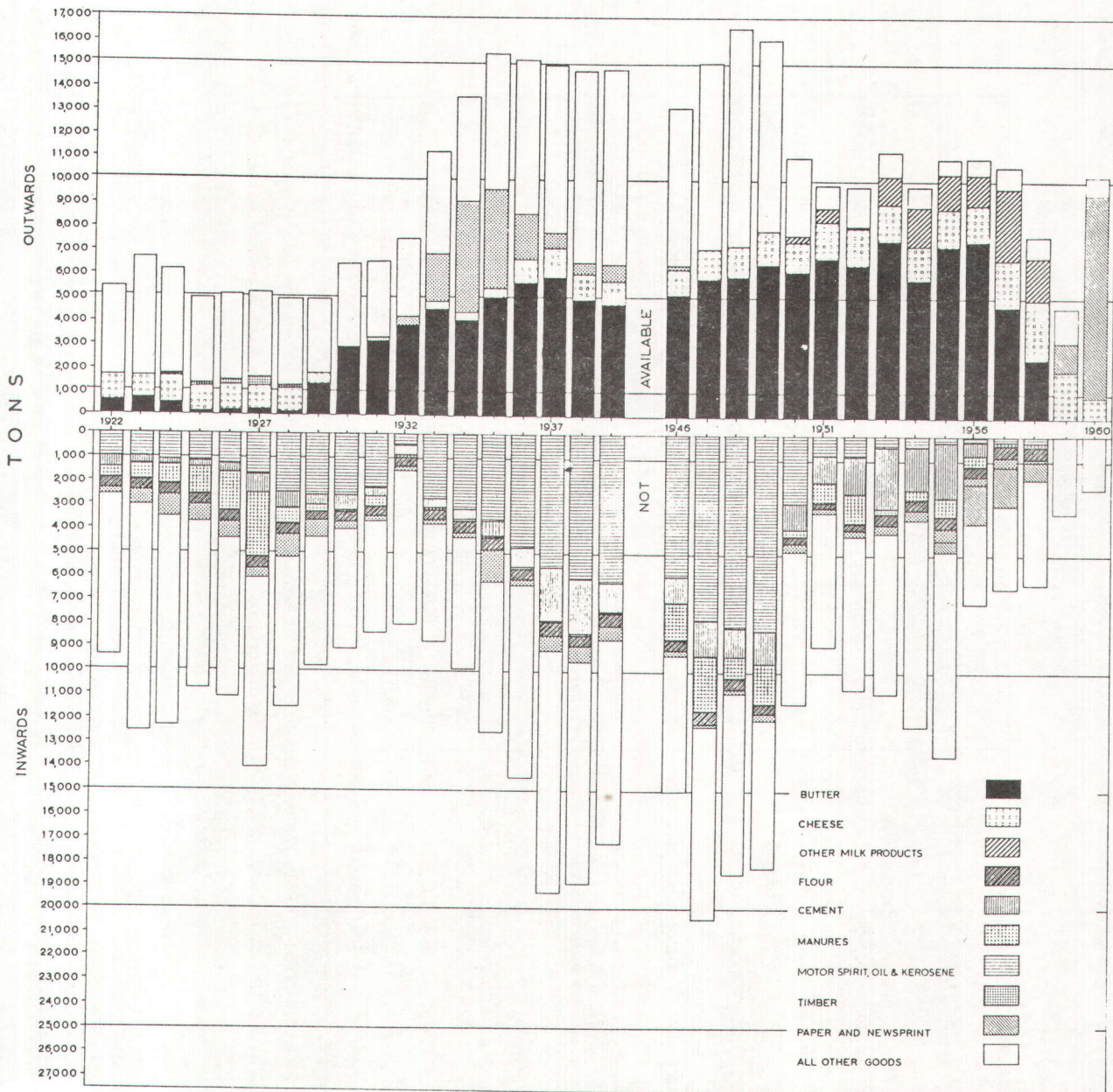


Fig. 11.6. Imports and exports, Port of Whakatane, 1922 to 1960.

needed an external input when the local spirit was strong but the means of achieving success was outside its competence.

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- (23) *George J. Murray : The Story of the Rangitaiki*
- (24) *Diary : David Martin 1911-1914*
- (25) *RPD Co. Golden Jubilee Booklet 1915-65*
- (26) *As from 1972-73 the weight is in tonnes. For conversion of tons to tonnes multiply by 1.02; for tonnes to tons multiply by .984*
- (27) *RPD Co. Progress Report figures supplied by S. Nelson*
- (28) *Ibid*
- (29) *A van der Wouden : The Freezing Industry in the Bay of Plenty in Historical Review, May 1985. The article is a comprehensive survey with considerable detail on the works at Whakatane.*
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- (32) *A. van der Wouden : The Freezing Industry in the Bay of Plenty, in Historical Review May 1985*
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- (35) *RPD Progress Report : S. Nelson*
- (36) *Max Avery*



*Rangitaiki Plains - a northward view.*

## CHAPTER XII

### CONCLUSION

One hundred years ago the attempt to settle on the swamp and turn it into productive farmland was a bold venture by any standards. What turned the endeavour into a nightmare was the great flood of 1892. Even before the North Island Land Association members set foot on their leasehold land, what was a drainable swamp had become a great sea of inland water. When the rains persisted and the water remained, the Lands Department sent Arthur Wright to report on the best means of draining the area. His plan was the appropriate solution but it was beyond the ability of the settlers to put it into effect. Recourse by the remaining independent settler, Joseph Warbrick, to the Lands Department led to the proclamation of a drainage district and the formation of a drainage board. It was crystal clear that the interests of Warbrick and the Canterbury settlers coincided.

Being quite unable to implement Wright's plan with regard to the Rangitaiki outlet, the drainage board turned to an alternative solution: draining the eastern area into the Orini River, at best only a makeshift effort to dewater the major area of their settlement. A succession of wet seasons, isolation, transport and accommodation difficulties, lack of capital, the inability to take an income off their sections, combined with subsidence occasioned by draining and the high level of water in the Orini, caused the surrender or forfeiture of the sections on which members of the North Island Land Association were attempting to make their way. Drainage of the swamp by private means was patently impossible at the time. By 1898 only Warbrick and four others remained on the swamp.

The Lands Department, from 1898, again invited selection and there seemed to be no shortage of hopeful lessees. Warbrick soon had round him an enthusiastic group who were keen to attempt another solution to the drainage problem: if, said Warbrick, the Orini was too high as a river, then close it off at the Rangitaiki and let it function as a natural drain to take the water from the swamp and discharge it through the Whakatane River. Warbrick, however much he was forced to accept second best solutions, was certain in his own mind, as had been his associates on the first board, that Wright's plan was the essential feature for adequate drainage.

When a new board was appointed in 1901, under Warbrick's leadership as the first one had been, the Orini was promptly dammed and finance borrowed under the Local Bodies Loans Act of 1901 to carry out further drainage works. The immediate need after closing the Orini was to deepen and lengthen the four main drains constructed by the Canterbury settlers and extended by the first board. In the meantime Warbrick and his associates worked conscientiously to persuade the new settlers that the key was the Rangitaiki outlet. For such an undertaking a special loan would be required. What Wright had assessed as being possible for £2,000 in 1893 was thought by Webster in 1903 to be considerably more costly.

Unfortunately for the board, and for the settlers, Warbrick lost his life in the Waimangu eruption in 1903, and his driving force was lost to the district. The board continued, but the drive for the Rangitaiki outlet was temporarily submerged in, first of all, beginning the Te Rahu Drain, and subsequently, in damming the Awaiti. While a little progress was evident in the eastern area, on account of borrowed money, little was being achieved in the west.

A further disaster occurred in late 1904 when the retaining wall at the outlet of Lake Tarawera collapsed, cascading millions of cubic yards of pumice down the Tarawera and raising the bed of that river, which in turn caused the Tarawera waters to inundate the western swamp. A second loan saw further worthwhile works carried out in the eastern area after 1905. The eastern area settlers were convinced that the Rangitaiki outlet was vital, but the majority in the western area could not be convinced, hence in polls taken there was no unanimity of purpose. A heavy flood in 1907 brought great distress in the eastern area particularly, and considerable loss, but it revived in earnest the necessity for the new outlet. In the west Thomas Seccombe, John Motion and George Murray had sufficient foresight, along with the Grieve brothers, to take drainage in hand, but without loan monies little was effected on the limited revenue from rates.

