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# Tree Planting in Canterbury, New Zealand, 1850–1910

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## ABSTRACT

One hundred and fifty years ago, T.H. Potts (1824–1888) tried to save the totara forests near Christchurch, and in Parliament he made conservation of native bush a national issue. At the same time, he sought the development of New Zealand through the introduction of exotics. Potts was among the first to suggest public plantations of exotic forest trees and he experimented on his estate with Monterey pine (*Pinus radiata*) and Monterey cypress (*Cupressus macrocarpa*). As a member of the Canterbury Plantation Board from its foundation in 1879 until his death, he participated in a pioneering attempt to improve the environment through exotic afforestation. Starting with consideration of Potts's contribution, this paper looks at early experimentation with tree planting in Canterbury and its encouragement, which predated attempts elsewhere in New Zealand. It stresses the role of individuals like Potts through to T.W. Adams (1842–1919) and of initiatives at the provincial (Canterbury) level. These activities have tended to be underplayed or overlooked by those tracing the late nineteenth century record of central government's fitful involvement in forestry and tree planting.

## KEYWORDS

Tree-planting, afforestation, pine, Canterbury, New Zealand

## INTRODUCTION

This paper considers some nineteenth-century approaches to exotic tree plantation. My setting is New Zealand, and, for the most part, Canterbury Province.

Viewed as a whole, the environmental history of New Zealand is rightly described as the transformation of a forested landscape, with a particular emphasis on the removal of native 'bush' after European settlement took off in 1840. In that year 'about half the colony was forested', whereas in 1909, out of

a total area over 27 million hectares, less than 7 million hectares remained in forest.<sup>1</sup> Geographers Peter Holland and Alexander Wearing have observed that 'in colonial society there were few more strongly held perceptions than that of a close functional relationship between environmental transformation and economic progress', and in New Zealand that usually meant a switch from forest to pasture. Holland and Wearing, however, wrote more about the planting of trees than their removal, since their subject was lowland Canterbury.<sup>2</sup>

When the first European settlers arrived in Canterbury, the land where Christchurch now lies, together with most of the plains and much of the high country beyond it, was already without forest.<sup>3</sup> With Banks Peninsula it was a case of burning the forest to make way for grass. In general, however, Canterbury settlers started off with native tussock rather than native forest. They were immediately faced with problems of insufficient shelter for their stock and an insufficient local supply of timber and firewood. To solve these problems, they needed to plant trees that would grow quickly and without the support of existing forest. The consensus was that native trees grew slowly and often failed when not surrounded by bush. In addition, they were not often commercially available in bulk. Canterbury settlers therefore chose what they could get, what they knew and what they were sentimentally attached to – English trees – along with other exotic trees as they became available.

Given the relatively treeless state of Canterbury, it is not surprising that its colonists so often led the way in both the conservation of native forest and experimentation with exotic trees. As Graeme Wynn puts it, New Zealand at the time was 'a wooded world ... whose citizens' very existence rested upon the forest's bounty'.<sup>4</sup> Throughout the country, wood was the principal building material and fuel. On the Canterbury Plains, however, a dearth of trees also left settlers at the mercy of westerly winds from the Southern Alps, which was an additional local incentive to plant trees. A century after European settlement began, it was abundantly clear that 'shelter has played a large part in the economy of Canterbury, for without trees farming on the plains would be largely pastoral'.<sup>5</sup> By then, farming in the area had intensified remarkably on paddocks of English ryegrass and clover within a 300,000 kilometre network of European gorse hedges (*Ulex europaeus*) and shelterbelts of Californian species of pine and cypress (*Pinus radiata* and *Cupressus macrocarpa*).<sup>6</sup>

In the wider context, this was just one aspect of the exchange and trial of useful tree and other plant species throughout the British Empire, centred upon Kew Gardens, as described by Richard Drayton and others. There was also an increasingly global adoption of Australian eucalypts and Californian conifers. Ian Tyrrell has explored these connections, and notes that 'the California-Australia exchange was ... complemented by links with New Zealand and Hawaii'.<sup>7</sup> Early Canterbury tree plantings can be viewed partly as pieces in these large jigsaws.

## TREE PLANTING IN CANTERBURY

One settler wrote (in 1887) of the changes that had occurred since the foundation of Canterbury's main town in 1850. 'Not a trace remains', he said, 'of the bareness, of the absolute nakedness, which formerly distinguished Christchurch, owing to the entire absence of trees'.<sup>8</sup> He distinguished three stages in the arboricultural process:

Of necessity willows and poplars, a case of Hobson's choice, were the first loves of the tree-growers ... they grew apace, side shoots and cuttings from them were eagerly sought for, and together with a sprinkling of cluster-pines, they relieved the monotonous level of the place. They soon had their day, as a few seedling gum trees showed such extraordinary vigour and rapidity of growth that they induced a fashion to sow seeds of Australian trees ... the dimensions they had attained within so short a time appeared little short of marvellous to Englishmen only acquainted with the slow growth of their own native timber trees. Blue-gum seed maintained a high value ... The desire of cultivating Australian species in turn gave way before the furore for growing Californian conifers; the pine and the cypress in a great and attractive variety of form and foliage began to elbow the Australians.

## T.H. POTTS AND THE CONSERVATION OF NATIVE TREES

Before discussing the subject matter of this passage, I want first to deal with its author, and with the trees he *didn't* mention on this particular occasion. Thomas Henry Potts (Figure 1) was born in London in 1824 and spent his twenties based at his country estate near Croydon in Surrey, with its hundred acres of fields and woodland. He then sold both this estate and the family's gun-making business, netting about £50,000, and in 1854 followed his brothers-in-law and their parents out to New Zealand, as a settler in Canterbury.<sup>9</sup>

Potts once said that the Canterbury Association 'unsettled people's minds with the prospect of enabling them to found another England at the antipodes'.<sup>10</sup> Like any emigrant, he came to a new country seeing it through the eyes of his homeland, and tried to mould it into a likeness. But he also had a passion for natural history, which enabled him to enjoy and value native trees as well as exotic ones. It is quite wrong to imagine early European settlers as uniformly antagonistic towards native forest and wishing simply to remove it. This is disproved by the subsequent actions of Potts – and by the actions of many others, such as the Deans family who retained Riccarton Bush in Christchurch.<sup>11</sup>

As the most notable example of an early Canterbury runholder with tree planting and conservation interests, Potts's background merits description in detail. He came out of a British tradition of careful and sustained utilisation of woodland, and he envisaged much of New Zealand's forest being used in the same way. It was a tradition shared by his father-in-law, Henry Phillips, who



FIGURE 1. T.H. Potts (1824–1888) Photo reproduced with the permission of Alexander Turnbull Library, Wellington.

arrived in Canterbury in 1850 on one of the first four ships and immediately spoke out against the indiscriminate issue of timber-cutting licences.

