Lucy Cranwell Lecture 2003 – Introduction

Ewen K Cameron

Dr David Galloway is a most fitting Lucy Cranwell lecturer; he is the authority on NZ lichens and their southern hemisphere distribution and enjoys the outdoors, especially mountaineering. Lucy Cranwell studied Gondwanan pollen, and together with Lucy Moore, made a special study of many of the North Island mountain floras. David studies lichen spores to aid their identification and classification - Lucy Cranwell studied pollen and spores for her pioneering work reconstructing past southern hemisphere forest types and climate change.

David was born in Invercargill in 1942 and went to school there. Playing cricket during a family weekend outing David had to recover the ball from a nearby bog, and next to the ball was a striking specimen of coral lichen (*Cladia retipora*), which he later took to school to find out what it was. His biology teacher told him it was a moss. But David knew mosses were green, not white, so he showed it to his chemistry teacher who told him it was a lichen, *Cladonia retipora* as it was then called. This teacher was Mr G.C. Martin, the son of William Martin who was revising this lichen group at the time and his son was doing their chemistry. The first seed was sown.

David went on to Otago University studying biochemistry, which led to an MSc on lipids of NZ lichens. Followed by a PhD on enzymes of polyhydric alcohol metabolism in *Acetobacter,* micro-organisms involved in vinegar production (after failing to find them in lichens). Over one summer he assisted the visiting British lichenologist, Peter James, curating the lichen collection of the late Dr James Murray, in the Botany Department at the Otago University (arranged by Geoff Baylis).

From an Assistant Lecturer at Otago University David went on to work at DSIR Applied Biochemistry Division, Palmerston North as a biochemist. In 1970 he was invited to join a group of entomologists led by Willie Kuschel to the Three Kings Islands for a month (replacing Ian Atkinson who at that time was also based at Palmerston North). After observing him in the field, Willie asked David why he was wasting his time being a biochemist, when he should really be a lichenologist. This was one of the turning points in his life.

Returning to the mainland, David discussed this idea with the then Director of Botany Division, Eric Godley. Eric could obviously see the potential in David, and replied that it may be a possible in the future. After the retirement of B E V Parham at Botany Division, David transferred to Botany Division in December 1972 to work on lichens (a 2nd turning point). But David quickly had to forget roaming freely around NZ to study lichens; Eric sent him packing to the British Museum (BM) to become properly qualified for the position, where he met up with Peter James again. While seconded to BM David worked towards a NZ Lichen flora for Botany Division, punctuated with return visits to repay his bond, until the flora was written in March 1982 (published February 1985).

From November 1982 to November 1994 David was Senior Research Fellow, and later Principal Scientific Officer and Head of the Lichen Section at BM in the Botany Department, and focused on the lichens of the southern hemisphere (especially Chile), building on his knowledge of the NZ lichen flora.

During his London period David caught up with his school sweetheart, Patricia Payne, who had moved to England in 1967 to follow her vocation as an opera singer. They were married in 1974 and Patricia had a contract with Covent Gardens as a soloist, 1974-82, and later became freelance, appearing around the world. Their separate careers complemented each other, because when Patricia sang in Italy during the European summers, David worked away in lovely adjacent Italian botanical institutions such as Verona, Florence, Torino and Genoa.

David Galloway (lichens), John Braggins (liverworts) and Jessica Beever (mosses) - cryptogam experts after botanising Rangitoto Island - they only managed a few hundred metres for the day. Photo: Ewen Cameron 21/7/83.

Late 1994, after 22 yrs in London, he returned with Patricia to Dunedin, and later bought a cottage near Millers Flat in Central Otago on the side of the Clutha River. From here David was involved in various contract lichen-based projects locally and overseas (S America & Malaysia).

In 1996 he joined Landcare Research on a 60% time basis to prepare a second edition (and major revision) of Flora of New Zealand Lichens. Working 100% of his time this project is now nearly completed and due for publication next year. Compared with the 1985 flora

there will be an increase of 60-70% in both genera and species. An enormous revision! David currently works from his study overlooking the garden while his wife paints. But they plan to move to Dunedin next year.

From 1987-1992 he was President of the International Association for Lichenology (of which he is now an Hon. Life President), from 1992-1994 Vice President of the British Lichen Society, and he has numerous letters after his name: including: MSc, PhD, DSc (Otago), FRSNZ, FLS, FRGS, CBiol, MIBiol – a reflection of how well qualified our speaker is tonight.

