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**The Role of Medicinal Plants in New
Zealand's Settler Medical Culture,
1850s-1920s**

A thesis submitted in
fulfilment of the requirements for the degree of

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at

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by

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Abstract

Throughout history, medicinal plants have been important components of medical practices in almost all cultures of the world. This thesis focuses specifically on the changing uses and understandings of medicinal plants in New Zealand's settler medical culture from 1850 to 1920. Using a wide range of source material, and both qualitative and quantitative methodologies, it examines the plant species most popular in New Zealand, the reasons for their popularity, the introduction of these into the Colony, and their use and interpretation by three groups of healers: domestic healers, herbalists and doctors.

This thesis deploys the concept of translation to argue that different qualities were attributed to the same plant in response to the needs and approaches of domestic healers, herbalists and doctors, each of whom had different ways of gathering, collating and assessing medico-botanical information. While British understandings of botany and medicine introduced during the course of colonisation guided healers and their use of plants in New Zealand significantly, this thesis posits that the flow of medico-botanical knowledge was more diffuse and highly complex, moving in multiple directions, and adapting and incorporating multiple meanings.

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Map of Locations Mentioned in the Text



Introduction

The pills, tablets and formulae many of us take on a regular basis barely resemble the plants that nineteenth-century domestic healers, herbalists, doctors and chemists learned to identify, prepare, prescribe and apply.¹ The gardeners among us may be familiar with common names of plants that provide a clue to their therapeutic background. Others maintain a loyalty to the scientific vernacular, keeping Latin alive in the pages of medical and botanical literature and discourse, and viewing plants as botanical descriptions or illustrations. Even herbalists, who have for centuries prided themselves on conserving so-called traditional medicobotanical knowledge, increasingly resemble modern pharmacists, as they adapt their approaches and uses of plants to suit changing demands and requirements.

This thesis takes an interdisciplinary approach combining different methodologies and historiographies to examine the plants so integral to nineteenth- and early-twentieth century medical culture in New Zealand. It explores how and why the use of plants changed over time and presents a new perspective on health and healing in colonial New Zealand by challenging the dominant historiographical framework that divides medical culture into mainstream and alternative medical practices. This thesis argues that healers – specifically, domestic healers, herbalists and doctors – defined their medical practices, in part, through different ‘translations’ or interpretations of the same medicinal plants. These ‘translations’ were constructed in response to a variety of factors in New Zealand and abroad, including the impacts of medical licensing, a wider cultural shift towards public appreciation and trust in scientific approaches, and the popularity of patent and proprietary medicines.

¹ It is estimated that fifty per cent of all drugs in use in the western world today are derived from natural products. An estimated twenty-five per cent derive from higher plants. Ben-Erik Van Wyk and Michael Wink, *Medicinal Plants of the World: An Illustrated Scientific Guide to Important Medicinal Plants and their Uses* (Portland, Oregon: Timber Press, 2004), p. 7.

To this end, this thesis explores the history and development of western medico-botanical knowledge and provides an overview of New Zealand's colonial medical and botanical culture. The bulk of this research investigates and compares the use of medicinal plants by New Zealand's domestic healers, who provided care in predominately domestic settings, herbalists – men and women trained in a specific system of nineteenth-century medical practice – and doctors, mainly men who registered on New Zealand's national medical register in the late nineteenth and early twentieth centuries. It presents a series of potted biographies, supplemented by analyses of advertisements for proprietary medicines and medical and botanical literature to shed light on the information, skills and experiences that directed the use of plants in colonial New Zealand. This thesis considers the influence of cross-cultural and international exchange of medico-botanical knowledge.

By the 1850s, colonisation was in full swing in New Zealand and domestic healers, doctors and herbalists were all, I argue, equally busy and committed to maintaining the health of the growing colonial population. Between the 1850s and 1920s, significant developments took place, including the organisation of pharmacology and the specialisation of medicine that influenced the way all three groups of healers interpreted and used medicinal plants. The impetus to explore the use of medicinal plants during this period arose from personal interest, experience and prior education.

After studying medical herbalism in the mid-1990s, I enrolled in an undergraduate degree in biological sciences. This was much to the chagrin of my fellow herbal students, many of whom were opposed to the scientific biomedical paradigm and outwardly resented the hegemony of western medicine. During my degree, as I furthered my knowledge of medicinal plants, I recognised similarities between biomedicine and modern herbalism and started to compare the seemingly opposing perspectives of scientists and alternative practitioners. Later, my Masters degree in medical anthropology provided me with the theoretical tools to understand and explore these perspectives and the historical context from which this medical dichotomy arose.

This thesis reflects my interdisciplinary background and methodological skill set in providing a history of medicinal plant use in New Zealand that weaves together approaches from the history of science, botany, medicine and pharmacy. It appeals to medical historians to consider the medicines and medicaments that played such an important role in the history of health, as well as the practitioners excluded from medical registrations or public health institutions. By doing so, this thesis contributes to New Zealand's environmental and medical history, creating a new perspective on colonial medical culture, environmental change, economic development and cross-cultural exchange.

The following section discusses methodology, sources and terminology and gives an overview of the thesis chapters. It details the presence and absence of medicinal plants from New Zealand's medical and environmental historical scholarship and situates this thesis inside a wider, interdisciplinary historiographical framework. The breadth of historical sources and subject matter this thesis explores reflect the interdisciplinary nature of this work, and highlights the contribution of this thesis to various areas of research, specifically, medical history, garden history and environmental history.

A Combined Historiography of Medicinal Plants

The study of medicinal plants in western cultures is typically divided into the study of individual species; their 'discovery', chemical constituents and synthetic modification, or histories of specific institutions, disciplines or philosophies; their founders, advocates and achievements.² In New Zealand, the study of medicinal

² Suzanne Taylor and Virginia Berridge, 'Medicinal Plants and Malaria: An Historical Case Study of Research at the London School of Hygiene and Tropical Medicine in the Twentieth Century', *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 100, 8 (2006), pp. 707-714; <http://www.sciencedirect.com.ezproxy.waikato.ac.nz/science?>, [accessed 4 May, 2011]; Felipe Fernández-Armesto and Benjamin Sacks, 'The Global Exchange of Food and Drugs', in *The Oxford Handbook of the History of Consumption*, ed. by Frank Trentmann (Oxford: Oxford University Press, 2012), pp.127-145; Joanne Birch, 'A Comparative Analysis of Nineteenth Century Pharmacopoeias in the Southern United States: A Case Study Based on the Gideon Lincecum Herbarium', *Economic Botany*, 63, 4 (2009), pp. 427-440; Farnk Dikötter, Lars Laaman and Xun Zhou, China, 'British Imperialism and the Myth of the Opium Plague', in *Drugs and Empires: Essays in Modern Imperialism and Intoxication, c. 1500-c. 1930*, ed. by James H. Mills and Patricia Barton (Houndmills: Palgrave Macmillan, 2007), pp. 19-39.

plants has followed a similar trend, with biochemical analyses on native medicinal plants and their constituents and medical histories that focus on public institutions such as providers of public health.³ In this broader historical scholarship, medicinal plants barely feature.

International historians have produced a number of specific plant histories, such as the history of the opium poppy and reports on localised herbal systems that provide some analysis and exception to this omission.⁴ Additionally, self-help herbal guides often include a generic history of medicinal plants, but the information presented is typically divorced from social context, or designed simply to promote a growing resistance to modern pharmaceuticals.⁵ These books reinforce an association between ‘alternative’ medicine and the use of medicinal plants and rewrite into the past modern opinions of herbalism, including the belief that herbal medicine is unscientific and unrelated to popular medical theory or developments. They typically ignore the use of plants by the medical profession and the changing nature in which plants were processed and understood.

This thesis extends and challenges these histories and assumptions. It engages with medical, environmental and garden historical scholarship to illustrate the compatibility of, and value in, combining methodologies and historiographies. Focusing on the use of medicinal plants situates my research within existing

³ S. G. Brooker, R.C. Cambie and R. C. Cooper, *New Zealand Medicinal Plants* (Auckland: Heinemann, 1981); Christina Macdonald, *Medicines of the Māori: From their Trees, Shrubs, and other Plants, Together with Foods from the Same Sources* (Auckland: Collins, 1973); Derek Dow, *Safeguarding the Public Health: A History of the New Zealand Department of Health* (Wellington: Victoria University Press, 1995); Frances Sydney Maclean, *Challenge for Health: A History of Public Health in New Zealand* (Wellington: Government Printer, 1964).

⁴ For example, R Cambie and J. Ash, *Fijian Medicinal Plants* (Melbourne: CSIRO, 1994); Martin Booth, *Opium: A History* (London: Simon & Schuster, 1996); Leslie Taylor, *The Healing Power of Rainforest Herbs: A Guide to Understanding and Using Herbal Medicines* (New York: Square One Publishers, 2005); W Arthur Whistler, *Samoan Herbal Medicine: 'o lā'au ma vai fofō o* (Honolulu: Isle Botanica, 1996); Paul Petard, *Raau Tahiti: The Use of Polynesian Medicinal Plants in Tahitian Medicine* (Noumea, New Caledonia: South Pacific Commission, 1972).

⁵ Literally hundreds of herbal manuals have been published since the revival of western herbalism in the 1970s. Most include a generic global history of medicinal plants. For example, Barty Phillips, *The Book of Herbs: An Illustrated A-Z of the World's Most Popular Culinary and medicinal Plants* (London: Arcturus, 2007), Deni Brown, *The Royal Horticultural Society Encyclopedia of Herbs and their Uses: The Definitive A-Z Guide to Herbs* (London: Dorling Kindersley Limited, 2002); Van Wyk and Wink, 2004; Antoine Al-Achi, *An Introduction to Botanical Medicines: History, Science, Uses and Dangers* (Connecticut: Praeger Publishers, 2008); Frank Lipp, *Herbalism* (London: Macmillan in association with Duncan Baird, c.1996).

medical historiography, but also moves it into the fields of environmental and garden history, as well as the history of science. Environmental and garden historians often engage with scientific research and the history of science by combining empirical investigations and observations with historical discourse in their analyses. In a similar way, this thesis assays early botanical and medical research to determine nineteenth-century perceptions of plants and science and considers how these are expressed in New Zealand's colonial medical culture. Furthermore, it uses quantitative methodologies to determine the introduction of specific plants and the popularity of medicinal species and highlights the advantages of an interdisciplinary approach to historical research.

New Zealand's history of health is an obvious place to begin my search for references to the use of medicinal plants. New Zealand scholarship in this field has followed a trajectory characterised by an initial emphasis on individual achievement and scientific success, to an account of public health services and institutions, and more recently a critically-informed social historical research that incorporates elements of class, gender and race in its analysis. Early research, an example of which is Robert Fulton's *Medical Practice in Otago and Southland in the Early Days* (1922) presents the role of colonial doctor as fraught with frustration but as ultimately heroic and enduring.⁶ Described as 'stridently Anglo-Saxon' by medical historian Michael Belgrave, books such as Fulton's initiated an era of medical history that showcased both the pioneer 'backblocks' doctor, as well as scientific progress. During the 1950s and 1960s, autobiographies written by mainly rural doctors for an audience drawn to the image of community service and colonial hardship continued this tradition.⁷ With doctors in the dominant role, plants appear only rarely as adjuncts to anecdotes and the heroic work of the medics themselves.

⁶ Robert Valpy Fulton, *Medical Practice in Otago and Southland in the Early Days. A Description of the Manner of Life, Trials, and Difficulties of some of the Pioneer Doctors, of the Places in which, and of the People among whom they Laboured* (Dunedin: Otago Daily Times and Witness Newspapers Co., 1922).

⁷ For example, Bernard Myers, *The Reminiscences of a Physician* (Wellington: Reed, 1949); Elaine Grundy, *Who'd Marry a Doctor? A Chatham Islands Casebook* (Christchurch: Whitcombe and Tombs, 1968); Dorothea Joblin, *Harvey Come Quick : The Story of the Little Doctor of Waverley* (Auckland: Paul's Book Arcade, 1963); Doris Gordon, *Doctor Down Under 1890-1956* (London: Faber, 1957); R. Burns Watson, *The Doctor Must Get Through: 50 Years a General-Practitioner-Surgeon* (Wellington: Reed, 1971).

By the 1960s, an era of institutional health histories commenced by Frances Sydney Maclean, addressed the role of the state and public health policy in New Zealand and provided statistics for further analysis.⁸ In 1964, Maclean produced a systematic chronological account of the development of public health services in New Zealand, together with a brief epidemiology on a select number of introduced diseases. In a similar vein to the previously published medical biographies, and in a format followed by later publications on public institutions, Maclean's work presents the history of medicine in New Zealand as a lineal progression towards greater understandings and medical acumen.⁹ Institutional histories such as Maclean's focus on the changing nature of medical theory and practice. However, they often completely ignore the elements and nature of care, producing a top-down history that overlooks the experience of health and wellness in its myriad forms.

