

On the Armstrong family and herbarium. Part III. Struggle for botanical recognition

John Clemens¹, Louise Beaumont², Ines Schönberger³, and Sue Molloy⁴

¹ former Curator, Christchurch Botanic Gardens; dr.john.clemens@gmail.com

² louise@louisebeaumont.co.nz

³ Allan Herbarium, Manaaki Whenua Landcare Research, P.O. Box 69040, Lincoln 7698

⁴ Botanical Resources Coordinator, Christchurch Botanic Gardens

Introduction

In Part I of this series (Clemens & Molloy 2020) we described how the early Canterbury botanist Joseph Beattie Armstrong had died on 27 January 1926 while under anaesthetic for an eye operation in Christchurch Hospital (Anon. 1926, 6 Feb). In his will, his wife having predeceased him, he left a house and sums of money to his Christchurch sister-in-law and her family and asked his executor to convert his remaining property into money to be shared between his cousins in South Canterbury.

His friend Mr James Gray and the Curator of the Christchurch Botanic Garden at the time, Mr James Young, went to Joseph's house at 16 Burlington Street, Sydenham. Among other items of botanical interest, they identified and retrieved an estimated 4000-5000 herbarium specimens organised into 75 paper parcels, which were deposited in Mr Young's office. Seven years later, after Arnold Wall had put them "in thorough order" there remained 2609 herbarium sheets (Anon. 1933, 22 Nov) (Figure 1, p. 70).

In Part II (Molloy & Clemens 2021) we gave what we think are plausible explanations for the short-lived scientific careers of Joseph Armstrong's father, John Armstrong, and 10 years later of Joseph himself. In short, John Armstrong was too overworked in the Christchurch Domain to engage in research after 1872 and he was progressively incapacitated by memory loss (though able to recall details of tree plantings undertaken in the Domain many years earlier). In addition, he had been appointed Government Inspector under The Forest Trees Planting Encouragement Act 1871, which would have required him to travel from time to time throughout Canterbury for many years (Forest Trees Planting Encouragement Act 1871); and Joseph turned his back on the Philosophical Institute of Canterbury after 1883, ceased publishing in science journals after 1884, and apparently denied anyone access to his and his father's herbarium.

Here we set out to test if the Armstrongs' herbarium was indeed locked up as we supposed after 1884 (Molloy & Clemens 2021). We also explore Joseph Armstrong's publishing career in the 1880s, track the growing recognition overseas of the existence of a botanic garden in Christchurch, and describe the struggle to achieve such recognition within New Zealand, which would culminate in the Armstrongs' untimely and rancorous redundancy in 1889.



Figure 1. “Valuable collection of native flora – Professor Arnold Wall at work in the museum library yesterday classifying the Armstrong herbarium.” (Anon. 1933, 22 Nov). We acknowledge Christchurch City Libraries for supplying the image, which appeared in Papers Past at <https://paperspast.natlib.govt.nz/newspapers/CHP19331122.2.138.7>

The Armstrongs’ herbarium: locked away or not?

We know the Armstrongs were exchanging plant material (live plants or plant parts for herbaria) with TF Cheeseman in 1871 from John Armstrong’s letter to Cheeseman on this very topic (Armstrong JF 1871, Godley 1999), but documents such as this are rare. Because herbarium specimens are numerous, potentially long lasting, and treasured, they constitute an excellent record of interactions between collectors. Exchanges of herbarium specimens are an indication of goodwill between botanists, of their preparedness to collaborate at least to the extent that would help them to advance their own research. We wanted to test whether such research collaborations stopped for the Armstrongs after 1884.

Plant specimens given by others to the Armstrongs

We examined the collection dates (typically only years) of specimens gifted by other botanists to the Armstrongs and currently found in the Armstrong Herbarium. There are no records of when these specimens were received by the Armstrongs; collection dates give an indication only of when the specimens were available to be shared. Conversely, we looked for specimens in other herbaria that had been collected by the Armstrongs and gifted to other botanists.

About 300 specimens of the Armstrong Herbarium were gifted by other botanists (ca. 12% of the total catalogue). Over half of these were from T. (Thomas) Kirk, F. Reader/Reader/FR, and TFC (Thomas Frederick Cheeseman). Eight other collectors provided a further quarter of the specimens. For the few bearing a collection year these ranged from 1866 to 1884, half between 1876 and 1882 (Table 1).

Table 1. Herbarium specimens in the Armstrong Herbarium collected by botanists other than the Armstrongs; total number, main collection area(s), the number that are dated, Allan Herbarium (CHR) barcode, species, and year/month collected.

Collector	No.	Main area(s) of collection	No. of dated	CHR barcode	Species (preferred name)	Collection year/month
Kirk T	92	Auckland, North Is	2	635957	<i>Vitex lucens</i>	1872 May
				636850	<i>Eragrostis brownii</i>	1871 Oct
Reader F	43	Napier, Picton	2	635854	<i>Veronica stricta</i>	1880 Feb
				636495	<i>Isolepis prolifera</i>	1880
Cheeseman TF	38	Auckland	3	634491	<i>Pomaderris</i>	1871
				636426	<i>Isolepis levynsiana</i>	1872
				636592	<i>Isachne globosa</i>	1871
Jennings	14	Upper South Is	5	633893	<i>Drosera spathulata</i>	1880
				634148	<i>Syzygium maire</i>	1879 Jan
				634660	<i>Celmisia lateralis</i>	1880 Jan
				635656	<i>Myosotis antarctica</i>	1880 Feb
				636240	<i>Dendrobium cunninghamii</i>	1880
Travers HH	12	Chatham Islands	0	-	-	-
Cox FAD	10	Chatham Islands	1	633960	<i>Geranium traversii</i>	1876
Stack J	9	Stewart Island	2	633775	<i>Crassula moschata</i>	1879
				635609	<i>Gentianella saxosa</i>	1879
Haast J	8	Mt Cook, Upper Rakaia	1	634771	<i>Anaphalioides bellidioides</i>	1866