During his youth David was a keen mountaineer and loved nothing better than disappearing into the Olivine Mountains of NW Otago for several weeks at a time. This kindled his interest in history, especially of NZ explorers. Later, being based in Europe, studying historical specimens and reading 19th century literature no doubt complemented this interest and has inspired him for this evenings lecture:

Lucy Cranwell Lecture 2003 – The Kew Connection: the Hookers and New Zealand Botany

David J Galloway
Landcare Research

Introduction

It is a signal honour for me to be asked to deliver this year's Lucy Cranwell Lecture, and I would like to thank the Committee of the Auckland Botanical Society for this kind invitation. When Ewen Cameron e-mailed me on 26 March 2003, with the invitation to give the lecture, he suggested that I might like to speak about the Hookers, father and son, and mentioned that the ABS had not previously had a talk on an historical topic in this series of commemorative lectures. He also said that I might possibly like to speak on lichens but that if I did then I should keep the treatment broad for a non-specialist audience.

Well, his first suggestion appeals to me a good deal, and it does have distinct connections with Auckland, as we shall see, but I can't quite forget about lichens altogether, especially as I feel it only proper that I should acknowledge the botanist in whose honour this annual lecture is given. Very happily I can mention Lucy Cranwell and lichens together. Lucy Cranwell as is very well known, was one half of that formidable collecting team "the two Lucys, Cranwell and Moore" (Cameron 2000; Thomson 2000). In 1926-1927 when the Uppsala botanists G. Einar Du Rietz and Greta Sernander Du Rietz were in New Zealand at the invitation of Dr Leonard Cockayne, the two Lucys were both students at Auckland University College as it then was. [They later both met Einar and Greta Du Rietz in Uppsala in 1935 when they were on their overseas trip to the International Botanical Congress in Amsterdam – H.H. Allan later wrote of this to Du Rietz (7 October 1936): "…This is just a note to express my deep thanks for all the kindnesses you and yours showed to my friend Lucy Cranwell while she was in Sweden. She has lost her head to your country, which I hope to visit myself in 1940!…" (Rolf Du Rietz, *pers. comm.*)].

Du Rietz spent 6 months collecting lichens and studying bipolar plants, visiting a wide range of different habitats from the kauri forests of North Auckland, to the subantarctic islands on the *Tutanekai*, with Captain Bollons. Einar Du Rietz at the time of his visit to NZ was a very capable lichenologist and had published by that time an impressive series of papers on lichens. He was especially interested in bipolar distributions of lichens and of other plant groups (Du Rietz 1929, 1940), and he encouraged H.H. Allan (Galloway 1976a) especially, and also other botanical collectors with whom they came into contact, to start collecting New Zealand lichens. Du Rietz on his return to Sweden was involved for several years in seeking a position and he eventually succeeded his father-in-law, Rutger Sernander, as Director of the Institute of Ecological Botany in Uppsala, forsaking lichens for plant ecology. However, he suggested that Allan should forward NZ lichens to Europe to various specialists and eventually Alexander Zahlbruckner in Vienna undertook to collate an account of New Zealand lichens based on the collections of H.H. Allan, supplemented with North Island collections of Lucy Moore and Lucy Cranwell (with contributions also from Ken Allison, J.E. Attwood, Geoff Baylis, A.D. Beddie, Ted Chamberlain, I.W. Davey, W.A. Given, W.M. Hamilton, E. Hodgson, A.L. Poole, G.B. Rawlings, C. Sando, A.S. Wilkinson, V.D. Zotov) and the extensive South Island collections of Jack Scott Thomson (Godley 1996; Bannister 2000). Zahlbruckner alas died before his account was complete and it was left to his student Karl Redinger to see the work through the press in the early years of the war. Lucy Cranwell's contribution to Zahlbruckner's *Lichens Novae Zealandiae* (Zahlbruckner 1941) is the following, with types indicated *:

**Verrucaria aucklandica* Zahlbr. (Anawhata)
Graphis tenella (Hen Island)
Leptogium aucklandicum (Hen Island)
**Heppia spectabilis* [= *Peltula euploca*] (Hen Island)
Pannaria nebulosa [= *P. crenulata*](Mt Tongariro)

