

The contribution of Henry Matthews to tree culture in New Zealand from 1896 to 1909

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Introduction

New Zealand's first conservator of forests, Captain Inches Campbell Walker, was employed only from 1876–77, and the second, Thomas Kirk, from 1887–89.¹ The present paper mostly concerns Henry Matthews (1859–1909) (Fig. 1), who had a more sustained key role, as chief forester, in the period 1896–1909.² In his 1969 account of *Forestry in New Zealand*, a former head of the Forestry Department noted the contributions of Campbell Walker and Kirk, then leapt straight into the early twentieth century without mentioning Matthews.³ Michael Roche, in his 1990 history of New Zealand forestry, has one page on Matthews, but has questioned why he is described as a forester.⁴

Campbell Walker, even though he was only in New Zealand for a year, has always gained most attention. This is partly explained by his prior employment as Conservator of Forests in Madras. His New Zealand appointment exemplifies the influence of Indian state forestry throughout the British Empire, and is seized upon by Gregory Barton in his book on 'Empire forestry'.⁵ In the same way, Barton refers to the visit of the 'Indian' forester, Frederick d'A. Vincent, to Victoria (Australia) in 1887, and to the archetypal Empire forester, Sir David Hutchins, who was in Australia and New Zealand from 1914 until his death in 1920.⁶

The very fact that New Zealand managed to sustain a distinct state forestry branch only for about five years in all, prior to the appointment of Henry Matthews, indicates that we should be looking rather more to regional and private initiatives when describing the history of forestry and tree-planting in New Zealand before 1896.⁷ The present paper explores the suggestion that, when seeking to understand late nineteenth century forestry in colonies such as New Zealand, we should direct our attention rather more to nurserymen like Matthews and less to Empire foresters.

Nurserymen as foresters

When New Zealand's second forest conservator, Thomas Kirk, was appointed, he had already been employed by the government to show Campbell Walker around the colony a decade earlier, and in 1884–85 had written a government report on the country's indigenous forests. While not a forester by trade, he had been bookkeeper and partner in a timber mill in Coventry before immigrating to New Zealand, and for a while he was a timber merchant in Auckland. Kirk's father was a nurseryman, and his own first employment was in the family's nursery; he also managed the business after his father's death. Now he is generally remembered not as a nurseryman, nor as a forest conservator, but as a botanist.

With the appointment of Henry Matthews to the Forestry Branch in 1896, nurserymen certainly became dominant in New Zealand forestry at the state level, and they continued to hold sway until after the First World War. While this paper examines only New Zealand material, it would be useful to compare the influence of nurserymen in the early history of Australian forestry. G. W. Goyder, while chair of South Australia's Forest Board (1875–1882), worked in collaboration with his brother-in-law, the Scottish nurseryman Edwin Smith. In this period Goyder famously clashed with John Ednie-Brown, the forest conservator in turn for South Australia (from 1875), New South Wales (from 1890) and Western Australia (1896–1899). In origin, Ednie-Brown was also, like his father before him, a Scottish nurseryman with a strong leaning towards arboriculture. Consider also the background of the first director of Queensland's forests (1905–1910), Philip McMahon. As the son of a professional gardener in Dublin, he had

begun his working life with a well-known nursery firm, Dickson and Sons of Cheshire.⁸

George Perrin and Henry Matthews

Henry Matthews had a direct link with George Samuel Perrin, the first forest conservator in Tasmania (from 1886) and Victoria (1888–1900), who had a quite different early manhood, travelling around tropical Australia collecting Aboriginal artefacts then becoming a sheep-farmer and journalist. Initially he was neither a nurseryman nor a forester, but he worked under Ednie-Brown in South Australia for six years before moving to Tasmania, and in Victoria his work was examined and highly commended by Berthold Ribbentrop, the inspector general of Indian forests.

Perrin attended the New Zealand timber conference in 1896, after which the prime minister invited him, as ‘perhaps, the leading authority in Australasia, on forestry’,⁹ to tour the country’s forests and report on tree-planting potential. In the course of his tour, Perrin described Matthews’s appointment—which had just occurred—as putting ‘the right man...in the right place’.¹⁰

Thinking then current in imperial forestry circles, but in particular the Victorian example as relayed by Perrin, strongly influenced what Matthews was expected to do, and to some extent which species he planted. Perrin had already established four state nurseries in Victoria, most notably at Mount Macedon, from which:

100,000 to 150,000 young trees are sent out annually. From 50 to 70 per cent of these are planted by the department, the balance is given to farmers, those in the dry districts having the preference. The trees are supplied free of cost, and are put on the train at Macedon, so that all the recipient has to pay is the railway freight. The system has been found to work excellently. The best native and imported trees are grown, and it has been found that cork oaks and black walnuts are especially valuable. There are at present at Mount Macedon about half a million oaks in various stages, besides several hundreds of thousands of seedlings and two-year-old trees of other descriptions.¹¹

Matthews’s creation of state nurseries and his reliance on the railway system for the distribution of seedlings both mirrored Victorian practice, though in New Zealand state-grown trees went exclusively to state plantations and domains. Matthews, in turn, also experimented

with cork oak and black walnut, and, following the supply of seed by Perrin, with *Eucalyptus sieberi* and *urnigera*.¹²

Perrin also made New Zealand more aware of an anticipated global ‘timber famine’. Stating the case for afforestation in 1903, Matthews specifically quoted from Perrin’s 1897 report on New Zealand’s forests, which claimed that ‘Unless forest reforms are inaugurated speedily the timber famine which already threatens your colony must come’.¹³ The projected ‘famine’, in line with his official brief, led Matthews to concentrate his efforts not on the proper conservation and utilisation of native forests which Campbell Walker and Kirk had stressed—although he supported this—but on the plantation of faster-growing exotic timber trees which he considered would be crucial in meeting future demand.