Martin W	8	Mt Bonpland, Ben Lomond	5	633699	<i>Ranunculus sericophyllus</i>	1884
				634795	<i>Leucogenes grandiceps</i>	1884
				635506	<i>Olearia moschata</i>	1884 Feb
				635547	<i>Brachyglottis cassinoides</i>	1884
				635794	<i>Veronica densifolia</i>	1880 Jan
Gray W	7	Wellington, Rangitata	1	634831	<i>Ozothamnus leptophyllus</i>	1869
Helms	7	Paparoa Range	1	636232	<i>Cordyline banksii</i>	1882

The “W. Martin” who gave the Armstrongs most of the 1880s specimens was a contemporary of Joseph Armstrong and father of the renowned Dunedin botanist William Martin.

Twenty-two other collectors each contributed up to four specimens, including J. Harding (Ruahine), J. Buchanan, J.D. Enys (Castle Hill, Broken River), Colenso (Napier), and HJW & JRW (Fiordland), only one of which was dated (CHR 633638 *Pteris macilenta* collected by Mr F. Jones in 1880).

Plant specimens given by the Armstrongs to others

Many specimens collected by the Armstrongs in the early 1860s were distributed to botanists around the world by Julius Haast. Armstrong specimens held by the Herbarium at the Royal Botanic Gardens Kew (12 collected by “Armstrong”, three by “Haast & Armstrong”) are typically dated August 1867, probably indicating John Armstrong as the collector for Haast, who “shared” the specimens with JD Hooker (Molloy & Clemens 2021). This was when numerous Wardian cases and plant parcels for Hooker were also collected and packed by the Armstrongs. The National Museum of Natural History in Paris holds an undated specimen of *Lobelia angulata* (MNHN-P-P00242805) collected by Joseph Armstrong at Lake Ellesmere, which bears a Canterbury Museum label and probably dates from the late 1860s (Clemens & Molloy 2020).

Within New Zealand, the herbarium of the Auckland War Memorial Museum (AWMM) holds 27 herbarium sheets of Armstrong specimens. These were part of the herbaria of T.F. Cheeseman and T. Kirk. Only three are dated: two collected by John Armstrong in the 1860s and one by Joseph Armstrong in 1870.

An online search of the herbarium of the Museum of New Zealand Te Papa Tongarewa (WELT) found over 140 specimens collected by the Armstrongs, many of which were from the herbarium of Thomas Kirk. Twenty-one of these were collected by John Armstrong, of which eight are dated, all to the year 1869, and all collected in the Rangitata valley and headwaters.

Sixteen of the specimens collected by Joseph Armstrong were dated. Eleven of these, from various places on the Canterbury Plains and mountains, were collected mainly in 1867 and 1869. Two of these specimens (SP046863 and SP045588) are from the herbarium of Donald Petrie: *Celmisia lyallii* collected from Mt Torlesse in 1867 and *C. holosericea* collected from Jacksons Bay in 1869, respectively. A further three dated specimens were collected by Joseph Armstrong between 1871 and 1880.

However, the remaining two of the 16 specimens dated by Joseph Armstrong (SP086511 and SP083657) were collected in February 1888 (*Celmisia incana* from Mt Percival, Waiau) and in March 1889 (*Veronica pulvinaris* from Mt Torlesse), respectively. These specimens, which were also originally part of the herbarium of Donald Petrie, were therefore collected by Joseph Armstrong 4-5 years after he was believed to have ceased interacting with other botanists.

Another sheet held by WELT (SP055766), also originally from the Petrie Herbarium, is dated "Jan 1893". This has two specimens of *Myrsine nummularia*, one (DP 55766) collected at 1000 ft on Banks Peninsula by JBA[rmstrong] (undated), and the other (DP 55765) collected in January 1893 at ca. 3500 ft on Rangitapu, Jackson's, Teremakau. The sheet label bears the names "D.P. & J.B. Armstrong" suggesting the two botanists collected together, although J.B. Armstrong's specimen is undated and might have been gifted to Petrie some time before January 1893.

We compared collections of Armstrong specimens held at WELT with those in the Armstrong Herbarium in the Allan Herbarium. As noted above, all of John Armstrong's specimens at WELT were collected in 1869 in the Rangitapu valley and headwaters, and there are over 70 specimens in the Armstrong Herbarium collected by John Armstrong in the same year and in the same locality.

The Petrie Herbarium specimen at WELT of *Veronica pulvinaris* collected from Mt Torlesse by Joseph Armstrong in March 1889 is matched by a specimen at the Allan Herbarium collected by Joseph Armstrong on Mt Torlesse in the same month (CHR 635873), although, of course, we cannot say if it was on the same expedition. Similarly, for the Petrie Herbarium specimen at WELT of *Celmisia incana* collected from Mt Percival, Waiau by Joseph Armstrong in February 1888, the Armstrong Herbarium has a specimen of this species from Mt Percival (CHR 634664) collected by Joseph Armstrong, but in 1890. Other specimens held by the Allan Herbarium confirm that Petrie was again collecting plants on Mt Torlesse (e.g., CHR 333093) in January 1893 (Pitt 2023) but again we cannot say if he collected with Joseph Armstrong on this occasion.