Settler losses as a result of the 1907 flood were a major reason for the inability to redeem the first special loan for the eastern area. While the board was still seeking a loan to carry out works in the western area, and a special loan for the outlet, a receiver was appointed to deal with the collection of rates or other assets to cover the first loan. A crisis was thus precipitated in early 1910. Recourse was had to the government for assistance. In the event the government agreed to take over the drainage works along with the assets and liabilities of the board.

The first board had collapsed because private means to carry out drainage works were exhausted before the land could become productive. The second board failed for a number of reasons: the loss of Warbrick, failure to get unanimous support for its projects, the flood of 1907, the collapse of Lake Tarawera, the incidence of non-resident landholders, the inability to redeem the loan when it became due, failure to pursue the Rangitaiki outlet, and the not inconsiderable bickering with the County Council.

It was evident to outsiders that successful drainage of the swamp was, by 1910, outside the competence of the board. Ward, as Minister of Lands, from his correspondence with Thomas Seccombe, and from reports he had sought from Henry Metcalfe and William Kensington, had no doubt that if the Rangitaiki swamp was to be successfully drained the resources of the State would have to be employed. When the bill came before Parliament members of the House were in unanimous agreement with Ward. The Rangitaiki Drainage Act became law on 1 August 1910, and apart from the requirement to pay rates when such were levied, the settlers were relieved of all responsibility in the provision of public drainage.

It was anticipated that the government would construct the new Rangitaiki outlet, dredge the Tarawera to remove the surplus pumice, construct the necessary main drains, and all the work would be completed within a few years. In the event the work of drainage, which it was originally suggested would cost about £50,000, had by 1925 cost close on £500,000. Even so it was not then completed, and in addition constant maintenance was required, which carried a subsidy of 10/-:£1. The drainage of the swamp became truly a national work. Of a certainty, the settlers put in their own capital into their own properties but the nation continued to contribute to the on-going viability.

From the days of the second board there had been friction between the settlers depending on the location of their holdings. The friction was exacerbated by the construction of the railway which in broad terms separated the higher land from the lower with the consequent

dissatisfactions over classifications, valuations and rating. Settler friction was submerged when government assistance was sought in 1910, again when the rating system was assailed in 1925, and yet again in 1934 and 1937 over the issues of capitalisation of interest and the special rating system. Settler issues emerged triumphant in 1910, 1925 and 1934 but came to grief in 1937 with a change of political party in government. The 1953 inquiry was an issue between settlers and not an issue with government.

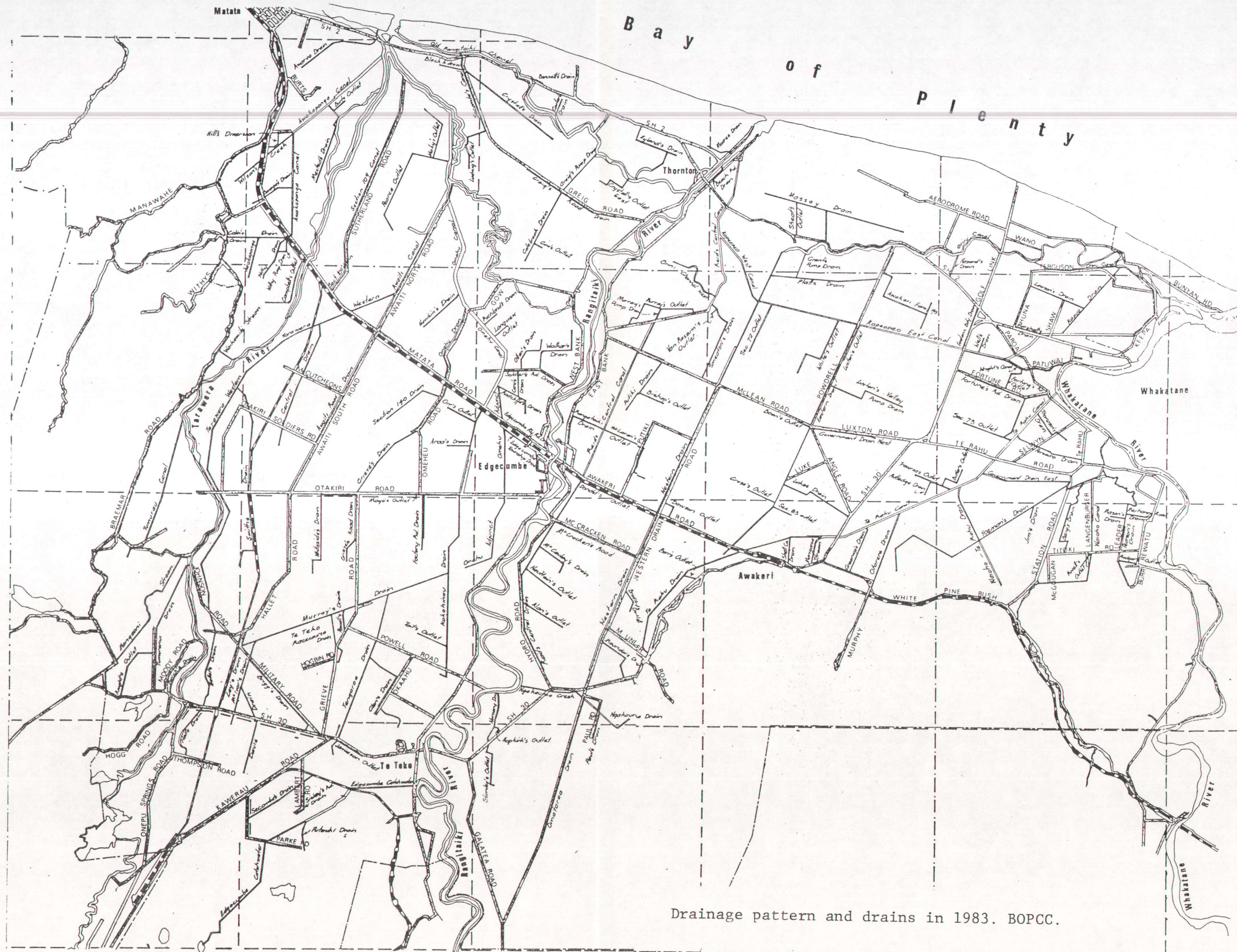
Settler dissatisfaction with government control was evident from 1925. The majority of these settlers were the new and younger men who had no intimate knowledge of the complexities which had faced the early boards. Once the public drainage system and the roads and bridges were in place, these vigorous young men wanted local control. At this distance in time it is difficult to find any merit in their demands. But demand they did, and from time to time continued with their insistence that local control was both desirable and necessary. By the time their demands were heeded in 1957 they were the same group but much older men. They made up the third drainage board when it was constituted.

Despite the knowledge which these men had acquired about drainage from their participation in the Ratepayers Drainage Advisory Committee activities, the total management of the extensive Rangitaiki system was outside their competence. As a new statutory body they were devoid of policy until the Tassell Report was presented to the board in 1964. That report, and the subsequent election of Harold McCracken and John Murray as chairman and deputy-chairman, was to see a period of transition away from the old men and their factional interests and squabbles towards an era where drainage was viewed as a comprehensive undertaking to be administered and improved. McCracken and Murray were in a sense fortunate for not only did they have a new vision of the board's functions but they also had Tassell's engineering advice, and that of two competent assistant engineers in Basil Dodds and Ian Fairbrother.

That so much progress towards providing a good drainage service was made from 1970 to 1980 is a mark of the ability of Harold McCracken, for the engineering services were still provided by the County Council, as was the administration, and there was only a loose link between board policy and decisions and the outside staff. But McCracken was a patient man who had the status and personality to weld not only the board but the ratepayers as well into a cohesive and purposeful community and in a sense to minimise and dissipate the old factionalism.

A new chairman in 1981, Peter Withy, who had served on the board under McCracken, was one of the younger men. His business was to give a good drainage service to the ratepayers. Factionalism was something from the past. While Withy was chairman several moves were made towards providing the best possible service. Among these were the appointment of a works supervisor who answered directly to the board and attended its meetings, the removal of the depot from Thornton to the more spacious and better equipped building at Edgecumbe, the setting up of the board's own administration system, and the agreement with the Catchment Commission from which an engineering manager was available to attend to the board's engineering services.