By the 1970s, a new wave of historians using new perspectives aimed to broaden the scope of this research. According to historians Frank Huisman and John Harley Warner, in America and Britain, scholars moved away from producing 'stories of great doctors' and towards social histories of medicine that explore the influence of social attitudes and values.¹⁰ In New Zealand, during this period, historian Laurie Gluckman, although still largely committed to doctors' stories, moved closer towards this approach.¹¹ In his investigation into New Zealand's medical services prior to 1860, Gluckman reveals an interest in native medicinal plants expressed by European doctors and scientists. As such, his findings encourage and support my own investigations into the exchange of medical knowledge in colonial New Zealand. Motivated by his background in medicine and interest in traditional Māori medicine, Gluckman's book reveals the contrary

⁸ Maclean, 1964; D. Macdonald Wilson, *A Hundred Years of Healing: Wellington Hospital, 1847-1947* (Wellington: A.H Reed & A.W. Reed, 1948); F. O Bennet, *Hospital on the Avon: The History of the Christchurch hospital, 1862-1962* (Christchurch: North Canterbury Hospital Board. 1962); Sir Charles Hercus and Sir Gordon Bell, *The Otago Medical School Under the First Three Deans* (Edinburgh: E. & S. Livingstone, 1964).

⁹ Maclean, 1964.

¹⁰ Frank Huisman and John Harley Warner, *Locating Medical History: The Stories and Their Meanings* (Baltimore: Johns Hopkins University Press, 2007), p. 173.

¹¹ Laurie Gluckman, *Tangiwai: A Medical History of New Zealand Prior to 1860* (Christchurch: Whitcoulls Limited, 1976).

opinions and perspectives of doctors and missionaries and the varied nature of medical care, knowledge and opinions during this early period of settlement.¹² Gluckman's focus on Māori health extends into an analysis of traditional Māori medical practices, including brief descriptions of the Māori pharmacopeia.

By the 1970 and 1980s, social histories of medicine became increasingly popular and medical historical scholarship began to encompass aspects of gender, race and class – research that was presented in journals and forums, such as *Social History of Medicine* and the Society for the Social History of Medicine.¹³ Academic developments and broader influences, such occupational health and safety and racial disparities in health care delivery, affected the direction and scope of medical historical enquiry during this period.¹⁴ As an interdisciplinary project, this thesis sits within, and contributes to, the wider scope of social medical history that has taken place since the 1970s. Furthermore, the social history of medicine, I argue, shares qualities and characteristics with the field of environmental historical research – the nature of which is discussed in more detail later in this section – making both approaches compatible and indeed complementary.

A number of health historians in New Zealand have embraced a social and cultural approach to the history of medicine, and their work provides valuable context and insight for this thesis.¹⁵ Michael Belgrave, Rex Wright-St Clair and

¹² Many early health initiatives in nineteenth-century New Zealand were race specific. As medical historical research became increasingly focused on legislation and professionalisation, Māori health became typically studied in isolation. For example, Raeburn Lange, *May the People Live: A History of Māori Health Development 1900-1920* (Auckland: Auckland University Press, 1999); Derek Dow, *Māori Health and Government Policy, 1840-1940* (Wellington: Victoria University Press, 1999).

¹³ Susan Reverby and David Rosner, "'Beyond the Great Doctors' Revisited: A Generation of the 'New' Social History of Medicine', in *Locating Medical History: The Stories and Their Meanings*, ed. by Frank Warner Huisman and John Harley, (Baltimore: Johns Hopkins University Press, 2007), pp. 167-194. The Oxford journal, *The Social History of Medicine*, published on behalf of The Society for the Social History of Medicine started in 1988 and is a prominent forum for this research. <http://shm.oxfordjournals.org/>, [accessed February 12 2012]. Susan Reverby and David Rosner, "'Beyond the Great Doctors' Revisited: A Generation of the 'New' Social History of Medicine', in *Locating Medical History: The Stories and Their Meanings*, ed. by Frank Warner Huisman and John Harley, (Baltimore: Johns Hopkins University Press, 2007), pp. 167-194.

¹⁴ Reverby and Rosner, p. 117.

¹⁵ Lynda Bryder, 'History of Medicine in Australia and New Zealand', in *The Oxford Handbook of the History of Medicine*, ed. by Mark Jackson (Oxford: Oxford University Press, 2013), pp. 302-321; Rex Wright-St Clair, *A History of the New Zealand Medical Association: The First Hundred Years* (Butterworths of New Zealand, 1987); Pamela Wood, *Dirt: Filth and Decay in a New World*

Derek Dow, for example, have explored public health and the professionalisation of medicine in New Zealand, producing concise and informative research that focuses on university-educated doctors and the political and cultural context that governed their organisations and practices.¹⁶ Belgrave's 1985 doctoral thesis contains a rich analysis of colonial medical culture and provides useful statistics.¹⁷ Doctor/historian Wright-St Clair, described in 1985 as 'one of New Zealand's foremost contemporary writers of medical history', produced over fifty publications and contributed significantly to New Zealand's history of public and professional health care.¹⁸

Belgrave's analysis acknowledges the influence of British medical theories, policies and culture, as does that of Wright-St Clair, who maintains that, 'with British culture and civilisation transplanted to the Antipodes... [doctors] saw themselves as British doctors practicing British medicine in a British Colony'.¹⁹ Indeed, histories of public health in New Zealand, such as Dow's history of New Zealand's Health Department, highlight the influence of British medical culture.²⁰ This focus on British influences and the writings of professional men leave little room to explore the interest taken by colonists in New Zealand in health and cultures of healing expressed elsewhere during this period, such as in America.

Arcadia (Auckland: Auckland University Press, 2005); Barbara Brookes, 'The Making of a Controversy: History, Medicine and Politics', in *The Cartwright Papers: Essays on the Cervical Cancer Inquiry 1987-88*, ed. by J. Manning (Wellington: Bridget Williams Books, 2009), pp. 100-117; Lynda Bryder (ed.), *A Healthy Country. Essays on the Social History of Medicine in New Zealand* (Wellington: Bridget Williams Books, 1991); Catharine Coleborne, 'Health and Illness, 1840s-1900s', in *New Zealand Oxford History of New Zealand*, ed. by Giselle Byrnes (Auckland: Oxford University Press, 2009); Derek Dow, 1995; Michael Belgrave, 'The Rise of the Health Professional in New Zealand, 1860-1939', in *A Healthy Country: Essays on the Social History of Medicine in New Zealand*, ed. by Lynda Bryder (Wellington: Bridget Williams Books, 1991), pp. 7-25.

¹⁶ Michael Belgrave, "Medical Men" and "Lady Doctors" The Making of a New Zealand Profession, 1867-1941, Unpublished PhD. Thesis, Victoria University of Wellington, 1985; Belgrave, 1991; Rex Wright-St Clair, 1987; Rex Wright-St. Clair, *A History of General Practice and of the Royal New Zealand College of General Practitioners* (Wellington: The Royal New Zealand College of General Practitioners, 1989); Dow, 1995.

¹⁷ Belgrave, 1985.

¹⁸ Derek Dow, 'Rex Wright-St. Clair', *Journal of the New Zealand Medical Association*, 118, 1216 (2005), <http://journal.nzma.org.nz/journal/118-1216/1504/>, [accessed April 19 2014].

¹⁹ Wright-St. Clair, 1989, p. 11.

²⁰ Derek Dow's revision of Mclean's history reveals the number of health policies and initiatives in New Zealand that stemmed from British associations, examples and developments. Dow, 1995; Barbara Brookes, 'A Corresponding Community: Dr Agnes Bennett and her Friends from the Edinburgh Medical College for Women of the 1890s', *Medical History*, 52, 2 (2008), pp. 237-256.

This thesis extends this scholarship and reveals important intersecting ideologies that complicate the historiographical presentation of a strictly British, and strictly delineated medical system in New Zealand in the nineteenth and early twentieth centuries.²¹ Including women and so-called ‘irregular’ practitioners in New Zealand’s history of health, such as this thesis does, reveals a broader set of influences, and challenges the idea that in New Zealand, ‘colonial medicine’ was solely ‘British medicine’.²² It highlights the importance of place, arguing that responses to the colonial environment as well as imperial encounters and endeavours influenced the direction and construction of colonial medicine in New Zealand. Furthermore, this thesis reveals common practices and philosophies among healers who presented themselves as distinctly different.

The condemnation of certain medical practices and practitioners began in Britain as early as the late 1700s, encouraging an ‘alternative’ industry that placed itself in opposition to biomedical practices while it sought validation and accreditation through its alliance with scientific thought. In describing this process, critical medical anthropologists, such as Peter Freund and Meredith McGuire give the mistaken impression of clear and precise lines demarcating the philosophies and practices of regular from irregular practitioners.²³ Given the influence of British medicine and policy in colonial New Zealand, this framework has been largely adopted by New Zealand historians whose focus on professional medicine and omission of domestic or ‘alternative’ medical practices supports this delineation.²⁴ Challenging this framework are medical historians Roy Porter and Roger Cooter, who reveal the inconsistencies and discrepancies that confuse the notion of a strictly divided eighteenth- and nineteenth-century medical system.²⁵ They argue

²¹ Belgrave, 1985; Dow, 1995; Wright- St Clair, 1987.

²² Belgrave, 1985, p. 12.

²³ Peter Freund and Meredith McGuire, *Health, Illness and the Social Body* (New Jersey: Prentice hall, 1999); G. Foster and B. Anderson, *Medical Anthropology* (New York: Joghnn Wiley and Sons, 1978); Kevin Dew, *Borderland Practices: Regulating Alternative Therapies in New Zealand* (Dunedin: University of Otago Press, 2003).

²⁴ For example; Belgrave, 1985; Dow, 1995; Wright- St Clair, 1987.

²⁵ Roy Porter, ‘Before the Fringe ‘Quackery’ and the Eighteenth-Century Medical market’, in *Studies in the History of Alternative Medicine*, ed. by Roger Cooter (Houndmills: Palgrave Macmillan, 1998), pp. 1-27; Roger Cooter, (ed.), *Studies in the History of Alternative Medicine*, (New York: St. Martin's Press, 1988).

that a simple dichotomy is both irrelevant and inappropriate to medical historical enquiry. This thesis follows Porter and Cooter's lead. Through a focus on medicinal plants and the philosophies and cultural practices associated with them, it argues that the process of medical differentiation was far more complex, contingent and far more place-specific in its scope and timing than previously portrayed.

The study of colonial medical history has received significant attention over the past two decades, with specialised and localised research by numerous scholars.²⁶ More recently, medical historians such as Anne Digby, Waltraud Ernst and Projit Mukhaji have appealed to scholars to consider the 'diversity of colonial experiences and indigenous actions'.²⁷ Different approaches to distinct colonial medical histories, they argue, have led to independent studies that tend to overlook overlaps between different regions and systems. This thesis addresses that concern by exploring the extent to which medicinal plants and medico-botanical knowledge was exchanged – an analysis also supported by recent approaches in imperial environmental historical scholarship.

In addition to debunking a central tenet of New Zealand's medical history, this thesis also highlights the significance of a neglected field of study in private health care, that of domestic health. It addresses the absence of domestic healers, the majority of whom were women, from New Zealand's current medical historiography and contributes to historiographical discussions of gender and class by challenging the perception that orthodox institutional care was the dominant medical system in New Zealand during the period from the 1850s to the 1920s.

²⁶ Wood, 2005; Coleborne, 2009; Catharine Coleborne and Angela McCarthy (eds), *Migration, Ethnicity, and Mental Health: International Perspectives, 1840-2010*, (London: Routledge, 2011); David Arnold, *Colonizing the Body: State Medicine and Epidemic Disease in Nineteenth-Century India* (California: University of California Press).

²⁷ Anne Digby, Waltraud Ernst and Projit Mukhaji (eds), *Crossing Colonial Historiographies: Histories of Colonial and Indigenous Medicines in Transnational Perspective*, (Cambridge: Cambridge Scholars Publishing, 2010), p. ix.

Histories of the ‘private’ dimension of health and disease, demonstrate that medical encounters, as well as perceptions of sickness and health, were disparate and culturally diverse.²⁸

In New Zealand, since the 1990s, the lives of colonial women have received an increasing amount of attention from historians. For example, anthologies that draw together and analyse the accounts and experiences of women often touch upon their role in health and welfare organisations.²⁹ Specific studies of women’s organisations in New Zealand also examine aspects of health history such as the work by Pamela Wood and Kerri Arcus into district nursing in Wellington.³⁰ Historians Judith Raftery and Jennifer Hagger discuss the importance of domestic health practices in colonial Australia, while in New Zealand Catharine Coleborne and Ondine Godtschalk reveal ‘glimpses of illness and domestic medicine in private records’ from New Zealand and Australia.³¹ Their analysis of private

²⁸ Tony Ballantyne and Antoinette Burton, *Moving Subjects: Gender, Mobility, and Intimacy in an Age of Global Empire* (Urbana: University of Illinois Press: 2009); Deborah Lupton, ‘The Social Construction of Medicine and the Body’, in *The Handbook of Social Studies in Health and Medicine*, ed. by Gary Albrecht, Ray Fitzpatrick and Susan Scrimshaw (London: Sage, 2000); Catharine Coleborne, 2009.

²⁹ Ann Else, *Women Together: A History of Women’s Organisations in New Zealand: Ngā rōpū wāhine o te motu* (Wellington: Historical Branch Dept. of Internal Affairs and Daphne Brasell Associates Press, 1993); Charlotte Macdonald, Merimeri Penfold and Bridget Williams (eds), *The Book of New Zealand Women, Ko Kui Ma Te Kaupapa* (Wellington: Bridget Williams Books, 1991); W.D.N.Z.F.U. Women’s Division of the New Zealand Farmers’ Union (eds), *Brave Days: Pioneer Women of New Zealand* (Dunedin: A.H. & A.W. Reed for the Women’s Division of the New Zealand Farmers’ Union, 1939); A. E. Woodhouse, *Tales of Pioneer Women: Collected by the Women’s Institutes of New Zealand* (Christchurch: Whitcombe & Tombs, 1940); F. Porter and C. Macdonald (eds), *My Hand Will Write What My Heart Dictates: The Unsettled Lives of Women in Nineteenth-Century New Zealand as Revealed to Sisters, Family and Friends* (Auckland: Auckland University Press and Bridget Williams books, 1996); Charlotte Macdonald, *A Woman of Good Character* (Wellington: Allen and Unwin New Zealand Limited and Historical Branch, Department of Internal Affairs, 1990).