Potts established Hakatere, a cattle and sheep station on the eastern side of the upper Rangitata River, increasing this holding to seven adjacent runs covering over 81,000 acres (33,000 ha). Others managed the station, however, while he, his wife and 13 children resided within easier reach of Christchurch. He bought land at Governor's Bay, near Lyttelton, in 1858, and increased this property to about 600 acres (250 ha). From there he served as a member of Canterbury Provincial Council and the New Zealand House of Representatives, and became a justice of the peace and a synodsmen of the Anglican church. More in line with

what really interested him, he was vice-president of the Canterbury Acclimatisation Society and the Philosophical Institute, and president of the Horticultural Society. He was an original trustee of the Canterbury Museum and one of the first governors of Canterbury College, holding both positions until his death. He also wrote close to a hundred articles, of which the best were published in the *New Zealand Country Journal*. His book *Out in the Open* collected this series as far as 1882, and was the first substantial work of natural history published locally.<sup>12</sup> By then, New Zealand was in economic depression and Potts's fortune had evaporated. He was forced to sell Hakatere station in about 1885, and to leave his home in Governor's Bay in 1887. When he died in Christchurch in 1888 his assets were valued at £70.

Potts's first public attempt to conserve native trees occurred in 1858, when he approached the Provincial Secretary about the destruction of totara near his home in Governor's Bay.<sup>13</sup> This had no effect, and from his doorstep he duly witnessed the burning of much of the forest of Banks Peninsula, being particularly affected by 'a fire of the most destructive character' at Pigeon's Bay in the mid-sixties, which 'raged ... for upwards of two months'.<sup>14</sup>

About this time, Potts read *Man and Nature* (1864), in which the American G.P. Marsh described the benign influence of forests on climate, as well as their value as timber. He also read the official 1865 report from Victoria in Australia that severely criticised existing timber regulations and recommended the control by state commissioners of permanent forest reserves. Consequently, he moved in New Zealand's House of Representatives in 1868 that the Government 'should take steps to ascertain the present condition of the Forests of the Colony, with a view to their better Conservation'.<sup>15</sup> Potts framed no bill, but wanted 'an inquiry as to the wisdom of the indiscriminate issue of timber-cutting licences'. This was the first occasion on which native forest conservation was discussed in New Zealand at the national level and envisaged the 'wise' or (as it is now termed) sustainable use of native forests rather than their total preservation.

Potts gained his enquiry, but legislation did not follow until Julius Vogel, when Prime Minister, perceived the importance of native timber to colonial development. Under the terms of Vogel's Forests Act of 1874, a Conservator of Forests was appointed in 1875 and came to New Zealand to report on the colony's forests – but then left in 1877 and was not replaced. A broad policy for forest conservation did not resurface until Vogel returned to office in 1884, and then only briefly.<sup>16</sup>

Native forests continued to give way before settlement, and Potts became increasingly pessimistic about their future. 'The young folks now growing up', he feared, 'will be quite unable to realise the grandeur, the loveliness of the forest glades, which our barbarians so ruthlessly destroy; when the [native] robins are exterminated, the country will lose another of its rural pleasures; other and greater losses, however, attend wholesale disforestation, yet, who thinks of the evil or speaks against it?'<sup>17</sup>

In recent years T.H. Potts has gained an expanded niche in the pantheon of New Zealand's conservation pioneers. There are, for instance, many references to Potts in David Young's important history of New Zealand conservation, published in 2004, and a 2007 article in the *New Zealand Geographic* identifies him as originator of the idea of island sanctuaries.<sup>18</sup> It is important, however, that there is awareness of Potts's involvement with exotic plantation as well as native conservation. He clearly saw these activities as two sides of the same coin, while now they are often seen in New Zealand as belonging not only to different coins but also to different *currencies*.

### EXPERIMENTATION WITH EXOTIC TREES

As far as Potts was concerned, both native and exotic trees could be useful in the development of New Zealand. If species were destroyed their potential use was lost with them, so the conservation of native species was crucial. Equally, the planting of exotics provided a source of wealth that had already been beneficial elsewhere.

Potts planted Australian blue gum (*Eucalyptus globulus*) at Governor's Bay in the late 1850s and published details of their growth in 1885. By then several were over 100 feet (30 metres) high. He began a more diverse tree-planting programme in 1866, mostly of pines, cedars and cypresses, and regularly assessed their growth (Table 1). When he recorded that, of the 21 species of pines he planted, *Pinus radiata* outstripped all else, he inevitably played a part in promoting this particular exotic.<sup>19</sup>

Potts's experiments were by no means unique. He would have been well aware, for instance, of the trees at Mount Peel Station by the Rangitata River, where J.B. Acland planted Canterbury's first *Pinus radiata* in 1859, using Californian seed that he obtained from Veitch's nursery in Exeter in England.<sup>20</sup>

Potts was instrumental in the passage of an Act to establish the Botanic Gardens of Wellington in 1869. Two years later he became middleman between James Hector at the Gardens and Edward Richardson of Albury Park in Canterbury, purchasing from Richardson the Wellingtonia and *Pinus radiata* seedlings that grew into significant features of the Gardens. Richardson had probably obtained his pine seed from Professor Martin Kellogg of San Francisco in 1868. In 1870 and 1871, pine and macrocarpa seed purchased from a San Francisco nurseryman on behalf of the Wellington Botanic Gardens was distributed for trial to a few interested organisations and individuals around New Zealand, including Potts in Canterbury. Kellogg directly supplied the New Zealand government with much of the Californian conifer seed that it imported between 1872 and 1877.<sup>21</sup>

## TREE PLANTING IN CANTERBURY

TABLE 1. T.H. Potts's 'Measurement of some coniferous trees planted in 1866 in Ohinitahi, Canterbury' (in feet and inches).  
(Source: *New Zealand Country Journal* 9 (1885): 477.)

