

## **Leonard Cockayne, the Consummate Gardener**

Cockayne's observations of natural variation in wild plant populations, selection for cultivation, and the horticultural domestication of the New Zealand flora

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### **Formative years**

Leonard Cockayne was instinctively, and by upbringing, a gardener and a naturalist.

He was born in 1855 in the Midlands of England in the rural village of Norton Lees, a location so close to Sheffield that it is now incorporated in that city. There he experienced the contrast between the natural beauty of the English countryside and the industrial ugliness of Sheffield born of the Industrial Revolution.

Leonard was the youngest of a family of seven children. The family was well off. Leonard received his early education from a governess. It seems that he was indulged by his parents and older siblings. Nevertheless, he was a child who "wandered lonely as a cloud" spending much of his time observing birds, fish and flowers in a wood nearby.

To a large extent he was self-educated. His childhood did not prepare him for more formal education. Consequently, his attendance at Wesley College, Sheffield in 1872 was for him a nightmare. From there he went to Owens College, Manchester, with the intention of becoming a medical doctor. This intention was not fulfilled, but he received formal tuition in botany, plant physiology, zoology, animal physiology, and chemistry.

Clearly he was brilliant. But he was not amenable to prescribed studies. Rather, he was endowed with abilities that suited him to working on his own lines and ideas, and making his own career.

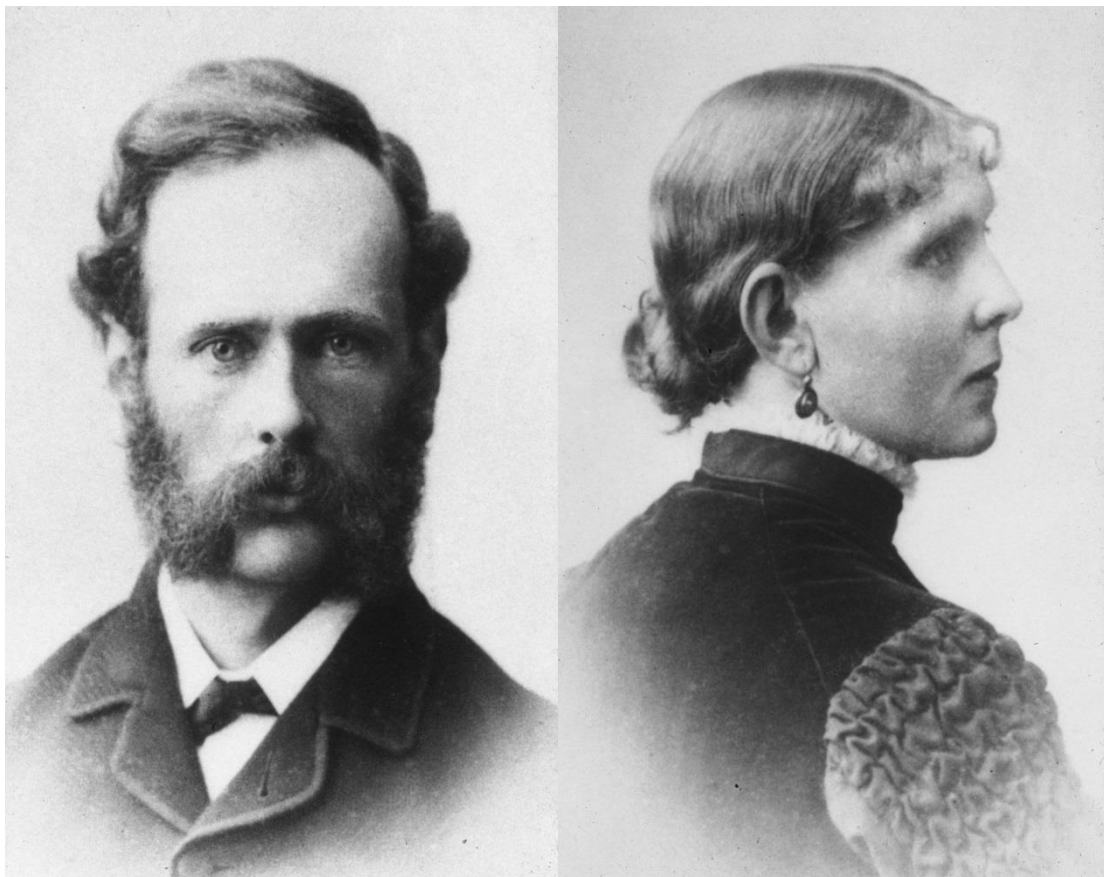
In his unpublished autobiography Cockayne records that he began gardening at the age of four. During the years he was growing up, bedding-out systems, that is, small flowerbeds of gaudy flowers cut out of areas of lawn, became fashionable. These replaced herbaceous borders, shrubberies, and other older forms of ornamental gardening. Clearly Cockayne's preference was for the latter. He particularly liked cottage gardens that continued to grow old-fashioned flowers.