Psoroma sphinctrinum [= *Pannaria sphincrtrina*](Hen Island, Mt Egmont)
Sticta subcoriacea [= *Pseudocyphellaria coriacea*] (Harriet King's Island)
Sticta cellulifera [= *P. billardierei*] (Hen Island)
Sticta freycinetii [= *P. glabra*] (Pirongia, Waitakeres)
Sticta chloroleuca [= *P. dissimilis*] (Moehau)
Sticta coronata [= *P. coronata*] (Pirongia)
Sticta impressa [= *P. faveolata*] (Pirongia)
Sticta sinuosa [= *P. homoeophylla*] (Pirongia)
Sticta fragillima [= *P. dissimilis*] (Stony Bay, Coromandel Peninsula)
Sticta mougeotina var. *aurigera* [= *P. crocata*] (Rangitoto)
Sticta wiegelii [= *S. fuliginosa*] (Moehau)
**Lecidea gallinarum* [= *Lecanora subcoarctata*] (Hen Island)
**Lecidea senescens* (Anawhata)
Lecidea circumdiluens [=*Lecanora subcoarctata*](Anawhata)
**Lecidea coromandelica* [*Trapeliopsis congregans*] (Moehau)
Stereocaulon corticatulum (Mt Egmont)
Perforaria cucurbitula [= *Coccotrema cucurbitula*] (Moehau, Mt Egmont)
Pertusaria melanospora (Anawhata)
Lecanora dispersa (Anawhata)
Lecanora leprosa (Orakei Creek)
Lecanora rhodocarpa [= *Placopsis*] (Mt Egmont)
Lecanora perrugosa [= *Placopsis perrugosa*] (Stony Bay, Coromandel Peninsula)
Parmelia rutidota var. *vestita* [*Punctelia subflava*] (Stony Bay, Coromandel)
Parmelia crambidiocarpa (Mt Egmont)
Parmelia lugubris [= *Hypogymnia lugubris*] (Mt Egmont)
Parmelia subphysodes [= *Hypogymnia subphysodes*] (Mt Egmont)
Parmelia billardeiri var. *angustior* [= *Hypogymnia billardierei*] (Mt Egmont)
Ramalina leiodea [= *R. celastri*] (Hen Island)
Ramalina yemensis var. *ecklonii* [= *Ramalina celastri*] (Hen & Chickens)
Caloplaca pyracea (Noises Islands)
**Claoplaca acheila* var. *rubentior* [= *Caloplaca rubentior*] (New Island)
Xanthoria parietina var. *ectanea* [= *X. ligulata*](Stony Bay, Coromandel Peninsula)
Teloschistes chrysophthalmus (Maria Island)
Teloschistes flavicans f. *glaber* (Hen Island)
**Buellia cranwellii* [= *B. cranwelliae*] (Anawhata)
Buellia canescens [= *Diplotomma canescens*] (Anawhata)
Rinodina exigua f. s*axicola* [= *R. cacaotina*] (Anawhata)
**Rinodina cacaotina* (Anawhata)
Anaptychia corallophora [= *Heterodermia*](Stony Bay, Coromandel Peninsula)
Anaptychia hypoleuca var. *sorediifera* [=*Heterodermia*] (Opape near Opohko, Bay of Plenty)
Anaptychia dendritica [= *Heterodermia*](Stony Bay, Coromandel Peninsula)

A substantial contribution and one worth recording here. Many years later, when I got to know Greta Du Rietz in 1974, and subsequently, she spoke very affectionately of the visits that both of the Lucys had made to Uppsala at different times, and how she and Einar Du Rietz had enjoyed meeting them, and thinking once more of the great New Zealand trip they had made in their youth.

When I went to London at the beginning of 1973 to start work on a New Zealand Lichen Flora, I took with me a plan of a book on New Zealand Mountaineering, that the Dunedin publishers John McIndoe had invited me to edit. In the event it proved an impractical notion, so I suggested Philip Temple as an Editor, and instead wrote a short essay for the book on a History of Alpine exploration in New Zealand (Galloway 1973). While working on this essay I made two wonderful discoveries – a series of glorious watercolours of the Southern Alps painted by John Gully and languishing in the Map room of the Royal Geographical Society (they were eventually purchased by the NZ Government and came back to the Turbull Library), and I discovered the Archives Room at Kew, the Kewensia Room that houses lists of everything sent to Kew, and map drawers in the Library, that held two fascinating sketch maps painted by John Buchanan to illustrate James Hector's explorations in the Matukituki Valley, and in the Hollyford Valley in the early 1860s.

I resolved to have one day a week at Kew, and under the guidance of Miss Smith who was then in charge of the Archives Room, I gradually got to know the card index system that held the secrets of the correspondence and manuscripts in that densely packed room. From Julius von Haast (Galloway 1976), I progressed to William Swainson (Galloway 1978), and thus began a long study of the volumes of correspondence of William Jackson Hooker and Joseph Dalton Hooker, successive Directors of Kew, in relation to New Zealand and Southern Hemisphere Botany. During the rest of the week I was getting to know the lichen collection at the British Museum of Natural History where I had been seconded to work for two years from Botany Division (later extended to 4 years), and quite soon I started coming across Joseph Hooker's collections from the Bay of Islands. By the end of 1973 I had read and copied the major holdings of NZ letters in the Director's Correspondence, with the sequence of letters from New Zealand's Auditor General, Dr Charles Knight proving to be of special interest, but more of this later.