The capital grants were reduced in 1985 and the maintenance subsidy was terminated as from 1988. Prudent management permitted the board to continue providing efficient services when these finances were discontinued. At the same time the board had made the final loan



Drainage pattern and drains in 1983. BOPCC.

payments in 1987 for the plant and buildings handed over by the government to the board in 1957, and in 1988 for the loan to construct the Edgumbe Depot. At the moment of its dissolution on 1 November 1989 local control had at last proved itself, free of factionalism, free of debt, and in a position to provide immediate services where and when they were required, in addition to adequate annual maintenance. It had taken ninety-four years to reach that objective.

Those who see the Rangitiki today can scarce envisage what it was like one hundred years ago. Despite their dreams and their best endeavours the transition from swamp to thriving farmland was outside the resources of drainage boards, whether by the use of private capital or by borrowing. It was national input which transformed the swamp, and for many years it was a measure of national input which protected that investment. Transition from government control was no easy matter in 1957 and it was many years before local control organised itself into a cohesive and authoritative body with the interests of the whole community of ratepayers at the forefront.

There were many men who played significant roles in the development of the swamp. Outstanding engineers were Arthur Wright, William Kensington and Alan Tassell. Each produced a report which had an enormous impact on the progress of drainage. Politicians who played a significant role were Sir Joseph Ward and W.D.S. McDonald, for they brought the government into the drainage programme. Among board members Joseph Warbrick, Thomas Seccombe, Harold McCracken and Peter Withy played leading roles. George Murray and Alex McLean applied sound farming practice and scientific knowledge to the process of breaking in the raw swamp. John Motion was a private farmer who saw the essential need to carry out public drainage if the settlement was to be successful.

It was on-farm drainage which followed the construction of public drainage which made the great dairying industry possible in the district. William McCracken, who was so immersed in the problems of drainage, was to preside over the dairy industry locally in its period of greatest expansion. His vision was not misplaced. The dairy factory itself had a parallel with local control of drainage. Norman Reynolds in a sense may be seen as a transitional leader in the same way as Harold McCracken was with drainage. They paved the way for Doug Bull at the Dairy Company and Peter Withy with the drainage.

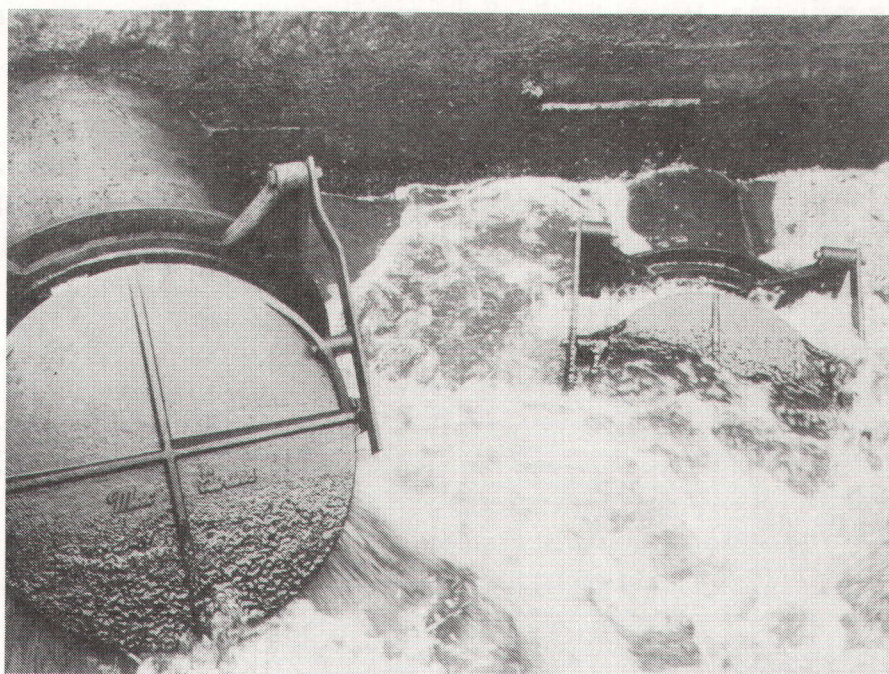
The growth of the dairy industry, both on the swamp and at Waimana and Opouriao, provided the impetus for the growth of Whakatane township. Today the small factories are closed and all the produce passes through the Edgumbe factory. The success story is built on successful drainage, for to visit Whakatane in 1989 is to visit a thriving and busy provincial township.

As in all communities there were some pioneers who had vision. There were those for whom vision was not enough and that was a personal and private tragedy. Yet others come along to take their places and in time the vision becomes a reality. So it was with the settlement on the swamp. That the vision required solid support is a matter of history now. The support was the long parade of taxpayers, who as they traverse the Plains today may be forgiven if they feel a small part of what has been achieved over the past one hundred years. It would be fitting indeed could they spare a moment to visualise Joseph Warbrick on his flood-ravaged sections at Okorero, or the settlers of the North Island Land Association contemplating a vast sea of water while they scanned the horizon for survey pegs inundated

by the waters of the Rangitaiki. Perhaps their names could be mentally ticked off: Prebble, McDonald, Whyte, Lord, Seymour, Thompson, Anson, Templer ....



*The Western Drain. Weed is being removed by mechanical excavator.*



*Omeheu pump station with one pump discharging into the surge chamber.*

## APPENDIX I

### BIOGRAPHIES

#### Acknowledgements:

In the preparation of these biographies I have drawn on F. W. Furkert; Early New Zealand Engineers for Metcalfe, Turner Kensington, Webster, Treseder and Wright. R. F. Keam's Tarawera has some information on Lundius. Schofield's Who's Who in New Zealand, contained basic facts on J. B. Thompson. Charles Lawn; Land Surveyors of New Zealand was useful for items on J. Baber, junior and T. K. Thompson. Other material has been gleaned from a wide range of written sources including newspapers, minutes, letters, and from interviews. I acknowledge the assistance given me by John Murray, Harold McCracken, Joyce O'Brien, Josephene Marr, Harold Jenks, Ken Berry, Lindsay Henderson, Alan Tassell, Peter Withy and Peter Gibbons. Frank B. Wright provided information concerning his father. Anton van der Wouden and Lilian Jordan searched old newspapers for information. The sexton at Karori Cemetery was helpful, as also was the Registrar-General in Lower Hutt. Diane Woods of the Turnbull Library deserves special mention for her work in either directing me to the scattered files and herself seeking out snippets of information from the Turnbull holdings.

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**James Baber, junior** (1855-1904) was born in Auckland and educated at Auckland Grammar School. He entered an apprenticeship with his father James, a surveyor, and subsequently trained under Stephenson Percy Smith. His first position was with the Auckland Survey Office for which he carried out triangulation surveys. He was later engaged on similar surveys in Hawkes Bay and Wellington. In 1879 he was appointed to the permanent staff of the Auckland Land District Office, from whence in 1889 he was transferred to Tauranga as District Surveyor. During the next fifteen years he became intimately associated with every area of the Bay of Plenty. He was in charge of the laying off of sections on the Rangitaiki swamp, and also the surveying of road lines. He was a foundation member of the New Zealand Institute of Surveyors. The nature of his work led to Baber contracting pneumonia from which he died on 10 December 1904.

**Harold Lister Briffault** (1898-1979) was brought up in Auckland and educated at Seddon Memorial Technical College where he showed an early interest in engineering and design. At the age of eighteen he went to England during the First World War where he became one of the few New Zealanders to join the Royal Flying Corps. He was awarded the Military Medal for distinguished bravery in action. After the war he pursued an interest in hydrology while he was engaged in the construction of many bridges throughout the North Island, including the 'Bridge to Nowhere'. His specialised knowledge of hydrology and his engineering skills led to his appointment by the Ministry of Works as drainage engineer on the Rangitaiki plains in 1948, a position he retained until the third drainage board was constituted in 1957. Harold Briffault had wide community interests: he was a life member of the Whakatane Yacht Club, a member of the Community Arts Service and of the Whakatane Music Society, and of the Eastern Bay of Plenty Royal Forest and Bird Protection Society.