³⁰ Pamela Wood and Kerri Arcus, ‘Poverty, Philanthropy, and Professionalism: The Establishment of a District Nursing Service in Wellington, New Zealand, 1903’, *Health and History*, 13, 1, (2011), pp. 44-64.

³¹ According to Judith Raftery, a tradition of self-care and neighbourly co-operation ran alongside professional medical assistance. The nature of domestic care, states Raftery, was highly dependent on class and social standing. Judith Raftery, ‘Keeping Healthy in Nineteenth-Century Australia’, *Health and History*, 1, 4 (1999), pp. 274-298; Jennifer Hagger, *Australian Colonial Medicine* (Adelaide: Rigby, 1979); Catharine Coleborne and Ondine Godtschalk, ‘Colonial Families and Cultures of Health: Glimpses of Illness and Domestic Medicine in Private Records in New Zealand and Australia, 1850-1910’, *Journal of Family History*, 38, 4 (2013), pp. 403-422. This line of research is also encouraged by international analyses such as; Sabrina Roth, ‘Cure or No Cure: Nursing Practices of Profession, Self-help and Naturopathy in Late-Nineteenth-Century and Early-Twentieth-Century Reference Books’, *Nursing History Review*, 16 (2008), pp. 141-160; Elaine Leong and Sarah Pennell, ‘Recipe Collections and the Currency of Medical Knowledge in the Early

colonial correspondence reveals regular and insistent references to health albeit an omission of the practical elements of care. This thesis supports their conclusions through a detailed analysis of domestic health practices, including the usage of imported medicinal plants. Exploring this aspect of medical history, therefore, is strengthened by an examination of colonial gardening, a necessary link that draws medical and garden historical scholarship together.

Locating medicinal plants in existing medical historical literature is still a challenge. According to medical historian Roy Porter, herbal medicine occupied an ambiguous place in medical historiography.³² While the specialisation and organisation of various medical occupations, such as nursing, can be revealed through an analysis of related policy and context, the use of medicinal plants crossed various disciplinary borders and defies categorisations, making the role of herbal medicine seem equivocal and ill-defined. Placing plants in a central role, therefore, dictates the need to employ approaches taken by both garden and environmental historians.

New Zealand's history of gardens and garden-making is encouraged and supported by a handful of prominent scholars.³³ It is a multi-disciplinary subject that covers a wide range of topics, including the exchange of plants and botanical information, the impetus for garden making, iconography and symbolism in gardens.³⁴ Since the 1930s, Australian and New Zealand scholars have produced

Modern 'Medical Marketplace', in *Medicine and the Market in England and its Colonies, c. 1450- c. 1850*, ed. by Mark S. R. Jenner and Patrick Wallis (Houndmills: Palgrave Macmillan, 2007), pp. 133-153; Coleborne and Godtschalk, pp. 403-422.

³² Roy Porter, *Studies in the History of Alternative Medicine*, pp. 1-27.

³³ Prominent works include; Matthew Bradbury (ed.), *A History of the Garden in New Zealand* (Auckland: Penguin Books, 1995); Helen Leach, *1000 Years of Gardening in New Zealand* (Wellington: A.H. & A.W. Reed, 1984), Beattie, 2008; Matt Morriss, *A History of Christchurch Home Gardening From Colonization to the Queen's Visit: Gardening Culture in a Particular Society and Environment*, Unpublished PhD thesis, University of Canterbury, 2006.

³⁴ Examples of its diversity include; John Dwyer, 'Weeds in the Victorian Colonial Garden 1800-1860', *Studies in Australian Garden History*, 2 (2006), pp. 1-23; Ian Hoskins, 'It is Inevitably a People's Park': Ceremony and Democratic Sentiment at the Opening of Centennial Park, 1888', *Studies in Australian Garden History*, 1, (2003), pp. 55-70; Duncan Campbell, 'Transplanted Gardens: Aspects of the Design of the Garden of Beneficence, Wellington, New Zealand', *Studies in the History of Gardens & Designed Landscapes*, 31, 2 (2011), pp. 160-166; James Beattie 'Making home, Making identity: Asian Garden Making in New Zealand, 1850s-1930s', *Studies in the History of Gardens & Designed Landscapes*, 31, 2 (2011), pp. 139-159; Matt Dallos, 'Seeing

garden histories that explore the political, social, economic, and artistic influences expressed in colonial gardens.³⁵ The field has become more professional in its approach and methodology since the 1980s with a number of rich, regionally specific studies that promote garden history as an important and valuable sub-discipline.³⁶ These studies highlight the importance of the garden and garden-making in New Zealand's colonial society.³⁷

Historians Winsome Shepherd, Walter Cook and Eric Dunlop, for example, focused on New Zealand's public garden spaces in their comprehensive histories of botanic gardens in Wellington and Dunedin.³⁸ These histories described the advent and impetus for the creation of colonial botanical gardens, from the selection of site, through its role as a scientific institution and later place of recreation. They highlighted the extensive network of botanical exchange during the nineteenth century, a network I explore in relation to the movement of medicinal plants and medico-botanical knowledge. Dunlop discusses state-supported trials on medicinal plants and notes the relationship between New Zealand's early Pharmaceutical Society and the Botanic garden, creating a link between New Zealand's history of medicine, therapeutics and gardens that this thesis expands upon.³⁹

Landscape: Geography, Autobiography, and Metaphor, *Studies in the History of Gardens & Designed Landscapes*, 34, 2 (2014), pp. 146-150.

³⁵ Robert Nairn, *The Early History of Horticulture in New Zealand*, *Supplement to the Journal of the Royal Society of Horticulture*, 3, 2 (1932), pp. unknown; Alan Hale, *Pioneer Nurserymen of New Zealand* (Wellington: A.H Reed & A.W. Reed, 1955); M. J. Barnett, H. G. Gilpin and Clarence J. Metcalf, *A Garden Century: The Christchurch Botanic Gardens, 1863-1963* (Christchurch: Christchurch Botanic Gardens, 1964).

³⁶ James Beattie and Katie Holmes, 'Reflections on the History of Australasian Gardens and Landscapes', *Studies in the History of Gardens & Designed Landscapes: An International Quarterly*, 31, 2 (2011), pp. 75-82, DOI: 10.1080/14601176.2011.556366, [accessed July 2 2012]; Sydney Challenger, 'Pioneer Nurserymen of Canterbury, New Zealand 1850-65', *Garden History*, 7, 1 (1979), pp. 25-64, <http://www.jstor/stable/1586716>, [accessed February 25 2012]; Winsome Shepherd and Walter Cook, *The Botanic Garden Wellington: A New Zealand History 1840-1987* (Wellington: Millwood Press, 1988); Thelma Strongman, *The Gardens of Canterbury: A History* (Wellington: Reed, 1984); Eric Dunlop, *The Story of the Dunedin Botanic Garden: New Zealand's First* (Dunedin: Friends of the Dunedin Botanic Garden in association with Longacre Press, 2002).

³⁷ James Beattie, 'The Empire of the Rhododendron: Reorienting New Zealand Garden History', in *Making a New Land: Environmental Histories of New Zealand*, ed. by Tom Brooking and Eric Pawson, 2nd edn (Dunedin: Otago University Press, 2013), pp. 241-257.

³⁸ Shepherd and Cook, 1988; Dunlop, 2002.

³⁹ Dunlop, p. 148.

Garden historians such as John P. Adam, Katherine Raine and James Beattie pick up the thread provided by previous scholars and examine, among other things, the introduction of gardening practices to New Zealand.⁴⁰ Mission gardens, according to Adam, were the first display of European agriculture and horticulture in New Zealand.⁴¹ Colonists' gardens, state Raine and Adam, provided a sense of familiarity and a marker of a new social order.⁴² James Beattie concurs with Raine and lists nostalgia as one of the factors that led settlers to introduce plants with the fervour they did. However, he challenges the perception of colonial gardeners intent on importing only European species in their desire to create a 'Better Britain'.⁴³ Beattie identifies the influence of Japanese and Chinese landscape designs in colonial gardens and explores the transfer of plants between Asia and New Zealand.⁴⁴ He contributes to analyses that challenge the unilateral flow of plants and information to colonial New Zealand, a conclusion supported by this thesis and its investigation into the movement of medicinal plants and medico-botanical knowledge.

New Zealand and Australasian garden historians have also explored the appropriation of indigenous space, gendering of the garden, and the interpretation

⁴⁰ Katherine Raine and John Adam, 'The Settlers Gardens', 'Victorian Gardens', in *A History of the Garden in New Zealand*, ed. by Matthew Bradbury (Auckland: Godwit, 2010), pp. 64-86; James Beattie, 'Acclimatisation and the "Europeanisation" of New Zealand, 1830s-1920s?', *ENNZ: Environment and Nature in New Zealand*, 3, 1 (2013), environmentalhistory-au-nz.org [accessed May 9 2014]; Beattie, 'Making home, Making identity', pp. 139-159; Katherine Raine, '1815-1840s The First European Gardens', in *A History of the Garden in New Zealand*, ed. by Matthew Bradbury (Auckland: Godwit, 2010), pp. 52-64.

⁴¹ The well documented role Missionaries played as healers makes an investigation into their cultivation and use of medicinal plants a valid line of enquiry that is unfortunately beyond the scope of this research. John Adam, *Domain Stories, A Note from John Adam, Time Spanner: A Journey through Avondale, Auckland and New Zealand History*, <http://timespanner.blogspot.co.nz/2009/08/domain-stories-note-from-john-adam.html> [accessed May 30, 2012]; Susuan Bulmer, 'Ngā Marā Traditional Māori Gardens', in *A History of the Garden in New Zealand*, ed. by Matthew Bradbury (Auckland: Penguin Books, 1995), pp. 34-37.

⁴² Raine and Adam, pp. 66-7. Historians, Katie Holmes, Susan Martin and Kylie Mirmohamadi maintain colonial gardens were important constructed sites that contributed to a collective and individual sense of home and place while they fulfilled practical requirements. Katie Holmes, Susan K. Martin and Kylie Mirmohamadi, *Reading the Garden: The Settlement of Australia* (Melbourne: Melbourne University Press, 2008), pp. 1-57.

⁴³ Beattie, 'Acclimatisation and the "Europeanisation"', 2008.

⁴⁴ James Beattie, Jasper M. Heinzen and John P. Adam 'Japanese Gardens and Plants in New Zealand, 1850-1950: Transculturation and Transmission', *Studies in the History of Gardens & Designed Landscapes*, 28, 2 (2008), pp. 219-236, DOI: 10.1080/14601176.2008.10408321 [accessed May 9 2014]; James Beattie, 'Making home, Making identity', 2011.

and translation of the garden and landscape by colonists and Māori.⁴⁵ This line of enquiry is most pertinent to my research and the theme of translation that moves through this thesis. It considers the processes and methods employed by European colonists to assert their presence, seize land and translate New Zealand's landscape into familiar terms and frameworks. Giselle Byrnes exemplifies this approach in *Boundary Markers: Land Surveying and the Colonisation of New Zealand* (2001).⁴⁶ Byrnes argues that early surveyors used 'boundary markers' in mapping and naming New Zealand as a means of appropriating indigenous space, inscribing new definitions and erasing prior meanings. In a similar vein, this thesis looks at the translation of indigenous medical knowledge and the 'stripping' of the indigenous narrative. This process of translation is discussed further in the following section.

The intentional or unintentional movement and exchange of plants and animals during periods of colonisation or exploration often had dramatic and irreversible effects on the environment. Scientists have typically explored the biological effects of environmental change. However, environmental historians have much to add to this analysis by exploring the networks, motivations, theories and processes that led to changes to the land and climate and perceptions of space and place.⁴⁷ Given the rapid and significant change to New Zealand's landscape

⁴⁵ Giselle Byrnes, *Boundary Markers: Land Surveying and the Colonisation of New Zealand* (Wellington: Bridget Williams Books 2001); Katie Holmes, Sue Martin, Susan K. Martin, Kylie Mirmohamadi, *Green Pens: A Selection of Garden Writing* (Melbourne: Miegunyah Press, University Publishing, 2004). Holmes, Martin and Mirmohamadi, 2008.

⁴⁶ Byrnes, 2001.