<b>Pinus</b>	<b>1868</b>	<b>1868</b>	<b>1869</b>	<b>1870</b>	<b>1871</b>	<b>1872</b>	<b>1878</b>	<b>1885</b>
P. austriaca	6"	1' 11"	3' 8"	3' 11"	6' 6"	8'	19'	24'
P. brutia			2'	2' 9"	3' 11"	5' 6"	15' 6"	28'
P. halepensis		3' 6"	5' 10"	7' 10"	8' 9"	10'	22'	36' 6"
do.	6"	3' 3"	5' 4"	7' 3"	8' 10"	10' 2"	22'	34'
P. muricata				2' 7"	3' 11"	5' 10"	19'	35'
P. pinaster				13' 2"	15' 8"	17' 2"	30'	38' 9"
P. pinea		3' 6"	4' 6"	6' 4"	7' 6"	9' 1"	19'	33'
P. sylvestris				4' 11"	7' 7"	10' 6"	28'	41' 3"
do.			3' 5"	4' 1"	6'	7' 4"	21'	36' 4"
P. benthamiana	5"	1' 4"	3' 2"	5' 4"	7' 4"	8' 10"	22' 3"	35'
do.	6"	1' 2"	2' 10"	5' 2"	7'	8' 5"	21'	32' 4"
P. canariensis	7"	1' 1"	3' 6"	5' 4"	7'	9' 10"	26' 9"	43' 4"
do.					3' 10"	7' 4"	22'	37' 3"
P. insignis	1' 1"	5' 7"	7' 3"	10' 9"	16' 1"	20' 4"	45' 9"	66' 3"
P. radiata	1' 2"	5'	8'	12' 2"	16'	29' 9"	41'	67' 6"
do.	1'	6' 4"	9' 6"	14' 4"	19'	24' 10"		59'
P. longifolia	5"	2'	3' 8"	5' 6"	7' 2"	9' 4"	18'	33' 2"
do.	9"	1' 6"	3' 6"	5' 10"	7' 7"	8' 9"	20' 6"	23'
P. macrocarpa	7"	2' 5"	4' 11"	7' 7"	10' 5"	13' 5"	28'	39' 8"
do.	7"	2' 3"	4' 3"	5' 11"	8'	10' 4"	27'	37' 6"
P. ponderosa	9"	1' 8"	3' 6"	5' 5"	7' 3"	9' 11"	25' 3"	37' 3"
do.	7"	2' 2"	4'	5' 3"	6'	8' 9"	20'	31' 6"
P. sabiniana	6"	1' 11"	3' 11"	5' 10"	7' 2"	9' 10"	19'	34' 3"
do.		2'		4' 8"	7'	9'	22'	33'
P. tuberculata			4"		2' 8"	4' 2"	20' 6"	39' 6"
P. excelsa			4' 1"	7'	9' 5"	10' 1"	18' 6"	25' 8"
do.		3'	5' 3"	7' 7"	8' 10"	9' 7"	19' 6"	27' 9"
P. lambertiana			3"				5'	12' 2"
P. strobus	3"	1' 1"	2' 7"	5'	7' 7"	9' 1"	20' 3"	29' 4"
do.	2"	10"	2' 3"	3' 4"	4' 4"	6' 2"	19'	25' 10"
do.	2"	1'	2' 4"	4' 9"	6' 7"	8' 3"	17'	24' 6"
P. torreyana				4"			6' 11"	26' 9"
P. sp. mexico					7'		16' 9"	26'
	<b>1868</b>	<b>1868</b>	<b>1869</b>	<b>1870</b>	<b>1871</b>	<b>1872</b>	<b>1878</b>	<b>1885</b>



## ENCOURAGING PRIVATE PLANTATIONS

In Canterbury, experimentation by individuals with exotic trees, to see what would grow in addition to native trees, can be clearly dated back to the colony's settlement in 1850. The second step was governmental support for a more extensive programme of exotic tree planting, which was achieved by offering incentives for creating private plantations. This was a different course of action to the state itself creating public plantations, a more radical step which I shall describe later.

Canterbury's provincial government supported private plantations as early as 1858, with an ordinance to 'encourage and promote the planting of forest trees on rural sections'.<sup>22</sup> The initiative may have come from John Hall, a member of the Provincial Council and later New Zealand's prime minister. Giving some idea of how close-knit Canterbury was in the nineteenth century, Hall's run in the Rakaia Valley was next to that of Potts's father-in-law, and his son later married Potts's daughter.

A more significant initiative, steered through Parliament at the national level by Hall, was the Forest Trees Planting Encouragement Act of 1871, which granted two acres of free land to any settler who had planted one acre of their land in forest trees.<sup>23</sup> This act was the model for one of the same name introduced in South Australia in 1873, indicating that trans-Tasman influences operated in both directions.<sup>24</sup>

Michael Roche (1985) considered that the New Zealand act achieved 'only modest success' between 1871 and its eventual repeal in 1885.<sup>25</sup> Official figures indicate that by 1883 less than four thousand acres (1,600 ha) of planted trees – three thousand of them in Canterbury – had been 'advanced for land grants or land orders' under the terms of the Act.<sup>26</sup> James Beattie's graph of these plantings (Figure 2) clearly demonstrates the leading role played by Canterbury in tree-planting at the time, bearing in mind also that the province by then had about five thousand more acres of private plantation that were not claimed against.

Information on claims beyond 1883 is included in a previously unnoticed volume of Canterbury 'Applications for Land Grants'. This shows one claim not reaching settlement until 1891 and suggests that closer to *seven* thousand acres (2,750 ha) of plantation in Canterbury may eventually have reaped rewards for their owners as a result of two hundred claims in total.<sup>27</sup> Unfortunately the records do not indicate exactly what trees were being planted – though exotic conifers were certainly favoured – nor how they fared in the long term. We do know that Canterbury's Provincial Gardener, J.F. Armstrong, in his role as Inspector of Forest Trees, was employed to visit the plantations and certify that they were up to standard.<sup>28</sup>

Future research will plot exactly where the plantations were and analyse who owned them. Roche, by matching the 1883 Return of Planted Land with the 1882 national Return of Freeholders and other sources, has already shown

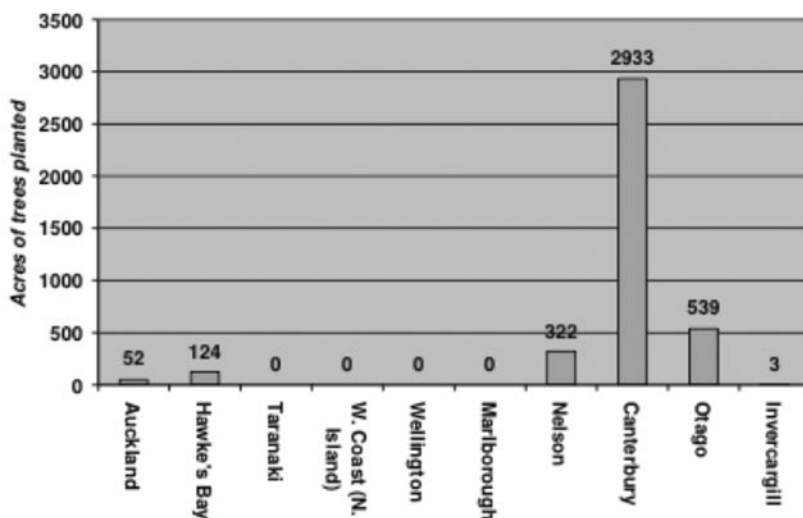


FIGURE 2. Return on the Forest Trees Planting Encouragement Act to 1883

(Source: James Beattie, 'Environmental Anxiety in New Zealand, 1850–1920: Settlers, Climate, Conservation, Health, Environment' (PhD thesis, University of Otago, 2004), 170.)

that about half of those involved (25 out of 51 identifiable claimants up to 1883) were runholders, and that 'the majority [of claimants] owned land in excess of £2000 value'.<sup>29</sup> A Scottish settler, John Cathcart Wason, was one such person. He planted 600 acres of Corwar, his station south of the Rakaia River, in oak, walnut, poplar and *Pinus radiata*, successfully claimed on 250 acres of plantings before 1877, and in 1891 was the last person to receive recompense under the terms of the Act.<sup>30</sup> Among other claimants whose names immediately catch the eye are John Hall, Edward Richardson, T.W. Adams, E.G. Wright, and Potts's brother-in-law Tom Phillips – all Englishmen.