He loved the beauty of flowers, the daffodil being amongst his favourites, and best that these were in natural settings. Thus he loved William Wordsworth's poem:

*I wandered lonely as a cloud  
That floats on high o'er vales and hills,  
When all at once I saw a crowd,  
A host, of golden daffodils;  
Beside the lake, beneath the trees,  
Fluttering and dancing in the breeze.*

### **To an unorthodox garden in New Zealand**

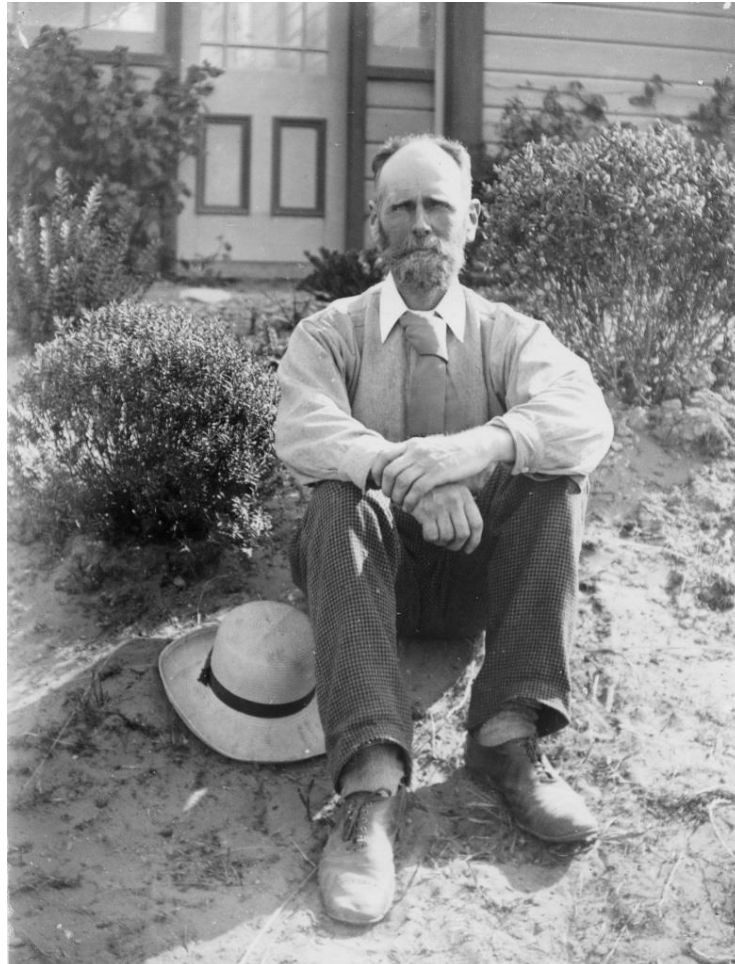
Cockayne emigrated to Australia in 1879 and from there to New Zealand in 1881. In the interim from when he arrived in New Zealand to when the Cockaynes bought a 9 ha farm at Styx north of Christchurch in 1885, Cockayne was a teacher in Otago, he married Maria Maude Blakeley (Figure 1), and fathered a son, Alfred Cockayne.



**Figure 1.** Leonard and Maude Cockayne, photographed around 1882 when they would have been 26 by W.R. Frost & Co., Dunedin. Images from the Andrew D Thomson photographic collection, Christchurch Botanic Gardens, copied from the original gifted to DSIR Botany Division by Mrs Nan Moir and used to illustrate Thomson (1983, Figure 10) *The Life and Correspondence of Leonard Cockayne*.

It was during this period that his interest in New Zealand native plants, and especially ferns, was sparked. This was initially from the viewpoint of a horticulturist and the possibility of commercial development of native plants.

Purchase of the land at Styx was enabled by an endowment from Cockayne's father who died in 1884. At Styx, Cockayne assembled a large collection of native and introduced plants. In 1892 the family moved to a smaller 1.8 ha property on Bexley Road, New Brighton. Here, on older sand dunes, he established the Tarata Experimental Garden, his "unorthodox garden" (Figure 2).