Matthews’s earlier career as a nurseryman

Clearly, Matthews was influenced by George Perrin’s ideas on tree-planting. However, he also had his own background and experience, which meant that the policies he effected were not simply imitative of Australian and imperial precedent. In particular, while there was widespread acceptance of and interest in the role of exotic timber species in timber supply, internationally there remained a greater emphasis on the continuing role of indigenous species. Campbell Walker in 1877, through to Hutchins in 1919, and an even more eminent Indian forester, Sir William Schlich, in 1918,¹⁴ all placed greatest emphasis on continued production from New Zealand’s native forests. So did Perrin in 1896, perhaps in part reflecting Australian successes with their indigenous timbers. Matthews, however, speaking in 1903 ‘from an experience of over twenty years in cultivating native trees and shrubs’, disagreed with these foresters’ assessment of New Zealand trees. He thought Perrin was wrong in believing that kauri grew quickly enough for sustainable production, and mistaken in considering many native species suitable for afforestation on open land, given that most were surface-rooters. Matthews’s line was, therefore:

However desirable it would seem to regenerate our native forests, the difficulties and attendant high cost...renders the proposal prohibitive... and we must therefore look to other countries for suitable trees to provide our future timber-supply.¹⁵

Whether or not this assessment was correct—and it is the line that New Zealand foresters, on the whole, have followed ever since—Matthews's background as a nurseryman meant, anyway, that he was more familiar with growing exotic trees from nursery stock than with controlling natural growth in existing forests. Whether or not this predisposed him towards such a conclusion, his background certainly fitted him for what he saw as the way ahead.

Henry Matthews's mother's family, the Presslys, were well-known Scottish nurserymen. His father, George Matthews, from Aberdeenshire, had already worked as a nurseryman and head gardener in Scotland and Ireland before immigrating to New Zealand in 1850. The nursery started by George in Dunedin was soon recognised as the best in Otago.¹⁶ Like Thomas Kirk, Henry Matthews followed his father as head of the family nursery business, but in Matthews's case he was born in the colony, the nursery was in the colony, and British horticultural and silvicultural traditions operated through him at one remove.

It must be stressed that nurserymen in British colonies in the nineteenth century performed a broader function, and dealt in a wider range of plant material, than they were to do in the twentieth century. They largely determined not just which flowers and vegetables European settlers had in their gardens, but also which grasses they grew and which trees they planted. Consider, for instance, the role of Thomas Lang, who between 1858 and 1870 brought almost a million living trees, shrubs and vegetables to his nursery in Ballarat.¹⁷ These included variegated European hollies in 1863, which George Matthews sent to him from Dunedin, and which Lang presumably propagated and distributed throughout Victoria.

The Matthewses, father and son, ran their business before professional foresters dominated timber production and before specialist seed companies and stock and station agents took



Figure 1: Henry Matthews
Source: MS 891/41, Hocken Library, Dunedin

G E O R G E M A T T H E W S			
HAS ON SALE,			£ s. d.
Ash	per hundred		0 8 0
Oak	"		0 8 0
Elm	"		0 8 0
Sycamore	"		0 7 6
Blue Gum	"		1 5 0
Poplar, various sorts	"		0 7 6
Hazel, Filbert, and Cob			
Nuts... ..	per dozen		6s to 12s
Horse-Chestnut	"		6s to 12s
Spanish or Sweet Chest-			
nut	"		6s to 12s
Laburnum	"		6s to 12s
Lime Trees	"		0 6 0
Scotch Fir	per hundred		10s to 15s
Spruce Fir	per 100, 15s; per 1000, £7		
Austrian Fir	per hundred		1 0 0
Pinus insignis	"		20s to 25s
Cupressus macrocarpa	"		65s to 125s
" torulosa	"		12s to 30s
" funebris	per dozen		12s
" "	each		1s 6d
" lawsoniana	per dozen		9s to 18s
Callonia macrantha	each		1s 6d to 2s 6d
Rhododendrons, the finest			
ever offered for sale			
in Otago	"		1s 6d to 7s 6d
Piceas, various	"		3s 6d to 6s 0d
Rollies, Golden Variegated,	"		2s 6d to 3s 6d
Silver	"		2s 6d to 3s 6d
" Common, for hedges,			
etc., per hundred			40s to 50s

Figure 2: An advertisement for George Matthews's nursery, 1879
Source: *Otago Witness*, 2 August 1879



Figure 3: Matthews nursery catalogue, c.1890
Source: See Endnote 24

over the provision of agricultural supplies.¹⁸ This is evident from the hundreds of advertisements for the business, which appeared in Otago newspapers from the 1850s to the 1890s (Fig. 2).

Other than some time in his youth 'employed in one of the largest manufacturing sawmills in Dunedin',¹⁹ the family nursery appears to have been Henry Matthews's only workplace prior to 1896. This meant, however, that he was by then already well-acquainted with the properties and propagation, in New Zealand conditions, of not only the main European timber trees, but of various other exotic species. These included *Pinus radiata* (or *P. insignis*, as it was then called) and *Cupressus macrocarpa*, both of them conifers from California, and both already well established in New Zealand and stocked by Matthews.

By 1893, under Henry's management, the firm offered 'the largest and most varied nursery stock in New Zealand' including 'all the leading kinds of fruit trees, forest and ornamental trees, hedge plants, and shelter trees—all grown at an altitude of 500 feet above sea-level without the least protection from the severest gales, thus making them perfectly hardy for planting in any situation'.²⁰ This emphasis on hardiness is significant, given that the prime object of the state

forestry branch, from the time of Matthews's employment in 1896, was to achieve the afforestation of areas, such as the treeless 'wastes' of Central Otago in South Island and the Kaingaroa Plains in North Island, where attempts to raise sheep and cattle had failed.

Native plants and native trees

None of the Matthews advertisements in New Zealand newspapers offered native trees or plants; after all, many settlers could get these for themselves for free, if they wanted them. At least by the end of the 1880s, however, Henry Matthews was also selling plants well beyond the local market, and often to overseas gardeners for whom New Zealand species had strong appeal. According to an 1892 newspaper account, he had 'a magnificent collection of New Zealand flora...quite unequalled in the colony' and he distributed 'a special descriptive catalogue of native plants which may be obtained either at the nursery or at his seed shop and warehouse' (Fig. 3).²¹

At the New Zealand and South Seas Exhibition of 1889, Henry displayed New Zealand alpine plants and ferns which he had collected throughout the lower South Island.²² Later that year he sent to Japan 'nine cases, weighing about four tons, and containing tree and other ferns, nikau palms, mountain lilies, etc.'²³ This was his fourth shipment of native plants to Japan, and followed other large consignments to Great Britain and Australia.²⁴ He had become, indeed, something of a 'biota baron', not only importing exotic plant material into New Zealand but also exporting indigenous material out.