The 1871 Act sometimes simply provided official encouragement to private inclination for, while it was undoubtedly an added incentive, claimants included many who were already planting trees. Roche noted that 'committed tree planters such as [John Cracroft] Wilson and [De Renzie] Brett, who had experience of forestry in India where forestry practice within the British Empire was most advanced, engaged in unsubsidised tree planting' before benefiting from the Act.<sup>31</sup> While the Indian precedent is occasionally significant, however, I find the influence of an *English* tradition of planting trees (both for utility and ornament) more readily identifiable. In Otago Province, where the majority of settlers came from Scotland, a Scottish tree-planting tradition also exerted a strong influence.<sup>32</sup>

Stephen Legg, in his research on 'private forest culture' in Victoria, Australia in the nineteenth century, identifies 'a race of tree-planting country gentlemen' which grew out of 'a broader and much older English and Scottish tree-planting tradition'.<sup>33</sup> Similarly in New Zealand in the 1850s, when J.B. Acland planted English trees at Mount Peel Station by the Rangitata River he was following in the footsteps of his ancestors at Killerton in Devon. Again, when Henry Hoare (the son of Acland's first cousin) made extensive plantations at Raincliff Station in South Canterbury in the 1870s and 1880s, he was doing what his family had already done at Stourhead in Wiltshire over several generations. Acland and Hoare were both successful claimants under the terms of the Tree Planting Encouragement Act.<sup>34</sup>

The English cousinhood surrounding the Aclands, which was already in place *before* a junior branch of that family became established in Canterbury, suggests that New Zealand's 'southern gentry' was in part simply a reworking of old English networks which often displayed an enthusiasm for trees as well as 'family trees'.<sup>35</sup> Charles Tripp of Orari Gorge station was Acland's cousin, while J.D. and Charles Enys of Castle Hill station were Tripp's cousins.<sup>36</sup> When Acland's brother-in-law, Arthur Mills, visited him in New Zealand in 1880–81, he purchased part of Mount Peel forest to prevent it from being felled, and Hoare protected the bush remnant on his property that now constitutes Pioneer Park. These examples show a parallel interest, already noted in Potts's case, in retaining native trees and planting exotics.

Like the 1871 Act, the institution of Arbor Day, in 1892, was very much in the tradition of government encouragement of tree-planting rather than any more direct involvement. The Department of Agriculture, in 1894, saw this as a means of getting people to plant, partly for shelter and ornament, but primarily for timber. 'Members of the Government', it was stated, 'desire to see Arbor Day become thoroughly recognised, and trust that all local bodies, school teachers, etc., will do their utmost to promote tree-planting in suitable places'.<sup>37</sup> However, response to Arbor Day was always patchy at best. In 1896 the *New Zealand Year Book* observed that 'settlers have not yet entered into the spirit of the institution', and in 1898 the *Otago Witness* described Arbor Day as already on the wane.

With the knowledge that tree-planting encouragement had proved inadequate, together with an increasing awareness that existing timber supplies would become insufficient, the state edged towards a different approach.

## CREATING PUBLIC PLANTATIONS AT THE PROVINCIAL LEVEL

In general, at least until the Liberal Government's reforms in the 1890s, most settlers saw the role of the state as one of inspection, encouragement and regulation, rather than hands-on involvement in settlement. Settlement was the busi-

ness of settlers, and planting trees, like growing crops, was viewed as an aspect of settlement. This is one reason why the idea of a state forest service, despite Vogel's early initiatives, did not become firmly established until the twentieth century. Tree planting *encouragement*, of the kind just described, was fine. *Public* plantations, however, implied a far greater role for the state than was generally countenanced in nineteenth-century New Zealand.

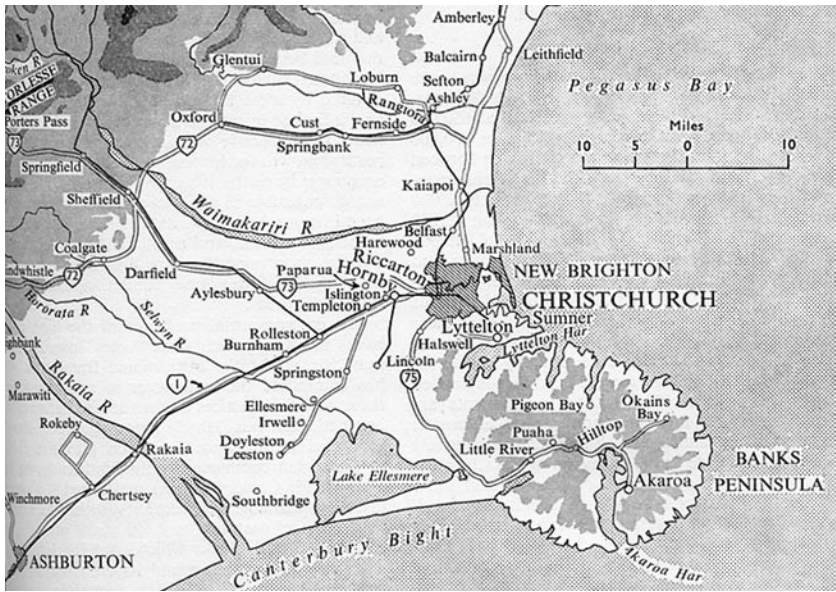
Nevertheless, inspired by a recommendation in the 1865 Victorian report on 'the best means of securing the permanency of the state forests', Potts first suggested public plantations for Canterbury in 1869.<sup>38</sup> Under his scheme, a proportion of the provincial government's income, gained from the sale of public land to settlers, would be used to employ 'recipients of the Charitable Aid Fund' in planting useful timber trees on educational and other public reserves.

There was no immediate response to Potts's suggestion. As for any personal follow-up by him, for long I knew only that, as Justice of the Peace with responsibility for Lyttelton Gaol, he employed prisoners to plant trees beside the road above Lyttelton Harbour. Recently, however, I have become aware of Potts's involvement in the Canterbury Plantation Board, to which I must first provide some background.

