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ENNZ provides a forum for debate on environmental topics through the acceptance of peer reviewed and non-peer reviewed articles, as well as book and exhibition reviews and postings on upcoming events, including conferences and seminars.

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Editor's Introduction

Vaughan Wood

This issue sees the reappearance of *ENNZ: Environment and Nature* after a hiatus of just over two years. It is the editor's intention to return to a more regular publishing schedule, but the issues described in Tom Brooking's Reflections on the state of environmental history in New Zealand (p. 24), such as the lack of settled employment) have limited the opportunities for practitioners to produce copy for *ENNZ*. Within this issue, Mike Roche also explores the career of the early twentieth century South Island forester Charles Foweraker. This reveals a hidden gem in the form of Foweraker's interest in developing sustainable harvesting of Westland's rimu forests some ninety years ago, but also a warning in the sense that Foweraker's research objectives were swept aside by the paradigm of forestry based on exotics which began dominant in the 1930s. In these troubled times for the environment, we need both to think innovatively but also find ways to make ourselves heard. To end on a more positive note, we also review Jonathan West's new work on the environmental history of Otago Peninsula, which shows that even in the current climate, high quality work is still possible.

Charles Foweraker: forestry and ideas of sustainability at Canterbury University College (1925-1934)

Michael Roche[1]

Introduction

The Bruntland Report in 1987 offered a definition of sustainable development as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' which still remains central to much present-day discussion about sustainability.[2] While many sustainability advocates are interested in creating or securing a better long term future, a few have probed for the deeper origins of sustainability concepts.[3] They suggest that, 'many nineteenth century intellectual reformers tended, without any suggestion that they thought a paradox was involved, to couple ethical and altruistic considerations with respect to nature and a narrowly intended form of utilitarianism'.[4]

This paper considers an earlier set of sustainability principles expounded by the first generation of forestry professionals in New Zealand in the 1920s and 1930s. In this respect they were inheritors of a set of ideas, constituting 'sustained yield management' that stretched back to the origins of modern scientific forestry in Germany and France in the 17th century and which were intended to provide a predictable supply of timber in perpetuity. Sustained yield management of timber thus prefigures some but not all elements of sustainable development and was

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[1] Michael Roche is Professor of Geography in the School of People Environment and Planning at Massey University, Palmerston North. While completing his PhD in historical geography at the University of Canterbury he purchased a number of old forestry textbooks inscribed 'C. E. Foweraker'. This paper is a belated effort to consider Foweraker's place in New Zealand forest history. An earlier version of this paper was presented at the Historical Association of New Zealand Conference held at the University of Canterbury in December 2015..

[2] World Commission on Environment and Development (WCED), *Our common future* (Oxford: Oxford University Press, 1987), 43.

[3] S. Lumley and P. Armstrong, "Some of the Nineteenth Century Origins of the Sustainability Concept", *Environment, Development and Sustainability* 6 (2004): 367-378.

[4] Ibid., 373.

one of the targets of environmental groups' critique of the New Zealand Forest Service (NZFS) in the 1970s. Ultimately this led to its disestablishment of the NZFS in 1987 and the creation of new agencies such as a policy oriented Ministry of Forestry, a Department of Conservation (incorporating some groups from the former Lands and Survey Department and Wildlife Service of Internal Affairs) and a Forestry Corporation, a State Owned Enterprise, to run the exotic plantations on a commercial basis. Of these only the Department of Conservation survives.[5] New legislation was passed, notably the *Resource Management Act, 1991* which gave central place to 'sustainable management'.

Rather than these more recent events, which themselves have attracted not inconsiderable scrutiny, I instead return to New Zealand in the 1920s when the first university forestry graduates were employed by the State Forest Service (forerunner of the NZFS) and forestry teaching and research commenced at Auckland and Canterbury University Colleges. This group of foresters, included Mary Sutherland, the first women to graduate in forestry in the British Empire (and the second world wide), was part of a complex Imperial forestry network.[6] It very nicely demonstrates some of historical geographer Alan Lester's ideas about networked conceptions of empire where core and periphery were mutually constituted and where there were complex flows of ideas, individuals, and materials.[7] In particular it provides an example of how the core of imperial forestry, which arguably was India, could be offset from the metropole and how in the case of New Zealand, in one sense at the periphery, it could later be a leader within the Empire in large scale exotic afforestation. Linked to this work on networks Lester with David Lambert has explored the idea of 'imperial careering' looking at the mobility of servants of empire during their working lives. Forestry also lends itself nicely to these ideas, albeit more so in

[5] In 2018 the new Labour Coalition government announced that It intended to re-establish a Forestry Service with an afforestation role.

[6] M. Roche, "Mary Sutherland 1893-1955". In *Dictionary of New Zealand Biography* Volume 4 (Auckland: Auckland University Press, 1998), 507.

[7] A. Lester, "Imperial circuits and networks: geographies of the British Empire", *History Compass* 4 (2006): 124–141.

the later 19th and early decades of the 20th century whereas Lester and Lambert concentrate on the mid-19th century.[8]

For aspiring foresters serving the Empire initially meant training at the East India Company Engineering School at Coopers Hill, where German forester (Sir) William Schlich, a former Inspector General of Forests in India, was in charge of forestry instruction (1885-1905). In 1905 Schlich was transferred to a new Forestry School at Oxford University where he remained as Professor of Forestry until his retirement in 1919. The archetypal imperial forester completed a BA (typically in the natural sciences) followed by a Diploma in Forestry and spent a summer in Germany or France, inspecting long-managed forests. His major task was to prepare a working plan, a detailed technical document for long-term management of a forest, under the direction of a local forest officer. Thereafter he was posted to India and subsequently other parts of the Empire, notably Africa. After 1908, Oxford lost its monopoly as the supplier of forestry graduates for the colonial service. Edinburgh and other forestry graduates were now also recruited. Some of these foresters served out their careers in India and retired to the UK, while others moved around the Empire including taking up positions in Australia and New Zealand as Forestry Departments were established. Portions of these careers I have explored elsewhere.[9]

On this occasion I wish to pursue another thread of the forestry network and a career pathway that differs slightly, but significantly, from others that I have examined previously. The first foresters in New Zealand tended to be British or from within the Empire, Norwegian Arnold Hansson was the notable

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[8] A. Lambert and A. Lester, "Imperial Spaces, Imperial Subjects", in A. Lambert, and A. Lester, (Eds.), *Colonial Lives across the British Empire: Imperial Careering in the long Nineteenth Century,* (Cambridge: Cambridge University Press, 2006).