After 1896, Matthews had less time to gather and propagate New Zealand plants, but he never lost interest in them. Indeed, once he became state forester his journeys, although more hurried, covered a wider geographic range. He found a few species new to science, which he forwarded to the botanist Leonard Cockayne in Wellington, and others. He also continued to supplement his personal collection of native plants, which was donated to Dunedin Botanic Gardens when he died.²⁵

Not only was Matthews thoroughly familiar with the native flora, but also he greatly appreciated native bush, and from at least about 1895 he advocated for the protection and integrity of some that remained.²⁶ As chief forester, Matthews was briefly responsible for existing bush

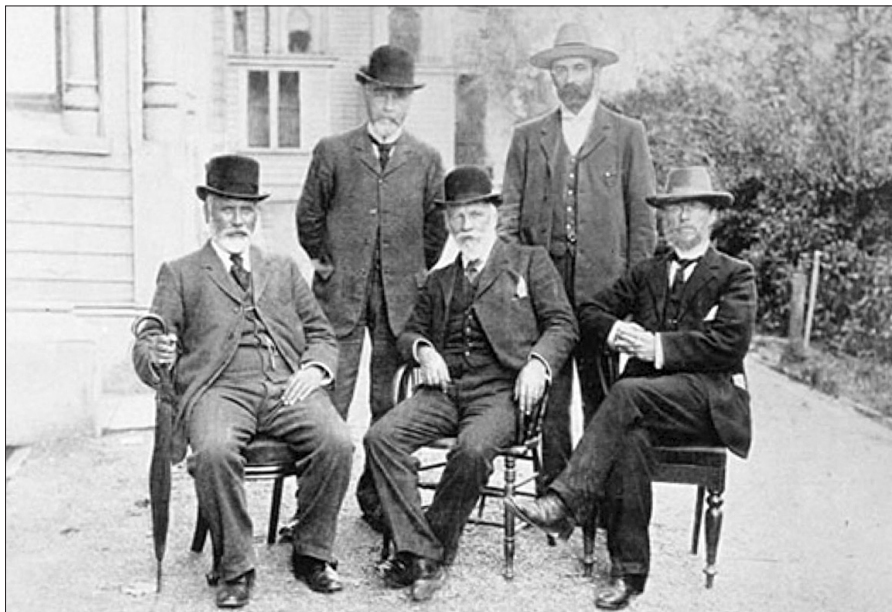


Figure 4: Scenery preservation commissioners; Matthews standing on the right.
 Source: *Weekly Press* (Christchurch), 27 April 1904.

reserves around Rotorua, from 1898 until they were handed over to the Tourist Department in 1901.²⁷ His proposals for them entailed removal of earlier ill-advised ‘improvements’—in particular the removal of ‘unsightly’ radiata pines, and their replacement with indigenous ornamentals from the Rotorua State Nursery. ‘The result’, he said, ‘would help to teach the lesson that our native trees are as beautiful as those of any other country’.²⁸

Some scenic reserves had been created under the terms of the Land Act of 1892. In a report on forest conservation and afforestation, which Matthews addressed to the Minister of Lands in 1903, he expressed concern that they were not being ‘conserved as their importance demands’, since cattle often grazed there and timber was illegally cut in them.²⁹ Following the successful passage of the Scenery Preservation Bill in the same year, a commission was established to consider what further areas might receive scenic reserve status. Matthews’s interest in native bush was recognised with his secondment to the Commission (Fig. 4).

Between 1904 and 1906 the five commissioners identified 380 scenic and historic places worth preservation,³⁰ whereafter a Scenery Preservation Board, which did not include Matthews, took over the process and began to implement some of the commissioners’

recommendations. By the time of Henry Matthews's death, in 1909, a total of 39,000 acres of land had become scenic reserves under the terms of the 1903 Act. While this was less than he would have hoped, it was about three times the area he managed to get planted in exotic timber trees.³¹

Some historians have criticised the scenery preservation movement as part of the process of European appropriation of the indigenous environment.³² However, while many of the new scenic reserves recommended by the Commission were on Maori land, many were not. The motivations I see are sentimental, spiritual, aesthetic, scientific, nationalistic and (since tourists wanted scenery) economic, rather than racial or proprietorial. In Matthews's case there can be no doubt of his appreciation both of native bush for its beauty, and of the indigenous people—the Maori—at least as employees (Fig. 5). He found that Maori women, who made up much of the work force at Rotorua State Nursery, were 'exceptionally careful and industrious in weeding, sizing, and counting young trees...[and overall] the work is done with much more care and neatness than by European labour in the southern nurseries'.³³

Matthews as state forester

The preservation of small areas of native bush as scenic reserves, as well as of larger areas as national parks, was completely different in intention from the delineation of other areas of native forest for gradual and controlled exploitation. It was the mission of Thomas Kirk in the 1880s, as second forest conservator, to allocate 800,000 acres as forest reserves for this purpose.³⁴ In the 1890s, when Matthews was chief forester, the rapidly increasing demand both for timber and land for settlement resulted in the revocation of large areas of state forest, particularly in Southland.³⁵ Against the background of 'land hunger', along with the anticipated 'timber famine' and the perceived impracticality of native forest regeneration, Matthews's priorities can be understood. Given the insatiability of 'land hunger', some indigenous remnants had to be made inviolable as national park or scenic reserve. Given the validity of settlement, however, the rest of the indigenous remnant could not be spared, while faster-growing exotic timbers had to be planted as the only way to meet future demand.³⁶