I became very interested in Joseph Hooker's association with New Zealand, which he visited in 1841 during Sir James Clark Ross's Antarctic Expedition of 1839-1843 (Godley 1965), and in his publications on New Zealand Botany. In the 1840's Joseph Hooker was

much interested in cryptogams and his lichen collections from Hermite Island in Tierra del Fuego, from the Auckland Is, from Campbell Is, and from the Bay of Islands are especially fine and diverse and he published extensively on them as well (Hooker & Taylor 1844; Taylor & Hooker 1845; Hooker 1847). But quite soon, I came to realise that it was in fact Joseph Hooker's father, William Jackson Hooker, Regius Professor of Botany in the University of Glasgow, who provided the major encouragement to New Zealand Botany pre-1860, and that he actively promoted New Zealand botany through the three C's – Collectors, Collections and Correspondence. This was also how I gathered information on New Zealand lichenology – who made the collections, where their collections were housed (herbaria) and where their correspondence about the collections was kept. William Jackson Hooker was a great collector, he amassed both a great library and a great herbarium which eventually became those of the Royal Botanic Gardens at Kew, and he was a phenomenal correspondent. In this he was remarkably similar to the great 18th century figures of Joseph Banks and Carl Linnaeus. He also founded, or edited 7 different botanical journals.

So for most of my talk tonight, let me share with you a sketch of the life and work of William Jackson Hooker and his influence on New Zealand Botany, which, until the 1860's was really the Botany of Auckland, with collectors such as George Bennett (1831 a-d, 1832 a,b, 1860), Allan & Richard Cunningham (Barker & Barker 1990), J.C. Bidwill (Endersby 2002) , William Colenso (Bagnall & Petersen 1948; Endersby 2002) and Ernst Dieffenbach (Scholefield 1940; Endersby 2002), being well-known to the Glasgow Professor.

William Jackson Hooker was born in Norwich on 6 July 1785. He came into an inheritance from his godfather William Jackson in 1806, sufficient to enable him to devote himself to travel and natural history. His schoolboy interests were insects and birds, but by the age of 20 he had accumulated an herbarium and had a good knowledge of the flowering and cryptogamic plants of his native Norfolk. In this he was encouraged by James Edward Smith of Norwich, the purchaser of the Linnean collections, Library and manuscripts and Founder of the Linnean Society of London. Smith introduced W.J. Hooker to Dawson Turner, the banker, botanist, antiquary and collector of Great Yarmouth. Hooker was elected FLS in 1806, one of the youngest Fellows ever elected and at this time during a residence in Frith Street in Soho, he met Joseph Banks (Soho Square) and his botanist Robert Brown, and several other London botanists who were to remain his close friends. He botanised in remote parts of Scotland in 1807 with Dawson Turner and his wife, and in 1808 with William Borrer, the prominent lichenologist. Hooker visited Iceland in 1809, but all his notes, collections and drawings from that trip were lost when the Danish ship on which he was returning caught fire. He made great preparations to visit Ceylon, then very little known botanically, but "sanguinary disturbances" as they were genteelly called, prevented his plans from being carried out. In 1814 he visited Paris, the South of France, Switzerland and Northern Italy, meeting Humboldt whose cryptogamic collections from South America he was later to describe.

In 1815 he married Dawson Turner's eldest daughter and they settled at Halesworth in Suffolk where his house became a rendezvous for British and foreign botanists and it was here that he began the formation of his great herbarium. His first published works were substantial contributions to British bryology, but a failure in his business interests (a brewery) made it necessary for him to find a scientific position and this was engineered for him by his friend Sir Joseph Banks who, in 1820, encouraged him to accept the Regius Professorship in Botany in the University of Glasgow. He was extremely hard-working and a popular lecturer, and students and townspeople flocked to his lectures. His correspondence with botanists overseas grew rapidly and he was soon recognized as one of the foremost botanists of his time, for the quantity and quality of his numerous botanical publications. He was twice offered a knighthood and eventually accepted the honour from William IV in 1836.

In 1841 he was appointed first official Director of the Royal Garden at Kew, taking with him from Glasgow his large library and herbarium, from both of which were to grow the unrivalled collections of books, manuscripts and plant collections that are Kew's treasures today. In the 1830's the gardens at Kew came perilously close to dismemberment by a thrifty Treasury. They were saved from this fate by the recommendation of an official investigation in 1838 that they should be converted into a national botanical garden. Under pressure from scientists of the day, a reluctant government transferred the gardens to the custody of the Commissioners of Woods and Forests in 1840. Hooker, blessed with exceptional energy and drive, immediately set about restoring and expanding Kew's reputation as an international botanical and horticultural centre (Moyal 1986; Desmond 1989).