Conscious of the lack of shelter on the Canterbury Plains, the provincial government had reserved areas of land from the 1850s onwards with a view to the creation of shelterbelts, but their location was often wrong, and management of them haphazard.<sup>39</sup> Exceptionally, the Courtenay Road Board, a local body in the Darfield area, took advantage of provincial council grants to gain a subsidy in 1875 for tree plantings at Greendale and elsewhere. In 1877, for instance, they planted 2,000 oaks, 1,000 ash, 1,000 birch, and 1,000 pines. This board was chaired by Colonel De Renzie Brett, ex-Indian Army, who had created a private plantation of pines on his estate at Kirwee in the 1860s, reputedly 'not so much with a view to their utility as shelter belts, as to represent the disposition of the Colonel's troops at the Mutiny'.<sup>40</sup> The key figure in the Road Board's community planting activities, however, was probably Thomas William Adams, who lived at Greendale from 1865 and was a board member from 1873.

Adams became the most important New Zealander in the next generation of experimenters with exotic pine species after Acland and Potts. He had 150 acres of private plantation by 1910, and, at the time of his death in 1919 had amassed 800 species of exotic trees and shrubs in his arboretum, many of them from Kew Gardens in London or from Asian sources. Through an endowment included in his will, he was also one of the founders of the School of Forestry at Canterbury University.<sup>41</sup>

After the abolition of provincial government in 1876, central government set up the Canterbury Plantation Board in 1879 to supervise existing public reserves, including those in the Courtenay district, and to extend plantations upon them. The Board had control of 31,000 acres (12,500 ha) of land between the Waimakariri River and Mackenzie Country, but only made slow progress in



MAP 1. Central Canterbury. (Source: *An Encyclopaedia of New Zealand: Volume 1*, ed. A.H. McLintock (Wellington: Government Printer, 1966), 303.)

getting this land planted. In the seven years to 1885, it oversaw the plantation of 2000 acres (800 ha), mostly on land between the Waimakariri and the Rakaia, which drain into the sea directly north and south of Christchurch (Map 1).

The chairman of the Board, and its most active member, was Edward George Wright, an engineer, landowner and politician based near Ashburton.<sup>42</sup> T.H. Potts was one of the half dozen other Board members, attending many of its 19 meetings held in Christchurch from 1879 through until 1888, the year of his death. At first the Board had no income, so it merely arranged to lease out its properties for 14 years to create one. It was most active in 1883, by which time there was money to spend, and Potts attended four of the eight meetings held that year.<sup>43</sup>

The Board sought a share of the forest tree seed coming through to national government from California in 1883, but also dealt directly with local nurserymen. Initial sowings (in 1881) were of wattle and gum, but in 1883 they also planted *Pinus radiata* in Hororata. On 50 acres at New Brighton, to give another example, they planted 'equal quantities' of macrocarpa and the whole range of available exotic pine seedlings – *radiata*, *austriaca*, *laricio*, *corsica*, *sylvestris*, *maritima* and *pinaster*. The following year they planted gum and pine seedlings, birch and larch, at Rolleston reserve, and a variety of species in reserves in the Selwyn and Ashburton areas.

The existence of the Board was threatened from 1885 onwards, when New Zealand's Minister of Lands, John Ballance, proposed that the chairmen of Ashburton and Selwyn counties should become the local Conservators of Forests and take control of the plantation reserves. Wright's associate, David McMillan, pointed out to Ballance that 'owing to the bleak and unsheltered condition of the Canterbury plains it requires exceptional treatment which the Forest Department would be apt to overlook, for, while the Plantation Board are stretching their plantations across the plains so as to give the greatest amount of shelter, the Forest Department might be inclined to deprecate that method, owing to the creation of so much scrubby and inferior timber through exposure'.<sup>44</sup> Much as control of native forests had been a major issue in the 1870s in the power struggle between central and provincial governments, the degree of local control of public plantations became an issue in the 1880s.

When Wright died, in 1902, any remaining activity by the Canterbury Plantation Board ceased and its plantations were taken over by the forests branch of the Lands Department. The Board's actions were deemed to have been ineffective, particularly since many of the trees planted had died. Between 1896 and 1899, for instance, droughts ruined their plantations around Hororata. John Hall, who considered the original plantings poorly done, supplied new seedlings and supervised replanting when aged about eighty.<sup>45</sup>

The significance of the Canterbury Plantation Board lies not so much in its achievements, which were limited, but in the precedent it set. Created by national government, it involved a small group of individuals, acting on behalf of the state, in exotic tree plantation and its continued management. It seems altogether appropriate that Potts, in his final years, served on this Board. To complete the story, the public reserves between the Waimakariri and Rakaia were passed on to Selwyn County Council after 1885, which increased the planted area fivefold before handing control over to the newly-created Selwyn Plantation Board in 1911. Exploitation of these reserves got off to a slow start in 1914, when there was 'little or no demand for insignis pine [*Pinus radiata*] timber and only a limited demand for eucalypt and pine as firewood', but by 1950 they had received royalties of about £100,000 from the sale of sawlogs.<sup>46</sup>

This Board still exists, as a council-controlled trading organisation with over 8,000 hectares (20,000 acres) of production forest, planted out in *Pinus radiata* and Douglas fir (*Pseudotsuga menziesii*).<sup>47</sup> While in 1949 the Board's general manager noted that 'the original vesting of all these reserves had been for the eventual provision of both shelter and firewood' and reiterated that 'the primary function of the Board is [still] to provide shelter', in 2007 the Board's stated aim was 'to operate a financially successful forestry and land utilisation business on the plains and foothills of Canterbury in an environmentally and socially sustainable manner'. It is increasingly involved in agricultural projects that are dependent upon large-scale irrigation.<sup>48</sup>

## CREATING PUBLIC PLANTATIONS AT THE NATIONAL LEVEL

The Canterbury Plantation Board has so far received little mention by historians. It is much better known that in 1896, four years after creating a New Zealand Department of Agriculture, the Liberal Minister of Lands initiated an Afforestation Branch. This heralded acceptance of the need for central government to be more directly involved in timber plantation. The Chief Forester, H.J. Matthews, created two state forest nurseries in Otago – in 1896 and 1897 – and, most importantly, one in Rotorua in the North Island in 1898.<sup>49</sup> He set up a tree nursery at Hanmer Springs, in Canterbury, in 1902, which by 1909 covered 40 acres and employed mostly prison labour.<sup>50</sup>

In the absence of comparable detail about Hanmer Springs, here I must call upon evidence from further south than Canterbury, concerning the origins of the first state forest nursery, which was at Eweburn (now Ranfurly) in Central Otago. This succeeded a tree nursery started twelve years earlier by the Maniototo County Council at Wedderburn, ten kilometres from Eweburn. A local initiative, for which there may be parallels in Canterbury or elsewhere, it was facilitated by a grant of 100 acres from the Minister of Crown Lands and boosted by a subsidy of £200 received in 1886 under the terms of the Forest Tree Planting Encouragement Act. It was closed down when central government took control of public tree nurseries, Matthews deciding that operations for the area would be better conducted from Eweburn, near the railway terminal.