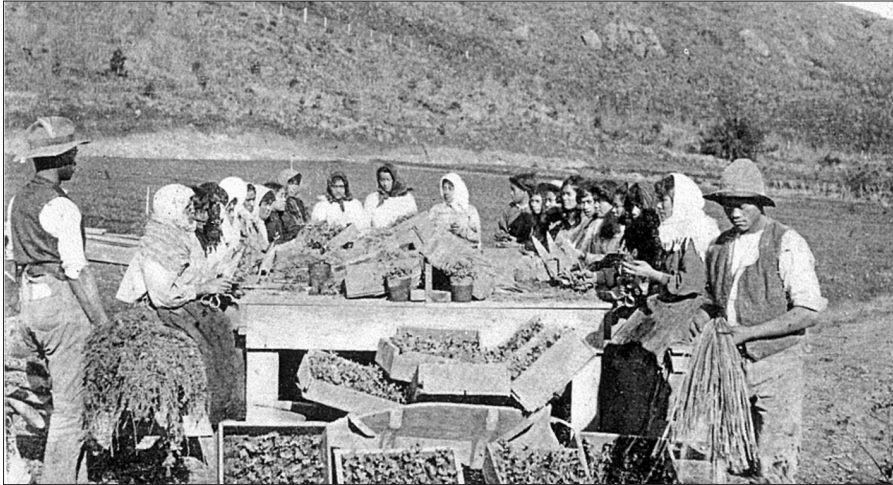
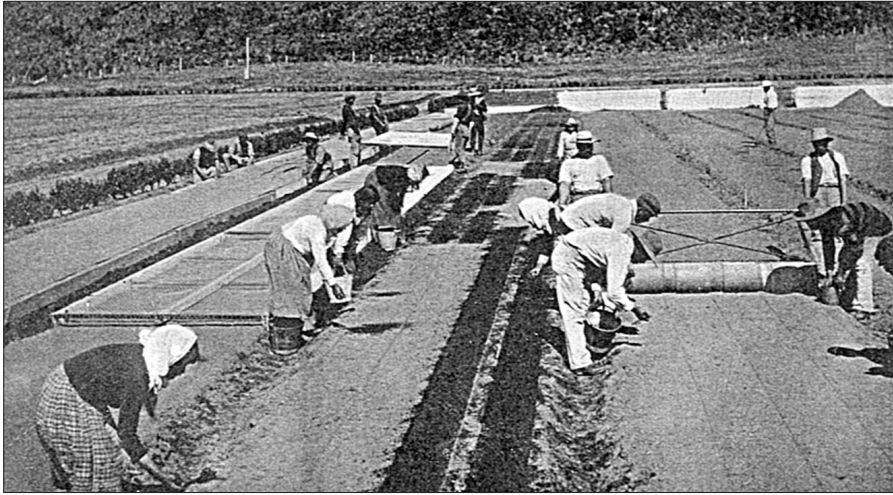


Figure 5:
Maori at work at Rotorua State Nursery
Sources: AJHR 1907, C-1B, after p. 12; AJHR 1904, C-1, after pp. 100 and 102.



Henry Matthews's great achievement between 1896 and his death in 1909 was to create a network of state nurseries and state plantations, through which he began the task, until then only conducted on a small scale privately or locally, of generating this new timber supply. His work is recorded in great detail in his annual reports, which are often illustrated with photographs taken by his wife Grace (herself a descendant of nurserymen).

While the plantations remain, the nurseries no longer exist. The Eweburn nursery site is now a residential area of Ranfurly. At the Tapanui nursery site the stables designed by Matthews in 1898 are still standing, but where there were once seed beds there are now only paddocks with sheep.

During Matthews's thirteen seasons as state forester, more than 63 million trees were raised, of which, by 1909, over 27 million were growing in state plantations, covering an area of over 12,000 acres of previously unproductive land (Table 1). Rotorua State Nursery in North Island, with its associated plantations at Whakarewarewa and Waitapu, clearly emerges as the largest enterprise, with South Island operations correspondingly centred on Tapanui State Nursery and the nearby Conical Hill and Dusky Hill plantations. Looking into the records of various transfers of stock between the nurseries, at remaining correspondence with their managers, and at Matthews's continuous journeying to and fro, there can be no doubt this was a national endeavour, which he both drove and co-ordinated.

Analysis of the managerial staff at the nurseries shows how closely Matthews relied on the existing network of men working in private nurseries. A. W. Roberts, for instance, in charge at Eweburn, had already worked with him for three years at the Matthews family's nursery, as well as having a five-year stint with the Dunedin seed merchants Nimmo and Blair. Nathaniel Craig, in charge of the Starborough nursery, had worked with Lawsons of Edinburgh (as had Henry's father), and with Dicksons of Cheshire. Judging by various references to men surnamed Matthews, Curle and Jenkins, Matthews had no qualms about employing his younger relations. That, after all, was how he had become a nurseryman.

No successor was appointed when Henry Matthews died, in 1909, but his work was continued by two of his senior staff: in North Island by H. A. Goudie, manager of Rotorua nursery, who had previously

Table 1: Nurseries and plantations**STATE NURSERIES, 1896–1909**

Nursery	Trees raised
Ruatangata	2,317,868
Rotorua	30,662,309
Starborough	3,223,290
Hanmer	7,340,531
Kurow	219,000
Eweburn	4,148,717
Tapanui	15,664,733
Total trees raised	63,576,448

STATE PLANTATIONS, 1896–1909

Plantation	Trees planted	Area planted (acres)
Ruatangata	50,000	22
Puhipuhi	1,488,236	1,512
Whakarewarewa	6,883,226	3,157
Waiotapu	9,095,359	3,523
Kaingaroa	44,275	21
Dumgree	350,000	469
Hanmer	2,431,230	876
Raincliff	50,000	206
Gimmerburn	487,695	173
Naseby	389,285	143
Conical Hills	3,777,120	1,252
Dusky Hill	1,973,392	806
Waitahuna	30,525	12
Domains etc.	133,632	
Total	27,183,975	12,175

Source: AJHR 1904, C-1, after p. 100.

worked for ten years in the seed department and nursery of Howden and Moncrieff in Dunedin; and in the South Island by R. G. Robinson, manager of Tapanui nursery, an Australian who had gained his experience with the Great Western Nursery in Hampton, New South Wales.³⁷ These details confirm the importance of the nurseryman tradition to early state forestry. Goudie continued with the State Forest Service until 1926 and Robinson until about 1930.