W.J. Hooker and Botanical journals

Between 1826 and 1857 William Jackson Hooker was associated with 7 different botanical journals as editor, contributor and draughtsman. These were: (1) *"Curtis's Botanical Magazine" 1826-1845.* Hooker took over the direction and illustration of the Magazine in 1826 adding careful analyses and dissections and giving the work a scientific character. For nearly 10 years he was its only draughtsman. (2) *The Botanical Miscellany 1830-1833.* 3 volumes were published in imperial 8vo with 153 plates, many drawn and coloured by Hooker. However, the venture proved to be too expensive both for Hooker and for the publisher, so that in 1834 the publishers, Longman, agreed to publish a continuation, in an altered, smaller and cheaper form under the slightly modified title of:

(3) *The Journal of Botany 1834; 1840-1844.* (4) *Companion to the Botanical Magazine 1835-1836*; 1845-1848. In 2 vols royal 8vo with 32 plates. (5) *Annals of Natural History 1838-1840.* Vol. 1 (1838) contained the first part of Allan Cunningham's "Florae Insularum Novae Zelandiae Precursor; or a specimen of the Botany of the Islands of New Zealand", to be followed in 1839 and 1840 in Vols 2, 3 and 4. (Cunningham, 1837-1840).

All of these journals were edited and produced while Hooker was Regius Professor of Botany in the University of Glasgow. In his own words "... On his removal to the Royal Gardens of Kew in 1841, where he maintained a still more extensive correspondence, and had greater facilities for obtaining information from all parts of the world, Mr Baillière suggested the propriety of editing a journal which should more immediately emanate from the Metropolis of the kingdom, and consequently from the headquarters of science.." The result was: (6) *The London Journal of Botany 1842-1848.* Extending to 7, 8vo volumes with 168 uncoloured plates. Vol. 3 contained Colenso's "Journal of a naturalist in some little known parts of New Zealand" (Colenso 1844), taken from a long, discursive letter written to W.J. Hooker. In 1848 the publisher Lovell Reeve took over the publication, producing it under a new title (7) *Hooker's Journal of Botany and Kew Garden Miscellany 1849-1857.* This journal ran to 9, 8vo volumes with 108 plates.

Of his 30 years of industry as editor, author, draughtsman of these 7 journals, his son, J.D. Hooker, was later to observe "... He never stopped or stooped to calculate the time, worry, and cost that this undertaking would entail upon him ... for the next 30 years of his life; for he had throughout no assistant editor, and was dependent solely on my mother, and at intervals on myself when at home, for aid in proof-reading etc. The heavy correspondence it entailed was conducted by himself alone... As a contribution to the history of botany during three decades of the 19th century these periodicals were unique; no period or subsequent decade of that century can show so rich a store of valuable botanical material..." (Hooker 1902).

W.J. Hooker's correspondence with New Zealand collectors

William Hooker's time at Kew coincided with the great phase of botanical exploration of the then British Empire and he was scrupulous in acknowledging the flood of new material which flowed into Kew at that time, and in encouraging the collectors to further and continued endeavours. He passed on new discoveries to the requisite experts (usually also close friends) in the fields of algology, lichenology, bryology and mycology as soon as they reached his hands, and just as promptly retailed back to the far-flung collectors the results of their work and often also assisted in the writing up and publication of results through one or other of his botanical journals.

There are at Kew in the W.J. Hooker Archive some "... 29,000 letters from 4,420 individuals in 78 quarto volumes dating from 1808 to 1865. The letters come from over 60 different countries (Figure. 1). Among William Jackson Hooker's New Zealand correspondents were the following (with numbers of letters in parenthesis): J. Dillon Bell, George Bennett (13), J.C. Bidwill (25), James Busby, H.S. Chapman (25), William Colenso (17), Allan Cunningham (64), Richard Cunningham (45), Ernst Dieffenbach (6), J. Edgerley (4), Isaac Featherston, Sir George Grey (10), Sir Julius von Haast (3), Sir James Hector (8), Captain Sir Everard Home (27), Charles Knight (5), W. Lauder Lindsay (7), David Lyall (16), Sir David Monro (3), Samuel Mossman, T.S. Ralph, Andrew Sinclair (25), William Stanger, W. Stephenson, William Swainson (27), W.T.L. Travers (17), Wakefield, E.J & F. (8), Captain E.W. Ward, and R.H. Wynard (1). In his letters Hooker was friendly, accessible and above all immensely helpful and encouraging; never for a moment superior or condescending and always ready to offer advice and make use of his own considerable scientific and political contacts to help those less fortunate than himself.

A good example is found in the Grey correspondence in the Auckland Public Library. Writing in 1853 to Governor Grey in reply to the sending of a small packet of mosses collected in Auckland by Dr Charles Knight, Hooker's response is typically warm and optimistic: "... I cannot tell your Excellency how much I am obliged to you and Dr Knight for the beautiful packet of Mosses accompanied by the truly excellent drawings of that gentleman. They came too just in the nick of time, when Dr Hooker is preparing the Cryptogamic portion of his *Flora Novae Zealandiae* for the press.