The single most important difference between the local government nursery at Wedderburn and the central state nursery at Eweburn was the primary destination of their seedlings. Wedderburn's stock, from 1882 to 1896, was sold at a cheap rate to individuals, schools, domain boards and cemetery trusts. Ninety-three per cent of Eweburn's stock, however, from 1896 to 1923, was used to create public tree plantations nearby, at Gimmerburn and Naseby. It marked a significant change of emphasis, a deeper level of state commitment towards tackling concerns about the timber shortage. Chief Forester Matthews, however, always felt that he was fighting an uphill battle, with government consistently answering calls for Crown Lands for farms rather than reserving land for trees. 'Everything seems to be subservient to land settlement now-a-days', he commented in 1904, 'but what about the future when we want lands for re-afforestation?'<sup>51</sup>

By 1909, the Afforestation Branch had planted out nearly 13,000 acres (5,000 ha) with exotic tree seedlings from the state nurseries. European larch (*Larix decidua*) headed the list of most-planted trees (Table 2). In retrospect, the most notable absence in this list is *Pinus radiata*, of which the Branch had planted only about 100,000 individuals. Clearly, as far as Matthews was concerned, *radiata* was not a high flyer.<sup>52</sup>

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TABLE 2. Main species planted by the Afforestation Branch (to 1909). (Source: *Appendices to the Journals of the House of Representatives C-4 (1909) PartIV.*)

Larch	11.0 million trees
Austrian pine ( <i>Pinus austriaca</i> )	3.8 million
Corsican pine ( <i>Pinus laricio</i> )	3.8 million
Eucalyptus (species not detailed)	3.5 million
<i>Catalpa speciosa</i>	2.2 million
Oak	2.0 million
<i>Pinus ponderosa</i>	1.2 million

These figures appeared in a forestry report published by the Department of Lands in 1909, the year of Matthews's death. The report noted that the total forested area of New Zealand had decreased in the previous 25 years from 22 million to 17 million acres (or about 9 million to 7 million ha). Despite Matthews's efforts, the potential timber supply was still almost entirely the shrinking area of native bush. Roche has observed that 'state plantations lagged behind private activity' then and for many years to come, but in 1909 even private exotic plantations scarcely exceeded 50,000 acres (20,000 ha).<sup>53</sup>

Some native forests were reserved, for climatic and scenic reasons, but it was anticipated that most forests would continue to be removed – and, where possible, utilised – in the continuing process of settlement. The end of the report dwelt on 'the absolute necessity for preserving a certain proportion of our native forests', but this was for protection against flood, drought and erosion, rather than for sustainable timber production. The common understanding remained that native forest would not regenerate either easily or quickly enough to provide an ongoing source of timber.

The Department calculated there was still 33,000 million superficial feet of commercially suitable native timber left, which could only meet the country's needs until about 1950. They assumed an annual demand for 500 million feet by about 1965, but could only imagine 100 million feet, at best, being available by then from exotic plantation. That left what the report euphemistically called 'a fairly large deficit' – in fact 80 per cent of all timber supply – to obtain from some other source. Given the anticipated global 'timber famine', timber would be very difficult and expensive to import. From the perspective of 1909, by 1959 New Zealand would be in crisis.

A solution to the supply problem, at least for the twentieth century, emerged with the plantation of exotics from the 1920s onwards on a scale too massive to be imagined in 1909.<sup>54</sup> But it was a solution inconceivable not only in terms of scale. The degree of state involvement in plantation, and in the development and marketing of timber products, went way beyond the levels anticipated under the Liberal government of 1891–1912. The solution also placed the greatest



emphasis upon one species of tree – *Pinus radiata* – that certainly grew quickly, but which Matthews and most others thought would prove of limited use.

The forestry report of 1909, however, also included an article by T.W. Adams on the growth of forest trees in Canterbury.<sup>55</sup> Adams was a farmer, not a state employee, even though he made use of government grants for tree planting and later served on the 1913 Forestry Commission. In his article he promoted radiata for the speed and quantity of timber produced. It had, he stated, ‘no equal for producing a cheap timber of fair quality’. It was probably Adams’s influence that led the government botanist to rightly herald *Pinus radiata*, in 1914, as New Zealand’s ‘great timber tree of the future’.<sup>56</sup> It took the state a long time, however, to accept and then (for better or worse) to act upon this perception.

## CONCLUSION

My recent research has dealt with the development of exotic pasture in New Zealand in this period, more than with exotic afforestation. In both cases I have noted a tendency to overstress the role of central government. While, in the twentieth century, the state did indeed become the dominant partner, in the nineteenth century we need to look to individual farmers and private tree-planters, more than to the belatedly created, and initially tiny, Department of Agriculture and Afforestation Branch to understand changes in farming and forestry.<sup>57</sup> The state’s role, assumed rather reluctantly, began with encouragement of private enterprise in both pasture development and exotic afforestation. It did not travel far along the road of active participation in these primary industries until after the First World War.

In addition, at least in the case of forestry, the later role of central government with the formation of a State Forest Service has tended to obscure the picture of earlier activity at the provincial level, conducted by private individuals with a certain amount of government encouragement.

While the emphasis here has been on tree plantation and conservation, whether for timber supply or for shelter, another paper might have dealt with water utilisation and conservation, whether for power or irrigation. Such a paper would include reference to the first major power scheme initiated by central government. This was the construction of Lake Coleridge station from 1911 by the Hydro-electric Branch of the Public Works Department, which utilised water flowing into the Rakaia River to generate electricity for Christchurch.

Following the advice of T.W. Adams and others, the first superintendent planted 80,000 trees, mostly exotic conifers, on windswept land around the power station. His successor, Henry Hart, established a nationally important pinetum in the grounds. Hart did not arrive at Lake Coleridge until 1921, two years after Adams’s death, but he received both advice and trees from James Deans of Homebush Station, whose family had been responsible for the preservation of

Riccarton Bush.<sup>58</sup> Stepping back half a century from then, in 1865 members of Deans's family twice visited their Potts friends at Governor's Bay, where they 'looked over the garden' and talked, no doubt, about trees.<sup>59</sup>

A major theme of this paper has been the persistent influence of particular people, like Potts and Adams, in the modification of attitudes towards key resources, such as forest trees. Another theme has been the gradual assumption by government of new responsibilities, as it became clear that private enterprise and capital were insufficient to tackle major regional and national developments. However, by considering primarily evidence from one region, Canterbury, I hope to have shown that we should not look just at individual biographies or national legislation on forests, but also at both provincial developments and international influences. It is also evident that we need to view the histories of native forest conservation and exotic plantation in tandem, rather than, as is often the case, in isolation. Forest history, it emerges, is really about a complex of interrelationships, much like the ecology of forest itself.