There are many aspects of the Matthews era that could be further pursued. From the book he published in 1905 on *Tree-Culture in New Zealand*, we gain some appreciation of how his placement of trees in plantations deviated from British practice, of the simplified methods he used for planting (Fig. 6), and in particular how he developed the technique of ‘mossing’ eucalyptus seedlings, which entailed covering their roots in sphagnum moss, tied in place with New Zealand flax, when transplanting them.³⁸ Matthews’s prison afforestation camp at Waiotapu (Fig. 7) was a world first, and model for the camp at Tuncurry plantation in New South Wales.³⁹ Matthews also personally designed standardised mobile huts as worker accommodation on plantations, which may have been seen as a valuable precedent when developing huts for workers on the hydro-electric power schemes of the twentieth century.⁴⁰

The trees that Henry Matthews planted

Looking into the records for plantings of individual species, one is bewildered by changes to common and Latin names and by numerical inconsistencies. The latter at this distance cannot always be explained, but it is certain which species were most widely planted. It is interesting to look at the ‘top twenty’ forest trees planted in 1896–1909 and to see which of them Matthews and his father were already growing in their nursery thirty years earlier, and which of them he recommended as suitable for production purposes at the New Zealand timber conference in 1896 (Table 2).⁴¹

On the one hand, a strong emphasis continued throughout on European timber trees, such as spruce, oak and ash, which were the traditional species favoured by nurserymen of his cultural background and which appeared (at least) to do equally well in a temperate southern hemisphere climate. On the other hand, from the number of species

Figure 6:

Planting methods

Source: *AJHR* 1904, C-1, after p. 100.



Figure 7:

Waiotapu prison camp

Sources: *AJHR* 1908, C-1B, after p. 16



widely planted in the years after 1896 but not mentioned earlier, it is clear that Matthews was open to trialling and, when appropriate, pursuing, new options. Awareness and availability of new species of pines and eucalypts is particularly evident.

He was also ready to experiment boldly with the hardy catalpa, 'owing', as he wrote in 1904, 'to its reputation for providing almost indestructible timber within a comparatively short time'.⁴² This reflected his close attention to the findings of the United States Bureau of Forestry, while the lack of further sowings after the 1903 and 1904 seasons suggests the failure of the species to perform as well in New Zealand as in American conditions.

Table 2: Top twenty forest trees planted

Forest trees sold in Matthews nursery, 1879–80	Forest trees recommended for New Zealand, 1896	Top twenty forest trees in state plantations, 1896–1909
Larch	Larch	Larch (1)
	Corsican pine	Corsican pine (2)
Austrian pine	Austrian pine	Austrian pine (3)
	<i>P. ponderosa</i>	<i>P. ponderosa</i> (4)
Norway spruce	Norway spruce	Norway spruce (5)
		<i>E. stuartiana</i> (6)
Oak	Oak	Oak (7)
	<i>E. amygdalina</i>	<i>E. amygdalina</i> (8)
Ash	Ash	Ash (9)
	Oregon	Oregon (10)
		Totara (11)
Sycamore	Sycamore	Sycamore (12)
		<i>E. pauciflora</i> (13)
	Sitka spruce	Sitka spruce (14)
		<i>P. benthamiana</i> (15)
	Silver birch	Silver birch (16)
	<i>E. rostrata</i>	<i>E. rostrata</i> (17)
	<i>Robinia pseudoacacia</i>	<i>Robinia pseudoacacia</i> (18)
		<i>Catalpa speciosa</i> (19)
		<i>E. gunnii</i> (20)

Sources: *Otago Witness*, 2 August 1879 and 8 May 1880; *AJHR* 1896, H-24, pp. 34–41; *AJHR* 1899–1910, C-1.

From about 1902, Matthews also proved willing to experiment with native species for timber production, and in particular with totara. This partly reflects the opportunity for this experimentation that arose when he founded a new nursery in Ruatangata, near Whangarei in the far north, where the climate encouraged stronger and more rapid growth of many native timber trees.⁴³ I can only conclude that, while he continued to place most faith in exotic timber production, his comparative neglect of native timbers was not an irrational decision but was a reluctant one, and was open to enthusiastic review.

Table 3: Matthews's top five trees 1896–1909, by number of seeds sown (000s) in state nurseries

	1896–00	1900–03	1903–06	1906–09	Total
Larch	739	1,787	8,110	15,098	25,734
Corsican pine	282	90	2,737	5,993	9,102
Austrian pine	862	1,751	1,750	338	4,701
Norway spruce	727	1,230	587	0	2,544
Ponderosa pine	0	328	693	1,397	2,418

Source: AJHR 1899–1910, C-1.

There were also various trees that Matthews was growing in 1879 and recommending in 1896 which did not remain as front-runners after 1900. Elm, blue gum and sweet chestnut, for instance, appear on both the full 1879 and 1896 lists, but of these three only sweet chestnut, in modest quantities and prior to 1903, was grown in state plantations. In other words, Matthews was prepared not only to welcome the new, but also to abandon old favourites that failed to prove their worth. There is no indication that his nurseryman background limited his vision; rather, it provided him with many of the old skills needed when breaking new ground.

Larch and pine

Above all, however, Matthews planted European larch. According to my calculations, something like 26 million larches had gone into nursery seedbeds by 1909, of which over 11 million had been transferred as young trees to state plantations. Larch was planted in all years in most nurseries, and in rapidly increasing quantities. The scale of operations

is best indicated by noting how many larch were sown, compared to the four next most popular species (see Table 3).⁴⁴

Even in 1896, Matthews knew that planting larch in the lowlands was 'a serious mistake', but he stressed that it was 'the toughest and most lasting of all coniferous trees' when grown in the high country, and planted it in huge quantities accordingly.⁴⁵ By 1915, however, there was greater awareness of its limitations. 'The larch, which does so well in Scotland,' said a Canterbury nurseryman, Robert Nairn, 'is only a partial success in New Zealand, and then only when grown in deep soil which never suffers from drought. In poor, shingly soils, and without protection from the drying winds, stunted trees are to be expected and mostly experienced'. Larch also proved susceptible to insect pests.⁴⁶ As for Corsican pine, or *Pinus laricio*, which Matthews in 1904 had considered 'probably the best pine for timber-production in this colony',⁴⁷ Nairn said it was 'a valuable timber tree, but very slow growing, and can have only prospective value to those who will live in generations to come'.⁴⁸ We cannot know if Matthews would have reached the same conclusions by 1915, had he lived. Possibly his great investment in larch could have hindered his, and thus the country's, ability to switch horses at about this time. With Matthews's death from an 'internal complaint' in 1909, when he was only 49, the way might have been made freer to criticise his approach and to concentrate instead on a different species, *Pinus radiata*.