⁴⁷ Early and important environmental historical works included Alfred W. Crosby, *Ecological Imperialism: The Biological Expansion of Europe, 900-1900* (Cambridge: Cambridge University Press, 1986); Thomas R. Dunlap, *Nature and the English Diaspora: Environment and History in the United States, Canada, Australia, and New Zealand* (New York: Cambridge University Press, 1999); Richard Drayton, *Natures Government: Science, Imperial Britain and the 'Improvement' of the World* (New Haven: Yale University Press, 2000); William Cronon, (ed.), *Uncommon Ground: Toward Reinventing Nature* (New York: W.W. Norton & Company, 1995); Tom Griffiths and Libby Robin (eds.), *Ecology and Empire: The Environmental History of Settler Societies* (Keele: Keele University Press, 1997). More recent analyses include William Beinart and Lotte Hughes, *The Oxford History of the British Empire, Companion Series. Environment and Empire* (Oxford: Oxford University Press, 2007); James Beattie, *Empire and Environmental Anxiety: Health, Science, Art and Conservation in South Asia and Australasia, 1800-1920* (Basingstoke: Palgrave Macmillan, 2011); Paul Fox, *Clearings: Six Colonial Gardeners and their Landscapes*, (Victoria: Carlton South, 2004); Peter Holland, *Home in the 'Howling Wilderness': Settlers and Environment in Southern New Zealand* (Auckland: Auckland University Press, 2013); Libby Robin, *How a Continent Created a Nation* (Sydney: University of New South Wales Press, 2007); Judith Ann Bennett, *Natives and Exotics: World War II and Environment in the Southern Pacific* (Honolulu: University of Hawai'i

brought about through the acclimatisation of plants and animals during European colonisation, New Zealand's environmental historians have taken particular interest in the movement of flora and fauna during the nineteenth century.⁴⁸ This research reveals dynamic networks of exchange and the diversity of individuals and institutions involved. Beattie, Edward Melillo and Emily O'Gorman, for example explore the financial systems, ecological changes and exchange of knowledge within so-called 'eco-cultural networks' that support the exploitation of new resources.⁴⁹

Academics such as Tom Brooking, Eric Pawson and Jodi Frawley apply a focus to their research that allows the specificity of ecological exchange, as well as the existence of various interpretations of the environment and elements within it to be explored.⁵⁰ For example, research by Brooking and Pawson highlights the significance of pasture in the environmental transformation of New Zealand. It focuses on processes largely ignored but integral to the construction of New Zealand's economy and industry. Similarly, Frawley's analysis of the exchange and movement of mangoes demonstrates adeptly how plants are assigned different

Press, 2009); Paul D'Arcy, *The People of the Sea: Environment, Identity, and History in Oceania* (Honolulu: University of Hawai'i Press, 2006).

⁴⁸ For example, R. Peden and P. Holland, 'Settlers Transforming the Open Country', in *Making a New Land: Environmental Histories of New Zealand*, ed. by Tom Brooking and Eric Pawson, 2nd edn (Dunedin: University of Otago Press, 2013), pp. 89-105; Tom Brooking and Eric Pawson, *Seeds of Empire: The Environmental Transformation of New Zealand* (London: I.B. Tauris, 2011); Don Garden, *Australia, New Zealand, and the Pacific: An Environmental History* (California: ABC-CLIO, 2005); Tom Brooking and Eric Pawson (eds), *Environmental Histories of New Zealand: Making a New Land*, 2nd edn (Dunedin: Otago University Press, 2013); Tom Brooking and Eric Pawson (eds), *Environmental Histories of New Zealand* (Melbourne: Oxford University Press, 2002).

⁴⁹ James Beattie, Edward Melillo and Emily O'Gorman (eds), *Eco-Cultural Networks in the British Empire: New views on Environmental History* (London: Bloomsbury, 2014); Paul Star, 'New Zealand's Biota Barons: Ecological Transformation In Colonial New Zealand', *ENNZ: Environment and Nature in New Zealand*, 6, 2 (2002), environmentalhistory-au-nz.org, [accessed May 9 2014]; James Beattie, 'Exploring Trans-Tasman Environmental Connections, 1850s-1900s through the Imperial 'Careering' of Alfred Sharpe', *ENNZ: Environment and Nature in New Zealand*, 4, 1 (2014); Matt Henry, 'Trans-Tasman Meteorology and the Production of a Tasman Airspace, 1920-1941', *ENNZ: Environment and Nature in New Zealand*, 4, 1 (2014); Mike 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, 1 (2014); Eric Pawson, 'Plants, Motilities and Landscapes: Environmental Histories of Botanical Exchange', in *Geography Compass*, 2, 5 (2008), pp. 1464-1477; James Beattie and Paul Star, 'Global Influences and Local Environments: Forestry and Forest Conservation in New Zealand, 1850s-1925', *British Scholar*, 3, 2 (2010), pp. 191-218.

⁵⁰ Brooking and Pawson, 2011; Jodi Frawley, 'Making Mangoes Move', *Transforming Cultures eJournal*, 3, 1 (2008), pp. 169-170, <http://epress.lib.uts.edu.au/journals/Tfc>, [accessed July 4 2013].

meanings or ‘translations’ in response to context, method and the motivation of enquirers.⁵¹

In a similar vein, this thesis explores various ‘translations’ of medicinal plants, and suggests a unique network of exchange and group of actors specific to their movement and use. This network involved medical practitioners, botanists, lay healers and traders. Exploring it, therefore, justifies this thesis’ focus on medical history alongside environmental history. In doing so, this thesis specifically answers the appeal by scholars to explore associations between perceptions of health and the environment.⁵²

Historians such as Beattie, Gregg Mitman, Richard Drayton and Thomas Dunlap have also revealed the significance of eighteenth- and nineteenth-century medical theories in the development of environmental thought and planning.⁵³ Beattie identifies the influence of miasmatic theory on settlement patterns and environmental perceptions during New Zealand’s colonisation.⁵⁴ In later research, Beattie reveals certain ‘environmental anxieties’, expressed by colonists in response to environmental destruction.⁵⁵ Through case studies of individual scientists, he describes the transfer, movement and adaptation of medical and environmental knowledge and acknowledges the networks through which this travelled. In a similar fashion to medical historians, Beattie appeals to others to consider the ‘interconnections and comparative environmental histories within the Empire’.⁵⁶ This thesis posits a unique network of institutions and actors who

⁵¹ Frawley, 2008.

⁵² James Beattie, ‘Colonial Geographies of Settlement: Vegetation, Towns, Disease and Well-Being in Aotearoa/New Zealand, 1830s-1930s’, *Environment and History*, 14, 4 (2008), pp. 583-610; Gregg Mitman, ‘In Search of Health: Landscape and Disease in American Environmental History’, *Environmental History*, 10 (April, 2005), pp. 184-210.

⁵³ Beattie, 2008; Drayton, 2000; Dunlap, 1999; Mitman, 2005.

⁵⁴ James Beattie, ‘Colonial Geographies of Settlement’, pp. 583-610.

⁵⁵ James Beattie, *‘Empire and Anxiety’*, 2011.

⁵⁶ James Beattie, ‘Recent Themes’, p. 129. Environmental historians Paul Star and Eric Pawson adopt the ‘Actor Network Theory’ (ANT) to illustrate the networks and associations – throughout the British Empire and beyond – through which plants, information and people travelled during the nineteenth century. Analyses that employ the ‘Actor-Network Theory’ as described by French social scientist Michel Callon, reveal how objects (actants) and people (actors) participate in networks of exchange, prompting, initiating and perpetuating environmental change. Eric Pawson, ‘Plants, Motilities’, pp. 1464-1477; Brooking and Pawson, 2011; Paul Star, ‘New Zealand’s Biota Barons’, 2002; Eric Pawson, ‘Biotic Exchange in an Imperial World: Developments in the Grass Seed Trade’, in *Agri-Food Commodity Chains and Globalising Networks*, ed. by

participated in the introduction, exchange and use of medicinal plants in colonial New Zealand.

Methodology: Weaving multiple sources

As discussed in the previous section, examining the use and introduction of medicinal plants in New Zealand combines histories of medicine, environment and gardens. This thesis also engages with histories of science, botany, colonialism and imperialism. To access the fragmentary and scattered references to medicinal plants in New Zealand it crosses academic boundaries and relies on traditional and non-traditional source material. This research, therefore, employs quantitative and qualitative methodologies that reflect this eclectic approach and combines these in order for me collate, analyse and draw conclusions on the role medicinal plants played in colonial medical culture.

This collective approach is necessary because within the narrative of individual achievement and evolving medical technologies, there was little room for early medical historians, such as Fulton, to include the remedies and plants they applied in the histories they wrote.⁵⁷ Analyses such as Belgrave's, that rely on a statistical analysis of New Zealand's colonial medical culture, ignore the private side of health and healing and diminish the contribution made by healers not counted through registration or licensing.⁵⁸ Furthermore, while the themes addressed by social historians, such as gender and class paved the way for studies on domestic health and 'irregular' medical care, they effectively side-lined the practical elements of care, including medicinal plants. Environmental and garden historians

Christina Stringer and Richard Le Heron (Aldershot: Ashgate Publishing, 2008), pp. 229-239; John Law, 'Actor Network Theory and Material Semiotics,' (2007), <http://www.net/publications/Law2007ANTandMaterialSemiotics.pdf>, [accessed May 11 2014].

⁵⁷ Fulton's book for example refers briefly to Dr Joseph Crocome and Dr Frances Monckton who both used and experimented with native New Zealand medicinal plants. Fulton, pp. 7, 62, 209.

⁵⁸ Michael Belgrave proves how street directories, censuses and the medical register can reveal the spatial development of doctor's practices in New Zealand. However domestic healers cannot be included in these analyses as they were never registered or licensed. Coleborne and Godtschalk have recently explored evidence of domestic healing in colonial correspondence such as letters and diaries. But little reference is given to the elements of care, an omission that reflects the absence of this in traditional primary source material. Belgrave, 1985, p. 242; Coleborne and Godtschalk, 2013.

turn the lens towards the environment. However, virtually no analysis of medicinal plants has been made.⁵⁹ This thesis demonstrates the value of exploring little used sources such as collections of medical receipts and nursery catalogues, to strengthen and extend research and include aspects of society and people otherwise overlooked.

A Domestic Medical Curriculum

As Chapter Three will discuss, domestic medicine was a selective and subjective system that combined numerous philosophies and approaches. By the late nineteenth century, biochemical analysis created new criteria for determining the value of medicinal plants. Nevertheless, experimentation, experience and anecdotal information remained important indicators of worth, particularly for domestic healers. The use of medicinal plants by domestic healers often went beyond that which was advocated by official medical curricula or pharmaceutical research – ‘evidence’ was broad and evaluated in relation to factors such as efficacy, popularity, monetary value, testimony and authority. In a similar fashion, this research has employed an overlapping research methodology to determine the scope and impact of domestic medicine in New Zealand. It has extracted references from a scattered collection of handwritten receipts, focused on *materia medica* chapters in domestic medical manuals, and analysed the material objects that reflect both context and application. This eclectic methodology is vital in revealing the broader ideas and opinions relating to the use of medicinal plants.

Encouraged by British historians, including Elaine Leong and Sarah Pennell, I have explored personal collections of medical receipts and recipes to uncover the plants used by domestic healers.⁶⁰ This research is among the first in New Zealand

⁵⁹ Exceptions to this include Londa Schiebinger, *Plants and Empire: Colonial Bioprospecting in the Atlantic World* (Cambridge: Harvard University Press, 2007). Richard Drayton discusses medicinal plants in relation to the creation of botanical gardens and economic botany. See, Drayton, pp. 6-19, 26-30.

⁶⁰ Leong and Pennell, 2007; Katharine Allen, *England's Domestic Chemists: Science and Consumerism in Eighteenth-Century Recipe Collections*, Unpublished MA thesis, University of Saskatchewan, 2011; Sara Pennell (ed.), *Women and Medicine: Remedy Books, 1533-1865, From the Wellcome Library for the History and Understanding of Medicine* (London: Primary Source Microfilm Library for the Wellcome Library for the History and Understanding of Medicine, 2004);

to analyse these collections and illustrates their potential and value as historic sources.⁶¹ Exploring collections – both those brought to New Zealand and created in the colony – reveals the selective nature of domestic medicine and affords insight into the adaptation of medical knowledge in New Zealand.

Unlike published medical material, the majority of which was written by male British and American physicians, these collections reveal women's perspectives and experiences of health and disease. The crinkled paper and splattered pages of notebooks used to collect seemingly miscellaneous household information, such as that shown in *Figure 1*, conjure images of 'kitchen physic', and reveal anxieties and concerted attempts to stay healthy and mitigate sickness. Collections of medical receipts, this thesis argues, formed part of a 'domestic medical curriculum' that guided domestic healers and made their opinions, assessment and use of medicinal plants different from that of doctors and herbalists.

Domestic medical manuals were also important components of the domestic medical curriculum. From domestic medical manuals, healers selected recipes and combined them with anecdotal information in hand-written personal collections of medical receipts. By the nineteenth century, most western physicians agreed on the basics of health maintenance. In this sense, manuals provided a constant flow of information, translated into popular terms in medical manuals, articles or pamphlets.⁶² Historian Richard Travers demonstrates how surviving editions of

Aileen Ireland, 'Some Unusual Sources for the History of Medicine in the National Archives of Ireland', *Journal of the Irish Society for Archives*, 15, (2008), pp. 36-50.