Conclusions

In the main, the dates of specimen collection for herbarium sheets that were exchanged, scanty though the information might be, suggest cooperation between the Armstrongs and other botanists peaked when both John and Joseph Armstrong were doing the bulk of their collecting in the 1860s, declined in the 1870s, slowed in the 1880s, and ceased after 1884. This is consistent with the timing of Joseph Armstrong's apparent severing of professional association with the Institute.

However, contrary to this general conclusion, Armstrong specimens from Donald Petrie's Herbarium held at WELT show not only that Joseph Armstrong had shared specimens with Petrie in the 1860s, but that he had maintained that relationship well past 1884. It seems

that Petrie was well respected by Joseph Armstrong, whereas the Armstrong Herbarium was indeed locked away from those Joseph did not respect.

Joseph Armstrong had more to write about

After publishing seven research papers with Institute between 1879 and 1881, and two short notes in the *New Zealand Journal of Science*, it's true that from a scientific perspective Joseph Armstrong wrote "nothing more to speak of" (Godley 1999, p. 27). However, the 34 botanical and horticultural articles he released at the same time in the *New Zealand Country Journal* were just the beginning of his contributions to the press in Canterbury and to respected and influential gardening magazines in England.

We mentioned earlier that Joseph Armstrong sometimes used a pen name (Molloy & Clemens 2021). He employed at least two of these sequentially. We return to them here because the pseudonyms write about things that Joseph Armstrong himself does not.

From mid-1879, Joseph Armstrong had been applying his own name or initials to two series being published in parallel in the *New Zealand Country Journal*, his "Short History of Grasses" and "Garden Notes". Then, early in 1880, Joseph gave life to the first of his pseudonyms, "Dulcamara" (literally sweetbitter or bittersweet). After J.B. Armstrong had authored a year of Garden Notes, Dulcamara appeared as the new author saying:

[The seasonal notes] will now be discontinued; and instead, we [sic] intend to supply short notes on new or interesting plants, remarkable gardens, horticultural exhibitions, or any matter belonging to horticultural pursuits likely to be interesting to our readers (Dulcamara see Armstrong JB 1880a).

While Joseph Armstrong continued to write on the history of grasses, Dulcamara wrote about flowering shrubs in the Christchurch Public Gardens (the Domain), Mr J.F. Armstrong's new apple called 'Armstrong's Nonpareil', and his delight at camping for a week in 1872 under a giant red beech in Westland (Dulcamara see Armstrong JB 1880a). In the next issues Hortor (Dulcamara's alter ego?) wrote on the Maple Tribe, of which there were two fine specimens in the Public Gardens (Hortor see Armstrong JB 1880b), then Dulcamara returned to write on rare herbaceous perennials and Mr J.F. Armstrong's calceolarias (Dulcamara see Armstrong JB 1881a).

Astonishingly, Dulcamara also wrote that he had been shown the manuscript of a work in progress by Mr J.B. Armstrong entitled the "New Zealand Flora".

[This] is written on a plan entirely new to this colony... The descriptions are being carefully drawn up from living specimens of the plants in all cases where such a course is possible, and the author has had opportunities possessed by no other New Zealand botanist. It is very possible that the portion containing the ferns and their allies may be issued separately, and at an early date; and if so, we may hope to have shortly a more reliable account of our ferns than we have hitherto had (Dulcamara see Armstrong JB 1881a).

This might well be the same "Manual of New Zealand Botany" to which Joseph Armstrong had referred as being in preparation when addressing the Philosophical Institute in August 1880 (Armstrong JB 1880c, p. 345).

Joseph Armstrong had reserved his own name to publish practical science articles while using Dulcamara (or, once, Hortor) to publicise not just the successes of the Public Gardens

where he and his father worked, but also to announce the imminent release of a New Zealand flora based on his unique experience of the plants in the wild and in cultivation. Unfortunately, this manuscript was never published.

Dulcamara continued to write notes on the fertilisation of red clover and a native violet discovered on Stewart Island (Dulcamara see Armstrong JB 1881b) before being supplanted by Joseph himself writing one last traditional Garden Notes (Armstrong JB [Initialled J.B.A.] 1881c). Joseph Armstrong and his pseudonym(s) stopped writing for the *New Zealand Country Journal* after this, but Dulcamara would return to write for the daily and weekly Christchurch press later in the decade.

Instead, Joseph Armstrong turned his attention to writing for botanical and horticultural journals published in England. He had already established contact in the 1870s with the famous journalist, author, and gardener, William Robinson FLS, the founder of the illustrated weekly journal *The Garden: an illustrated weekly journal of gardening [later Horticulture] in all its branches*. Robinson was the author of *The Wild Garden* (1870) and *The English Flower Garden* (1883), copies of which were in the Armstrongs' personal library, and a proponent of the "wild garden" as opposed to formal gardens with regimented bedding systems. These works might have inspired a certain lack of regimented formality within the botanically organised plant collections in the Domain, a feature that would have displeased the members of the Domain Board. Correspondence from Joseph Armstrong had been published in *The Garden* in November 1879, where we read that "Mr J.B. Armstrong, Botanic Gardens, Christchurch, New Zealand, sends me some very interesting notes":

We have in New Zealand many plants of chaste beauty, which would delight your lovers of Alpine plants. For many years past I have spent my spare time in studying and collecting the flora of the Southern Alps. ... I am certain that our native sub-alpine shrubs will eventually become the common ornaments of your gardens (Armstrong JB 1879a).