It was T. W. Adams, a farmer at Greendale in Canterbury, whose opinions held most sway in the years after Matthews's death. The two were close colleagues, with Matthews specifically thanking Adams for his 'valuable suggestions and advice' when preparing his book on 'tree-culture'.⁴⁹ They held similar opinions on the value of most trees, including *Pinus laricio*,⁵⁰ but Adams was quicker to see the limitations of larch and the potential of *Pinus radiata*. This may have been because Matthews's early knowledge and experience of tree-growing had centred on Scottish precedent and Otago practice, while Adams was an Englishman, the son of a Cambridgeshire smallholder, frequently facing wind and drought on New Zealand's Canterbury Plains.⁵¹

In the 1903–04 season, while over two million larch seeds were carefully sown in state nurseries, Adams informed an Australasian Association for the Advancement of Science meeting in Dunedin that:

a good deal of disappointment has been met with through planting trees from Northern Europe, such as the larch... Here on the Canterbury Plain we have the exact soil that these trees are said to require, and yet these trees have proved sad failures, except in a few favoured positions... From their Home experiences they [settlers] planted many thousands of larch... and these at first thrive so well that they were raised in large numbers by the nurserymen, but after a few years' experience they were found quite unsuited for the drier atmosphere of the Canterbury Plain.⁵²

Adams's view of the larch as a false messiah was balanced by his view of *Pinus radiata* as the true saviour. Matthews was equally familiar with radiata—it appeared, as *Pinus insignis*, among the seedlings available from his nursery in 1879—but it did not feature in his 1896 list of forest trees suitable for New Zealand. He explained that he had omitted both radiata and macrocarpa because 'their timbers are known to be of little value except as firewood'.⁵³ At the time, Matthews's view was not eccentric. In the previous year, while inspecting Victorian plantations, Ribbentrop applauded softwood afforestation in general, but considered that 'the broadcast introduction of *Pinus insignis* has no excuse whatever for, though it is doubtless one of the fastest growing pines, its wood is of a low character'.⁵⁴ In his years as state forester, Matthews in fact supervised the sowing of nearly half a million radiata, but in the records it was often commented that these were 'for shelter purposes'.

A reporter visiting Adams's Greendale plantations wrote:

Rearing their leaders skyward for a hundred and twenty feet a patch of fifty or sixty pinus insignis on a half acre, planted in 1872, strikes the visitor very strongly... Mr Adams considers that the Dairy Department should repeat and extend the original experiments by Mr Murphy on the advantageous use of pinus insignis for butter boxes, as he believes its timber will be largely used in this way, while for boarding, outside or inside, it is already, though never properly matured on the Plains as yet, a very useful timber. Mr Adams bases his goodwill towards pinus insignis on its extraordinary rapidity of timber production, far excelling in this respect any other conifer he has planted.⁵⁵

Around 1900, it was Adams who was eccentric in seeing radiata as an important timber tree, but close to the time of Matthews's death, when this article was written, Adams's view began to gain favour, and in 1913 he was made one of the six members of the influential Royal Commission on Forestry.

Without mentioning any names, the report of this commission criticised Matthews's choice of timber trees. It described 'the utter absurdity of suggesting such a tree as the totara for afforestation purposes', due to its slowness of growth; damned the earlier emphasis on larch, 'which is not particularly suited, and is prone to disease'; and pressed for concentrated work on *Pinus radiata* in particular.⁵⁶ A district engineer with the Railways Department, A. C. Koch, alerted the Commissioners to the 'powellising process' whereby the durability of sleepers from Bunbury (Western Australia) and elsewhere had been increased by boiling them in arsenic and sugar. The emphasis for nurserymen like Matthews more naturally lay with improving cultivation. Here, however, was a very different approach, and a start to the kind of experimentation that showed the promise of tanalised pine.⁵⁷

It remained for Leonard Cockayne's son, the government biologist A. H. Cockayne, to promote *Pinus radiata* in 1914 as 'the great timber-tree of the future'.⁵⁸ The 1915 annual report on state nurseries and plantations recorded that 'On account of the restricted use there is in this country for larch it has been decided to give up planting any more of this tree. On the other hand, the planting of the Monterey pine [*Pinus radiata*] will be much extended'.⁵⁹ Radiata, with government backing and the full weight of chemical dressing and biological selection to improve its potential, duly emerged as New Zealand's timber source in the twentieth century.

Conclusion

Henry Matthews, then, was not a great prophet who correctly identified the tree that would transform both New Zealand forestry and, in time, the New Zealand landscape. But he and his staff did much of the necessary groundwork in developing afforestation techniques in a New Zealand context. Matthews initiated the wide-scale state plantation which became such a feature of the country, and he began the pine plantations near Rotorua which extended and merged, after his death, into the nearly 3,000 square kilometres of Kaingaroa Forest. This is the largest man-made forest in the southern hemisphere.⁶⁰ Matthews never had anything like the funding or staff required to crank up afforestation to such a pitch, but nevertheless the amount of exotic plantation he created was striking at the time.

Matthews was a significant transitional figure, immersed in the nurseryman tradition, who used the knowledge, experience and labour force that this background provided to lay the foundations for the more extensive forestry, both state and private, that followed after his death. Though born in New Zealand with the love of native bush that comes of being native-born, Matthews inherited a 'traditional environmental knowledge' of plants and trees that was British. His New Zealand experience reflected both settlers' social and economic expectations, and climatic, biological and edaphic reality. All this led him to promote exotic afforestation while accepting the reduction, though not the total removal, of indigenous forest. His work was an episode in New Zealand's forest history that has its own importance. Also, however, his approach to his work and the choices he made reveal the interplay of environment and culture, and that is always fascinating.