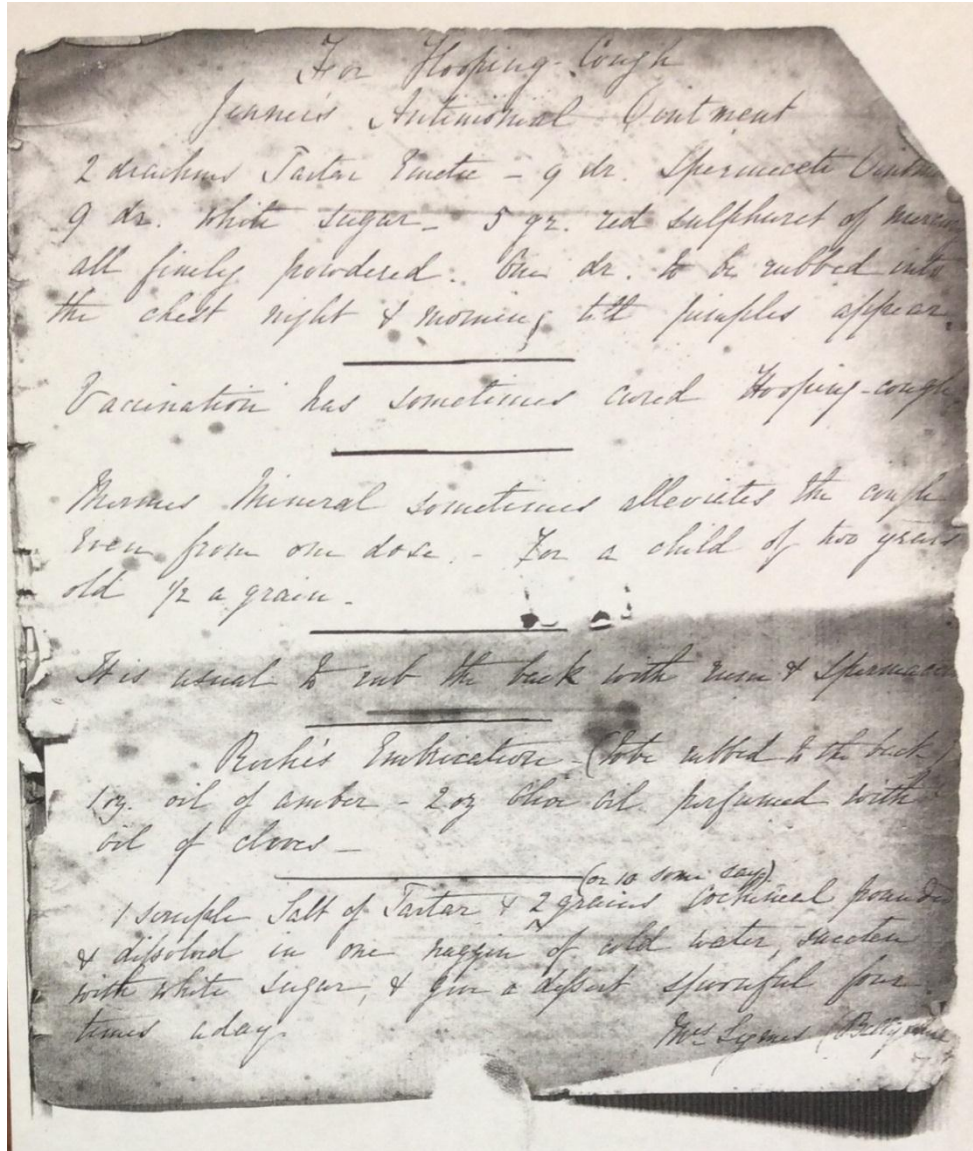
<http://www.ucd.ie/archives/isa/isa-journal.html>, [accessed May 12 2014].

⁶¹ This work could be extended by further concerted appeals to the public for family collections and recipes. I made a few appeals during the course of this research and was rewarded with a couple of miscellaneous recipes. Unfortunately one was undecipherable and the other lacked sufficient information to be included. The recipes and receipts I discuss in Chapter Three are all held in archives and libraries around the country. Joanna Bishop, 'Request: Medicinal Plants In New Zealand, 1850s-1920s', *ENNZ: Environment and Nature in New Zealand*, 6, 2 (2012); Joanna Bishop, 'Medicinal Plants in New Zealand, 1850-1920,' *Australian Forest History Society Inc*, 59, (2012), pp. 10-11.

⁶² For example, Robert John Thornton, *A New Family Herbal or Popular Account of the Nature and properties of the Various Plants Used in Medicine, Diet and the Arts* (London: Richard Philips, 1810); Arnold J. Cooley and J.C. Brough, *Cooley's Cyclopaedia of Practical Receipts, Processes and Collateral Information in the Arts and Manufacture Professions and Trades Including Medicine, Pharmacy and Domestic Economy* 4th edn, (London: John Churchill and Sons, 1851). Colonial newspapers also published medical advice although this was largely lifestyle based. The *Southland Times* (ST) published 'Medical Hints for Country Settlers' while the *The Manawatu*

nineteenth-century manuals can prove to be useful starting points for investigations into domestic health.⁶³

Figure 1: An example of a medical receipt showing notes to the author



Source: Alexander Turnbull Library, Wellington, MS-Papers-7262, McKain, Douglas Mary, 1789-1873, Diary and commonplace book, transcribed by J B Moles.

Prescriptions in domestic medical manuals were often simple, with crude measurements, such as 'one to two teaspoons of herb' or 'handful of dried plant

Standard (MS), The Northern Advocate (NA), The Thames Star (TS) and the Auckland Star (AS), among others, published a series of 'Health Hints'. The Otago Witness (OW) had a 'Health Column' and the Marlborough Express (ME) provided 'Health Notes'.

⁶³ Richard Travers, *Domestic Medicine, with Special Reference to Australia* (Sydney: The Royal Australian College of Physicians, 1990), p. 8.

material'. Unlike official pharmacopoeias dating from the eighteenth and nineteenth centuries, which contain precise and seemingly indisputable advice, domestic manuals often include anecdotal information and acknowledge a variety of sources. This is important to note, as it illustrates the wide criteria used by domestic healers and writers of domestic manuals to determine the worth of medicinal plants and associated information.

Domestic medical commodities such as sick-room requisites and patent and proprietary medicines also provide insight into domestic medical culture. As historian Karen Harvey points out, objects can be valuable sources that can enrich historical research.⁶⁴ Patent and propriety medicines, for example, their ingredients and labels, reflect medical fashions and trends often difficult to assess through literature. Exploring their ingredients reveals how these healers utilised plants in their practices and how the pharmaceutical industry was processing medicinal species.

By the late-nineteenth and early-twentieth centuries, the production of medical implements and medicines increased rapidly. Evidence for this can be found in advertisements from the period.⁶⁵ In his account of Indian tea-drinking and the 'consumption of Asia' in nineteenth-century New Zealand, Tony Ballantyne shows how marketing was used to promote different perceptions and opinions of certain products.⁶⁶ In relation to domestic medicine, well-known manufacturers produced domestic treatments and associated implements and presented them in a way that supported the value and respectability of domestic medical practices. Analysing advertisements provides another little-used line of enquiry into how plants were used and featured in domestic health practices.⁶⁷ Similarly, advertisements placed by New Zealand herbalists in early colonial newspapers

⁶⁴ Karen Harvey (ed.), *History and Material Culture: A Student's Guide to Approaching Alternative Sources* (London: Routledge, Taylor and Francis Group, 2009), p. 6.

⁶⁵ Farmers Trading Company Limited, *Catalogue May 1931* (Auckland: The Company, 1931), pp. 60-63, 237.

⁶⁶ Tony Ballantyne, 'India in New Zealand: The Fault Lines of Colonial Culture', in *India in New Zealand: Local Identities, Global Relations*, ed. by Sekhar Bandyopadhyay (Dunedin: Otago University Press), pp. 21-45.

⁶⁷ Most of the advertisements I explore come from early New Zealand newspapers accessible through 'Papers Past', an online repository of eighty four New Zealand newspapers and periodicals published between 1839 to 1945. <http://paperspast.natlib.govt.nz/cgi-bin/paperspast>

form another important component of this thesis' novel research methodology, often providing details on the plants sold by herbalists and the philosophies to which they subscribed.⁶⁸

Herbal manuals are an obvious source for an investigation into the use of medicinal plants. Historian Agnes Arbor describes herbals as books or manuscripts that contain the names and descriptions of plants along with their properties and virtues.⁶⁹ Derived from the Medieval Latin adjective, "herbalis", the word has been applied since the thirteenth century, when it turned up frequently in the work of Apuleius Platonicus, author of a fifth-century herbal known as *Herbarium Apuleii Platonici*. This thesis uses early British herbals to explore the origins and development of the medico-botanical knowledge that eventually guided healers in colonial New Zealand. It places emphasis on the writings and political activities of sixteenth-century herbalist Nicholas Culpeper in particular, arguing that Culpeper's explicit political sentiment contributed to the definition of herbal medicine as a distinct body of knowledge and medical practice, a definition expressed in colonial New Zealand. My case study on James Neil, New Zealand's most prominent herbalist in nineteenth-century New Zealand, relies heavily on his herbal, the *New Zealand Family Herb Doctor*, first published in 1891.⁷⁰

Pharmacopeia, Nursery Catalogues and Botanical Research

Herbals were largely replaced in the nineteenth century by official Pharmacopeia that gave scientific weight to such plant listings. Pharmacopeia were sanctioned by governing bodies such as the British Medical Association and included both plant-based medicines and inorganic compounds.⁷¹ New Zealand's medical

⁶⁸ For examples see the *Colonist*, 23 May 1865, p. 1; *OW*, 12 December 1863, p. 1.

⁶⁹ Agnes Arbor, *Herbals: Their Origin and Evolution*, (Cambridge: Cambridge University Press, 1938), p. 14.

⁷⁰ James Neil, *The New Zealand Family Herb Doctor: A Guide to Recipes and Herbal Remedies (First published in 1891)* (Twickenham: Tiger Books International, 1998).

⁷¹ *British Pharmacopeia Published Under the Direction of the General Council of Medical Registration and Education of the United Kingdom Pursuant to the Medical Act, 1858* (London: Spottiswoode and Co, 1864) (*BP*, 1864); *British Pharmacopeia Published Under the Direction of the General Council of Medical Registration and Education of the United Kingdom Pursuant to the*

practitioners and chemists relied heavily on *British Pharmacopeia* (BP) to provide recipes for medicines and tests for standardisation. New Zealand doctors used their allegiance to such books to distinguish themselves from other practitioners by demonstrating their scientific acumen. My plans to explore doctors' memoirs and case-notes to find evidence of the use of medicinal plants proved unsuccessful – few case-notes were published and doctors rarely commented on the specific medicines they applied in memoirs and biographies. Articles from official medical journals readily available in New Zealand, therefore, particularly the *British Medical Journal*, published from 1840 onwards and written mainly by doctors, are used to assess doctors' opinions and attitudes towards the changing use of plants. This research also refers to *The Chemist and Druggist of Australasia* to explore the development and influence of pharmaceutical science.

By the 1860s, New Zealand's scientific community was organised and producing scholarship designed to assist the colonial government with further economic development. In 1867, the official journal for the New Zealand Institute (the primary scientific institute during the period, renamed the Royal Society of New Zealand in 1933), *The Transactions and Proceedings of the New Zealand Institute* was created and became a forum for the publication of scientific work.⁷² This thesis explores a selection of early botanical surveys published in this journal to determine the introduction and distribution of medicinal plants as well as government-sanctioned trials and experiments. Reports on government endeavours are also contained in the *Appendix of the Journals of the House of Representatives*, another useful source.⁷³

The private cultivation of medicinal plants is explored through an analysis of early nursery catalogues. Nursery catalogues afford insight into the informal introduction and cultivation of medicinal plants and are becoming increasingly

Medical Act, 1858 (London: Spottiswoode and Co, 1867) (BP, 1867); *British Pharmacopeia Published Under the Direction of the General Council of Medical Registration and Education of the United Kingdom Pursuant to the Medical Act, 1858* (London: Spottiswoode and Co, 1885) (BP, 1885).

⁷² In collaboration with the National Library of New Zealand Te Puna Mātauranga o Aotearoa, the Royal Society digitised their original volumes which are now available online. The original volumes are held at Alexander Turnbull Library. *The Transactions and Proceedings of the Royal Society of New Zealand* <http://rsnz.natlib.govt.nz/>

⁷³ *Appendix of the Journals of the House of Representatives*, online <http://atojs.natlib.govt.nz/>

popular sources for environmental and garden historians. Beattie, for example, uses nineteenth-century plant catalogues to explore the introduction and measure the significance of plants from China and Japan in colonial New Zealand. Overseas, Dianne Lawrence relies on nursery catalogues to support her analysis of genteel women in Britain and their relationship with gardens and plants.⁷⁴ The catalogues on which I focus on in this thesis are from the 1860 and 1870s, a period I identify more strongly with the private cultivation of medicinal plants.⁷⁵ These catalogues provide some indication of the plant species grown during the period of their publication. The inclusion or absence of medicinal plants in catalogues, I argue, is indicative of their persistent use or disuse.

The analysis of botanical research and nursery catalogues in this thesis reveals the networks and associations that linked New Zealand scientists, botanists, gardeners and doctors with institutions and individuals around the world. The nature of this exchange can be illustrated using Ballantyne's metaphor of an imperial web, discussed further in the following section. However, as Beattie reminds us, 'webs of course do not operate in the ether'.⁷⁶ Indeed, they were created, supported and perpetuated by individuals. As such, biographies provide excellent insight into the movement, process of exchange and adaptation of knowledge.

The case studies and biographies used in this thesis reveal the use of plants by individuals with different cultural backgrounds and experiences who formed different interpretations or translations of medicinal plants. These 'diverse fragments of life', highlight the multiple perceptions, viewpoints and contested nature of medico-botanical knowledge in New Zealand.⁷⁷ The 'biographical turn',

⁷⁴ Beattie, 'Exploring Trans-Tasman Environmental Connections', 2014; Beattie, Heinzen and Adam, 2008; Dianna Lawrence, *Genteel Women: Empire and Domestic Material Culture, 1840-1910* (Manchester: Manchester University Press, 2010), pp. 135-186.