**Figure 2.** Leonard Cockayne the consummate gardener at Tarata Experimental Garden in the 1890s. Image from the Andrew D Thomson photographic collection, Christchurch Botanic Gardens, used to illustrate Thomson (1978) *Leonard Cockayne: horticulturist*. *New Zealand Journal of Botany* 16: 397 – 404 (Figure 1), originally supplied (1 Dec 1972) by Auckland Institute and Museum (negative No. 16364); digital copy from Auckland War Memorial Museum received (31 Aug 2018) with thanks.

His biographers have attributed the move to Cockayne's decision to devote his life to horticulture and New Zealand botany. However, I suggest that family considerations were just as important. Being out in the Styx may not have appealed to Maude. By 1892 Alfred Cockayne was 12 and so usefully closer to where his education could be advanced. Alfred was mostly home-schooled, matriculated in 1900, and attended Canterbury College. He later became a notable pasture ecologist, and then Director General of Agriculture.

Biographers have speculated on the role Maude played at Tarata. One described her as a “faithful handmaiden to the man of science” providing visitors with tea and cake. Andy Thomson envisaged her as the personal assistant helping to keep track of her husband’s prodigious correspondence. Cockayne referred to her as “she who must be obeyed”.

I have a more romantic image of her involvement in the garden at Tarata. Perhaps she was lured into the garden by Cockayne’s love of poetry. So as a tribute to her, I give you these two verses from Alfred Lord Tennyson’s poem “Maud”.

*Come into the garden, Maud,  
For the black bat, Night, has flown,  
Come into the garden, Maud,  
I am here at the gate alone;  
And the woodbine spices are wafted abroad,  
And the musk of the rose is blown.*

...

*She is coming, my own, my sweet;  
Were it ever so airy a tread  
My heart would hear it and beat,  
Were it earth in an earthy bed;  
My dust would hear her and beat,  
Had I lain for a century dead;  
Would start and tremble under her feet,  
And blossom in purple and red.*

As all good gardeners know, finally “the answer lies in the soil”!

It is not clear to me to what extent Tarata was a commercial enterprise. It certainly started out with commercial horticultural objectives. One was to harvest rhizomes of the Mount Cook lily, *Ranunculus lyalli*, in September, chill them, and export them to be landed in England in December.

The tolerance of New Zealand alpiners to freezing temperatures was the subject of his first full scientific publication in 1898 at the age of 42, six years after arriving at Tarata. This was from the results of an experiment carried out in a freezing chamber at Lyttelton, which effectively showed that these plants have little tolerance of freezing.

He gathered seed and other propagating material of many different species at Tarata, perhaps for the purpose of commercial propagation. However, it is clear that his energies were distracted to recording the form and development of

seedlings raised from seed. Papers based on these records were the main subject of his scientific publications during the Tarata years.

During Tarata times Cockayne began his botanical excursions to widely dispersed locations in New Zealand, building up his knowledge of the country's vegetation. He also cultivated contacts with leading botanists in Europe, and his international reputation developed quickly from that. He received an honorary PhD from the University of Munich in 1903.

### **The Gardener at large in Christchurch**

Primarily because of poor health, Cockayne left Tarata in 1903. He gave his plants to the Christchurch Beautifying Association. Many of these, including daffodils and flowering cherries, were planted on the banks of the Avon. From then to 1914, when the Cockaynes left for Wellington, they lived at urban addresses in Christchurch. Freed of the demands of hands-on gardening at Tarata, Cockayne directed his energies to more extensive exploration of the vegetation of New Zealand, and to writing. The decade before Cockayne left Christchurch in 1914 to live in Wellington was a period of prolific writing. It was during this time that he wrote *New Zealand plants and their story* as a series of popular articles first published in the Lyttelton Times, and afterwards in Dunedin and Auckland papers.

Cockayne was one of the founders of the Christchurch Beautifying Association in 1897. The Association's aims were to beautify waste spaces by landscape gardening and to influence others to make Christchurch more beautiful and attractive by better and more artistic cultivation of their gardens. Through the Association, his popular articles, and his readiness to comment on the activities of the Christchurch Domains Board, he was, by proxy, gardening Christchurch on a very large scale.

Harry Ell, famous for his conservation work around the Port Hills, recommended that the daffodils on the banks of the Avon be dug up and arranged in beds. This was sacrilege to Cockayne, who strongly disapproved! This conflict over what should be planted on the Avon's banks, natives vs exotics, continues today.