## NOTES

<sup>1</sup> Graeme Wynn, 'Destruction Under the Guise of Improvement?: The Forest, 1840–1920', in *Environmental Histories of New Zealand*, eds. Eric Pawson and Tom Brooking (Melbourne: Oxford University Press, 2002), 100–16.

<sup>2</sup> Peter Holland and Alexander Wearing, 'By Choice: Plants Grown by Settlers in Lowland Canterbury', in *Conference Proceedings, 20th New Zealand Geography Conference*, eds. Michael Roche et al. (New Zealand Geographical Society, 2000), 50–4.

<sup>3</sup> Michael Roche, 'Reactions to Scarcity: The Management of Forest Resources in Nineteenth-Century Canterbury, New Zealand', *Journal of Forest History* **28** (1984): 82–91, doi:10.2307/4004774.

<sup>4</sup> Wynn, 'Destruction Under the Guise of Improvement?', 105.

<sup>5</sup> E.A. Cooney, 'History of the Selwyn Plantation Board', *New Zealand Journal of Forestry* **6** (1949): 11–19.

<sup>6</sup> Larry W. Price, 'Hedges and Shelterbelts on the Canterbury Plains, New Zealand: Transformation of an Antipodean Landscape', *Annals of the Association of American Geographers* **83** (1993): 119–40, doi:10.1111/j.1467-8306.1993.tb01925.x.

<sup>7</sup> Richard Drayton, *Nature's Government: Science, Imperial Britain, and the 'Improvement' of the World* (New Haven and London: Yale University Press, 2000); Ian Tyrrell, *True Gardens of the Gods: Californian-Australian Environmental Reform, 1860–1930* (Berkeley: University of California Press, 1999), 15.

<sup>8</sup> *Canterbury Times* 2 December 1887, 28, and 9 December 1887, 28.

<sup>9</sup> Paul Star, 'T.H. Potts and the Origins of Conservation in New Zealand' (MA thesis, University of Otago, 1991).

<sup>10</sup> *Canterbury Times* 28 October 1887, 28.

<sup>11</sup> Andrew Thomson, 'The Riccarton Bush Reserve', in *Riccarton Bush: Putaringamotu: Natural History and Management*, ed. Brian Molloy (Christchurch: Riccarton Bush Trust, 1995), 14–34.

<sup>12</sup> T.H. Potts, *Out in the Open: A Budget of Scraps of Natural History, Gathered in New Zealand* (Christchurch: Lyttelton Times, 1882).

<sup>13</sup> *Canterbury Times* 2 December 1887, 28.

<sup>14</sup> *New Zealand Parliamentary Debates* 7 October 1868, 191. F.E. Hutchinson in 'A Forest Survey of Canterbury', unpublished report, Canterbury University School of Forestry, 1926, estimated there were 300,000 acres (120,000 ha) of native forest in Canterbury in 1830 (before European settlement), reduced to 180,000 acres (73,000 ha) by 1873.

<sup>15</sup> *New Zealand Parliamentary Debates* 7 October 1868, 188–92.

<sup>16</sup> Michael Roche, *Forest Policy in New Zealand: An Historical Geography* (Palmerston North: Dunmore Press, 1987), 74; Raewyn Dalziel, *Julius Vogel, Business Politician* (Auckland: Auckland University Press, 1986) 171; Michael Roche, 'An Historical Geography of Forest Policy and Management in New Zealand 1840–1930' (PhD thesis, University of Canterbury, Christchurch, 1983), 131; Graeme Wynn, 'Conservation and Society in Late Nineteenth-Century New Zealand', *New Zealand Journal of History* **11** (1977): 124–36; Graeme Wynn, 'Pioneers, Politicians and the Conservation of Forests in Early New Zealand', *Journal of Historical Geography* **5** (1979): 171–88, doi:10.1016/0305-7488(79)90132-4.

<sup>17</sup> T.H. Potts, 'Out in the Open', *New Zealand Country Journal* **7** (1883): 88.

<sup>18</sup> David Young, *Our Islands, Our Selves: A History of Conservation in New Zealand* (Dunedin: University of Otago Press, 2004); Marty Taylor, 'Resolution for Richard Henry', *New Zealand Geographic* **83** (2007): 78–97.

<sup>19</sup> Anon. [T.H. Potts], 'Through a young plantation', *New Zealand Country Journal* **2** (1878): 390–97, and **3** (1879): 34–8. Potts listed both *Pinus insignis* and *Pinus radiata*, but these were later treated as the same species and all described as Monterey pine (*Pinus radiata*).

<sup>20</sup> Winsome Shepherd and Walter Cook, *The Botanic Garden, Wellington: A New Zealand History, 1840–1987* (Wellington: Millwood Press, 1988), 95–6; Sue Shepard, *Seeds of Fortune: A Gardening Dynasty* (London: Bloomsbury, 2003). The founder of this famous nursery, John Veitch, came from Scotland to Devon in 1771 as head gardener to J.B. Acland's great grandfather Sir Thomas Acland. J.B. Acland would have dealt with John's son and grandson, both called James Veitch.

<sup>21</sup> Shepherd and Cook, *The Botanic Garden*, 25, 96–7, 123–4.

<sup>22</sup> Roche, *Forest Policy*, 49.

<sup>23</sup> Following an amendment in 1872, instead of a direct land grant the successful claimant received up to £4 per acre of planted trees, to be used for buying Crown Land.

<sup>24</sup> Michael Roche, *Forestry Encouragement in Nineteenth-Century New Zealand* (Palmerston North: Department of Geography, Massey University, 1985), 18. There are also parallels with the United States Timber Culture Act of 1873: Michael Williams, *The Americans and their Forests: A Historical Geography* (New York: Cambridge University Press, 1989), 350.

<sup>25</sup> Roche, *Forestry Encouragement*, 15; Roche, *Forest Policy*, 53.