Joseph went on to describe some sub-alpine plants and noted that he had sent some seeds of a giant forget-me-not. This led him to being credited with establishing the institution of seed exchange for the benefit of Canterbury (Anon. 1880, 8 Jul). More descriptions of the alpine flora of New Zealand were quoted a year later (Armstrong JB 1880d). Joseph's father also contributed an article to *The Garden* on New Zealand veronicas (Armstrong JF 1883a).

In 1880, Joseph's research paper "A short sketch of the flora of the Province of Canterbury" (Armstrong JB 1879b) was greeted with approval by another English publication, the *Gardeners' Chronicle: a weekly illustrated journal of horticulture and allied subjects* (Anon. 1880, 25 Sep). This was the horticultural journal founded in 1841 by, among others, John Lindley who had advised Joseph's father on his horticultural career (Anon. 1902, 22 Sep). The *Gardeners' Chronicle* published Joseph Armstrong's long essay on the botany of the Southern Alps (Armstrong JB 1883a) and a version of an earlier paper on the fertilization of red clover (Armstrong JB 1883b). There followed an illustrated article on *Ranunculus lyallii* (Figure 2, p. 76), to which Hooker would refer when describing the plant's habitat in *Curtis's Botanical Magazine: the plants of the Royal Gardens of Kew* (Hooker 1886), and another on New Zealand cordylines (Armstrong JB 1885a, 1885b).

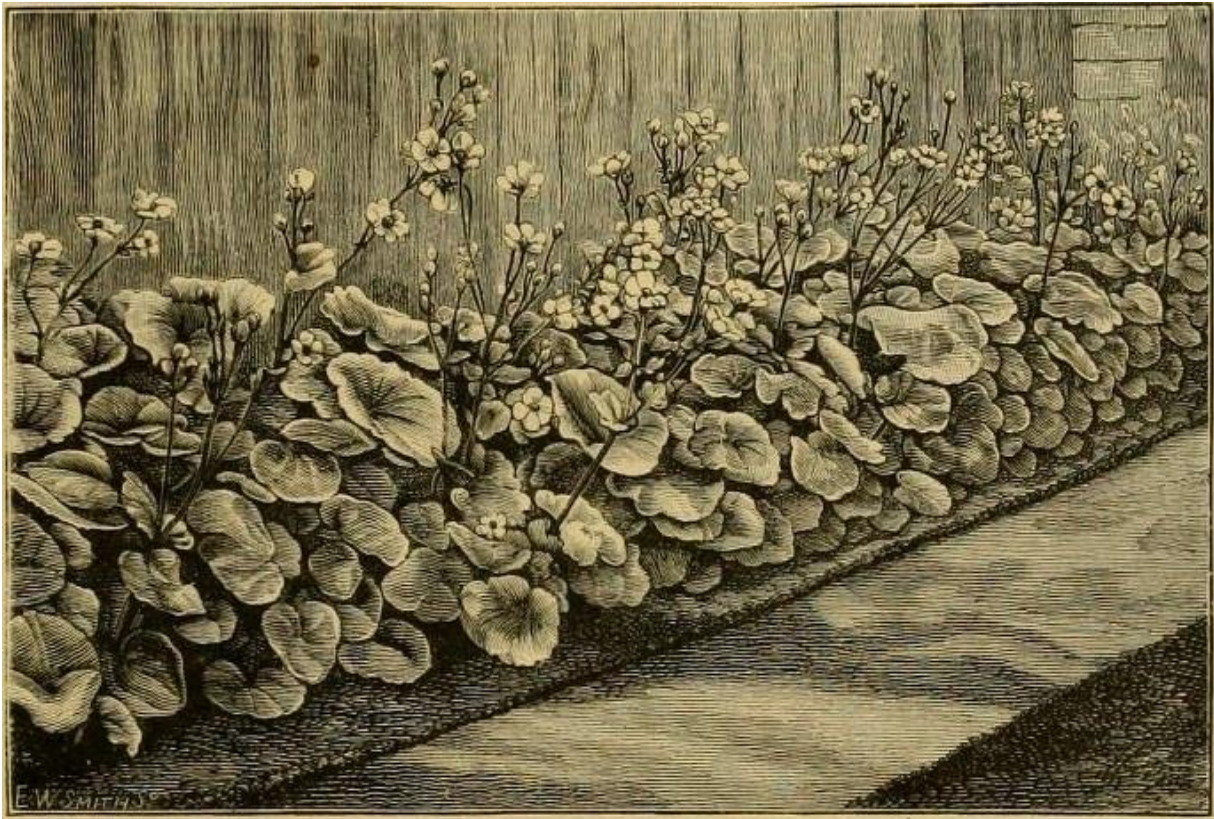


Figure 2. *Ranunculus lyallii*. In: Armstrong JB 1885a. The page from which this image was taken was made available by The Biodiversity Heritage Library <https://www.biodiversitylibrary.org/item/84376> [accessed 27 July 2023].

The Domain becomes, in effect, a botanic garden

A growing recognition of a botanic garden in Christchurch

Articles Joseph and John Armstrong published in the English horticultural journals usually showed the authors to be based at the “Botanic Gardens, Christchurch”. Joseph Armstrong had no doubt that the Domain had indeed been transformed into a botanic garden. In 1885 the *Gardeners’ Chronicle* published an article by Christopher Mudd, a British horticulturist who had come to Canterbury on a four-year tree planting contract in 1879. Mudd roundly criticised the appearance of the Public Gardens in Christchurch describing them as “utterly useless” (Mudd 1884, p. 204). Joseph Armstrong was typically quick to respond, writing to categorically deny the charges and to state:

The domain ... is now to all intents and purposes a Botanical Garden, although the name has never been officially applied to it (Armstrong JB 1885c, p. 249).