I do not think that we have in England (at least I am sure I am not that person though I have dabbled a good deal in Mosses) who could observe so well with the microscope and draw what he sees as Dr Knight. They are the very perfection of Cryptogamic Botany and the young Colony may well be proud of such a man of science and such an artist. He will I am sure continue his researches and kindly communicate with me or with Dr Hooker (for tis one and the same) portions of his discoveries. But I will write to him myself, and venture to send him a Book where some of the earliest discovered mosses (those found by Menzies in Vancouver's Voyage) [see Galloway & Groves 1987; Galloway 1995] were figured…" (Galloway 1998). This was high praise for Knight, as Hooker was no mean artist (Blunt 1950; Smith 1985; Blunt & Stearn 1994).

Hooker's warmly encouraging letters to Knight via Governor Grey were to have profound consequences for New Zealand Botany, for they were the first steps in many, leading eventually to the writing and

publication of the *Handbook of the New Zealand Flora.* (see Galloway 1998). This Hooker was never to see completed, though he saw the first volume complete in 1864, part of his great vision of a collection of Colonial Floras (Hooker 1861, 1863).

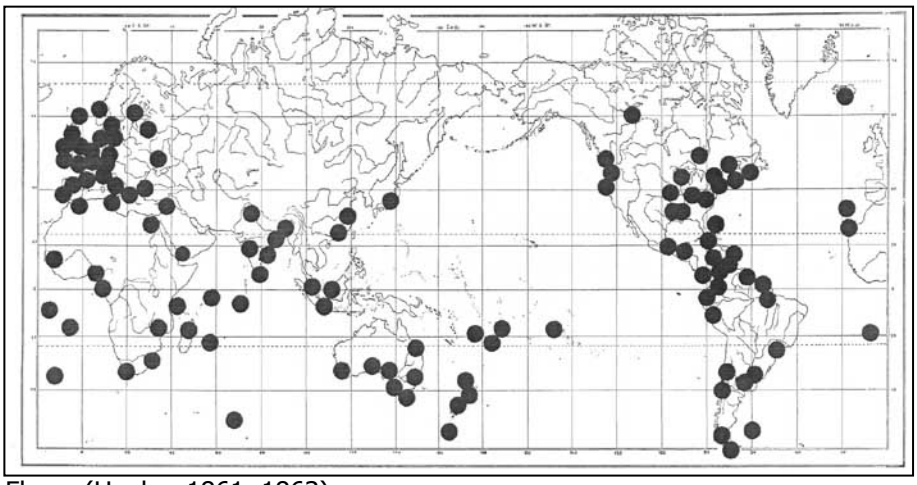

Figure 1. Sources of correspondence to W.J. Hooker held at Kew, there are some 29,000 letters from 4,420 individuals sent from over 60 different countries.

He was also able to marvel at the many botanical collections from Nelson and the Southern Alps which flowed into Kew in the 1850s and early 1860s, from Monro, Sinclair, Travers, Haast (Galloway 1976), and Buchanan (Adams 1990, 2002) and Hector in particular. Haast, always on the lookout for recognition from established Northern Hemisphere scientists, wrote to Hooker in June 1862 "... When beginning with the survey of the Southern Alps of New Zealand hitherto entirely unknown, I proposed myself to create a kind of Pantheon or Walhalla for my illustrious contemporaries amongst those never-trodden peaks and glaciers and I had therefore the pleasure to call a magnificent glacier, 3/4 of a mile broad at its terminal face, and descending from the southwestern side of Mt Cook the Hooker glacier and the river issuing from its icy vault the River Hooker. It falls into the Tasman River, which later forms Lake Pukaki without doubt one of the most splendid alpine lakes in the known world. I would have chosen a mountain had I not already named in the Nelson Province a high range on the right banks of the river Grey the Hooker Range in honour of your son Dr J.D. Hooker, as the author of our admirable Flora. As I have the intention to send shortly a map of this wilderness accompanied by watercolour drawings to Dr J.D. Hooker, you will become better acquainted with the features of your Godchild and you will confess that our Alps can not only equalise but surpass the European Alps in many respects..." (Galloway 1976). Hooker warmly acknowledged "... the high and grateful compliment you pay me in naming a noble glacier after me and still more in bringing the name of our excellent friend, Dr Mueller, in placing our names in juxtaposition in two of the most remarkable geological features perhaps in the whole Southern Hemisphere...:" (Haast 1948).