Notes

- 1 These dates for Kirk's employment as conservator are from Roche, M., 1987, *Forest Policy in New Zealand: An Historical Geography, 1840-1919* (Palmerston North: Dunmore Press), p. 16. However, the article about Kirk by Angus McLeod in Orange, C. (ed.), 1993, *The Dictionary of New Zealand Biography: Volume Two: 1870-1900* (Wellington: Bridget Williams Books), p. 260, states that he was appointed at the end of 1885.
- 2 By 1900 there were two divisions of the Forestry Branch of the Department of Lands. The older division, concerned with the conservation of remaining indigenous forests, had not had an overall conservator since Kirk's dismissal. Instead, its work was performed at a regional level by the Commissioners of Crown Lands. The new division, concerned with afforestation, was headed by Matthews as chief forester and was concerned with the creation of state forest plantations, usually of non-indigenous tree species. See *Appendices to the Journal of the House of Representatives* (hereinafter *AJHR*) 1908, C-1B, p. 10.
- 3 Poole, A. L., 1969, *Forestry in New Zealand: The Shaping of Policy* (Auckland: Hodder and Stoughton), Chapter 2: 'A forest policy evolves', pp. 3-17.
- 4 Personal communication, 2004, and Roche, M., 1990, *History of Forestry* (Wellington: GP Books), pp. 210-211. He does, however, comment (p. 213) that 'The 32,000 acres of plantation established prior to the re-emergence of the State Forest Service tends to have escaped the attention it deserves. It was, in effect, a valuable and very large-scale trial which proved the qualities of some exotic tree species and indicated that very extensive afforestation was technically feasible'.
- 5 Barton, G. A., 2002, *Empire Forestry and the Origins of Environmentalism* (Cambridge: Cambridge University Press), pp. 117-119. In these pages, Barton wrongly calls Prime Minister Julius Vogel the Superintendent of Forests, and French forester A. Lecoy the Minister of Lands. He also calls the director of

- Kew Gardens Joshua, rather than Joseph, Hooker, while Captain Cook becomes Caption Cook, and Inches Campbell-Walker becomes Ian in the bibliography.
- 6 Barton, *Empire Forestry*, p. 111. He does not mention Berthold Ribbentrop's visit to Victoria in 1895, however. Vincent, Ribbentrop and Hutchins are all referred to in Roche, M. and Dargavel, J., 2008, 'Imperial ethos, Dominions reality: Forestry education in New Zealand and Australia, 1910–1965', *Environment and History* 14(4), pp. 523–543.
 - 7 This is a major theme in Star, P., 2008, 'Tree planting in Canterbury, New Zealand, 1850–1910', *Environment and History* 14(4), pp. 563–582.
 - 8 Information from Carron, L. T., 1985, *A History of Forestry in Australia* (Canberra: Australian National University Press), especially p. 216, and from the online edition of the *Australian Dictionary of Biography*.
 - 9 *Christchurch Star*, 28 August 1896, p. 6.
 - 10 *Otago Witness*, 3 September 1896, p. 1.
 - 11 *Hawke's Bay Herald*, 31 August 1896, p. 2.
 - 12 *Tuapeka Times*, 2 September 1896, p. 5. The Latin names of trees, eucalypts in particular, have often changed since Matthews's time. The following is a useful website in sorting out which eucalypt is which: <http://www.anbg.gov.au/cpbr/cd-keys/Euclid/sample/html/synon.htm>
 - 13 G. S. Perrin quoted in Matthews, H. J., 'Further reports relative to forest-conservation', *AJHR* 1903, C-13A, p. 1.
 - 14 Hutchins, D., 1919, *New Zealand Forestry. Part 1, Kauri Forests and Forests of the North and Forest Management* (Wellington: Department of Forestry); Schlich, W., 1918, 'Forestry in the dominion of New Zealand', *New Zealand Journal of Science and Technology* 1, pp. 201–210.
 - 15 *AJHR* 1903, C-13A, pp. 4–5.
 - 16 For Matthews's family background, see Gow, R. A., 1973, 'George Matthews', in Griffiths, G. J. (ed.), *The Advance Guard: Series 1* (Dunedin: Otago Daily Times), pp. 97–110.
 - 17 Fox, P., 2004, *Clearings: Six Colonial Gardeners and Their Landscapes* (Carlton: Melbourne University Press), pp. 37, 53.
 - 18 For the rise of stock and station agents in Australia and New Zealand, see Ville, S., 2000, *The Rural Entrepreneurs: A History of the Stock and Station Agent Industry in Australia and New Zealand* (Cambridge: Cambridge University Press).
 - 19 Matthews, H. J., 'Some notes on the forestry question', *AJHR* 1896, H-24, p. 39.
 - 20 *Otago Witness*, 22 June 1893.
 - 21 Renata, A. [Alfred Reynolds], 'Native trees, shrubs and plants under cultivation', *Otago Witness*, 8 December 1892.
 - 22 *Otago Witness*, 28 February 1889.
 - 23 *Otago Witness*, 18 July 1889.
 - 24 Matthews, H. [c.1890], 'Descriptive and Priced List of New Zealand Native Ferns,

- Plants, Trees, Shrubs, Seeds, etc. on sale by George Matthews, Nurseryman and Seed Merchant, Moray Place, Dunedin. Nurseries: Hawthorn Hill, Mornington', Dunedin, items 1949/112/2 and 1950/88/1, within DC-2444, Otago Settlers Museum.
- 25 See Lowe, B. and Star, P., Section 5.1: History of 'Whakapapa and whitau properties of the Dunedin Botanic Garden harakeke and wharariki collection', postdoctoral report to FRST project no. UOOX0605, University of Otago, Dunedin, 2010.
- 26 See reference to his unsuccessful bid to have Saddle Hill in Dunedin created a public reserve, in *Otago Witness*, 19 March 1896.
- 27 *AJHR* 1901, C-1, p. 141.
- 28 *AJHR* 1899, C-1, pp. 111–114.
- 29 'Further reports relative to forests-conservation', *AJHR* 1903, C-13A, 8 pp.
- 30 Star, P. and Lochhead, L., 2002, 'Children of the burnt bush: New Zealanders and the indigenous remnant, 1880–1930', in Pawson, E. and Brooking, T. (ed.), *Environmental Histories of New Zealand* (Melbourne: Oxford University Press), pp. 119–135.
- 31 *AJHR* 1909, C-6, p. 5. By 1914, 363 scenic reserves had been created under the terms of the Act, covering an area of 240,000 acres.
- 32 For instance: 'As a way of valuing landscape, the depiction of land and nature as a picture, or as a theatre scene, was second only to its agricultural potential, and as such an integral part of the Europeanisation of New Zealand...Scenery preservation derived from a colonial cultural aesthetic that served the interests of Pakeha settler society but negated the customary interest of Maori'. Park, G., 2001, *Effective Exclusion? An Exploratory Overview of Crown Actions and Maori Responses Concerning the Indigenous Flora and Fauna, 1912–1983* (Wellington: Waitangi Tribunal), pp. 248, 250.
- 33 *AJHR* 1902, C-1, pp. 64–65.
- 34 McLeod, A., 1993, 'Thomas Kirk, 1829–1898', in Orange, C. (ed.), *Dictionary of New Zealand Biography: Volume Two: 1870–1900* (Wellington: Bridget Williams Books), p. 260.
- 35 See Star, P., 2005, "'Doomed timber": Towards an environmental history of Seaward Forest', in Ballantyne, T. and Bennett, J. A. (ed.), *Landscape/Community: Perspectives from New Zealand History* (Dunedin: University of Otago Press), p. 27.
- 36 With similar priorities, Leonard Cockayne, who regularly expounded on the significance of native flora and the need for national parks, pressed for exotic timber plantations and as a member of the 1913 Forestry Commission accepted that 'no [native] forest land, except if it be required for the special purposes of a climatic or scenic reserve, and which is suitable for farmland, should be permitted to remain under forest if it can be occupied and resided upon in reasonably limited areas'. Haszard, H. D. M., et al., 'Report on the Royal Commission on Forestry', *AJHR* 1913, C-12, p. xx.