**Owen Neil Campbell** (1884-1958), born at Waipu, was the son of Nova Scotian pioneers. He was educated at Auckland Grammar School where he became proficient at sports, later representing Waikato at Rugby. In 1901 he began his government service where he continued both with practical and theoretical training. In 1910 he was appointed surveyor and engineer in charge of the Rangitaiki drainage scheme where he brought very large areas into production as the swamp was dewatered. His work on the swamp was interrupted when he enlisted in the army in 1917 and went to France with the Tunnelling Company. After the war he was Chief Drainage Engineer; from 1927-34 he was Chief Surveyor and Commissioner of Crown Lands in Auckland, and deputy-head of the Lands Department. From 1935 till his retirement from the Public Service in 1944 he was Under-Secretary of the Native Department and Native Trustee. His funeral was held on 25 March 1958, and three days later he was accorded a Memorial Service at All Saints Church in Kelburn at which the Dean of Wellington paid tribute to the great service Owen Campbell gave to New Zealand in so many fields of human endeavour.

**James Christian Grieve** (1871-1961) was born at Southfield, Harwick, Scotland. He came with his brother Robert to take up a large landholding on the swamp in 1900. The two began land development immediately and by dint of good luck and hard work they managed to survive the Tarawera flood of 1904. James was intensely interested in constructing good drainage services when he later took up land on his own account. He never married. Farming the raw swamp was his whole way of life. In his later years he retained a small holding at Otakiri where he lived until he died in Whakatane aged 90.

**Robert Elliot Grieve** (1869-1945) like his brother James was born at Southfield, Harwick, Scotland, and came to New Zealand as a young man. At Otakiri in 1900 the brothers took up a large block of land near the Tarawera River, Sections 145, 146, 147, 148, 149 and Section 78, a total of 3,000 acres. They began at once to break the land in but in doing so had to cope with the Tarawera flood when the Tarawera Lake burst its retaining wall in 1904. Robert served on the second drainage board, and for a short period was Chairman of that board. He also served on the Whakatane County Council in 1904 and 1905 and again from 1923 to 1926. Most of the large block was eventually disposed of to Halletts and the Grieve brothers took up other lands on the swamp. Robert married Isabella Young Lillico who also had a large holding at Otakiri. She died on 18 April 1940, and Robert on 9 April 1945. Although not the first large landholders on the swamp Grieve brothers were the first large landholders to make a conscious effort to carry out farm development in the area.

**Eric Campbell Haultain** (1892-1960) was born in the Waikato and came to farm on the Rangitaiki after service overseas in the First World War. He was keenly interested in successful drainage of the land and devoted much of his energy to that end. Although a champion of local control he accepted a place on the Drainage Advisory Committee. When the third drainage board was formed in 1957 he was elected its first chairman, a post he held until he resigned a few days before his death.

**Lindsay Morse Henderson** was born in Putaruru on 23 January 1928. He was educated

at Whakatane High School. He was a partner in the firm of W. S. Henderson Ltd in which for many years he was the foreman contractor in the firm's quarrying, crushing and roading business. He was later managing-director of the company. When the company was dissolved he was appointed works supervisor to the Rangitaiki Drainage Board where his considerable managerial and communications skills brought together the Board's policy, field operations, ratepayers' interests and administration. He retired from the Board's employ when it was absorbed on 1 November 1989 into the Bay of Plenty Regional Council.

**Robert Leslie Innis** (1899-1985) was educated at Thames High School and the Thames School of Mines before beginning his career in 1916 as a surveyor with the Lands and Survey Department. On completing his qualifications as a surveyor he was appointed in 1923 to succeed John Henry Treseder as engineer in charge of the Rangitaiki drainage. He was also involved in the extensive development works in the Bay of Plenty and Rotorua areas. Significant concerns while he was drainage engineer included the 1925 Royal Commission, the completion of the drainage works commenced in 1911, the problem of drainage maintenance during the difficult depression years, and the issue of interest capitalisation and rating charges. So successful was his administration that in 1937 he was promoted Chief Drainage Engineer by the government. Subsequently he was Chief Surveyor, and Drainage Engineer and Land Development Superintendent for North Auckland. In later years he was appointed Land Utilisation Officer, and in that capacity surveyed and reported on land use in areas of the West Coast of the South Island, a task which he completed in 1956. During his years on the Rangitaiki he took a full part in community life, including a period on the local school committee at Thornton. In 1962 he was an invited speaker at the Thornton School's Golden Jubilee.

**William Charles Kensington**, Imperial Service Order, (1845-1922) was born in Wales. He was educated at private schools in Bath and Bruton. On arrival in New Zealand in 1863 he joined the militia and served on the East Coast, being awarded the New Zealand War Medal. In 1864 he joined the Lands and Survey Department in Auckland where he quickly grasped the essentials of procedure. During the absence of his chief he frequently acted as Commissioner of Crown Lands and Chief Surveyor. He was later appointed Chief Under-Secretary of Lands where his excellent services earned him the ISO. Kensington made several visits to the swamp in 1910 to report on the drainage prospects to the Minister of Lands at the time, the Rt. Hon. Sir Joseph Ward. It was Kensington who concurred with Wright's findings; then he went on to lay out the general plan for the Tarawera River. It was largely on the report Kensington made that the government proceeded with the 1910 Act. In any case the work of J. B. Thompson was based on the investigations and reports made by Kensington.

**Wilfred Thomas Law** (1897-1968) was born in Shannon and came to the Rangitaiki after the First World War. His father was already farming in the district. The farm he took up was swampy so he became interested early in the problems of drainage, having a particular empathy with those, who like himself, were on the lower land. He served for some years on the Rangitaiki Drainage Ratepayers Committee, and became a member of the third board when it was legally constituted in 1957, being elected deputy-chairman. In 1960 he was elected chairman, an office he held until his death in 1968. He had many interests in

farming organisations not the least of which was the Rangitaiki Plains Dairy Company on which he served as a director of the Board from 1951 to 1963.

**Harry M. Lundius** (1858-1938) was born in Sweden and as a young man took his education at Malmo University following which he took a position as draughtsman at a ship-building yard. In 1880 he emigrated to New Zealand and was naturalised on 12 December 1882. He soon found employment as a surveyor's assistant. In this capacity he was with the surveyor J. C. Blythe at Te Wairoa on the night of the Tarawera eruption. He was a guest at McRae's Hotel. When the building collapsed he was able to rescue several people. A few days after the eruption subsided Lundius was in the first party to reach and explore the summit of Tarawera. This was followed by other journeys to examine and assess the effects of the disaster. He married in 1891 and in the same year entered government service as a Crown Lands Ranger. When James Baber came to lay off sections on the Rangitaiki swamp he was accompanied by Lundius. His work as Crown Lands Ranger took him to Feilding for a period, and then to Wanganui. In 1911 Kensington, as Under-Secretary of Lands, appointed Lundius as government nominee to carry out, with Edward Allen, the classification of the Rangitaiki swamp lands for rating purposes. He was moved to Wellington as Crown Lands Ranger and in 1916 was appointed to collect rates on the Rangitaiki by Broderick, the then Under-Secretary. This work was deferred when the government decided to collect no rates at that time. Lundius continued in his employment with the Lands and Survey Department until his retirement from government service in 1925. In the later years he lived in Wellington where he died on 19 February 1938. A commemorative plaque is in the Karori Cemetery.

**Frederick James Harold McCracken** was born in Rotorua on 22 March 1919. He was educated at Sacred Heart College in Auckland and after war service in World War II took up farming on his father's property. From his father he inherited a first class knowledge of drainage problems on the plains. In 1962 he was elected to the drainage board, of which he became chairman in 1968, an office he held until his retirement from the board in 1980. He was invited to open the new premises in Edgumbe, a duty which he performed at a public function on 10 June 1983. He was responsible for the wise guidance of the drainage board during the years of transition from the older to the younger men, and at a time when flood control was becoming a reality and new styles of land usage were emerging. Harold was ever cautious and warned consistently of the dangers of over drainage. Farming beside the railway and beside Reids Canal he had a fine appreciation of the difficulties of both high-land and low-land ratepayers. His other public duties saw him as a leading Catholic layman within the Church, and within the Lions movement he became a prominent local, national, and international figure.

**William Alexander McCracken** (1887-1952) was born and educated in Taranaki. In 1911 he took up Section 84, which he developed into a top quality dairy farm. A public spirited man he served for some years on the Whakatane County Council, was for a period the chairman of the Rangitaiki Drainage Ratepayers Association, and from 1925 was a director of the Rangitaiki Plains Dairy Company. In 1926 he was elected Chairman of Directors of that Company, a post he held until he retired in 1947. During that time he was able to bring his interests in drainage and dairying together and thus he presided over the dairy industry

development in the district in its period of greatest expansion. Output from the Company's factory increased from 942 tons to 5,000 tons in that 21 year period. William McCracken must rank with George Murray as one of the outstanding leaders in the development of the district.