[9] M. Roche, "Latter day 'imperial careering': L.M. Ellis - a Canadian forester in Australia and New Zealand, 1920-1941", *ENNZ: Environment and Nature in New Zealand* 4 (2009): 58-77; M. Roche, "Forestry as imperial careering: New Zealand as the end and edge of empire in the 1920s-40s", *New Zealand Geographer* 68 (2012): 201-210 and M. Roche, "Hugh Corbin: New Zealand's first Professor of Forestry 1925 to 1931", *NZ Journal of Forestry* 57 (2012): 38-43.

exception.[10] In 1919 three NZEF soldiers, two being New Zealand university graduates took up government scholarships to study forestry at Edinburgh. Frank Foster, C.M. Smith and R.B. Steele all returned to New Zealand and the first two eventually held senior positions in the NZFS, while Steele transferred to Tasmania. They represent a change to flows within the Imperial forestry network whereby locals trained at UK institutions but now returned to work as foresters in their home countries. But there is another contemporary of Foster, Smith and Steele who played a different role and merits some attention; this is Charles Ethelbert Foweraker (1886-1964). Foweraker, was the second born and surviving son of William, the station master in Waimate and his wife Henrietta. The Fowerakers hailed from Devon. Charles was a pupil teacher who eventually taught at Waimate High School and completed a BA extramurally at Canterbury University College. In 1914 he was employed as assistant to Charles Chilton, the Professor of Biology at Canterbury in a junior position as Demonstrator in the Biological Laboratory. He completed an MA in botany in 1916 and published papers on cushion plants and the vegetation of the Cass Valley.[11]

In 1916 Foweraker enlisted in the Canterbury Regiment and served on the Western Front where he suffered a serious hand wound. He was discharged in 13 March 1919 to take up a NZEF Scholarship to study at Cambridge University. Unlike Smith, Foster and Steele Foweraker held a university position and unlike the others Foweraker did not go to Edinburgh to take a forestry degree, but to Cambridge where he was to study botany.[12] An explanation for his reasons for changing from Botany to their two year Diploma of Forestry is provided by Burrows who stated that Chilton 'encouraged him [Foweraker] to take an interest in forestry science because Canterbury College intended to establish

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[10] M. Roche, "Arnold Hansson and the Formation of the New Zealand Institute of Foresters". *New Zealand Forestry*, 33 (1988): 16-19.

[11] C.J Burrows, "Charles E. Foweraker, MA FLS, Botanist and Forester 1886 - 1964". *Mauri Ora* 10 (1982): 5-9 and C.E. Foweraker, "Notes on the Canterbury Cushion-plants and allied forms of the Cass River Bed (Eastern botanical District, New Zealand)", *Transactions and Proceedings of the New Zealand Institute* 49 (1916): 1-44

[12] NZEF Scholarships, *Otago Daily Times*, 9 July, 1919: 9

a school of forestry'[13]. Chilton also the Rector of Canterbury University College strongly supported forestry instruction, the College having received a £2000 bequest and a 98 acre [40ha] farm in 1919 for establishing a forestry department.[14] Foweraker's choice of Cambridge also makes it possible to explore the short lived and comparatively unheralded Cambridge forestry qualification.

There was also the influence of leading British ecologist (Sir) Arthur Tansley on Foweraker's thinking, especially on vegetation succession and climax vegetation. Foweraker maintained a professional correspondence with Tansley after he returned to New Zealand.[15] A student at Cambridge Tansley later taught at University College London , Cambridge and Oxford. He addressed the British Association on the problems of ecology as early as 1905 and had earlier founded the *New Phytologist*. By 1914 he was the leading British ecologist although by the time that Foweraker took his ecology course Tansley was disillusioned with botany while the British Ecological Society was at a low ebb.[16]

Foweraker at Cambridge

As early as 1905, Cambridge University had approved a proposal to establish a Diploma in Forestry after discussions with colonial administrators in Ceylon and Transvaal. The diploma would only be open to Cambridge graduates.[17] A Forestry Committee of the Board of Agricultural Studies was set up in 1907 and Mr Augustine Henry was appointed Reader. Henry had initially qualified in Medicine from Queens College Dublin but subsequently turned to botany, sending many plants from China to Kew Gardens and was elected a Fellow of the Linnean Society in 1888. He completed the forestry diploma at the famous French

[13] Burrows op. cit 6.
[14] J. Gardner, E. Beardsley and T. Carter, *A History of the University of Canterbury, 1872-1973.* (Christchurch: Canterbury University Press, 1973).
[15] P.H. Armstrong, "Arthur George Tansley, 1871-1955", *Geographers Biobibliographical Studies* 13 (1991): 93-100 and C. Burrows Op. cit 5.
[16] P Avers, *Shaping Ecology The Life of Arthur Tanlsey.* (Chichester: Wiley-Blackwell, 2012).
[17] Anon, "Forestry Instruction at Cambridge'', *The Gardeners' Chronicle.* October 28 (1905): 312-313.

forestry school at Nancy in 1903-04.[18] Henry resigned in 1913 to take the Chair of forestry at in Dublin. The programme that Henry developed required a BA, plus passing qualifying papers in botany, geology, physics, and chemistry as well as two years of instruction in forestry and related subjects. The first year of the forestry course included lectures in forest botany, silviculture, and general forestry. Over the summer candidates spent 10 weeks undertaking supervised practical work on forests on British estates. In their second year they took courses in forest management and utilisation, diseases to trees and timber, timber, forest zoology, surveying and engineering, finishing with 10 weeks in a continental forest under the supervision of the forestry officer in charge.