- 37 Official roll, State Forest Department, as at 31 December 1907, included in 'Correspondence re. nurseries, 1900–1930', CAAB CH 581 Item 4, National Archives Christchurch.
- 38 Matthews, H., 1905, *Tree-Culture in New Zealand* (Wellington: Government Printer), pp. 22, 37–39, 94.
- 39 Taylor, B., 2008, 'Trees of gold and men made good? Grand visions and early experiments in penal forestry in New South Wales, 1913–1938', *Environment and History* 14(4), pp. 545–562.
- 40 John Adam, personal communication, 2010.
- 41 Matthews, H., 'Some notes on the forestry question', in 'Report of Timber Conference held at Wellington in July 1896', *AJHR* 1896, H-24, pp. 34–41. In this paper Matthews also recommended the following forest trees for New Zealand, none of which featured heavily in state plantations in 1909: Elm, sweet chestnut, laburnum, blue gum, jarrah, stringy bark, ironbark, sugar gum, karri, English beech, alder, cork oak, sugar maple, red juniper, red spruce, silver spruce, Californian redwood, Italian cypress, Western red cedar, *Pinus rigida*, *Pinus excelsus*, *Pinus strobus*, and *Pinus resinosa*. The same holds true for the following further species that were available from the Matthews family nursery in 1879–80: Elm, sweet chestnut, laburnum, blue gum, lime, walnut, poplar, horse chestnut, Scots pine, *Pinus radiata*, *Pinus pinaster*, Lawson's cypress, Wellingtonia, and macrocarpa.
- 42 Matthews, H. J., 1905, *Tree-Culture in New Zealand* (Wellington: Government Printer), p. 90.
- 43 See *AJHR* 1903, C-1, p. 89.
- 44 Calculation of how many seedlings had been planted out by 1909 (for which, see Star, 'Tree planting in Canterbury', p. 577) provides a different set of figures, but again shows larch (11.0 million trees), Austrian pine and Corsican pine (3.8 million trees each) as the top three species.
- 45 Matthews, H. J., 'Some notes on the forestry question', *AJHR* 1896, H-24, p. 36.
- 46 In 1906–7 a grass-grub 'caused much anxiety' by decimating the larch beds at Starborough and Tapanui nurseries. *AJHR* 1907, C-1B, pp. 20, 23. In 1913 A. H. Cockayne focussed on the control of a native brown beetle, *Odontria puncticollis*, that attacked larch seedlings. *AJHR* 1913, C-1B, p. 5.
- 47 Matthews, *Tree-culture in New Zealand*, p. 117.
- 48 Nairn, R., 'The planting of forest trees', a paper read at the New Zealand Nurserymen's Conference, *Evening Post*, 22 January 1915. In the same paper, Nairn included *Pinus radiata* among the 'best trees', but with reservations. It was 'perhaps the most useful of all the importations from California. It has the greatest value as a shelter tree, growing more rapidly than any other, and giving immediate results. As a timber tree it has considerable value for box-making purposes, suitable to the export of apples...Its other value is limited to the making of shelter sheds, stables, and outhouses of a cheap nature'.
- 49 Matthews, H. J., 1905, *Tree-Culture in New Zealand*, p. iv.

- 50 'I consider the timber [of Corsican pine] next to that of the larch for lasting qualities...In New Zealand the tree grows very erect, with very little taper in the trunk, and certainly is the most promising of thirty or more species of pines with which I have experimented, and will grow on the Canterbury Plains more than twice as fast as the larch'. T. W. Adams quoted in *Southland Times*, 12 August 1901.
- 51 See McKelvey, P. J., 1993, 'Alfred Albert Thomas William Adams, 1842–1919', in Orange, C. (ed.), *The Dictionary of New Zealand Biography: Volume Two: 1870–1900* (Wellington: Bridget Williams Books), p. 1.
- 52 Adams, T. W., 'On the behaviour of certain exotic trees in cultivation on the Canterbury Plains', *Otago Witness*, 20 January 1904.
- 53 *AJHR* 1896, H-24, p. 38. *Pinus radiata* was always referred to as *Pinus insignis* at the time.
- 54 Carron, L. T., *A History of Forestry in Australia*, p. 181.
- 55 Wilkinson, J. H., 'Greendale plantations', in *Ashburton Guardian*, 29 July 1910. See also Adams, T. W., 'Notes on the growth of forest trees in Canterbury', *AJHR* 1909, C-1, pp. 112–117.
- 56 Haszard, H. D. M. (chairman), 'Report on the Royal Commission on Forestry', *AJHR* 1913, C-12, pp. xxix, xxxv, xxxvi. In his evidence to the Commission (p. 72), H. A. Goudie, Matthews's former lieutenant, acknowledged the need to plant less larch.
- 57 *AJHR* 1913, C-12, pp. 49–50. On powellising, see *The Advertiser* (Adelaide), 23 February 1914. Matthews, 'Some notes on the forestry question', pp. 39–40, shows that he was well aware of the importance of seasoning timber.
- 58 Cockayne, A. H., 1914, 'The Monterey Pine: The great timber-tree of the future', *New Zealand Journal of Agriculture* 8, pp. 1–26.
- 59 Mackenzie, J., Goudie, H. A., and Robinson, R. G., 'Report on State Nurseries and Plantations', *AJHR* 1915, C-1B, p. 2.
- 60 http://en.wikipedia.org/wiki/Kaingarooa_Forest.