⁷⁵ A number of early plant catalogues, held at the Macmillan Brown Library at the University of Canterbury, reveal trends in the popularity of specific species, the role of nurserymen in colonial New Zealand, and the private of cultivation of medicinal species. Alexander Turnbull Library, Wellington, Messrs Howden and Moncrief's Catalogue (*OW*, 11 July 1889). <http://natlib.govt.nz/records/9054854>, [accessed December 21 2013]; Alexander Turnbull Library, Wellington, Eph-A-HORTICULTURE-1899-01; Hay, D & Son, Nurserymen: Descriptive Catalogue 1899-1900, With Novelty list. Montpellier Nursery near Parnell, Auckland, New Zealand. 1899; Alexander Turnbull Library, Wellington, Eph-A-HORTICULTURE-1870/1899; 'Ephemera and Horticulture Sales Catalogues issued by New Zealand Plant Nurseries, 1870-1899.

⁷⁶ James Beattie, 'Exploring Trans-Tasman Environmental Connections', p. 2.

⁷⁷ Bronwyn Dalley and Bronwyn Labrum, *Fragments: New Zealand Social and Cultural History* (Auckland: Auckland University Press, 2000), p. 4.

according to Barbara Merrill, has been encouraged by oral historians and feminist scholars wishing to write women and marginalised people back into history. This resurgence is in part ‘a reaction against forms of social enquiry that tended to deny subjectivity in research’.⁷⁸

Indeed, my reading of source material, my choice of individuals and the structure of my research all reflect a desire to give attention to healers overlooked in historical scholarship, and compare an aspect of medical practice shared by all. This thesis purposefully pays equal attention to three groups of healers; registered practitioners, herbalists and domestic healers. Comparing medical practices previously considered incompatible shows that the supposed differences among these three groups of healers relied largely on constructs promoted by each group rather than any necessary differences in the plants they used and how they used them. All three groups, I argue, had much more in common than they publically portrayed. This thesis also explores the reasons for the need to differentiate.

Theoretical Perspectives: The ‘imperial web’ and ‘bio-contact’ zone

As alluded to earlier, this thesis adopts the metaphor of an ‘imperial web’ established by Tony Ballantyne to explore the movement of medical plants and associated knowledge. In the process, it identifies myriad factors including years of experimentation, context and place as well as changing trends and processes that affected the construction or adaption of medico-botanical information and have led to the movement of medicinal plants and seeds in directions that often contradicted prevailing ideas of colonial hierarchies and racial knowledge. Tracking the movement of medicinal plants and associated knowledge reveals interactions and networks particularly between Britain, New Zealand, America and Australia.

For Ballantyne, envisaging the movement of information, materials and people as a metaphorical web reimagines the imperial space as fluid and dynamic and

⁷⁸ Barbara Merrill, *Using Biographical Methods in Social Research* (London: Sage Publications, 2009), p. 16.

acknowledges the complexities of imperial endeavours and exchanges in colonisation.⁷⁹ It challenges previous research that highlights the unilateral flow of information and plants and other materials during the eighteenth and nineteenth centuries – typically from the west to the rest.⁸⁰ The movement of plants and medico-botanical knowledge, this thesis argues, was likewise diffuse and multi-directional. Like Ballantyne, who acknowledges that there was not one incentive, representation, practice, dominant colonial discourse or site of power during this period, this thesis identifies a wide range of factors that influenced the movement of medicinal plants and associated knowledge.⁸¹

Figure 2 presents the major influences uncovered during the course of this research that affected the movement of medicinal plants. From the sixteenth century, as botany gained ground in medical universities fuelled by the discovery of plants through exploration and colonisation, the economic potential of a worldwide drug industry drove further scientific investigation and movement of potentially profitable plants.⁸² Scientific discoveries, investigations and understandings, for example, drove the introduction and use of medicinal plants during this period, while anxieties relating to health and wellness in specific colonial settings led to conclusions about certain environments and the medicinal virtues of specific plants.

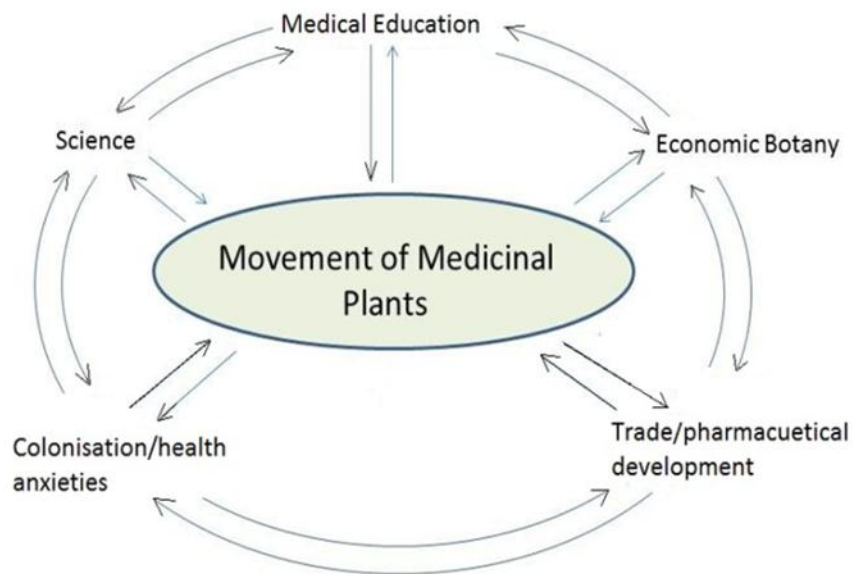
⁷⁹ Tony Ballantyne, *Orientalism and Race: Aryanism in the British Empire* (Houndmills: Palgrave Macmillan, 2002), p. 3.

⁸⁰ Alfred Crosby's work for example used frameworks developed by imperial historians such as George Basalla to envisage the movement and plants and animals giving the impression that flora and fauna moved predominantly from the 'Old world' to the 'New World'. Crosby, 1976.

⁸¹ Ballantyne and Burton, p. 3.

⁸² Chapter Five: *Medical Practitioners* will examine medical education, specifically *materia medica* and pharmacology. Economic botany or the commodification of medicinal plants is referred to throughout the thesis but will be explored more in Chapters Three and Four: *Domestic Use and Herbalists*.

Figure 2: Factors that effected the introduction and use of medicinal plants in New Zealand, 1850-1920



For academics such as Antoinette Burton, Allan Lester and David Lambert, the porous nature of national boundaries and the heterogeneity of British influence problematize earlier analyses which fail, state Lambert and Lester, to ‘connect people, places and events analytically in the ways that colonial relations had connected them historically’.⁸³ Indeed, as colonial expansion proceeded, the environmental experiences of Europeans and indigenous peoples living in the colonies played a steadily more dominant and dynamic part of the construction of new European evaluations of nature and, arguably understandings and uses of medicinal plants.⁸⁴

From the sixteenth century onwards, Europeans collected medico-botanical knowledge from indigenous people in the countries they encountered. They assessed the worth of this information based on existing perceptions and understandings of botany, medicine, race and place. In colonial New Zealand,

⁸³ David Lambert and Alan Lester (eds), *Colonial Lives Across the British Empire: Imperial Career in the Long Nineteenth Century* (Cambridge: Cambridge University Press, 2006), pp.1-32; Antoinette M. Burton, *After the Imperial Turn: Thinking with and through the Nation* (Durham: Duke University Press, 2003).

⁸⁴ Grove, p. 3; Pratik Chakrabarti, *Materials and Medicines: Trade, Conquest and Therapeutics in the Eighteenth Century* (Manchester: Manchester University Press, 2010), pp. 171-205.

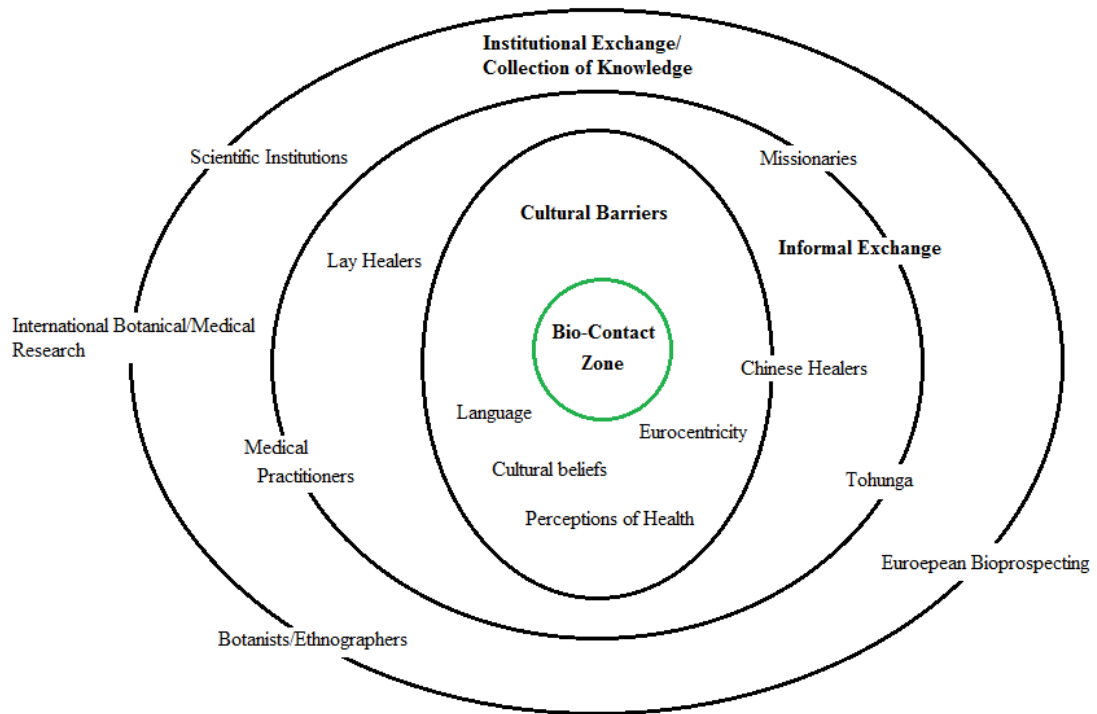
colonists observed and consulted with Māori and conducted experiments on native medicinal plants, feeding this information back through botanical, medical and informal networks. Londa Schiebinger explores the strategies and processes of cross-cultural exchange in the Atlantic world during the eighteenth and nineteenth centuries within a bounded theoretical space called a ‘biocontact zone’.⁸⁵ While Schiebinger acknowledges the limitations of the concept – for example, the overly rigid classification of Europeans and ‘others’ – it is a useful construct with which to bring into focus the exchange of medico-botanical knowledge. Indigenous knowledge, argues Schiebinger, was often ‘stripped’ as the plant was incorporated into western scientific frameworks. In nineteenth-century New Zealand, a similar process took place, partly driven by the growing popularity and influence of scientific thought.

By the 1830s, New Zealand’s ‘bio-contact zone’ was well established, initiated by traders, whalers, sealers and others. Between 1830 and 1870, the informal exchange of knowledge, including medico-botanical knowledge between colonists and Māori, was driven largely by necessity and involved various actors and settings.⁸⁶ *Figure Three* presents the actors involved in this exchange and some of the cultural barriers they navigated.

⁸⁵ Schiebinger, pp. 82-90.

⁸⁶ As early emigrants struggled to assert their presence in New Zealand and survive in the unfamiliar environment, many relied on assimilating aspects of Māori culture, including language and health practices into their daily lives. Early settlers recognised the advantage of learning basic Te Reo (Māori language) in order to communicate and trade with Māori. Missionaries were among the first to document the Māori language and by 1820, Professor Samuel Lee of Cambridge University was working with Chief Hongi Hika (1877-1828) to systematise the Māori language. See, Peter Holland, Jim Williams and Vaughn Wood, ‘Learning about the Environment in Early Colonial New Zealand’, in *Seeds of Empire: The Environmental Transformation of New Zealand*, ed. by Tom Brooking and Eric Pawson (London: I. B. Taurus, 2011), pp. 34-51; R. Peden, and P Holland, pp. 89-105; Peter Holland, Paul Star and Vaughan Wood, ‘Pioneer Grassland Farming: Pragmatism, Innovation and Experimentation’, in *Seeds of Empire: the Environmental Transformation of New Zealand*, ed. by Tom Brooking and E Pawson (London: I B Taurus, 2011), pp 51-72, 236-239.

Figure 3: New Zealand's Bio-Contact Zone



Missionaries, lay healers, traders, medical practitioners, and tohunga were all involved in the exchange of medicinal plants and associated information and negotiated cultural barriers including language, diverse cultural beliefs and different perceptions of health and wellness. This informal exchange paved the way for more official investigations into traditional Māori herbal healing during the late nineteenth and early twentieth centuries.⁸⁷ Botanical and medical institutions assisted this process which involved similar actors and, by the late nineteenth century, was encouraged by the commodification of medicine, more refined scientific technique and an increasingly prescriptive approach to medical care.

⁸⁷ John Armstrong, 'Notes on Economic Plants-Suitable for Cultivation in New Zealand', *The New Zealand Country Journal*, 3 (1884), pp. 259-260; J. Baber, 'The Medicinal Properties of Some New Zealand Plants', *Transactions and Proceedings of the New Zealand Institute (TPNZI)* 19 (1886), pp. 319-322; William Goldie, 'Māori Medical Lore: Notes on the Causes of Disease and Treatment of the Sick among the Māori People of New Zealand, as believed and practiced in Former Times, together with some Account of Various Ancient Rites connected with the Same', *TPNZI*, 37 (1904), pp. 1-120.