**Alexander McLean** (1879-1964) was born in Canterbury. In 1892 he came with his parents to the Glenroa Station at Otoko. He took up a block of land himself in the Waioeka district. On a visit to Rotorua in 1901 he first saw the swamp but he did not take up land on the Rangitaiki until 1913 when in partnership with his brother and brother-in-law 1,000 acres was acquired. He enlisted in the army in 1916 and saw active service in France until he was taken prisoner-of-war. In 1919 he returned to the swamp to begin a land development programme based on the scientific study of land drainage. In 1913 with F. Reynolds, E. Sheat, and F. Hockly, MP he had met the Minister of Lands upon whom they urged the immediate construction of the planned Kopeopeo Canal. As the land was developed the McLean properties were added to by the acquisition of further lands which in their turn were developed into profitable dairy farms. The partnership was dissolved in 1941 on the demise of his brother-in-law, then after the Second World War some of his holdings were taken over by the Rehabilitation Department. He then moved on to develop a 1,000 acre sheep and cattle grazing property at Stanley Road near Taneatua. In addition to his interests in drainage he served on the Whakatane County Council and on the Herd Testing Association Committee. His application of scientific knowledge and research to farming practice places him in the same category of pioneers as George Murray. Ian McLean, MP for Tarawera, is a son of Alexander McLean.

**Henry Hulbert Metcalfe** (1851-1918) was born in Hampshire and educated in England. As a young engineer he was engaged on railway works in both Brazil and South Africa. After a few years in Australia he came to Hamilton in 1882. He was elected AMICE in 1892. Engineering works he undertook in New Zealand included a section of the main trunk railway between Hamilton and Te Awamutu; the initial water supply system in Hamilton; the water supply systems in Devonport and in Gisborne; the Calliope dockyard workshops and equipment; the Onehunga water filtration plant; a water supply scheme for Whangarei; sewerage schemes for Gisborne and Napier; a swimming bath for the Auckland Technical College; and as a consultant for works performed by several local bodies including the Newmarket Drainage, Whakatane Harbour improvements, and Rangitaiki drainage. It was he, who in 1908, surveyed and took levels which led to his recommendation to construct the Kopeopeo Canal, which work however, was not proceeded with until the works were taken over by the Lands Department. Metcalfe continued to have an interest in Whakatane and the necessity for groynes to protect the harbour. It was while taking measurements on the beach in May 1918 at the Whakatane Heads that he collapsed and died.

**George Johnston Murray** (1881-1961) was born and educated in Opotiki. The Murray family took up 760 acres of land at Otakiri in 1906, which George broke in from the swamp, later sharing the land with his brother Walter. A man of considerable commonsense and vision, he developed drainage and farming methods which set the pattern for all subsequent on-farm development over the whole swamp area. He was the founder of the Athol Friesian Cattle Stud which he established in 1919. During his long life he served for many years on

the Whakatane County Council and was a leading layman in the Rangitaiki Presbyterian Church. Very early in the development of his farm he came to see that the swamp was destined for a great future in the dairying industry and lent his endeavours to persuade others of the correctness of his opinions, which in time were adequately vindicated.

**John Lawrence Murray** was born in Opotiki on 26 March 1919, a son of George Johnston Murray. He was educated at Palmerston North Boys High School, then served with the 7 Anti-Tank Regiment of the 2 NZEF in North Africa and Italy during World War II. In 1946 he took over his father's farm and the Athol Stud. Possessed of much of his father's practical good sense, he was acutely aware of the value of efficient drainage. Elected to the drainage board in 1959, he served as deputy-chairman from 1962 until 1977 when he resigned his office. During the absence of the chairman overseas he chaired the board. He was one of the younger men who served the cause of drainage well during the time of considerable change in land usage.

**Thomas Seccombe** (1846-1933) was born in Maitland, New South Wales, and emigrated to New Zealand with his parents in 1868. After a brief period of service in the militia, where he saw active service, he went to the Thames goldfields, but becoming disillusioned purchased a plough and horses and took up contract ploughing. In 1878 he took up land at Orete, where he developed a large dairy farm. Then in 1897 he moved to Opouriao where another farm was broken in at Rewaru. Ever restless, he came to see the Rangitaiki swamp in 1900 and in 1901 took up extensive areas of land at Matata, Te Teko, and at Edgecumbe, in all about 5,200 acres. Such extensive holdings led him into seeking means of drainage for development; these urgencies were increased a hundred fold when the Tarawera Lake disaster in 1904 threatened particularly his Te Teko holdings, and generally all his lands adjacent to the Tarawera River. He was elected to the drainage board in 1903, later becoming its chairman for several years. He was instrumental in urging the board to dam the Awaitei. He was the first settler to employ mechanical measures for drainage purposes with his construction of the Edgecumbe Catchwater drain. When the Lands Department took over the drainage of the swamp Seccombe turned his energies to the development of his dairy interests, and to the East Coast Freezing Works, in which latter he was eventually a heavy loser. He was always a man of ideas which were beyond his means to fully implement. He was frequently in conflict with those who were less far-sighted than himself. A colourful character who did not succeed as he would have wished, he nevertheless made a considerable contribution to the plains in the first quarter of this century.

**Alfred Sheat** (1853-1928) was born in Richmond, Nelson, where he received his education. He took up land at Thornton and farmed there. His intense interest in the successful drainage of the swamp, and the means by which farming could become viable led to his election as the first chairman of the Rangitaiki Drainage Ratepayers Association on whose behalf he presented evidence to the 1925 Royal Commission. His wife, Laura Hereford Sheat, was a sister of Thomas Kirkpatrick Thompson, the surveyor, who with Baber, laid off the swamp into sections in 1890-91. Alfred Sheat died on 25 October 1928 and was buried in the Domain Road Cemetery in Whakatane.

**Alan William Tassell** was born at Te Kuiti on 21 November 1909. He was educated at Auckland University and through the International Correspondence School. In the Second World War he served successively with the 8 Field Company, the 21 Battalion Equipment Company, and the 8 Field Company New Zealand Engineers, rising from the rank of Sapper to that of Captain. After his overseas service he accepted the position of engineer to the Otamatea County Council until his appointment as engineer to the Whakatane County Council in 1953 where he was employed until his retirement in 1973. From 1957 he was also engineer to the Rangitaiki Drainage Board. Much of the post-war improvement to roading and bridges in the Whakatane County was due to his competent and detailed engineering work. His basic assumptions and ideas on flood control on the plains were eventually incorporated in the Catchment Commission's schemes for the Major River Schemes. As engineer to the drainage board he was the author of the Revision of Drainage Maintenance Report of 1964 (the Tassell Report), which must rate in importance with the reports of Wright and Kensington. He is a Member of the Institute of Civil Engineers and a Fellow of the Institute of Professional Engineers of New Zealand.

**John Baird Thompson** was born in 1863 at Ballymena, Ireland and received his education at both private and public schools. He served his time as apprentice with the firms of Boylan and London, and H. S. Vogan. In 1891 he joined the Lands and Survey Department in New Zealand. His training as both engineer and surveyor led to his rapid promotion. He was Assistant-Surveyor in 1894, District Surveyor in 1907, and Drainage Engineer in 1910 and Chief Engineer in 1913. Later he was Under-Secretary for Lands, Lands Purchase Controller, and from 1922-1931 Chairman of the Dominion Land Purchase and Revaluation Boards. He was at the same time Chairman of the Tongariro National Park Board. He was a member of the New Zealand Society of Engineers and a member of the New Zealand Institute of Surveyors. His record of public service earned him the award of the CBE in 1929. Thompson was in overall charge of the Rangitaiki drainage from 1910-1920.

**Thomas Kirkpatrick Thompson** (1864-1936) was born in Richmond, Nelson and educated at Nelson College. After joining the Lands and Survey Department at Nelson in 1882 he undertook full training in surveying and was registered as a surveyor in 1889. He was immediately transferred to the Bay of Plenty where under James Baber junior he undertook the survey of the Rangitaiki swamp. Subsequently he undertook specialised surveying work for the Department in many areas of the North Island during which time he accurately fixed the position of the Three Kings Islands and in doing so corrected an error in excess of four miles. He was promoted to the position of Chief Land Draughtsman at Auckland where he remained until his retirement. Thompson was the author of several treatises on calculations for surveyors. A brother-in-law of his, A. J. Sheat, farmed on the Rangitaiki plains and was chairman of the first Rangitaiki Drainage Ratepayers Association.