He took issue with the Christchurch Domains Board when in 1911 it was proposed that the Native Section in the Botanic Gardens developed by the Armstrongs should be renovated to make it more decorative, or removed. Cockayne stated the scientific value of the existing garden and advocated it should be not just retained but extended to include more native species, whether they were of decorative value or not.

I am not sure to what extent Cockayne's desires were taken into account in the design and maintenance of today's Leonard Cockayne Memorial Garden.

## To Ngaio

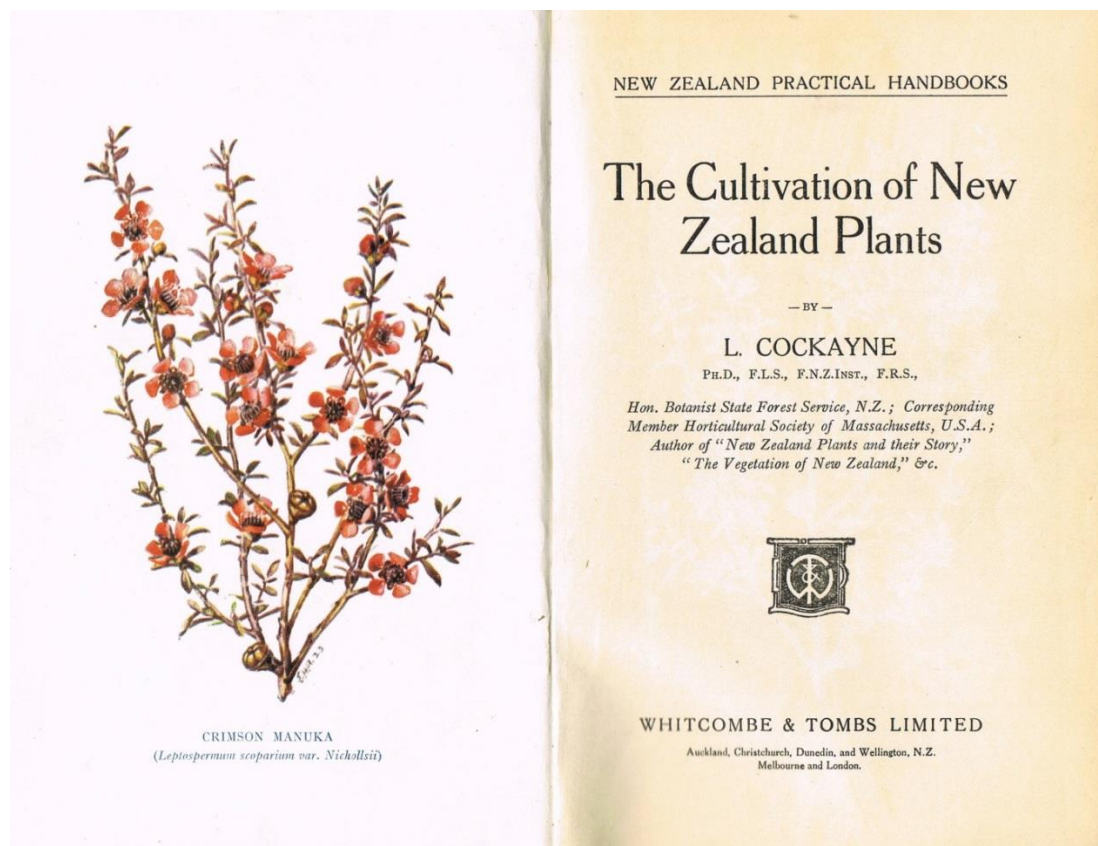
I surmise the Cockaynes' move to Wellington was motivated by the wish to be closer to family, and from Leonard's viewpoint, to be close to central government where he could function more effectively as *de facto* Government Botanist, and to gain income.

They settled into what was to be their permanent home at Ngaio in 1917 living there until their deaths in 1934. There they maintained a small but species-rich garden, not greatly demanding of time for care.

Leonard had time to travel to the furthest fields of New Zealand, develop his scientific concepts of New Zealand plants and vegetation, and expand his public garden domain.

During the Wellington period Cockayne's magnum opus *The Vegetation of New Zealand* was published.