Although the similarities between the Oxford and Cambridge forestry Diplomas probably outweigh the differences, Henry's Nancy background would have contained more on catchment control than the Oxford course. Henry was replaced by William Dawson, then Lecturer in Forestry at Aberdeen, who was to teach Foweraker in 1919. The Edinburgh degree in contrast to the Oxford programme was distinguished by the greater exposure its students had to practical work in forests on Scottish estates.[19] Dawson doubtless brought this with him to Cambridge. A major fillip for the course came in 1911 when the Cambridge course admitted its first group of Indian Forest Service Probationers.[20]

By 1913 the Cambridge Forestry Committee could point to research projects on comparative studies of growth rates and yield of home grown and foreign timber species, investigation of the suitability of home grown species for railway sleepers and paving blocks, various species-specific investigations and a survey of the wood-using industries of the eastern counties. Results had been presented in a number of bulletins, and other Cambridge academics such as F.T. Brooks from botany were

[18] Anon, "The New Professorship of Forestry at Dublin", *The Gardeners' Chronicle.* 15 March (1913): 163.
[19] M. Roche, "H. Hugh Corbin at the University of Adelaide School of Forestry, 1912-1925", *Australian Journal of Forestry* 76 (2013): 1-8.
[20] Anon, "School of Forestry at Cambridge", *The Gardeners' Chronicle.* 22 March (1913): 178-179.

working on collaborative projects.[21] Although the Cambridge forestry diploma, outwardly at least, looked remarkably similar to the Oxford diploma, discussions about Imperial forestry have largely been centred on Oxford foresters.[22]

Foweraker's papers have been deposited in the Macmillan Brown Library at the University of Canterbury. These include some of his lecture notes from Cambridge and his forestry lectures for students at Canterbury, written in a comparatively easy to read hand. Serendipitously I also acquired a selection of his forestry text books from Smith's Bookshop in High Street in Christchurch when I was a PhD student at the University of Canterbury. At the time the inscription 'Charles E. Foweraker Dowling College Cambridge' meant nothing to me.

Foweraker's notes of Dawson's lectures point to the breadth of the somewhat descriptive and prescriptive material he had to absorb. They also list the reference material that Foweraker was expected to read, which positions the sorts of ideas that he was being exposed to as continental forestry modified by Indian experience and further inflected by British estate forestry practice. Thus he lists such local classics as Laslett's *Timber and Timber Trees* which dated originally back to 1875**,** though Foweraker was probably looking at the second edition of 1894. Nisbet's *The Forester,* he noted, was 'a good large big book' and Hewson's *Forestry for Woodsmen* 'a boiling down of Schlich'.[23] He bought a copy of both.

At the same time I purchased a five volume set of *Schlich's Manual of Forestry* that distilled the essence of German forestry in the light of Indian experience from the same second hand book shop, and it seems reasonable to assume that this was also Foweraker's. Of interest here is that the set is in excellent condition; indeed I had to cut some pages. This is in contrast to his two volumes of *The Forester* which are much used. Foweraker attended lectures

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[21] Anon, "Forestry at Cambridge", *The Gardeners' Chronicle.* 13 December (1913): 423.

[22] B. Bennett. 'A Network approach to the Origins of Forestry Education in India, 1855-1885'. In B. Bennett and J. Hodge (eds) *Science and Empire Knowledge and Networks of Science across the British Empire, 1800-1970*. (Palgrave Macmillan, Houndsmill, 2011), 68-88.

[23] C.E. Foweraker Papers, Box 3 Forestry Folder 84339, Macmillan Brown Library, University of Canterbury, Christchurch.

for some of the specialist forestry papers as well as Tansley's ecology course. Ecology was still a new field. Foweraker was familiar with some of its ideas through his collaborative work with New Zealand scientist Leonard Cockayne, also an international figure in the field. Cockayne published the first New Zealand study on vegetation succession and did important work on hybridisation.[24] Cockayne in a chapter in the seminal *Aims and Methods in the Study of Vegetation* edited by Tansley and Chipp observed, 'in order to understand how to make economic use of any vegetation without bringing about its destruction it is necessary to find out as much as possible of its ecology and life-history'.[25] Interesting for this paper was Cockayne's next sentence, 'Ecology is often taught as part of silviculture, but the latter is really its practical application'.[26] Anker interprets these as part of greater Empire wide move to the coordinated management of 'the economy of semi-nature' particularly in colonial and Dominions contexts.[27] Foweraker corresponded with Cockayne, as early as 1911 when the latter was preparing his *Vegetation of New Zealand* and continued to at least 1929. They later went together on botanical expeditions in Marlborough and Canterbury.[28]

Foweraker was back in New Zealand by 1921 and does not appear to have sat the examinations for the diploma.

Foweraker and forestry at Canterbury University College

A Royal Commission on Forestry in 1913 made recommendations about reserving indigenous forest, increasing the rate of exotic planting and appointing a professionally qualified director. Though progress was delayed by World War One, in 1919 Canadian L.M. Ellis was appointed as the first Director of Forests.

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[24] A. D. Thomson , 'Cockayne, Leonard', from the Dictionary of New Zealand Biography. Te Ara - the Encyclopedia of New Zealand, updated 30-Oct-2012 URL: http://www.TeAra.govt.nz/en/biographies/3c25/cockayne-leonard

[25] L. Cockayne, 'Ecological-Economic Investigation'. In A. Tansley and T. Chipp (eds.) *Aims and Methods in the Study of Vegetation* (London: British Empire Vegetation Committee and the Crown Agents for the Colonies, 1926).

[26] Cockayne, Ibid. 331.

[27] P. Anker, *Imperial Ecology: Environmental order in the British Empire, 1895-1945* (Cambridge Mass: Harvard University Press, 2001) 39.

[28] Burrows, op. cit 5.

He ushered in a new Forests Act 1920-21 and a State Forest Service (SFS) administratively independent of the Lands Department. Both Auckland University College and Canterbury University College in 1920 offered some general lectures on forestry, in anticipation of a forestry school being established; biologist W.R. McGregor delivered these at Auckland and Foweraker at Canterbury.