Joseph Hooker and New Zealand Botany

Joseph Dalton Hooker was born at Halesworth, Suffolk in 1817, the second son of William Jackson Hooker and his wife, Maria Sarah, eldest daughter of Dawson Turner. With both his father and maternal grandfather being botanists, it is not at all surprising that Joseph too would eventually shine in this family profession. Joseph Hooker is the subject of several biographical works (see Scholefield 1840; Turrill 1953, 1963; Allan 1967; Desmond 1989, 1999; Endersby 2002-2004), so only a few brief notes are needed here to introduce him. He was educated at the Glasgow High School and the University of Glasgow, where his father was Regius Professor of Botany, and he graduated MD in 1839. Thanks to his father's influence in scientific circles he was at once appointed by the Admiralty as Assistant Surgeon to *HMS Erebus*, one of two ships (the other was HMS *Terror*) under the command of Captain James Clark Ross, that were to sail to southern circumpolar regions to study terrestrial magnetism. The voyage lasted from September 1839 until September 1843, and three times penetrated deep into Antarctic waters, visiting Kerguelen, Tasmania, the Auckland Islands (20 November – 12 December 1840), Campbell Island (13 December-17 December 1840), the Bay of Islands New Zealand, the Falkland Islands and Hermite Island near Cape Horn (Godley 1965; Galloway 1985).

On 18 August 1841, the expedition reached the Bay of Islands, staying until 17 November, and here Joseph Hooker met the missionary-printer William Colenso and the Colonial Secretary, Andrew Sinclair, both known to his father through correspondence. Hooker spent many days in the field with Colenso and on several of their excursions they were joined by Sinclair. Hooker wrote back to his father at Kew: "…As a class the Missionaries are the only good immigrants, though they do feather their nests rather too well considering their calling. Our excellent friend Mr Colenso is indeed an ornament to the cause he has devoted himself to. Though only a printer to the *Church Missionary Society*, he is more useful than any two others; perfectly indefatigable, both among the heathen, and his own countrymen. With only a paltry pittance of a salary, he refuses to make another farthing, either by land or by selling fresh Beef and Poultry, by which means (Mr Williams at their head) most of his brethren realize, by their extravagant prices, very handsome profits from the shipping. Williams supplied both our ships with Beef every day, at 8d per lb, (!) but never asked one of us to his house; never offered to preach, even once on board: nor so much as sent a goose or a

fowl for the Mess. All these Colenso did – giving us fresh eggs – and milk whenever we liked to send for it, from his only cow. Before we sailed, he started for the East Cape (where he will get some glorious specimens for you). As a parting gift, he sent some Porter and Wine, with a most affectionate letter; the former were, I am sure, the whole contents of his cellar…" (Galloway 1998). Joseph Hooker's influence on the subsequent botanical exploration of New Zealand cannot be over-estimated, for he provided a direct and personal link between the few, isolated plant collectors in New Zealand, and the wider botanical and scientific world of which the Royal Botanic Gardens at Kew was such a centre and focus.

From late 1843 until 1847 Hooker was at Kew working on his *Botany of the Antarctic Voyage*, an impressive 6-volume work in three, 2-volume parts, each sumptuously illustrated from Hooker's drawings by Kew's artist, Walter Hood Fitch (Lewis 1992). As was common at the time, the volumes were issued in parts on subscription to the publisher. Thus *Flora Antarctica* was published in 25 instalments between 1 June 1844 and 2 October 1847; *Flora Novae Zealandiae* was published in 8 instalments between 10 June 1852 and 9 February 1855; and *Flora Antarctica* appeared in 11 instalments between 24 October 1855 and 29 December 1859 (Stafleu 1965; Stafleu & Cowan 1979). Hooker was at pains to acknowledge the help of local collectors in his "Introducory Essay" to *Flora Novae Zelandiae*: "… It is however within the last twelve years, and since New Zealand has attracted the notice of colonists, that the most important accessions to its botany he been made, and it is to correspondents, most of them still alive, and actively engaged in pursuing heir investigations, that I am indebted for the materials of these volumes. The Reverend William Colenso, Dr Andrew Sinclair R.N., my lamented friend J.T. Bidwill Esq., Dr Dieffenbach, M. Raoul, and Dr Lyall, stand pre-eminent as indefatigable explorers and collectors. Mr Colenso's researches have extended uninterruptedly over upwards of twelve years, during which he has traversed a great part both of the coast and the interior of the Northern Island, and has been the principal contributor to our knowledge of its botany. Dr Sinclair has also devoted many years to the New Zealand flora, and has made numerous most interesting discoveries, most valuable for botanical purposes. Mr Bidwill and Dr Dieffenbach were the first explorers of the loft mountains of the interior: Mr Bidwill ascended both Tongariro and the Nelson range, and formed collections of the greatest interest and value, accompanied by valuable notes on the elevations at which the plants were gathered, their variations, periods of flowering, and many other important points… Within the last three years, indeed since the announcement of this work being forthcoming, I have been favoured with more than a dozen collections from various parts of the island. Of new gleaners in the field I would especially mention Dr. Monro, Mr Knight, the Rev. Mr Taylor, Captain Drury, Mr Jolliffe, Captain D. Rough, and Lieutenant-Colonel Bolton; all of whom have sent valuable contributions. It is true that these contain little novelty, but they throw light on the distribution of the species, and afford materials for tracing their geographical limits…" (Hooker 1853).