He also brought together his knowledge of New Zealand plants for the benefit of gardeners, notably *New Zealand plants suitable for North American gardens* for the Panama Pacific Exposition, San Francisco, USA in 1915, and *New Zealand Plants for the British Isles* in 1924. Cockayne's *The cultivation of New Zealand plants* was also published in 1924 (Figure 3).



**Figure 3.** Title page and image of crimson manuka (*Leptospermum scoparium* var. *Nichollsii* [sic]) drawn in 1923 by Mr Esmond Atkinson (E.H.A.) from Cockayne L 1924. *The Cultivation of New Zealand Plants*. Whitcombe & Tombs, Auckland. Image reproduced with permission of Penguin Random House New Zealand.

## Domestication

Cockayne had a pivotal and original role in the domestication of New Zealand plants, mostly for their ornamental use. He used his knowledge from several areas of practical experience for this purpose.

1. Through his extensive knowledge of the taxonomy of New Zealand plants he recognised previously undescribed species when he encountered them in the wild. As examples he described new species of *Astelia*, *Celmisia*, and *Veronica*.
2. He discerned the variation within widely dispersed native species, seeing the opportunity for selection from this variation.
3. Through his many botanical excursions he gained an extensive knowledge of the distribution and ecology of New Zealand plants, their habitat preferences, and their requirements for growth and survival. Such knowledge is a great aid to providing growth conditions needed to establish species in cultivation.
4. He was skilled in discerning wild hybrids. He saw the opportunities for controlled hybridisation to combine desirable ornamental properties, e.g. plant habit, flower colour, and cold hardiness.
5. He was fascinated with the life forms of plants, and especially oddities with characters attractive to gardeners. The red flowered manuka, then known as *Leptospermum scoparium* var. *Nichollsii*, found as a single wild plant near Kaiapoi in 1898, was perhaps his favourite.
6. As a hands-on gardener he personally sowed seeds, recorded their germination and the development of seedlings from these, and published these observations. Such observations are very useful in successfully bringing species into cultivation for the first time.
7. He understood the application of information about the physiological basis of plant adaptation. This is exemplified by his freezing chamber experiments with the export of New Zealand plants to cold temperate climates in mind.
8. He was a very early advocate of scientific plant breeding and the resources needed to do this.
9. He was extraordinarily efficient in disseminating and popularising information about native plants both in New Zealand and overseas. The little red book *The Cultivation of New Zealand Plants* is but one example.

## Gardens and natural plant communities

Cockayne wrote the following in a one page article entitled *The bush a priceless possession*, published in *The New Zealander* in 1914:

*However little the average New Zealander may know about the plants of his country, few there are who cannot raise some enthusiasm regarding the “bush”, as the forest is everywhere called.*

*To old and young it is a delight – the stately trees; the birds, fearless of man; and above all, the wealth of ferns appeal to all.*

*But that this forest is a unique production of nature, found in no other land, is not a matter of common knowledge, though truly it has many claims to be considered a priceless possession.*

In this I sense Cockayne's vision of the bush as one of his natural gardens where every plant has its place according to light, water availability, soil fertility and disturbance by wind, fire and animals.

He viewed native vegetation as an asset just as he would see a garden. This is expressed in his address to the 1901 Conference of New Zealand Fruitgrowers and Horticulturists:

*The most valuable asset in our colony was the scenery, and if we destroyed our forests the scenery would be no longer an asset*

and continued

*...it was of as much importance to look after their native plants as the fruit industry.*

### **Cockayne the Contemplative Gardener**

To be buried together with Maude in the Otari Open Air Native-Plant Museum was the ultimate consummation of Cockayne's love of gardens and native plants. Here his guiding concepts were brought together: a comprehensive collection of native plant species and their hybrids; presentation of groupings of plants representing native plant communities; demonstration of how native plants could be used in gardens; and restoration of a forest remnant to its original composition. I wonder how easily Cockayne rests with what is now called Otari-Wilton's Bush.

I suggest that Cockayne was as much a contemplative gardener as a consummate one. As he gardened and made excursions to visit plant communities, he thought, he hypothesized, and he recorded for posterity. To quote Wordsworth again:

*For oft, when on my couch I lie  
In vacant or in pensive mood,  
They flash upon that inward eye  
Which is the bliss of solitude;  
And then my heart with pleasure fills,  
And dances with the daffodils.*

Finally, I have a question for you to contemplate. If Cockayne were living in Bexley today, having experienced liquefaction, what would be his advice for the re-beautification of Christchurch? Would it be for landscapes of flowering cherries and daffodils, or those of flaxes, cabbage trees and tussocks?