Foweraker, having returned to his pre-war post of Demonstrator, was promoted to Lecturer in Forestry in 1921 giving lectures from within the biology department. That first year he delivered 10 evening lectures on forestry, half of which were concerned with forest botany and the remainder with topics such as silviculture, forest utilisation and forestry in New Zealand and abroad. These were repeated in succeeding years until the government established a forestry school in 1925. The thrust of these lectures was that forestry was a science, though a report in *New Zealand Building Progress* while impressed with the breadth, integration, and exactness of claims that Foweraker made for forestry, offered a jaded response that 'science is now being applied to all industrial life and it was not surprising to find the field of forestry invaded'.[29] However, the essential thrust of Foweraker's message was accepted.

> The country will go on for many years to come reaping Nature's crop of native trees, the age and growth of which we know so little about except by deduction. The scientific side of the matter therefore needs probing so that there may be some knowledge of the secrets of Nature's Bounty, and what man can do to reproduce in a comparatively brief span of time similar supplies of timber for industrial and domestic purposes …. If the scientist can enlighten the people with practical ideas governing the reproduction of forest areas, the service will be of great utility.[30]

Ellis strongly supported the establishment of a forestry school in New Zealand, but the question of its location became entangled in the complex politics of the University of New Zealand. Hugh Corbin was appointed as Professor at Auckland University College.

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[29] Anon, "Scientific forestry", *N.Z. Building Progress* 16 (1921): 210.
[30] Ibid., 210.

Foweraker, in addition to his duties in botany was appointed as Lecturer-in-Charge of Forestry at Canterbury with Frank Hutchinson, a New Zealander with a forestry degree from Montana as his Assistant Lecturer. The existence of two underfunded forestry schools was criticised by the Reichel-Tait Commission on University Education in 1925. By 1930 Corbin was made redundant, with the Canterbury school surviving only until 1934.[31] The Cambridge Forestry Department itself was dissolved in 1932.[32]

Teaching

The University of New Zealand forestry degree course comprised an intermediate year and three professional years. There was also a three year sub degree ranger course. Other departments assisted by providing teaching in areas such as law, economics, geology, surveying, and engineering.[33] According to Peter McKelvey, the first Professor of Forestry at the University of Canterbury, once the school was reopened in the late 1960s, 'Foweraker and Hutchinson made a good, balanced team; the former conscientious, dedicated, scholarly and kindly; the latter energetic, incisive, forthright, and reportedly an inspirational teacher'.[34]

Once forestry teaching proper commenced in 1925, Foweraker added various textbooks to his library, including a copy of Moon and Brown's *Elements of Forestry*. This was notable as an American rather than a European or British textbook. Foweraker's copy was the second edition published in 1924 and differed from its British counterparts such as Jackson (1921)[35] in its inclusion of chapters on forest mensuration, lumbering, wood utilization, wood technology wood preservation. There are some marginal

[31] M. Roche and J. Dargavel, "Imperial Ethos, Dominions Reality Forestry Education in New Zealand and Australia, 1910-1965', *Environment and History* 14 (2008): 523-543.
[32] S. Walters, *The Shaping of Cambridge Botany* (Cambridge: University Press, Cambridge, 1981).
[33] P. McKelvey, "Earlier Professional Schools of Forestry in New Zealand", *New Zealand Journal of Forestry* 43 (1999): 30–34.
[34] Ibid., 32.
[35] H. Jackson, *A Short Manual of Forest Management* (Cambridge: Cambridge University Press, 1921).

notations in Foweraker's copy such as 'cf larch in NZ' next to a paragraph about plantations faced with insect and fungal attacks. Most of the notations relate to chapters concerned with tree form. Interestingly he had also marked some items from the bibliography of the first chapter on 'forestry meaning and importance'. These included canonical US forestry texts by Fernow, Pinchot, Zon, and Zon and Sparhawk.

In the mid-1980s I was employed by the NZFS to write a forest history of New Zealand. During the course of that project I spoke to Priestley Thomson and Jim Lysaght, two graduates of the Canterbury Forestry School. Thomson eventually rose to become Director-General of Forests while Lysaght had a senior position as Working Plans Officer. Thomson considered the instruction at Canterbury 'very thin'. Although he described Foweraker as 'a very lovely person and a great friend to all of us,' Thomson observed that Foweraker would often 'literally read' from text books.

> Old-fashioned particularly German stuff, and read it one day and then give a lecture the next. And really the only person who knew anything about forestry was Hutchinson… who had graduated from the University of Montana, and really was a very well trained and knowledgeable professional forester even though he was a young man'.[36]

Thomson did readily concede that the 12 months of practical experience necessary to graduate was particularly valuable. Foweraker as far as local circumstances allowed endeavoured to mimic his Cambridge course. That said, Foweraker, perhaps drawing on Tansley more than some imperial foresters, as will become clearer, recognised forestry principles needed to be adapted to local conditions. Schlich at Oxford in contrast, had maintained; 'the general principles of sylviculture hold good all

[36] Priestley Thomson, interview, 4 November, 1985, Transcript, Author's collection.

over the world, but the illustrations must be taken from a limited area'.[37]

Research

Very early on in his time as Director of Forests L.M. Ellis realised that there was a need for specialised research particularly on the indigenous forests of New Zealand. He managed to modestly fund McGregor at Auckland University College to work on kauri, and Foweraker and Hutchinson to work on the podocarp forests of Westland. From 1925 until 1934 Foweraker produced a number of papers and unpublished reports for the SFS. Foweraker had actually begun research on Westland's forest as far back as 1921, and with some financial assistance from the SFS was able to undertake survey work, commence with growth rate studies, and initiate silvicultural studies.