An endorsement of this view came in 1886 when *The Garden* published a list of the public gardens of the world, a revised version of a list produced by the Montreal Horticultural Society. The list showed each garden’s locality and the relevant “Name of Director or Superintendent” (Anon. 1886, 25 Dec). Public gardens in Australia were listed as Adelaide, Brisbane, Melbourne, and Sydney headed by Dr R. Schomburgk, F. Cowan, W.R. Guilfoyle FLS, and Charles Moore FLS, respectively. These “public gardens” were the botanic gardens founded in the four Australian cities between 1816 and 1857. There were just two entries for New Zealand on this list. These were Christchurch and Wellington, and the name of the Director/Superintendent for these was listed as “J. B. Armstrong” and “Dr. J. Hector”,

respectively. The Armstrongs' efforts to develop a botanic garden were gaining recognition in English horticultural circles, as was J.B. Armstrong himself.

Joseph D. Hooker at the Royal Botanic Gardens Kew had prepared a list of suggestions for the effective functioning of colonial botanic gardens and for the guidance of their Superintendents in the interests of the mother country (Hooker 1880). Although there is no evidence that a direct relationship had been established between the Armstrongs and Kew (Ginn 2009), given the attention Joseph Armstrong paid to English publications in the 1880s and his promotion of a botanic garden in Christchurch, it is quite likely he had become aware of Hooker's list of suggestions.

Over and above the upkeep of plantings attractive and useful to the general public, Hooker's suggestions included taking steps to introduce new plants to the colony; to collect and cultivate plants "of the colony" i.e., indigenous plants; to distribute and exchange useful plants locally and with other colonies; to document the collections of plants, which should be conspicuously labelled ("ticketed"); to keep a herbarium of flowering plants and ferns; and to keep a botanical reference library (Hooker 1880).

The Armstrongs had been working towards fulfilling all these functions for many years. In addition, and especially through the efforts of Joseph Armstrong, they had been undertaking research on New Zealand plants in the wild, in cultivation, and in the herbarium, and publishing their findings.

Labelling plants and making a herbarium for the Domain Board

In general, the public of Christchurch would have been unaware of the Armstrongs' research, the reference library, and the documentation of the collections, or that their Public Gardens were becoming a botanic garden. However, the labelling of plants was one aspect of Hooker's suggestions that would have come to public attention. Appreciated by those who wanted to learn about the plants and a source of mischief for those who would steal or move them about, plant labels were anathema to those opposed to the Domain becoming a botanic garden.

Efforts were being made to label the plants in the Domain in the 1870s. At the 14 April 1871 meeting of the Domain Board, it was minuted "that 2000 labels should be ordered from England for the purpose of marking different specimen trees" (Christchurch Domain Board 1871). In 1873 John Armstrong "had succeeded in affixing as many as 700 large metallic labels to the more conspicuous plants", each showing the plant's natural order, botanical name, and native country (Anon. 1873, 4 Mar).

Over ten years later there was still more labelling to be done. John Armstrong submitted a revealing Quarterly Report dated 1 March 1885 to the Domain Board. In this he noted that the Board had earlier expressed a wish for all the plants in the Domain to be labelled. Armstrong agreed this was "undoubtedly desirable" but pointed out that: i) about 5000 expensive labels in three sizes would have to be imported from England, ii) owing to recent and extensive changes to plant nomenclature a number of expensive reference books would need to be bought, iii) using anything other than "the most approved nomenclature would be a serious mistake", and iv) additional skilled labour would be needed for the work on labels because the staff were already overworked. The Board directed Armstrong to try using wooden laths for labels (Armstrong JF 1885).

Returning to Armstrong's 1885 report to the Domain Board, he also wrote that the Board had earlier requested that an attempt be made to make "an Herbarium". "[A]bout 700 typical specimens have been prepared as a commencement" although there was nowhere suitable to store them, and they were "taking harm from mildew" (Armstrong JF 1885). The Board's requested herbarium would appear to relate to the plants currently being grown in the Domain, possibly to the exotic plant collections. There is no record of what happened to the "commencement" of 700 herbarium specimens. The specimens currently in the herbarium of the Christchurch Botanic Gardens (CHBG) date from 1912.

The fact that John Armstrong wrote that the Domain Board had actually requested the plants be labelled and that a herbarium be made – and that a start had been made on both these demanding activities – indicates that at some stage in the early 1880s the Board supported the development of the Domain as a botanic garden, albeit without the resources to employ more staff to assist John and Joseph Armstrong. The Board's members in 1885 were possibly aware of Hooker's list of suggestions for Colonial botanic gardens.

By July 1885, 3000 plants had been labelled using "wooden labels stuck in the ground", and another 1000 were in preparation (Anon. 1885a, 31 Jul). The following year, while applauding the new labelling of exotic plants, a correspondent in *The Lyttelton Times* asked that the plants in the "native garden" be similarly labelled (Spackman 1886, 23 Aug). This request initiated a heated exchange of letters to the editor between Spackman and someone using the pseudonym "Justice". Justice wrote that the general public "evidently do not care a straw whether the plants are named or not", and in his opinion plant labels were unnecessary because "It must be remembered that the Domain is not in any sense a botanic garden, but a pleasure ground", or later, "a recreation ground". Nor was it "in any sense a scientific establishment for teaching botany"; Spackman apparently was an elected member of the Canterbury College Governors (Justice 1886, 25 Aug; 27 Aug). If Justice spoke for an influential segment of Christchurch society, 20 years of progress towards a botanic garden was under threat.