**John Henry Treseder** (1862-1952) was born in Dunedin and educated at All Saints School and Otago Boys High School. He trained under Robert Hay, AMICE, from 1880-1884 and worked with private firms until he was appointed to the Lands and Survey Department in Southland as a surveyor in 1891. Following service as a surveyor and draughtsman in 1903 he was promoted to District Road Engineer; when the Roads Department was dissolved he

was appointed Resident Engineer in Invercargill for three years. In 1916 he was transferred to the Lands and Survey Department, being then placed in charge of land drainage on the Rangitaiki plains where he remained until 1923 when he was appointed Chief Draughtsman in the Dunedin Office. He retired in 1928, already over age, then moved to Oamaru where he continued in engineering as a consultant until 1944, when he moved again to retire to Whangarei.

**Archibald Campbell Turner** (1835-1912) was born in Canada and educated in England. After training as an engineer in Canada he was in employment for a period as an Assistant Railway Engineer before coming to New Zealand in 1862. On arrival here he took part in the Maori Wars, being promoted Lieutenant. After the war he took up private practice in Tauranga until entering government service as a surveyor of Native Lands in 1866. Then in 1869 he was appointed Resident Engineer for the Bay of Plenty. On the outbreak of the Te Kooti rebellion he rejoined the army with the rank of Captain. He was engaged on road works in the Bay of Plenty until 1879 when he became engineer to the Tauranga County Council. For a brief time after 1891 he resumed private practice but was soon reappointed to the Public Service where he was District Road Engineer in Wellington, and in 1899 Road Engineer in Rotorua. He was also chairman of the Rotorua Town Board up till March 1906 when he retired from government employ. The following year he took up a position as County Engineer in Tauranga, and engineer to the Rangitaiki Drainage Board. With his wide knowledge of the district his advice was often sought outside the limits of his employment. Turner died at Papamoa in 1912.

**Joseph Astbury Warbrick** (1861-1903) was born at Tauranga, son of Abraham Warbrick and his wife Nga Karauna. Joseph was a keen Rugby player, a game at which he became most proficient. He was captain of the New Zealand Native Rugby Team which toured England in 1888-89. When the swamp was thrown open for settlement he took up a large holding at Okorero but was in serious difficulties with the Auckland Land Board after the flood of 1892 and in the succeeding wet years; however he contrived to beat down the difficulties and retained his land. He was a leading protagonist for the institution of a drainage board, of which he was the first chairman. When the initial settlement fell through Warbrick persuaded the second tier settlers to pursue drainage through the closure of the Orini River, thus turning it into a natural drain. He was chairman of the appointed board in 1901 and re-elected in 1902. In the winter of 1903 he was on a visit to his brother, Guide Alfred Warbrick. Alfred was guiding a party to Waimangu on Sunday 30 August and warned the group about venturing too close to the geyser. His advice was not heeded and in the eruption four people lost their lives, including his brother Joseph. Warbrick's successful damming of the Orini, though a second best solution for the swamp, was a significant factor in making settlement possible on several thousands of acres of previously waterlogged country. It was a fine example of what concerted settler action could achieve. Mrs Josephine Marr JP is a well known granddaughter of Joseph Warbrick, after whom she is named, having been born on the anniversary of his death.

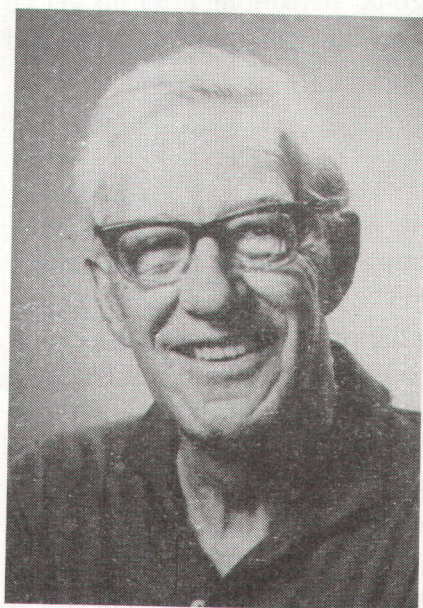
**George Johnston Webster** was born on 1 December 1863. Following his early education, at fifteen he was taken into an apprenticeship by John Webster AMICE, completing the course in 1884. Eighteen months later he passed the examination to become an authorised surveyor. He was engineer-surveyor to the Rangiora County Council, the Waimakariri

Harbour Board, the Eyreton Road Board and the Mandeville Road Board. In June 1886 he was appointed engineer to Kaiapoi Borough. He was elected AMICE in 1890 and was still with the Kaiapoi Council in 1891. From 1895 to 1898 he was water-engineer at Oxford. He was engineer to the Rangitaiki Drainage Board from 1902 to 1904; he was then borough engineer at Feilding from 1905-1907; at Carterton from 1908 to 1910, and in 1914 and 1915 his address was borough engineer, Dargaville.

**Ivan Maskill Withy** (1898-1986) was born and educated at Taneatua. In 1920 his parents, Harold and Eunice Withy, exchanged their Taneatua property for a seven hundred acre holding at Awakaponga. Ivan and his brothers Rolfe and Rupert set about development in earnest. To supplement the meagre family income from the undeveloped land the three brothers took work on the railway and road construction in order to pay Dalmatian contractors to dig the main drains on the Withy property. Ivan became intensely interested in the drainage process and in 1923 was elected to the Rangitaiki Drainage Ratepayers Association, on which committee he served without interruption until it was dissolved in 1957. As a lowlander he was often the spokesman for ratepayers on the lower land, but although he identified with that faction he was conscious of the need to see the plains drainage as a whole. He was a fierce advocate for local control of drainage works. In 1957 he was an original member of the third board, retaining his seat until he retired in 1964, having thus given 41 years service to drainage. For many years of his farming life Ivan was a champion of the co-operative ideal in farming, pursuing an active interest in the Pig Marketing Association and in the dairy industry. For nine years he was a member of the Tauranga Harbour Board. His interest in farming and drainage persisted long after his active participation ceased. He lived long enough to see his nephew leading the drainage board and serving on the directorate of the dairy company.

**Peter Michael Withy** was born at Whakatane in 1934. He was educated at Edgecumbe Primary School and at Sacred Heart College, Auckland. On completing his formal education he returned to the family farm which he purchased in 1963. He was active in Young Farmers' Club affairs, rising to Dominion Executive office in the organisation, during which time he won a Producer Board Scholarship which took him to the United States of America to study farming methods there. For six years he was chairman of the Bay Farm Improvement Club. In 1968 he was elected to the Rangitaiki Drainage Board, of which he was deputy-chairman from 1978-1981 and chairman from 1981-1989. He was a member of the New Zealand Land Drainage and River Boards Association from 1980 and in 1989 was elected its president. In 1988 he was appointed to the Bay of Plenty Regional Council Transitional Committee. From 1983 he was a director of the Rangitaiki Plains Dairy Co Ltd, and of its successor, Bay Milk Products, retaining his seat on the directorate until the final amalgamation in 1989. With his considerable farming and local body experience he must be credited with leading the drainage board to become the efficient and effective body that it was by 1989, and thus of completing the work undertaken by Harold McCracken and John Murray so many years before. Peter Withy should be regarded as one of the younger men who were unaffected by the old factional divisions amongst landholders, and who worked tirelessly to encourage a unity of purpose amongst farming people.

**Arthur Blundell Wright** (1852-1925) was born in Singapore, educated at Madras College and at St. Andrews University in Scotland. He was trained for both civil and mechanical engineering. He came to New Zealand in 1876 and following work as a draughtsman in Auckland he was transferred to the Public Works as Road Surveyor. In 1891 he was moved to the Lands Department. In 1901 he was promoted to the rank of District Road Engineer, Auckland and in 1909 was appointed Inspecting Engineer of Roads, based in Wellington. Two years later he received his last appointment which was in charge of all public works in Marlborough. He retired in 1917. Wright was the engineer who took the levels and proposed the Rangitaiki diversion at Okorero in 1893 along with his other proposals for draining the swamp. His findings were never disputed and his basic programme provided the blueprint for later drainage efforts. Wright was a champion of ferro-concrete bridge construction in an age of wooden bridges. At least one of his ferro-concrete bridges in Marlborough still carries main highway traffic after eighty years of use. A man of many qualities, he was critical of what he sometimes saw as second rate engineering. As District Roads Engineer at Auckland he knew the Bay of Plenty well.