This research gained added impetus after the SFS's National Forest Inventory (1921-1923) revealed that although the country still had some 12.5 million acres of forest only 5.6 mill acres were merchantable.[38] Of this, rimu at 28,074 million board feet amounted to 45.2% of the resource. This served to reinforce Ellis' 1921 estimate that future sawn timber demand would exhaust the indigenous forests by 1965.[39]

In 1925 Foweraker prepared a brief summary of his ecological work on Westland forests, paying, after Tansley, considerable attention to the importance of climate and soils. He concluded the paper by observing that he had not actually touched on any forestry problems. These which he termed 'often perplexing' included life history, growth rates, regeneration, effects of logging, fire and stocking, and succession.[40] Foweraker was determined to understand 'from a general ecological viewpoint' the remaining virgin forests types in Westland, particularly those being rapidly

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[37] W. Schlich, *Schlich's Manual of Forestry Volume 1 Introduction to Forestry* (Bradbury and Agnew, London, 1896) (2nd edition – originally published 1890)

[38] *New Zealand Official Yearbook* (Wellington: Government Printer, 1927).

[39] State Forest Service Annual Report, *Appendices to the Journals of the House of Representatives*, 1921, C3.

[40] C.E. Foweraker, "The Rain forests of Westland", *Te Kura Ngahere* 1 (1925): 9

altered by sawmillers or in the case of kahikatea forest being converted to farmland.[41] He came to appreciate the importance of fire and light to regeneration on already logged sites. In 1932 he published a short paper on the sex distribution of rimu. The trees were male or female, which had implications for the natural regeneration of the species; sufficient numbers of both had to be in proximity for enough viable seed to be produced for regeneration to occur.[42] He also published a paper on the larger distribution of the Podocarpaceae.[43] All this work was notable for its detached scientific reporting of results. He also firmly believed in the necessity of long term systematic data collection and was not to be hurried into providing premature recommendations.

In this respect Hutchinson's provocative paper 'A Hypothesis in regard to the Westland Rimu Bush' (1928) is important in that, as its author noted, it reiterated ideas already 'tentatively advanced by Foweraker.'[44] Here Hutchinson rejected eminent ecologist Leonard Cockayne's view that rimu forest was 'a temporary or transition type in a plant progression, or succession'.[45] The longer term implication of Cockayne's position was that natural regeneration and sustained yield management of podocarps was impossible, though Cockayne did believe that the New Zealand beech was a climax forest that could be managed on a 120 year rotation. Hutchinson's strongly held view was that Cockyane had provided 'no conclusive evidence' and had merely relied on the relative proportions of rimu and broad-leafed seedlings 'judged by observation'.[46] Instead he promoted Foweraker's alternative view that the

> rimu type was a climax one, arrived at through a transition of broad-leafed species – that the rimu was unable to regenerate direct, but reproduction came up under a

[41] C.E. Foweraker, "The rain forests of Westland - No. 2 - kahikatea and totara forests", *Te Kura Ngahere* 2 (1929): 6–12.
[42] C.E. Foweraker, "Sex distribution in rimu', *Te Kura Ngahere*, 3 (1932): 68–70.
[43] C.E. Foweraker, "The distribution of the podocarpaceae", *Te Kura Ngahere* 3 (1934): 160–165.
[44] F. Hutchinson, 'A Hypothesis in regard to the Westland Rimu Bush' *Te Kura Ngahere* 2 (1928): 3-12.
[45] Ibid., 3.
[46] Ibid., 3.

> "nurse" association formed by a broad-leafed growth which furnished shade, shelter, high humidity, etc., needed by the young rimu.[47]

What seems especially significant here was Foweraker's preference for data derived from successive measurement compared to the more observational approach of Cockayne. Perhaps Foweraker's reticence about too quickly drawing conclusions on the basis of limited data slowed his work and further delayed his challenging Cockayne's view that rimu was a transitional forest type The situation was doubtless complicated by Foweraker's good relationship with Cockayne; they had jointly published, Foweraker was a regular correspondent[48] and he had provided two of the 106 plates for the second edition of Cockayne's *The Vegetation of New Zealand* (1928).[49] Besides, Cockayne 'could be forthright, even violent, in speech. He loved argument for argument's sake, and was easily roused to anger which, however, was short-lived'.[50] The bolder Hutchinson was confident enough to offer an alternative view, an amalgam of Foweraker's and his own work in the form of a hypothesis which contradicted Cockayne's views. Foweraker, however, did not court controversy and seems to have been content to let Hutchinson advance a counter argument to Cockayne. Tansley had dissented from American ecologist Frederic Clements' ideas about a single climax vegetation as the end point of vegetation succession and instead favoured the view that several stable vegetation communities could exist in a single climate region because of differences in soil type.[51] This is not exactly what Foweraker was arguing for in the rimu forests of Westland but it is in the spirit of his ecological thinking.

In 1932 Foweraker and Hutchinson addressed the Canterbury Philosophical Society on Westland's rimu forests. Foweraker pointed to the importance of rimu to the timber industry but

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[47] Ibid., 4.
[48] A.D. Thomson, "Annotated summaries of the letters to colleagues by the New Zealand botanist Leonard Cockayne – I", *New Zealand Journal of Botany* 17 (1979): 389-416.
[49] Plate 38 Interior of rimu forest, plate 39 Nothofagus cliffortioides forest
[50] Thomson op. cit
[51] P.H. Armstrong, Arthur George Tansley, 1871-1955. *Geographers Biobibliographical Studies* 13 (1991): 93-100.

noted that no rimu forests were under proper forest management to ensure their 'perpetuity'.[52] In 1934 when the forestry school faced imminent closure, Foweraker, who was able to move back to a full time position in botany, was quoted in the *Christchurch Press* as being critical of the lack of government support for forestry education and the desire for 'immediate results' . His lament was that the country's forests were still 'being worked like mines and abandoned when worked out'.[53] He also expressed regret that the ultimate goal of scientific forest management seemed to remain out of reach:

> I know of no honest attempts to keep any of our native forests on a sustained yield basis … but our School has always advocated the proper management of our native forests. Kauri, rimu and beech are types of forest which have evolved in New Zealand conditions over a period of probably thousands of years. It seems only logical that these forests, which have so evolved and which are unknown in other parts of the world, should be properly maintained.[54]

Most of his published research was botanical and scientific and he did not venture into the many aspects of forestry on which he lectured. Another side to Foweraker was, however, evident in his closing remark in a chapter contributed to the *Natural History of Canterbury* on 'forestry' in the province. He concisely described the main forest types and their distribution as well as exotic forest species, but in his concluding sentences was almost apologetic about his utilitarian focus on timber species; 'the aesthetic and sentimental view of tree culture is fully recognised by the writer'.[55] In his scientific writing he seemed to unable to bring the two together, indeed was probably trained so that they were kept apart.