At the close of 1885, a committee of the Charitable Aid Board dismissed about 20 old and physically infirm men who had been working on light duties in the Domain and Hagley Park, leaving the two Armstrongs and one foreman to do all the work. It is reported that when interviewed by the press, John Armstrong said that unless the Domain Board can find the money to employ more staff "the place must go to ruin" (Anon. 1885b, 1 Dec), a portent of the turn of events later in the decade.

Hooker corresponds with Haast and Hector on New Zealand botanic gardens

One can imagine that the Christchurch establishment in general did not share the view that its Public Gardens had become a botanic garden. Certainly Haast, for whom the Armstrongs had voluntarily toiled, did not publicly acknowledge the progress or the potential of the botanic garden the Armstrongs were in the process of developing. Apart from the reasons we advanced in Part II (Molloy & Clemens 2021), this conclusion can be reached from a short but revealing exchange of correspondence on the subject between Hooker and Haast contained in Nolden et al. (2013).

In 1883, an exasperated Hooker asked Haast:

When will N.Z. have a Botanical Garden worthy of the name – it is extraordinary that Sydney, Melbourne, Queensland, & S. Australia [the four public gardens noted above, each

with its respective director/superintendent] *should all have excellent working Bot' Gardens & N.Z. none to speak of* (Hooker 1883).

In what appears to be his only reply on this subject, admittedly a year later, Haast states in passing:

I feel there is little chance for a botanical garden in New Zealand, at least for many years to come, ... poor Hector has every year to pass through the ordeal of an annual niggardly vote for the little garden he tries to keep up in Wellington (Haast 1884).

In return, Hooker is explicit about what was needed:

Above all a good Colonial Garden is wanted where all these species & varieties would be grown side by side for comparison & study (Hooker 1884).

Hooker is describing precisely what the Armstrongs had been doing, and what Joseph Armstrong had been propounding in his papers and other publications.

The above exchange, with its glaring hiatus where Haast could have made some, even deprecating, mention of what the Armstrongs were trying to achieve, lends weight to our suggestion that Haast and the Armstrongs had fallen out (Molloy & Clemens 2021). Any scientific importance attached to the Armstrongs' work in the Christchurch Domain would appear to have been achieved despite of, rather than through, Haast's influence and relationship with Hooker, contrary to the view of Ginn (2009).

It is possible that further letters between Haast and Hooker on New Zealand botanic gardens will be found through archival research (S. Nolden pers. comm.). In the meantime, the correspondence speaks for itself.

In early 1882 Hooker had also written to James Hector at the Colonial Museum, Wellington about the need in New Zealand for "a properly organised Bot. Garden", but as transcribed by Burns and Nathan (2012), Hector replies about funding problems and writes off local efforts as "chiefly amateur" (Hector 1882), a view with which Haast would probably have concurred. In the same year FW Hutton had pastronisingly encouraged "amateur workers" (as opposed to gentlemen) to write notes of their "fragmentary knowledge" for his *New Zealand Journal of Science* (Hutton 1882).

Hector's blindness, or possibly his studied refusal to acknowledge that "amateurs" like the Armstrongs could develop and maintain botanical collections in the Christchurch Domain as suggested by Hooker, persisted for the rest of the decade. In February 1889, Hooker wrote to Hector asking for detailed information on the status of New Zealand's botanic gardens and public reserves. Hector had presumably passed on Hooker's request to the respective authorities throughout the Colony indicating he intended to collate their replies. Four months later he was able to respond to Hooker with tabulated information from 25 gardens and reserves from Whangarei to Bluff (Hector 1889). In Hector's table the phrase "botanic(al) garden" was applied to five of these 25 places: Wellington, New Plymouth, Napier, Nelson, and Dunedin, but not to Christchurch.

It is possible that Christchurch had been omitted by Hector from this botanical shortlist because, as Joseph Armstrong himself had noted in 1885, the name "botanical garden" had not been officially applied to the Christchurch Domain. However, under the heading "State of cultivation", while Wellington Botanic Gardens was reported to have "botanical collections" and Dunedin "plants indigenous to New Zealand", both of which could have

been applied appropriately to Christchurch, Christchurch Domain was shown as having only “Ornamental grounds”.

Assuming Hector had written to the Christchurch Domain Board as the governance body of the Christchurch Domain, the Board’s reply must have indicated “Ornamental grounds”, or some such, as the current state of cultivation of the Domain. Just as Haast had effectively expressed five years earlier, the Board was giving the Armstrongs no recognition for 20 years of botanical development in the Christchurch Domain; no appreciation of the botanical collections that 20 years later Cockayne would describe as including “the very finest collection of New Zealand plants in the world” and introduced plants “arranged ... in an excellent manner, each bed representing a plant geographical region” (Cockayne 1907).

It is disappointing that Hector did not correct the entry for the Christchurch Domain to at least include botanical or indigenous collections. Hector was fully aware of Joseph Armstrong’s botanical research conducted both in the Christchurch Domain and in the field because he had managed the publication of Joseph’s masterful synopsis of New Zealand *Veronica* (Armstrong JB 1880c) and of his proposed natural arrangement of ferns (Armstrong JB 1880e) in the 1880 volume of the *Transactions and Proceedings of the New Zealand Institute*. He even commented to Hooker as this volume was going to press “that Armstrong wants to review the old nomenclature of Ferns” (Hector 1881). He also had in his possession a copy of John Armstrong’s 1883 report on economic i.e., not ornamental, plants suitable for cultivation in New Zealand (Armstrong JF 1883b) (John Adam pers. comm). The most Hector did in his 1889 report to Hooker was acknowledge J.B. Armstrong as the Superintendent and J. Armstrong as the Head Gardener.