*H.L. Briffault*



*O.W. Campbell*



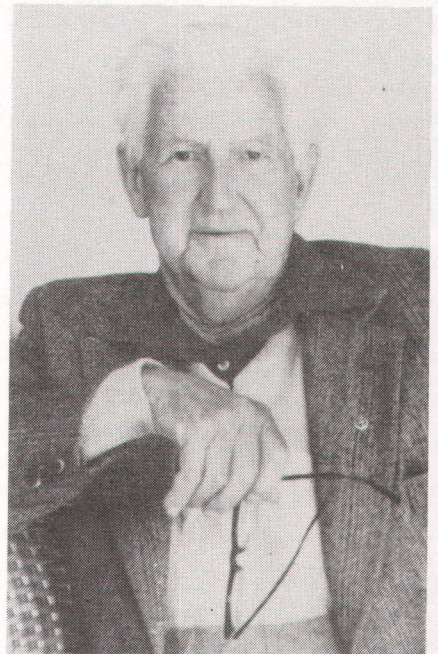
*L.M. Henderson*



*W. Herries*



*W.C. Kensington*



*F.J.H. McCracken*



*W.A. McCracken*



*W.D.S. MacDonald*



*Hon. R. McKenzie*



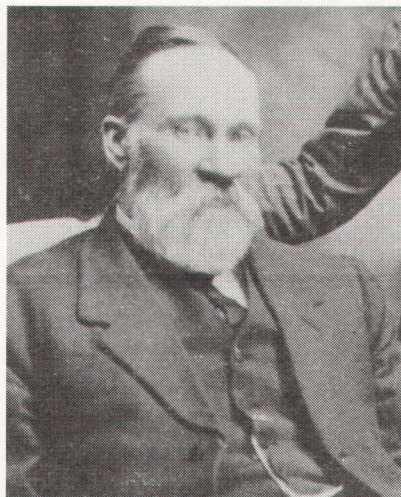
*A. McLean*



*G.J. Murray*



*J.L. Murray*



*A. Sheat*



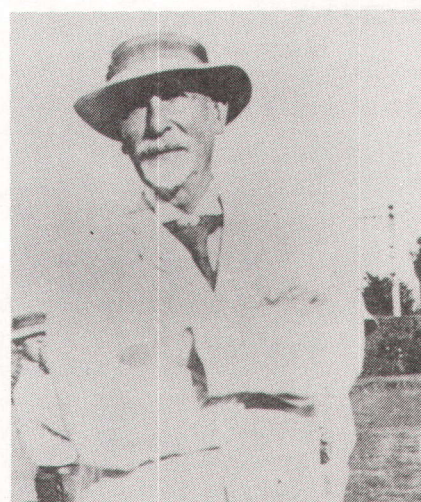
*Capt. A.C. Turner*



*J.A. Warbrick*



*Sir Joseph Ward*



*A.B. Wright*



*The last resting place of Frank and Jane Greenup of the North Island land Association, who took up Section 87. The headstone is in the Domain Road Cemetery, Whakatane.*



*The headstone of a Canterbury pioneer, George Greenup, son of F.B. Greenup. The stone is in the Domain Road Cemetery, Whakatane.*

## APPENDIX II

FIRST DRAINAGE BOARDMembers

Warbrick, Joseph Astbury	1895-
Burt, Frederick J.	1895-
Hayward, Joseph	1895-
Gill, E. P.	1895-
Murray, William Arthur	1895-

Chairman

Warbrick, J. A.	1895-
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Secretary

Buckworth, C. M.	1895-
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SECOND DRAINAGE BOARDMembers

Warbrick, J. A.	1901-1903
Burt, F. J.	1901-1902
Gill, E. P.	1901-1902
Hayward, J.	1901-1902
Greenup, G.	1901-1905
Armstrong, H. G.	1902-1905
Reid, G. E.	1902-1905
Wilson, Peter J.	1902-1906
Seccombe, T.	1903-1910
Grieve, R. E.	1903-1910
Platt, W. G.	1905-1906
Spurr, J. H.	1905-1910
Gow, J. B.	1906-1908
Barnes, T. F.	1906-1910
Reid, C. F.	1908-1910
Hallett, T.	1910-1910
Thorne, A.	1910-1910

Chairman

Warbrick, J. A.	1901-1903
Grieve, R. E.	1903-1905
Seccombe, T.	1905-1908

Spurr, J. H.	1908-1910
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**Secretary**

Buckworth, C. M.	1901-1906
Harron, P. A.	1906-1907
Garaway, H. O.	1907-1909
Barnes, T. F.	1909-1910

**Engineer**

Webster, G. J.	1902-1904
Turner, A. C.	1905-1910

**Consulting Engineer**

Metcalfe, H. H.	
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**THIRD DRAINAGE BOARD****Members**

Caulfield, J. P.	1957-1966
Haultain, E. C.	1957-1960
Ker, S. G.	1957-1959
Law, W. T.	1957-1968
Marx, A. O.	1957-1959
Missen, H. E.	1957-1959
Missen, H. E.	1961-1962
Rae, J. E.	1957-1959
Reynolds, W. M.	1957-1965
Withy, I. M.	1957-1966
Grant, T. M.	1959-1968
Murray, J. L.	1959-1977
McCracken, F.J.H.	1962-1980
Burt, F. A.	1965-1968
Hansen, T.	1965-1977
Gow, J. P.	1966-1971
Withy, P. M.	1968-1989
Baker, L.A.J.	1968-1982
Richardson, T. J.	1969-1980
Pansier, A. P.	1971-1977
Brownless, P. M.	1977-1978
O'Sullivan, P. J.	1977-1989
van Beek, G.F.A.	1977-1989
Le Lievre, E. D.	1979-1980

Colebrook, K. S.	1980-1988
Goodman, J. T.	1980-1989
Malcolmson, J. M.	1981-1981
Gordon, R. M.	1981-1989
McLeod, D. I.	1981-1989
Hawken, A. J.	1988-1989

**Chairman**

Haultain, E. C.	1957-1960
Law, W. T.	1960-1969
McCracken, F.J.H.	1969-1980
Baker, L.A.J.	1980-1981
Withy, P. M.	1981-1989

**Deputy Chairman**

Law, W. T.	1957-1960
Reynolds, W. M.	1961-1962
Murray, J. L.	1962-1977
Baker, L.A.J.	1977-1980
Withy, P. M.	1980-1981
O'Sullivan, P. J.	1981-1986
Goodman, J. T.	1986-1989

**Secretary-Treasurer**

Carling, J. D.	1957-1964
Koller, J. C.	1965-1968
Gray, J. E.	1968-1976
Wilson, J. D.	1976-1980
Miles, B. F.	1980-1985
Davis, G. R.	1985-1987
Hyde, G. L.	1987-1989

**Assistant Secretary-Treasurer**

Moles, T.	1968-1970
Lile, A. B.	1971-1972
Moles, T.	1972-1973
Hansen, L. V.	1973-1981
Reidy, G. R.	1981-1985

**Engineer**

Tassell, A. W.	1957-1973
Crossen, B. J.	1973-1986
Jones, J. A.	1986-1989

**Assistant Engineer**

Dodds, B. T.	1957-1967
Bradshaw, K.	1967
Dodds, B. T.	1968-1972
Woods, S. B.	1972-1973
Fairbrother, I. K.	1973-1986

**Engineering Manager**

Pemberton, D. G.	1986-1989
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**Works Supervisor**

Henderson, L. M.	1981-1989
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**Accounts Consultant**

Davis, G. R.	1987-1989
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FIRST RANGITAIKI DRAINAGE BOARD, 1957 (In fact, the Third Drainage Board)

STANDING: L-R: J.E. Rae, W.M. Reynolds, S.G. Ker, J.D. Carling, A.W. Tassell, B.T. Dodds.

SEATED: J.P. Caulfield, A.O. Marx, W.T. Law, E.C. Haultain, I.M. Withy, H.E. Missen.



RANGITAIKI DRAINAGE BOARD, 1962

STANDING: L-R: A.W. Tassell, J.D. Carling, T.M. Grant, J.L. Murray.