Investigating the use of medicinal plants by various healers with disparate philosophies and goals also reveals the heterogeneous practices of health in such bio-contact zones, not to mention the nature of nineteenth-century science. Historian Peter Bowler argues there was never a unified western culture; instead there were differences in religion, philosophy and social thought that made room for debate about how nature was to be interpreted.⁸⁸ Similarly, this thesis argues that science was always under contestation, was ever-changing and was given different emphasis and meaning by various groups. People used their opinions and translations of science to denote and define legitimacy and respectability. This thesis explores the interpretations of science by herbalists, registered practitioners and domestic healers. It identifies the similarities and differences between them and highlights the multiple understandings and applications of scientific thought and technique in relation to medicinal plants.

As noted by social scientists Susan Star and James Griesemer, most scientific work is carried out by a number and diverse group of actors.⁸⁹ In the context of this research, the actors included botanists, doctors, herbalist and domestic healers. Scientific objects, or ‘boundary objects’ such as medicinal plants, inhabit multiple social worlds and are consequently open to numerous interpretations or translations.⁹⁰ The successful conduct of work, such as the practice of medicine, requires co-operation and ‘reconciliation’ of various interpretations if any claims to legitimacy are to be made.⁹¹ This thesis analyses the networks through which this co-operation took place. It considers the various ‘translations’ of medicinal plants created by different healers which changed over time as plants and associated knowledge moved from one place to another.

Additionally, as this thesis reveals, individuals with disparate backgrounds translated plants in accordance with existing understandings in order to bolster their claims to knowledge and distinguish their practices and philosophies from

⁸⁸ Peter J Bowler, *The Norton History of the Environmental Sciences* (New York: W.W. Norton, 1993).

⁸⁹ Susan Leigh Star and James R. Griesemer, ‘Institutional Ecology, ‘Translations’ and Boundary Objects: Amateurs and professionals in Berkley’s Museum of Vertebrate Zoology, 1907-39’, *Social Studies of Science*, 19 (1989), pp. 387-420.

⁹⁰ Leigh Star and Griesemer, p. 340.

⁹¹ Leigh Star and Griesemer, p. 388.

others. In other words, this thesis reveals the centrality of medicinal plants, their description and use, in the construction of different medical practices and systems.

Some Notes on Terminology and Chapter Structure

A major consideration for this research has been the terms to apply to developing and changing medical systems, practices and individuals, and the criteria used to define domestic healers, herbalists and doctors. A few caveats need to be noted. At the risk of enforcing an over-simplified definition of ‘western’ medicine, this thesis adopts this term to refer to British and American systems of medicine and knowledge but acknowledges the influence of indigenous medicines in their construction. Healer or practitioner is a term I use ubiquitously in this thesis. However, I challenge criteria previously used to define domestic healers and herbalists. My research contests the assumption that ‘alternative’ practitioners and domestic healers were uneducated, untrained and inexperienced. Therefore, I include healers with medical training in my chapter on domestic healers, acknowledging the experience and informal training that many in this group possessed. Likewise, I note the fact that most nineteenth-century herbalists were educated and many advocated scientific techniques.⁹²

This thesis uses the term ‘irregular’ to describe herbalists as this was in use in nineteenth-century censuses and directories. However, I intentionally avoid the classification of nineteenth-century herbalism as an ‘alternative’ medical practice.⁹³ Referring to nineteenth-century herbalists as ‘alternative’ alludes to a dichotomous medical system that evidence suggests simply did not exist during the mid-to-late nineteenth century. Roger Cooter’s comparison of heterodox and orthodox cosmologies demonstrates the parallels and synchronicities that exist

⁹² James Neil attended Otago Medical School and a postgraduate medical school in America. See Chapter Four. John Harvey Kellogg, one of America’s most well-known ‘irregular’ practitioners gained his medical degree at New York University Medical College. ‘December 16th 1943, On this Day, J. H. Kellogg Dies’, *Health Expert*, 9, Special to *The New York Times*, <http://www.nytimes.com/learning/general/onthisday/bday/0226.html>, [accessed April 21 2014].

⁹³ The complexity of the quackery debate in Australia during the nineteenth century is described by Phillipa Martry, *Paradise of Quacks: An Alternative History of Medicine in Australia* (Australia: Macleay Press, 2002). See also, Roy Porter, ‘Before the Fringe, ‘Quackery’ pp. 1-27.

between two systems that have been traditionally placed in opposition. Put succinctly, Cooter stresses that however,

heuristically useful and analytically convenient as it may be to treat heterodox and orthodox as conceptually or epistemologically or cosmologically juxtaposed, it is impossible to overlook the extent to which they overlapped. This is not to say that the dichotomy suggested above was historically false, but rather, like most dichotomies in history, that the component parts were far from being either, rigid, mutually exclusive or symmetrical.⁹⁴

Furthermore, I intentionally avoid the term ‘quack’, a title assigned by many and various practitioners to their competition using similar criteria as that associated with ‘alternative’. As noted, many of the practitioners accused of quackery, including herbalists and doctors, were educated and organised in their practices and philosophies and defied this classification.

Chapter Structure

Chapter One provides an overview of the introduction of certain medicinal species into New Zealand and the botanical culture that supported their transfer. It explores the origins of western botanical science chronologically, emphasising the influence of botanical enquiries around the world and demonstrating the multi-directional flow of medico-botanical information. This chapter identifies several institutions, individuals and economic activities that supported the introduction, exchange, cultivation and construction of medico-botanical knowledge. It examines attempts made by New Zealand botanists to establish an industry in the cultivation of medicinal plants, exploring the impetus to do so, and proposing reasons why these goals were never realised. To avoid repetition, this thesis uses common names for plants but gives their full botanical classification, common names and medicinal uses in an attached glossary.

Chapter Two considers the healers who used the plants introduced in Chapter One, and the medical cultures in which they practiced. It explores the impetus for a

⁹⁴ Cooter, p. 70.

colonial system of health care that involved different healers and disparate medical practices. Many of New Zealand's early health policies mimicked those of Britain. This chapter recognises the influence of British policies but identifies other factors, such as a widespread system of domestic medical care and the influence of the American popular health movement that made New Zealand's medical culture and healers' approach to health different from Britain. This chapter provides social and cultural context and connects the plants and medicobotanical knowledge discussed in Chapter One with the domestic healers, herbalists and doctors discussed in Chapters Three, Four and Five.

Chapters Three, Four and Five explore the use of plants by three groups of European healers; registered medical practitioners, herbalists and domestic healers. An early period, 1850-1880, identified in Chapter Three and again in Chapter's Four and Five, is defined by a lack of medical regulation and control in New Zealand. This context, I argue, encouraged experimentation and an eclectic approach to medicinal plant use. In contrast, between 1880 and 1920, biochemical analyses and the commodification and regulation of medicine promoted greater standardisation and a scientific interpretation of plant-based medicines.

Chapter Three explores domestic healers and their use of plants. It consciously precedes my chapter on herbalists and medical practitioners to acknowledge the importance of domestic health care in colonial New Zealand, and the need to include this in medical historiography. Evidence in this chapter suggests that during the nineteenth century both men and women considered domestic health care as a feminine practice and a natural extension of women's roles as wives and mothers. Although most domestic healers in New Zealand were women, this chapter argues that herbal medicine and the use of medicinal plants has not historically been a gendered occupation. The use of plants by domestic healers is revealed in this chapter through an analysis of a wide range of source material, including domestic medical manuals and personal collections of medical receipts. This wide range of source material, I argue, reflects the broad criteria these healers used to assess and translate medicinal plants.

James Neil was arguably New Zealand's most prominent herbalist in the nineteenth century. Chapter Four explores the use of plants by herbalists through a case study on Neil and his practice, and given its prominence in New Zealand, focuses on his publication, *The New Zealand Family Herb Doctor* (1891). It describes how herbalism became a distinct and separate medical system during the sixteenth century, and argues that the social and political unrest that supported this distinction was comparable to the situation that supported the revival of herbalism, or medical botany, in the early nineteenth century. It examines the writings and propaganda of American herbalist Samuel Thomson, whose system and political platform Neil advocated in nineteenth-century New Zealand. This case-study reveals the influence of American medical culture and challenges the emphasis placed on the influence of British medical knowledge in colonial New Zealand.

Chapter Five explores the use of plants by registered practitioners, the evolution of the medical curriculum, and the influence of botanical and pharmaceutical science. In contrast to Chapter Three, men play a key role, making up the majority of qualified practitioners in New Zealand during the nineteenth and early twentieth centuries. Although the University of Edinburgh, from the 1870s, gave women the right to matriculate and the New Zealand Government allowed women onto the medical register in the same period, few women enrolled or registered in Britain or New Zealand in the period examined.⁹⁵ Furthermore, the research that does exist relating to women practitioners barely contains the details required for an analysis of their use of plants.⁹⁶

⁹⁵ Belgrave, 1985, p. 114. New Zealand women, according to historian Michael Belgrave, were mostly saved the political struggle, their acceptance at the University of New Zealand paving their way to their right to register. The first woman to register, according to historian Rex Wright-St Clair was Dr Eliza Foster McDonogh Frikart who registered in 1893. Despite this, women doctors in New Zealand typically occupied lowly paid, low profile roles. Wright-St Clair, 1987, p. 33; Belgrave, 1985, p. 114.

⁹⁶ Examples include, Peggy Chambers, *A Doctor Alone: A Biography of Elizabeth Blackwell, the First Woman Doctor, 1821-1910* (London: Bodley Head, 1956); Else Ann (ed.), *Women Together: A History of Women's Organisations in New Zealand: Ngā rōpū wāhine o te motu* (Wellington: Historical Branch Dept. of Internal Affairs :Daphne Brasell Associates Press, 1993); Doris Gordon, *Doctor Down Under* (London: Faber, 1957); Alison Bashford, 'Medicine, Gender and Empire', in *Gender and Empire*, ed. by Phillipa Levine (Oxford: Oxford University Press), pp. 112-134.

The significant influence exerted by Scottish doctors and the Scottish medical curriculum in New Zealand encouraged investigations into native medicinal plants and is discussed in Chapter Five. After a period of relatively informal investigations, by the late nineteenth century doctors relied heavily on a scientific translation of medicinal plants, such as that provided in *British Pharmacopeia*, to support their claims of superiority and distinguish themselves from other practitioners. This chapter analyses the 1867, 1885 and 1900 editions of the *British Pharmacopeia*, making quantitative analyses to determine the most popular and frequently used medicinal plants during the nineteenth and early twentieth centuries. It argues that pharmacopeia and the standardisation of medicines led doctors to classify some plants as ‘folk’ remedies and in the process differentiate themselves and their use of plants from other practitioners.

Chapter Six expands on the important theme of translation. Drawing on Susan Leigh Star and James Griesemer’s notion of boundary objects and the idea of translation, it explores the frameworks through which domestic healers, herbalists and doctors investigated and understood the properties and applications of medicinal plants. For example, by the late nineteenth century doctors relied heavily on scientific analysis, translating and converting plants into isolated constituents. The acceptance of scientific theory by the public meant domestic healers also supported this translation and used isolated constituents within patent and proprietary medicines. In contrast, herbalists, in their attempt to distinguish themselves from doctors, encouraged the perception of plants as safe and ‘traditional’. Broadening the scope of this research, it touches upon the influence of colonial administration in India and New Zealand and the inclusion of Indian plants in the *British Pharmacopeia*. Through case studies on two plants, thyme and aconite, this chapter collates and presents the major and common influences that changed the use of plants over time.

Chapter One

The Introduction and Cultivation of Medicinal Plants in New Zealand, 1850s-1920s.

Successful colonisation depended upon the mass relocation of people, skills and knowledge.⁹⁷ The movement and introduction of natural resources, including plants, also contributed to the success or failure of colonial societies and cultures. This chapter sets the stage for the thesis by exploring the introduction of medicinal plants into New Zealand, following European colonisation in the mid-nineteenth century. It engages with existing international environmental and garden historiography to explore New Zealand's colonial botanical culture by uncovering the role of botany and medicinal plants in European colonisation and expansion.⁹⁸

Section One of this chapter – ‘The Culture of Botany’ – contextualises botanical and agricultural science in colonial New Zealand through an examination of the role played by botany in Britain and elsewhere in the world. It argues that colonial investigations into medicinal plants responded to changing developments and need, as botany developed slowly from a ‘handmaiden’ to medicine to an independent professional discipline. As they recognised the economic potential of many plants, doctors, scholars, explorers, patrons, and later, botanists and

⁹⁷ James Belich, *Replenishing the Earth: The Settler Revolution and the Rise of the Anglo-world, 1783-1939* (Oxford, New York: Oxford University Press, 2009); Tom Brooking and Eric Pawson, *Seeds of Empire: The Environmental Transformation of New Zealand* (London: I.B. Tauris, 2011); G. B. Earp, *Handbook for Intending Emigrants to the South Settlements of New Zealand*, facsimile ed., (Christchurch: Kiwi Publishers, 1998); Michael King, *The Penguin History of New Zealand* (Auckland: Penguin, 2003); Jim McAloon, ‘Resource Frontiers, Environment and Settler Capitalism, 1769-1860’, in *Environmental Histories of New Zealand*, ed. by Eric Pawson and Tom Brooking (Melbourne: Oxford University Press, 2002), pp. 52-69; Erik Olssen, *Building the New World: Work, Politics and Society in Caversham 1880s-1920s* (Auckland: Auckland University Press, 1995); Ron Palenski, *The Making of New Zealanders* (Auckland: Auckland University Press, 2012).