The Domain Board, or whichever member it was who took it upon themselves to reply to Hector, had determined that the Domain was, and would continue to be, no more than ornamental grounds. Hector’s letter to Hooker with its accompanying table of information was dated 9 July 1889. Within three months the Domain Board had dispensed with the Armstrongs’ services.

Despite all this, by the time *Veronica lavaudiana* appeared in *Curtis’s Botanical Magazine* in 1891 (two years after receipt of Hector’s schedule and four years after Haast’s death), Hooker was endorsing the fact that Christchurch did have a botanic garden and acknowledged the work of the Armstrongs, father and son:

The numerous New Zealand Veronicas are being rapidly introduced into this country, chiefly through the agency of Mr. Armstrong, of the Botanical Gardens, Christ Church, Canterbury... I described forty species... That number has been brought up to sixty by Mr. J. B. Armstrong, who has published a tabular resumé of the species in the Transactions of the New Zealand Institute (Hooker 1891).

This resumé had also been referred to by the Curator of the Cambridge Botanic Garden (Brown 1890).

Towards the Armstrongs’ resignation

Despite staff shortages during the day, and evenings and Sundays being taken up with botanical work for the Domain, John Armstrong had resumed publishing in 1883 after a ten-year break, writing three articles in the *New Zealand Country Journal* (Armstrong JF 1883c, 1883d, 1886), as well as the Government report on economic plants suitable for cultivation in New Zealand (Armstrong JF 1883b).

Apart from one short letter to the editor on the weed *Calystegia sepium* (Armstrong JB 1888, 9 Mar), Joseph Armstrong appears to have published nothing in local journals or newspapers under his own name between 1885 and 1890. Instead, he wrote either anonymously or masqueraded under the pseudonym Dulcamara, who returned after a break of almost seven years, or his next pseudonym, “Clematis”.

Dulcamara is confirmed to be Joseph Armstrong when he describes climbing and botanising on Mt Torlesse in 1885:

Although not by any means to be considered a first class ascent in a mountainous country like New Zealand, Mount Torlesse is nevertheless 6400 ft high, or twice the height of the principal peak in England—Scawfell— which I several times ascended when a boy (Dulcamara see Armstrong JB 1885d, 14 Feb).

“Scawfell” or Scafell (Pike) is the highest peak at the head of the valley of Was[h]dale in the Lake District, England where the Armstrong family lived in the late 1850s, when Joseph was a boy and his father worked for Mr Rawson at Washdale Hall (Anon. 1889, 12 Oct).

An anonymously published article in the *Canterbury Times* in 1887 entitled “The botany of Canterbury” (Anon. see Armstrong JB 1887, 21 Oct) is an abridged version of Joseph Armstrong’s “Short sketch of the flora of the Province of Canterbury” (Armstrong JB 1879b), and the editing strongly indicates it was written by the same author. Even in the original 1879 paper, Joseph Armstrong wrote of the flora of Banks Peninsula that “the southern slopes, and particularly the gullies, are, *or rather were* [our italics], covered with the most luxuriant vegetation” (Figure 3). In 1887 he commented that the “flora, as it existed twenty-five years ago” when he arrived in New Zealand, “had been very largely cleared and converted into pasture”. It is no wonder that botanists seeking plants on Banks Peninsula after the 1880s could not find some of the species the Armstrongs had collected one or two decades before, or even the environments in which those plants once grew.



Figure 3. John Hoyte, Akaroa Harbour. Collection of Mr D.G. Dawe, on loan to Christchurch Art Gallery Te Puna o Waiwhetū.

Dulcamara reappeared in May 1888 writing a weekly column for the *Canterbury Times* on different flowers and plants for the garden (Dulcamara see Armstrong JB 1888, 25 May-1889, 16 May) with occasional pieces on New Zealand plants e.g., the rata (Dulcamara see Armstrong JB 1889, 18 Apr). After exactly 12 months, Dulcamara was summarily replaced by Clematis in the 30 May 1889 issue of the *Canterbury Times*. Unsurprisingly, Clematis has knowledge and a writing style very much like those of Dulcamara, and he continues to keep up a similar weekly column (Clematis see Armstrong JB 1889, 30 May-1890, 23 Jan). Had Joseph's cover as Dulcamara finally worn too thin, or had Joseph's employment in the Domain become so precarious that Joseph had anticipated the time when he would need a new pseudonym to express his opinions?

On 7 October 1889 the Domain Board placed an advertisement in the press requesting gardeners apply for the position of Head Gardener in the Domain (Anon. 1889, 7 Oct). Apparently, the Curator, John Armstrong and his son Joseph Armstrong no longer worked there. Taken aback, members of the press asked the Armstrongs what had happened. They replied they had been told they were to keep a work diary with an account of each man's work, and to submit in advance for approval by the Board's Executive Committee a programme of work for the month ahead. In effect, the Executive Committee intended to manage the work of the Domain. John Armstrong would be pensioned off, while Joseph Armstrong as the Head Gardener would be required to do exactly as he was directed e.g., to substitute bedding plants for hardy perennial plants (Anon. 1889, 10 Oct).

Belatedly, the Domain Board wrote an explanation of its actions for the daily newspapers, reproduced in the *Canterbury Times* and entitled "The Domain Gardens. Messrs Armstrongs' retirement. Work done in the past". It said the Board had decided to rearrange the Armstrongs' duties, which it said was unacceptable to them, forcing the Board to reluctantly accept their resignations (Anon. 1889, 12 Oct).