SEATED: H.E. Missen, W.M. Reynolds, W.T. Law, I.M. Withy, J.P. Caulfield.



RANGITAIKI DRAINAGE BOARD, 1989

STANDING: L-R: K. Colebrook, V. Brownless, P. Gow, T. Richardson, J. Malcolmson, B. Crossen (past Engineer), J. Jones (Chief Engineer) \*, P. O'Sullivan \* #, R. Gordon \* #, L.M. Henderson (Supervisor 1981-89).\*

SEATED: L-R: B. Dodds (past Engineer), A. Tassell (past Engineer), J. Rae, T. Hansen, P. Withy \* #, J. Goodman \* #, G. Pemberton (Engineer) \*, A. van Beek \* #, T. Hawken \* #, Mrs G. Hyde (Secretary/Treasurer) \*. ABSENT: D.I. McLeod.

\* denotes current member at merger. # denotes Board Member. Others are past Board members and officers.

### APPENDIX III

On 28 August 1903 NEUMEGEN and ELLIOTT, solicitors, of Auckland wrote to the Rangitaiki Drainage Board, Whakatane to advise of the following sales and transfers of land carried out at their office:

Section 134A, Matata Parish:

Mrs Helena Harrison Hulme to James McFarland,  
farmer of Opotiki.

Section 131A, Matata Parish:

Charles Hawksworth Brown to James Burman Gow,  
farmer of Opotiki.

Section 140, Matata Parish:

Arthur Mellsopp to Harry Franco Ralph.

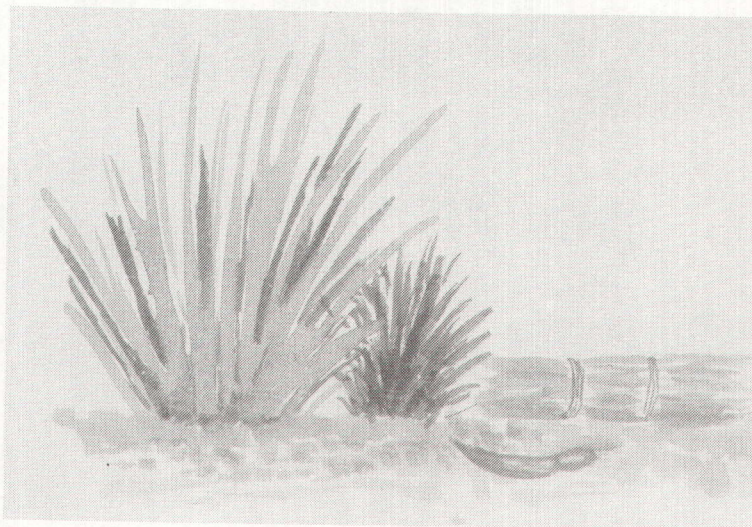
Section 65, Rangitaiki Parish:

Mrs Elizabeth Dowling to Westlake George Platt,  
storekeeper of Opotiki.

Section 47, Rangitaiki Parish:

Joseph Astbury Warbrick to Harriet Warbrick,  
of Whakatane, his wife.

This letter is interesting in that it fixes the advent of the Platt, McFarland and Gow families to the district. Warbrick, who lost his life two days after the letter was written, was transferring Section 47 to his wife. The significance of Section 47 was that a considerable portion of it was to disappear when the Rangitaiki outlet was cut. It may be assumed that had Warbrick survived he could well have pressed for the outlet long before it was eventually cut. If that was so, and the land was not his, he could not be accused of seeking any special benefit for himself.



# The Matata Dairy Company, Limited

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## Memorandum of Association

AND

## Articles of Association

AND

## By-Laws.

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We, the several persons whose names, addresses, and descriptions are subscribed, are desirous of being formed into a Company, in pursuance of this Memorandum of Association; and we respectively agree to take the number of shares in the capital of the Company set opposite our respective names.

Names, Addresses, and Descriptions of Shareholders.	No. of Shares taken by each Subscriber.
ARTHUR JOHN PARKINSON, Farmer, Matata	50
PETER CAMPBELL, Farmer, Matata	30
CHARLES BERTRAM CUFF, Farmer, Matata	15
WILLIAM HENRY NEWDICK, Farmer, Matata	20
HAROLD CUFF, Farmer, Matata	10
THOMAS HAWON, Farmer, Matata	50
FREDERICK JAMES BURR, Settler, Matata	50
	<hr/> 225

Dated the 3rd day of August, 1909.

Witness to all the above Signatures,

W. J. LEES,  
Postmaster,  
Matata.

"THE COMPANIES ACT, 1908."

Company Limited by Shares.

Memorandum  
AND  
Articles of Association  
OF  
*The Tarawera Co-operative  
Dairy Company, Limited.*

Names, Addresses and Descriptions of Subscribers.

No. of Shares  
taken by  
each Sub-  
scriber.

THOMAS STANTON GARRETT, Te Teko, Farmer	30
ARTHUR HERBERT WHITE, Te Teko, Farmer	50
CLARENCE HENRY FORBES, Te Teko, Farmer	25
WILLIAM AUGUSTUS LIMBRICK, Whakatane, Farmer	30
GUY HARRIS BLACK, Opotiki, Farmer	50
LARCY LEWIS, Opotiki, Farmer	50
ROBERT ARTHUR TORRENS, Te Teko, Farmer	25
WILLIAM THOMAS BLACK, Opotiki, Farmer	40

Dated this 27th. day of July, One Thousand Nine Hundred and Twelve.

Signed by the said Thomas Stainton Garrett, Arthur Herbert White, Clarence Henry Forbes, William Augustus Limbrick, Guy Harris Black, Larcy Lewis, Robert Arthur Torrens and William Thomas Black.

After each had written opposite to his name the number of shares taken by him in the presence of

EDMUND FRANCIS WITTHAUS,  
Farmer,  
Te Teko.

THE COMPANIES ACT, 1908.

**MEMORANDUM  
AND  
ARTICLES OF ASSOCIATION  
OF**

**The Rangitaiki Plains  
Dairy Company Limited**

**SOLICITORS:**  
**BUDDLE & OTLEY, WHAKATANE.**

**WHAKATANE:**  
Printed at the Whakatane Press Office.

WE the several persons whose names and addresses are subscribed hereto are desirous of being formed into a Company in pursuance of this Memorandum of Association and we respectively agree to take the number of shares in the capital of the Company set opposite our respective names.

NAMES, ADDRESSES AND DESCRIPTIONS OF SUBSCRIBERS.	Number of Shares taken by each Subscriber.
JOHN WILLIAM SUMNER, Otarere, Farmer	100
WILLIAM TAYLOR, Otarere, Farmer	50
GEORGE GREENUP, Otarere, Farmer	120
CHARLES JAMES LUXTON Jr., Otarere, Farmer	50
RICHARD JAMES BENTLEY, Farmer, Otarere	100
JOHN ROCKLEIGH JUDGE, Farmer, Poroporo	20
ALAN CRIGHTON MARTIN, Otarere, Farmer	120

*Dated this Sixth day of September, 1915.*

*Witness to all the above signatures: E. S. KEMP, Otarere, Domestic Duties.*

"THE COMPANIES ACT, 1908."

Company Limited by Shares.

## Memorandum

AND

## Articles of Association

OF

The Otakiri Co-operative  
Dairy Company, Limited.

NAMES, ADDRESSES AND DESCRIPTIONS OF SUBSCRIBERS.	No. of Shares taken by Each Subscriber.	SIGNATURES, ADDRESSES, AND DESCRIPTIONS OF WITNESSES.
LEONARD PECK Farmer Otakiri.	40	A. U. DAY, Company Secretary, Otakiri.
DUNCAN GORDON NIVEN Farmer Otakiri.	25	A. U. DAY, Company Secretary, Otakiri.
EDMUND FRANCIS WITTHAUS Farmer Otakiri.	45	A. U. DAY, Company Secretary, Otakiri.
JAMES UNSWORTH Farmer Otakiri.	28	A. U. DAY, Company Secretary, Otakiri.
JOHN BEATTIE Farmer Otakiri.	40	A. U. DAY, Company Secretary, Otakiri.
DAVID GARDNER Farmer Otakiri.	40	A. U. DAY, Company Secretary, Otakiri.
WILLIAM THOMAS KING Farmer Otakiri.	45	A. U. DAY, Company Secretary, Otakiri.

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