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- <sup>26</sup> 'Return of Planted Land under Forest Trees Planting Act', LE 1/1883/136, National Archives, Wellington.
- <sup>27</sup> 'Forest Trees Planting Encouragement Act – Applications for Land Grants 1877–1887' [Canterbury Land Office only], CAAR 12601 CH290 60/1, National Archives, Christchurch. Some entries are unclear, but by my reckoning applications relating to 6805 acres of plantation in Canterbury received positive response. The majority of these applications came from Ashburton, Geraldine and Selwyn counties (2042, 1413 and 1013 acres respectively).
- <sup>28</sup> See, for instance, Armstrong's letter to Canterbury's Commissioner of Crown Lands, 392, 27 December 1876, 'forwarding certificate under Forest Tree Planting Act 1871 that Hon. E. Richardson is entitled to 24 acres of Land': 'Register of Letters received by Canterbury Commissioner of Crown Lands 1875–84', CAAR CH290 Item 8/7a, National Archives, Christchurch.
- <sup>29</sup> Roche, *Forestry Encouragement*, 13 and Table 5.
- <sup>30</sup> Eric Pawson, 'John Cathcart Wason', in *The Dictionary of New Zealand Biography, Volume Two: 1870–1900*, ed. Claudia Orange (Wellington: Bridget Williams Books and Department of Internal Affairs, 1993), 569–70. The 1891 payment related to Wason's claim lodged in 1881 for a further 152 acres of plantation.
- <sup>31</sup> Roche, *Forestry Encouragement*, 11.
- <sup>32</sup> James Beattie, 'W.L. Lindsay, Scottish Environmentalism and the "Improvement" of Nineteenth-Century New Zealand', in *Landscape/Community: Perspectives from New Zealand*, eds. Tony Ballantyne and Judith A. Bennett (Dunedin: University of Otago Press, 2005), 43–56.
- <sup>33</sup> Stephen M. Legg, "'Beyond the Home Paddock": Private Forest Culture in Nineteenth-Century Victoria' (Paper presented at the Seventh Conference of the Australian Forest History Society, Christchurch, 2007), 12, 26.
- <sup>34</sup> For Hoare see R.S. Macarthur, 'Raincliff Forest: A Pioneer's Memorial', *New Zealand Journal of Forestry* 6 (1950): 138–40, and Edward J. Parr and David G. Reynolds, *The Raincliff Story* (Fairlie: Privately published, 2000).
- <sup>35</sup> Stevan Eldred-Grigg, *A Southern Gentry: New Zealanders who Inherited the Earth* (Wellington: A.H. and A.W. Reed, 1980).
- <sup>36</sup> Paul Star, 'John Enys: Cornish Patron of New Zealand Science', *Journal of the Royal Institution of Cornwall*, 2 (1996): 30–9.
- <sup>37</sup> Department of Agriculture, *Arbor Day, 1894* (Wellington: 1894), in Hocken Pamphlets 099/90, Hocken Library, Dunedin.
- <sup>38</sup> *Lyttelton Times* 26 January 1869, 23 February 1869.
- <sup>39</sup> Ray Dobbie and Brian Perrin, *In the Shadow of the Alps: A History of Malvern Country, 1853–1989* (Leeston: Selwyn District Council, 1998), 279.
- <sup>40</sup> G.L. Popple, *Malvern County: A Centennial History* (Darfield: Malvern County Council, 1953), 85–7. The first Duke of Marlborough planted trees around Blenheim Palace indicating the position of his troops at the battle of Blenheim (1704).
- <sup>41</sup> Pamela Adams, *T.W. Adams: Pioneer at Greendale* (T W Adams Family Reunion Organising Committee, 1990).
- <sup>42</sup> Morag and Peter Lawrence, 'Edward George Wright', 591–2 in *Dictionary of New Zealand Biography*, Volume Two.

<sup>43</sup> 'Provincial Plantations Board Minutes 1879–1889', CAAR 12601 CH290 59/1, National Archives, Christchurch.

<sup>44</sup> McMillan to Ballance, 13 July 1886, in CAAR 12601 CH290 59/1.

<sup>45</sup> Dobbie and Perrin, *In the Shadow of the Alps*, 280–1.

<sup>46</sup> Cooney, 'History of the Selwyn Plantation Board', 11–9.

<sup>47</sup> Selwyn Plantation Board Ltd is 61% owned by Selwyn Council and 39% by Christchurch City. See <http://www.spbl.co.nz>

<sup>48</sup> Cooney, 'History of the Selwyn Plantation Board', 13, 19; Selwyn Plantation Board Limited, 'Annual Report 2007', 4.

<sup>49</sup> Helen M. Leach, 'Henry John Matthews', 320–1 in *Dictionary of New Zealand Biography, Volume Two*, and F. Ann Millar, 'Central State Forest Nursery, Eweburn, 1896–1923' (Diploma of Arts thesis, University of Otago, n.d. [1993?]). Despite early interest in creating state nurseries then state plantations in South Island, in the twentieth century the government's efforts were centred on North Island, as narrated in B. Sealy, *A Hundred Million Pine Trees* (Auckland: Hodder and Stoughton, 1982).

<sup>50</sup> Department of Lands, 'State Nurseries and Plantations', *Appendices to the Journals of the House of Representatives C-1b* (1909).

<sup>51</sup> Matthews to McNab, 23 August 1904, in Robert McNab, 'Papers Relating to Afforestation in New Zealand 1895–1908', MS 0608, Hocken Library, Dunedin.

<sup>52</sup> Roche, *Forest Policy*, 63. Roche gives a rather different set of figures, based on *Appendices to the Journals of the House of Representatives C-12* (1913): xxxv.

<sup>53</sup> Roche, *Forest Policy*, 60–1.

<sup>54</sup> Already by 1929 there were almost 200,000 acres (80,000 ha) of state plantations and a similar amount of land under private commercial afforestation: *Appendices to the Journals of the House of Representatives C-3* (1929): 27–30, and Michael Roche, *History of New Zealand Forestry* (Wellington: GP Books, 1990), 175–265.

<sup>55</sup> *Appendices to the Journals of the House of Representatives C-4* (1909): 112–9.

<sup>56</sup> A.H. Cockayne, 'Monterey Pine: The Great Timber Tree of the Future', *New Zealand Journal of Agriculture* **8** (1914) 1–26.

<sup>57</sup> Paul Star and Tom Brooking, 'Fescue to the Rescue: Chewings Fescue, Paspalum, and the Application of Non-British Experience to Pastoral Practice in New Zealand, 1880–1920', *Agricultural History* **80** (2006), 312–35, doi:10.1525/ah.2006.80.3.312; Paul Star and Tom Brooking, 'The Department of Agriculture and Pasture Improvement, 1892–1914', *New Zealand Geographer* **63** (2007) 192–201, doi:10.1111/j.1745-7939.2007.00108.x.

<sup>58</sup> Rosemary Britten, *Lake Coleridge: The Power, the People, the Land* (Christchurch: Hazard Press, 2000), 314–23.

<sup>59</sup> T.H. Potts, 'Diary' (Privately held), 17 February 1865 and 20–25 October 1865.