Clematis seemed not to have noticed these events and kept writing his weekly horticultural column until 16 January 1890. On that day, he wrote a blistering condemnation of the members of the Domain Board's Executive Committee. He wrote that the Domain Board had handed over the running of the Domain to an Executive Committee of three men of the "know-everything genus" who, in his opinion, did not know anywhere near enough about horticultural matters. They were – and this would have struck the gentlemen of the Executive Committee as particularly insolent – "amateurs". The Curator, John Armstrong, who had battled indifference and opposition from a succession of Domain Board members for over 20 years, resigned, and the Assistant Curator, Joseph Armstrong, was "got rid of after a struggle". In the months following the Armstrongs' departure, valuable plants had been destroyed, weeds had mistakenly been allowed to thrive, plant collections were being mixed up, plants killed by being transplanted at the wrong time, and the lawns badly managed. And lastly:

I must mention the extraordinary attempt at the bedding system of gardening. This is so utterly bad in taste, so badly carried out, so entirely disgusting to anyone with a taste for plants, or with any sympathy for the beauties of Nature, that it defies criticism. ... [It is] the very worst phase of the bedding plant craze (Clematis see Armstrong JB 1890, 16 Jan).

Two weeks later, a tribute to the achievements of John Armstrong's replacement, the new Head Gardener Ambrose L. Taylor, in creating a "very neat and clean appearance of the Public Gardens" was published in the *Canterbury Times* (Anon. 1890, 30 Jan). Clematis,

formerly Dulcamara, in reality, Joseph Armstrong, stopped writing, or his services as a gardening columnist were no longer welcome.

With the Domain behind him, though not far from his mind, Joseph Armstrong dispensed with his pseudonyms in the 1890s and restricted himself to the occasional short communications to the press to correct errors in other correspondents' articles.

A notable exception to this was his detailed response to a correspondent who had compared the disappointing plant collection he saw on visiting the Domain in 1897 (eight years after the Armstrongs had resigned) with their much better arrangement, diversity and labelling 10-12 years earlier (while the Armstrongs were employed) (Visitor 1897, 18 Sep). Here we learn – and Joseph must have kept his accession and cultivation record books to be able to supply the details:

It was always our aim to make the collection of plants as complete as possible, in order to give the garden a real educational value, and by perseverance under great difficulties, such as the want of funds and the passive opposition of the Domain Board, we managed to get together a collection of about 6000 species of hardy plants, more than half of which were herbaceous plants ... On the 1st of September, 1889, after the winter's losses were struck off, the exact number of species and varieties of plants in the garden was 5849 exclusive of garden varieties, which amounted to about a thousand more."

I attached labels to over 4000 of the 6000 species then in the gardens, and in order to bring the work up to the very latest position of botanical progress and carry on my regular work as well, I had to work to midnight for several months working out the identifications and references, and to buy many expensive books out of my own pocket ... I did not receive a single sixpence extra nor even a single word of thanks; but, on the contrary, met with a good deal of abuse because I refused to name the remaining plants at a further large additional expense to myself (Armstrong JB 1897, 25 Sep).

The meticulous Joseph Armstrong had refused to label the remaining plants as he could not be sure, without the expense of buying still more reference works on plant nomenclature, of naming them correctly. Naming them incorrectly would have been, to use his father's phrase, "a serious mistake".

Joseph Armstrong managed to sign off on an optimistic note: "There is now [in 1897] ... a better chance of carrying out improvements owing to the great change that has come over public opinion".

By contrast, the Domain Board responded to Joseph Armstrong's letter by choosing to support their new Head Gardener's version of what the Domain contained when he took over in 1889 (Anon. 1897, 7 Oct).

Joseph continued to botanise and add to his herbarium, and, after a long break, renewed his connection with the horticultural society where he had won his first prize for an exhibition of New Zealand plants in 1866. He continued to champion the study, cultivation, and greater use of New Zealand plants in public places and gardens. Joseph's mother, Annie Armstrong née Bowman, died in 1899, his father, John Armstrong, in 1902, and Joseph's wife, Annie Abbott, in 1917.

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References

A reference list bringing together those from all parts of this series will be published in due course. A list for this part is available on request (J.C.).

Boundary Creek Conservation Area, North Canterbury over the years

Michelle Lambert

On the 10th of December 2022, a group of intrepid botanists travelled to North Canterbury to investigate the plant species of the Boundary Creek Conservation Area. Boundary Creek Conservation Area is in coastal hill country on either side of the Glendhu Road about 6 km east of the turnoff from the Motunau Beach Road. It consists of a block of 55.54 ha on the northern side of the road and a block of 19.25 ha on the southern side.

We explored the southern block considering the underlying geology of the area where the creek has cut down through faulted tertiary deposits of sandstone, mudstone, and gravels (Rattenbury et al. 2012, Edbrooke et al. 2014, Heron 2020) that provide for interesting combinations of vegetation types. Owing to the time of year, we also focused on recording the presence of orchids in the *Fuscospora solandri* (black beech) forest.

Dr Brian Molloy of the then DSIR Botany Division made several visits to the area in the late 1970s and reported on the 3,000 ka Coringa Farm Settlement that extends northeast from Motunau Beach towards Glendhu Road. He published a species list for Coringa and reported on the areas of indigenous vegetation worth considering for protection, including Upper Boundary Creek on either side of Glendhu Road, the lower reaches of Cranky Tom Stream (a tributary of Boundary Creek), and the vegetation at the mouth of Boundary Creek (Molloy 1986).

On our visit we had two species lists others had compiled for areas in the catchment above and below our study area: the more recent was from a Canterbury Botanical Society trip in 2002 to the Upper Boundary Creek north of Glendhu Road (CBS 2002), and one Brian