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[52] Rimu Forests, *Christchurch Press,* 2 June, 1932: 6.
[53] Forestry Work Defended, *Christchurch Press*, 4 May, 1934: 20.
[54] Ibid., 20.
[55] C. Foweraker, "Forestry in Canterbury". In R. Speight, A. Wall, and R. Laing (Eds.), *The Natural History of Canterbury* (Christchurch: Simpson and Williams, 1927), 255.

Conclusion

Although Foweraker was involved with some exotic forest tree growth trials at Westland Experimental station, he seems to have been primarily interested in the possibilities of implementing a sustained yield management system particularly on the Podocarp forests of Westland. Drawing on his prior botanical studies Foweraker devoted time and effort to undertaking some base line studies of Westland forest types before they were further modified or logged or converted to pasture. The establishment of sample plots and considerable painstaking measurement and analysis underpinned his methodological approach. He eschewed what he regarded as premature speculation about the possibilities for regeneration – at least in print.

Foweraker made use of concepts of succession and climax vegetation which he was exposed to in Tansley's ecology course at Cambridge. These ideas seem to have informed his understanding of Westland's forests and the management options. This Cambridge experience plus his own prior training in botany and university employment meant that Foweraker espoused a subtly different position from some of his forestry peers, including the three New Zealanders who graduated from Edinburgh and other imperial forestry types such as Owen Jones (BA, Dip. For. Oxford), Forestry Superintendent for New Zealand Perpetual Forests, and Professor Corbin (BSc [Forestry] Edinburgh) at Auckland. Foweraker's focus was that of a forest botanist interested in the application of science to forest management. This was manifest in his interest in measurement, building up a data set and subjecting this to time-consuming analysis. For Foweraker, experimentation and close and repeated measurement was the way to generate new knowledge. He was at odds with the approach of Leonard Cockayne, the doyen of New Zealand plant ecologists who relied on observation (albeit making early use of photography to show plant associations). Early in his career Foweraker made the point that forestry, properly undertaken was an economically profitable land use. While not opposed to exotic plantation forestry his interests lay in the challenges of managing the indigenous forests in perpetuity rather than establishing a fast growing exotic forest estate. Hutchinson's presence as more of a forest utilisation specialist meant that Foweraker could also leave some of these

sorts of tasks to his competent Assistant Lecturer. Foweraker lived to see plantations such as Kaingaroa grow to a huge size, and to witness the beginnings of a second national planting effort in the 1960s. That forestry in New Zealand had become so identified with exotic plantation forestry seems far away from the sort of forest vision he had for New Zealand in 1925. At heart he remained a forest botanist with a particular interest in Westland's indigenous forests.

By temperament Foweraker seems to have had none of Hutchinson's willingness to be provocative. In today's terms Hutchinson would have easily become the public intellectual on forestry matters; Foweraker was more comfortable out of the public spot light. The unexamined dimension of Foweraker's goal of sustained yield management of the Westland rain forests was that it was almost entirely couched in utilitarian ecological terms. The sorts of rimu forest that he was seeking to regenerate by natural means would have been different in terms of species composition and diversity from the virgin forests that he was able to study. He gave little thought, apparently, to the economics of the timber industry in Westland. Perhaps he regarded timber sales as a SFS function. 'Pure' foresters such as Hutchinson were more aware of these connections, and indeed Hutchinson later worked for plantation forestry companies. Social elements of sustained yield to maintain the socio-economic viability of forestry settlements never seem to have come into focus. Foweraker's ideas may not have displayed the ethical – utilitarian paradox of some 19th century thinkers, as explored by Lumley and Armstrong but they still displayed a narrow utilitarian viewpoint. Even if Foweraker's goal of sustained yield management of rimu forests in Westland had been implemented and had worked – in so far as it would have been possible to tell only 75 or so years on, it would still have resulted in a dramatically different forest from the 'natural' forest and would still have been subject to the environmentalist critique of the 1970s which eventually saw the state depart from indigenous production forestry.

The real 'historical lessons' of Foweraker's sustained yield hopes, dashed in the mid-1930s, may lie elsewhere – (1) in the tension between his desire to collect a large amount of data before proceeding and the desire of officials to move quickly to a solution to forestry problems, (2) in a tendency to stay within his comfort zone (more so as a researcher than teacher) because the time was not yet right to publish his ideas about succession in the rimu forests – which allowed him to avoid a collision course with Leonard Cockayne and (3) in the belief that science in isolation provided answers to land use and economic problems. Advocates for sustainability in the Academy today still face variations of the three tensions that I have identified in Foweraker's working life as an academic forester. Having said that, Foweraker did have a fall-back plan and was able to continue as Lecturer in Botany in 1934, unlike his Auckland University contemporary Professor Hugh Corbin who found himself suddenly made redundant in 1930, as was Hutchinson in 1934. There is a fourth 'lesson'. In 2001 the New Zealand Institute of Foresters submission on sustainable forestry management cited Foweraker (and Hutchinson) as undertaking pioneering research into the sustainable management of rimu forests in Westland ; demonstrating how careful work that appears to be forgotten can still be reprised under new circumstances of sustainable management compared to the earlier and narrower conception of sustained yield management.

The State of Environmental History in New Zealand: Some Personal Reflections in Late 2018

Tom Brooking[1]

At the 2005 New Zealand Geographical Society Conference in Auckland I presented a rather gloomy report on the state of environmental history in Aotearoa/New Zealand. Thirteen years on I will try to avoid the declensionist tone for which much environmental history is often criticised, but it will still be rather pessimistic despite some glimmers of hope.