Flora Novae Zelandiae was an extremely expensive set to purchase, and very few copies were available in New Zealand, being quite beyond the reach of the growing number of settlers and colonists who had strong natural history inclinations and who would have been interested in learning more about the vegetation of their new land. Although Hooker's efforts in producing *Flora Novae Zelandiae* were rewarded by the Government of the day presenting him in 1861 with a testimonial of £200 (Galloway 1998), it was also obvious that a widely available, and much cheaper, "popular" version of that work would find a ready audience and market, particularly as from 1860 onwards the botanical exploration of the mountains of South Island were yielding many fascinating novelties. Joseph Hooker, like his father before him corresponded with many botanists and collectors resident in, or visiting New Zealand; people such as Hector (Yaldwyn & Hobbs 1998), Haast (Haast 1948; Galloway 1976), Knight (Galloway 1998), Lauder Lindsay (Galloway 1998), Travers, Petrie, Kirk, Cheeseman and Sven Berggren (Bagnall 1970 a, b). In consequence Hooker, more than anyone, had a widely informed overview of the New Zealand flora, and it is not at all surprising that he should be chosen by the New Zealand Government to prepare a "popular" Flora of New Zealand along the lines suggested earlier by his father (Hooker 1861).

At the instigation of Dr Charles Knight, New Zealand's shrewd, and at times manipulative, Auditor-General, and in consultation with Hooker (by letter), the Speaker of the House, Dr David Monro, and several other influential politicians, Joseph Hooker was formally invited to "prepare for publication as early as possible a Manual of the NZ Flora" at a budgeted cost of £600 for 100 copies. From a study of the Knight-Hooker correspondence, and of the correspondence relating to Colonial Floras housed at Kew, it was possible to piece together the circumstances of how the *Handbook of the New Zealand Flora* came to be written (Galloway 1998). The process, which is full of interest, and political manoeuvring, was dominated from first to last by Charles Knight (Galloway 1990, 1998) who had no qualms whatever in telling Hooker just exactly what was expected of him. In August 1864, Part I of the *Handbook* was published, being dedicated to the Governor, Sir George Grey, a choice not approved of by Knight! It was warmly acclaimed in the local and the Home press.

On the death of Sir William Hooker in 1865, Joseph Hooker succeeded to the Directorship of Kew, and in the midst of expanded professional duties, still made

time to complete the *Handbook*. Early in 1867 Part II was finished, and 100 copies of the completed *Handbook* were published in London by Lovell Reeve, as requested by the Government (rather a small print run for such a work). Hooker was eventually paid his due by the New Zealand Government, though not before having to write to W.E. Stafford the New Zealand Premier, for reimbursement! A handsome inlaid wooden writing cabinet by Anton Seuffert was duly sent to Kew as an official present from New Zealand to Hooker for his work in compiling the Handbook. [Interestingly, the cabinet was re-purchased for the nation at auction in London in 1987 for £8,000 on behalf of the Museum of New Zealand Te Papa Tongarewa where it was restored to its original splendour by Detlef Klein, after suffering years of neglect at Kew (Judd 1990)]. And Knight, who had very securely held the financial reins over Hooker over the 5 years that it took to research and write the Handbook, was moved to write to Hooker: "…I am gratified to find you so entirely satisfied with our financement in the matter of the Handbook. Dr Hectore will have already informed you of the Cabinet – so that Mrs Hooker as well as yourself, will hold us in kind remembrance when you possess our specimen of New Zealand cabinet work. Sir George Grey has taken an interest in it. In this we all feel that we are not only recognising your services in the advancement of scientific enquiries, but those of Sir William Hooker. As regards Hector, Travers, and myself it is most gratifying to have such an opportunity of shewing our friendship and of acknowledging our indebtedness to your kind courtesy…" (Galloway 1998).

With publication of the *Handbook* the Hookerian influence in New Zealand Botany that had begun in the 1830s from Glasgow, declined as local collectors and botanists began publishing their discoveries in New Zealand journals, especially the *Transactions of the NZ Institute* from 1869 onwards. However, Joseph Hooker continued to be interested in New Zealand and its flora until his death in 1911. The legacy of collections, publications and correspondence relating to New Zealand (and especially of Auckland) Botany, fostered by the knowledge, enthusiasm and encouragement of W.J. Hooker and J.D. Hooker, is an enormously significant resource, and one that has only recently, started to be carefully unravelled, recorded and analysed (see Galloway 1998; Yaldwyn & Hobbs 1998; Endersby 2001, 2002). The history of botanical exploration is a vital part of New Zealand's cultural history, and a thorough account still remains to be written. The Glasgow-Kew-Auckland connection and the networking abilities of the Hookers, father and son, in my view provides a significant tranche of this story.

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