First, overall I think that environmental history has proven to be a reasonably popular undergraduate course at Otago since 2003 (paper ENVI 211 taught by History, Geography, Archaeology, Maori Studies and Law as part of a minor in Environmental Studies). Class sizes ranged from 60-108 - healthy numbers for any second year Bachelor's paper. A substantial complement of American students (up to half the class), mainly from Environmental Studies backgrounds, also bolstered funding. Interestingly we only attracted a few history majors with geographers, ecologists and geologists dominating the Kiwi contingent. Given the cuts instituted by the University of Otago no historian is left to paddle this waka. Both environmental historians are retiring (myself and Judy Bennett) within six months of each other and Titi harvesting expert and emerging Maritime historian Michael Stevens has moved off to work full time for Kai Tahu.

Geography's rescue hints at what is both a strength and a weakness of environmental history - the interdisciplinarity at its core. On the one hand, this means that courses can be led and co-ordinated by a number of disciplines and even involve the sciences more (as has happened at Otago with help from zoology

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and ecology). On the other hand, it takes a reasonably robust individual to drive such a course. Anybody who attempts to cross the slippery and sometimes treacherous bridge that links the Humanities to the Sciences must be prepared to don protective armour against the barbs that will be fired from both sides of the 'great divide'. Some reductionist scientists in particular can be defensive about the specialist knowledge locked inside their silos, but so can purist defenders of the Humanities.

At Otago the cause has been helped by the development of an Environmental Studies Minor, which is one reason why Geography wants to keep Environmental History on the books. We have also fared well for a small Department (averaging around 14 but currently down to 10) with postgraduates. Between us Judy and I have supervised a dozen PhDs on environmental history to completion along with five MAs and a dozen fourth year Honours research essays (of 15-20,000 words). We have also carried out plenty of examining from all over Australasia (and one from Cambridge) at the doctoral level with something like thirty between us, along with over a dozen MAs. Clearly there is both international demand and recognition of our work contained in these figures.

When we look around the rest of New Zealand the picture is not so rosy. Mike Roche at Massey teaches environmental history within his historical geography course and Matt Henry teaches a module within his Global Environmental Issues paper. James Beattie also taught a popular second year course on the environmental history of New Zealand when he was based at Waikato. Auckland, Victoria and Canterbury all cover some elements in other courses, while Jim McAloon and Kate Hunter at Victoria and Joanna Cobley at Canterbury publish in the field, as do the industrious James Beattie, now at Science Education at Victoria. The prolific Paul Moon at UniTech has also produced a couple of books that lean towards environmental history such as his Encounters and the recent book on the Waikato River. All New Zealand History Departments have also produced small numbers of PhDs in New Zealand environmental history, many of which I have examined. Outside the academy Catherine Knight at DOC and Johnny West at the Office of Treaty Settlement are publishing important books, while free lancers such as David Young, Paul

Star, Robert Peden and Vaughan Wood continue to produce interesting work. But otherwise there is a widely shared concern that environmental historians within the academy are either retired or working on temporary teaching fellowships. Jane McCabe's exciting, Marsden funded Post Doc at Otago on farm inheritance overlaps with environmental history and she will pick up my farming lectures in ENVI 211, but there are no guarantees that this effort will morph into a proper job. All this is in marked contrast to Australia where a sizeable cadre of top flight, energetic, younger environmental historians have secured jobs and introduced an exciting 'Green Stream' into the annual conferences of the Australian Historical Association.

There are some obvious reasons as to why environmental history is struggling in New Zealand when it is flourishing in the USA, and doing relatively well in Canada and Australia. After all there are massed armies of historians in the USA and sizeable battalions in Canada and Australia (oops I'm starting to sound like Kenneth Cumberland in Landmarks!). In contrast, New Zealand only has a small company whose numbers are shrinking until at least 2021 when demographics will work a little more in favour of recruiting school students. New Zealand historians who secure jobs in the academy have to remain generalists given staffing shortages and we lack sufficient mass to indulge the kinds of specialisations that characterise American and British universities. On top of this shortage of practitioners the propensity of the New Zealand secondary school system to divide senior level students into science OR arts categories means that many entrants to University do not feel confident about the need for some basic scientific understanding required by environmental history (and some even seem afraid of Latin names for species for goodness sake). Possibly some academics share the same apprehensions (and a double major in geography certainly helps). A growing trend towards reductionist and vocational subjects rather than big picture approaches also encourages the drift from STEAM to STEM subjects. Yet, given the urgency of action required to mitigate the more catastrophic consequences of climate change, environmental history should be booming and, arguably, a compulsory subject.

So what might be done to reinvigorate the exciting newish transdisciplinary approach to understanding the past that we call environmental history, especially in a brilliant test case of a country like New Zealand that has been environmentally transformed faster and more substantially than most other places on the globe? Here's one idea: we could emulate the Australian Historical Association and introduce a 'green stream' into NZHA conferences, and, ideally New Zealand Geographical Society conferences. This would at least provide a forum for creative discussion about how we might solve common problems and pursue possibilities. It would be sensible to advertise such a forum to appropriate government agencies such as DOC, NGOs such as Fish and Game and Forest and Bird, and important pressure groups representing land users such as Federated Farmers, to stimulate dialogue and line up possible collaborations. Here's another: our various electronic newsletters and journals could also promote such dialogue even more than they are doing currently by encouraging representatives of key groups to write articles and think pieces. Institutes such as Otago's 'Centre for Sustainability' (where I am moving to in retirement) could easily be engaged to assist in stimulating such dialogue. Recently the likes of Eric Pawson, Hugh Campbell and Richard Le Heron have shown how research and writing can assist debate and, potentially, action.

All of this endeavour will help underscore the point that if our species is to make it through the dangerous bottle neck we are currently entering that every kind of scholar and activist is required to contribute creative ideas and supply vital information, no matter what discipline they trained in. Humanities subjects will be just as critical as science in informing debate and putting pressure on reluctant politicians and bureaucrats, while persuading the public to bring about positive change. It's a mighty challenge, but one we must all join for the sake of our children and grandchildren, the whole of humanity, and life itself. We all need to be involved if we hope to avoid a truly apocalyptic ending to the human story. Meantime we can at least ensure that what we learn about the past is not detached from how we act today and tomorrow (with apologies for this mash up of Cronon, Worster, Pawson and Brooking, and the Biological Futures Marsden group).

REVIEW:

Jonathan West, ***The Face of Nature: An environmental history of the Otago Peninsula*** (Dunedin: Otago University Press, 2017). 376pp ISBN 978-1-927322-38-3. NZ$49.95 paperback.

Vaughan Wood

Jonathan West's *The Face of Nature* is an important new addition to environmental history scholarship in New Zealand. It challenges the modern trend for works that are national or international in scale, and/or thematic in character, and answers the call made by Tom Brooking and Eric Pawson in their *Environmental Histories of New Zealand* for more local interpretations of the evolving relationship between people, land and sea. The international and national contexts which serve as a background for these changes on Otago Peninsula are nevertheless woven carefully throughout the narrative. It thus serves as an exemplar for future district-based studies by environmental historians, and fully justifies its shortlisting among the non-fiction finalists in the Ockham New Zealand Book of the Year awards.

Given the longstanding significance of settlement at Otakou for Kai Tahu (Ngai Tahu), one would expect that the pre-European environmental history of the Peninsula would feature prominently in the book. It does not disappoint, with Captain Cook's voyages not making an appearance until page 102. Part One of the book, which discusses the ecology of the Peninsula and the evolution of indigenous settlement, draws extensively on the trove of archaeological and indigenous studies produced in Otago, while not shying away from the traditional histories of Waitaha, Kati Mamoe, and Kai Tahu, and marrying these up with the former where possible. Part Two of the book then addresses the differing levels of interaction between Maori communities and the intermittently present populations of Pakeha sealers, whalers, coastal traders and surveyors. This does not confine itself to the bare facts of commercial interchange and land purchase, but also discusses at length the motivations of the parties involved, and also broadens the nature of the environmental discussion to

consider the impact of introduced disease (especially measles) on the Peninsula's indigenous society and economy.

The onset of organized Pakeha settlement and the gradual convergence of farming trajectories on the Peninsula towards dairying occupies Part Three of the book. Within this section, the division of the Peninsula into farm holdings is a major theme, since property form and landscape function often went together. Through the wide ranging use of contemporary records, including diary entries, paintings, photographs and maps, the author delivers a detailed analysis of environmental change, with the series of cadastral-based maps (all prepared by the author) in Chapter Eight, showing land tenure, occupations, the proportions of grass and indigenous vegetation cover, and dairy farm outbuildings respectively in 1897 superbly utilizing the detailed information to be found in turn-of-the century land valuation records.

Among the findings that come through strongly in Part Three is the way in which Pakeha and Maori alike had their environmental behavior constrained by the want of necessary land and sea transport. The author also draws on contemporary observations to show that settlers had some appreciation for the natural environments that they were busily eradicating. Thanks to the output of Dunedin's natural history enthusiasts in the nineteenth century, the effects of habitat loss on flora and fauna is also able to be closely examined. Each chapter of Part Three also devotes a section to how the Maori community at Otakou were faring in relation to the new economy and landscape, thereby ensuring that, in this narrative at least, they are not left marginalized. Because of the emphasis on property in Part Three, the author is able to clearly contrast the divisions of Maori land (into elongated and thin strips, so as to retain access to the sea) with the pattern of Pakeha farm holdings.

What makes *The Face of Nature* especially innovative in environmental history terms is the incorporation of coastal and marine fisheries into the story. From the very start of the book, the author impresses on readers that the Otago Peninsula is a place of mixing between subantarctic and ex-subtropical waters over a narrow continental shelf, which has the effect of making the

seas offshore a fertile source of marine life. It is natural that fisheries would feature strongly in Part One, since fish came to form so much of the diet of pre-European settlements on the Peninsula, and likewise that they would be prominent in Part Two, since it was seals and whales that first attracted Western commercial interests to the area. However, the attention given to fisheries continues in Part Three. Accordingly, it addresses the efforts of the Maori community to preserve their inshore fisheries and shellfish beds against pollution from sediment and incursion by Pakeha settlers, as well as describing how Pakeha and Maori fishing ventures waxed and waned over the course of the century, and adapted to changing consumer tastes.

Given the quality of the writing in Parts One to Three, the only disappointment of note about the book is that it concludes in 1900. The author points out that the landscape has been largely in stasis since that time, and thus it is now a relict one. However, it seems a pity that the book did not include an epilogue to elucidate what has allowed the landscape to stay as it was, and equally what developments might have a disruptive effect on it in the foreseeable future. Perhaps Part Three could also have included more discussion on non-transport infrastructure and public works (such as water supply, and Fort Taiaroa) . In the event of a second printing, a different sheen on the page (which can make it harder to read in certain light conditions) might be worth considering.

The book contains more than 100 illustrations, many of them contemporary landscape paintings and maps from the Hocken Collections. It is also fair to say that some of the landscape photographs included in the book would not be out of place in an exhibition. There are also several black-and-white and full colour maps. The book is also supported by copius notes (running to almost fifty pages) and an extensive bibliography and index.

RECENT PUBLICATION:

Catherine Knight, ***Wildbore: A photographic legacy*** (Pohangina Valley: Totara Press, 2018). 100 pp. ISBN 978-0-473-44413-6. NZ$29.99 paperback.

Anyone who has ever studied the breakneck assault on the lowland forests of the North Island during the last decades of the nineteenth century is likely to have come across the photographs of the Pohangina Valley settler Charles Wildbore. In this concise but conveniently sized collection, Catherine Knight, author of *Ravaged Beauty: an environmental history of the Manawatu* (2014) combines Wildbore's own photographs and contemporary written sources to produce not only a biography of Charles Wildbore, but also a visual record of this transformation in the Pohangina Valley.

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