⁹⁸ Brooking and Pawson, 2011; Katharine Raine, ‘Domesticating the Land’, in *Fragments: New Zealand Social and Cultural History*, ed. by Bronwyn Dalley and Bronwyn Labrum (Auckland: Auckland University Press, 2000), pp. 76-97.

governments around the world all encouraged the popularity of botanical science, promoting it as a civilised pastime and the path to successful colonisation. This section explores the networks that connected these individuals and through which medico-botanical knowledge flowed. It also discusses the development of British herbals; books that provided a blueprint for nineteenth-century medico-botanical research in colonial New Zealand.

Section Two – ‘Medical Botany in New Zealand’ – examines the introduction and adaptation of European gardening practices by New Zealand colonists. It identifies an early period in colonial New Zealand, from 1850 to 1880, when the introduction, cultivation and trade in medicinal plants catered largely to a domestic market. Nurserymen played a significant role during this period, importing and distributing plants, and forming associations with plantsmen in Britain, its colonies, and beyond.⁹⁹ Through an analysis of nineteenth-century nursery catalogues and gardening guides, this section examines the availability of medicinal plant species in colonial New Zealand and the cultivation of these in private gardens. This chapter also explores nineteenth-century understandings of plant naturalisation. Medicinal species of little commercial value naturalised readily and rapidly in New Zealand’s environment and contemporary botanical enquiries reveal their presence and persistence. These plants were harvested from the wild by doctors, herbalists and domestic healers.

From 1880 to 1920, encouraged by a developing international pharmaceutical industry, the New Zealand Government became increasingly involved in scientific research by supporting experiments and trials with medicinal plants. This research took place in a number of scientific sites and was conducted by botanists who worked within an imperial framework. This chapter discusses the scientific institutions and individuals that directed this research, explores New Zealand’s efforts and appeals to commercially cultivate medicinal plants, and looks at similar attempts in Australia.

⁹⁹ Matthew Bradbury (ed.), *A History of The Garden in New Zealand* (Auckland: Penguin Books, 1995); Helen Leach, *1000 Years of Gardening In New Zealand* (Wellington: Reed, 1984).

The Culture of Botany, c.400 BC - c.1850

In nineteenth-century New Zealand, settlers established a strong culture of botanical and horticultural investigation, trade and practice. This culture developed through the concerted efforts of mainly European men and women whose botanical experience, education or understandings arose from a tradition that, many agree, had foundations in Greek philosophy. Understanding the development of western botanical science and the construction of early herbals, therefore provides valuable background to this thesis and reveals the impetus for colonial enquiry into medicinal plants.

In western thinking, the teachings of two Greek philosophers, Plato and Aristotle provided the inspiration for rational understandings of the natural world that replaced supernatural interpretations and provided the foundation for western scientific thought.¹⁰⁰ Aristotle also paved the way for the study of the natural sciences. His student and successor, Theophrastus, wrote the first systematic classification of plants based on form. Inspired by Aristotle's decree that 'all men by nature desire to know', Theophrastus sought to reveal the ideal form of nature through classification, in the process supporting the view that plants and nature existed for man to exploit.¹⁰¹

In Ancient Greece, the most important source of wealth was agriculture and its related occupations – practices that involved the deliberate movement, domestication and acclimatisation of plants. According to historian of science Clarence Glacken, as the Roman Empire expanded plants were moved from region to region to meet the needs of soldiers or introduced to 'create in modern

¹⁰⁰ Clarence J. Glacken, *Traces on the Rhodian Shore: Nature and Culture in Western Thought From Ancient Times to the End of the Eighteenth Century* (Berkeley: University of California Press, 1967), pp. 46-49. Although numerous rival cosmologies existed during this period, Plato, and to a greater degree, Aristotle, established several important ideas relating to nature and man including the idea of purpose or final cause inherent in natural processes and the view that plants existed for animals and animals for man and that there was a discernible divine force in nature.

¹⁰¹ Peter Bowler, *The Norton History of The Environmental Sciences* (New York: W.W Norton, 1993), pp. 50-53; Anna Parvord, *The Naming of Names: The Search for Order in the World of Plants* (London: Bloomsbury Publishing, 2005).

terminology a favourable balance of trade'.¹⁰² Medicinal plants were valuable commodities, largely supplied by herb gatherers or root diggers who protected their trade by constructing elaborate instructions for harvesting and cultivating.¹⁰³

Scholars such as Theophrastus ridiculed their directives and the first field guide to medicinal plants, *De Materia Medica*, written by physician Pedanius Dioscorides, included over four hundred colour illustrations for the sake of identification and omitted the superstitions of the gatherers.¹⁰⁴ *De Materia Medica* included plants from around the Greek and Roman world as well as Chinese plants that entered Europe through the Silk Road – an extensive network of trade routes established during the Han Dynasty (BC 206 –220 AD) used by Arab, Indian, Persian and Roman traders.¹⁰⁵

By 1200 AD, after nearly a thousand years of translation and with the addition of previously omitted medicinal plants by Arab, Latin and Greek scholars, *De Materia Medica*, and other Greek texts, entered Western Europe, assisted by the Caliphate conquests of Northern Africa, Spain and Italy.¹⁰⁶ By this time, Britain's exotic flora had grown considerably in number and diversity. Hundreds of plants entered Britain during the course of the Roman occupation (43-410 AD). These

¹⁰² Glacken, p. 124.

¹⁰³ Agnes Arber, *Herbals: Their Origin and Evolution* 2nd edn (Cambridge: Cambridge University Press, 1938), p. 7. The directions for mandrake, for example, involved drawing three circles around the plant with a sword before cutting it while facing west and dancing around the plant.

¹⁰⁴ Dioscorides was born in Anazarbus (southeast Turkey) and was medically trained in Alexandria and Tarsus. He travelled extensively with the Roman Army and his work remained an authority on medicinal plants up until the seventeenth century. See Maggie Campbell-Culver, *The Origin of Plants: The People and Plants That Have Shaped Britain's Garden History* (London: Transworld Publishers, 2004), p. 8; Bowler, p. 55; Vivian Nutton, Lawrence Conrad, Michael Neve, Roy Porter and Andrew Wear, *The Western Medical Tradition, 800BC to AD1800* (Cambridge: Cambridge University Press, 1995), p. 57.

¹⁰⁵ Jane Kilpatrick, *Gifts from the Gardens of China* (London: Frances Lincoln, 2007), pp. 15-16; British Pharmacopeia published under direction of General Council of Medical Education and Registration of the United Kingdom pursuant to the Medical Act 1858. (London: Spottiswood, 1885), p. 126; Dioscorides included Chinese Day lilies, *Hemerocallis lilioasphodelus* in *De Materia Medica* and the Chinese medicinal rhubarb, *Rheum palmatum*, became and remained a popular medicine in western countries up until the late nineteenth century. See Campbell-Culver, pp. 18-33.

¹⁰⁶ Richard Drayton: *Natures Government: Science, Imperial Britain and the 'Improvement' of the World* (New Haven: Yale University Press, 2000); Bowler, p. 54; G. Foster and B. Anderson, *Medical Anthropology* (New York: John Wiley and Sons, 1978), p. 58.

included medicinal species described in *De Materia Medica*; for example, the opium poppy, garlic, dill, common mallow and hemlock.¹⁰⁷

Following the fall of the Western Roman Empire, Christian scholarship dominated intellectual thought in Britain, encouraging a relationship between theology and the study of the natural world that persisted for centuries. Many scholars embraced the Greeks' rationality, which complemented such Christian pursuits as restoring natural balance by 'gathering together all the creations scattered at the fall of man'.¹⁰⁸ This approach supported the belief that God had provided everything required to heal humans in the form of plants.¹⁰⁹

Chinese plants were added to western pharmacopoeia as they moved through trade routes and intrigued western scholars. In China, during the Ming Dynasty (1368-1644), significant advances in printmaking, an established gardening tradition and a sophisticated system of medicine that relied heavily on medicinal plants, encouraged the production of important medico-botanical works.¹¹⁰

Bencao gangmu (1596) written by Li Shizhen is an early Chinese pharmaceutical natural history that is considered the precursor to modern science in China.¹¹¹ Li's research,

reflected late Ming concerns with the commodification of objects, the increasing availability of print media, and efforts to naturalise parts of what had been the divine realm.¹¹²

The *Bencao gangmu* combined observation, experimentation, analysis and comparisons of previous scholarship, to produce a substantial compendium that contained fifty-two chapters and around 1,892 organic and inorganic drugs. As

¹⁰⁷ Campbell-Culver, pp. 4, 18-33.

¹⁰⁸ Drayton, p. 4.

¹⁰⁹ Glacken, pp. 227-229; Bowler, p. 61.

¹¹⁰ In China, from the relative peace of the Tang Period (618-907AD) through to the Song Dynasty (912-1279AD), botanists and horticulturists, blessed by a vast and diverse native flora, cultivated plants and developed elaborate gardens that incorporated symbolism and denoted social status. See, Jane Kilpatrick, *Gifts From The Gardens of China* (London: Frances Lincoln, 2007), p. 16.

¹¹¹ Carla Nappi, *The Monkey and the Inkpot: Natural History and It's Transformations in Early Modern China* (Cambridge: Harvard University Press, 2009), p. 5. In 1578 Li Shih-chen completed *Pen-ts'ao Kang-mu* (The Great Pharmacopoeia) which included over one thousand plants. See Eugenia Herbert, *Flora's Empire: British Gardens in India* (Philadelphia: University of Pennsylvania Press, 2011), p. 60.

¹¹² Nappi, p. 7.

with comparable tomes published much later in Europe, the *Bencao gangmu*, served as an important guide that protected buyers of drugs from unscrupulous peddlers of medicinal plants.¹¹³

By the sixteenth century, many European scholars independently developed a similar empirical approach to Chinese scholars. The fall of Constantinople (1453) released further botanical treatises and translations to Renaissance scholars. New “scientists” such as Francis Bacon and René Descartes applied mechanistic frameworks to nature, as classical Greek methodologies gradually gave way to empirical research.¹¹⁴ The Reformation (1517-1648) encouraged a polarisation of intellectual and spiritual thought, and many Protestants, rejecting the seemingly ‘false doctrines and ordinances of the Byshop of Rome’, became dedicated students of experimental botany.¹¹⁵

Newly-established universities in Western Europe such as Bologna (1534) and Montpellier (1538) replaced monasteries as centres of learning, while translations of Greek texts, including *De Materia Medica*, became blueprints for western herbals, including William Turner’s *A New Herball* (1564) and John Gerard’s *Herball* (1597).¹¹⁶ The publication of such texts was an important development for the study of medicinal plants which became increasingly academic during this period. As the pages from Gerard’s herbal shown below demonstrate, the layouts of herbals were organised and systematic and far more refined than those presented earlier by men such as Dioscorides.

¹¹³ Nappi, p. 41.

¹¹⁴ Keith Thomas, *Man and the Natural World: Changing Attitudes in England, 1500-1800* (London: Allen Lane Penguin Books, 1983), pp. 73-81.

¹¹⁵ Thomas, pp. 91-98; Drayton, p. 8; Bowler, p. 144.

¹¹⁶ Andrew Wear, ‘Early Modern Europe, 1500-1700’, in *The Western Medical Tradition 800BC to AD1800*, ed. by Vivian Nutton, Lawrence Conrad, Michael Neve, Roy Porter and Andrew Wear, (Cambridge: Cambridge University Press, 1995), pp. 215-363.

Figure 1:1: John Gerard, *The Herball or Generall Historie of Plantes Gathered by Iohn Gerarde of London Master in Chirurgerie Very Much Enlarged and Amended by Thomas Iohnson Citizen and Apothecarye of London* (London: Adam Islip, 1633), pp. 708-9



Source: <http://www.otago.ac.nz/library/exhibitions/authorship/cabinet7-1.html>, [accessed May 28 2014]

According to historian Richard Grove, the study of plants also acquired political significance during this period. European Governments and monarchies provided official patronage to botanical investigation and English botanists, in particular, maintained that botany and the study of plants was an attribute of a wise government.¹¹⁷ Religious and secular literature of the west supported these ideas and many botanists, including Turner and Gerard, sought royal and aristocratic support.¹¹⁸ Under the patronage of William Cecil (English statesman, Chief Advisor of Queen Elizabeth I and High Treasurer from 1572- 1598), Gerard worked as curator of the Royal College of Physicians' physic garden in London.

¹¹⁷ Richard Grove, *Green Imperialism: Colonial Expansion, Tropical Island Edens, and the Origins of Environmentalism, 1600-1860* (Cambridge, Cambridge University Press, 1995), p. 76.

¹¹⁸ Drayton, pp. 26-49.

In this capacity he received plants from around Europe, including France, Crete, Spain, Italy and Poland.¹¹⁹

The establishment of physic gardens – gardens designed to cultivate and investigate the properties and uses of medicinal plants, such as that run by Turner – resurrected the intellectual relationship between medicine and botany that was initiated by the Greeks.¹²⁰ Designed initially to recreate and reflect God’s grand design, by the sixteenth century, physic gardens became sites of experimentation and cultivation and supplied plants to doctors who were struggling to contain the plague and control the spread of syphilis. Medical practice in Europe suffered greatly from the dissolution of the monasteries during the Reformation and the consequent closure of medieval hospitals. As a consequence, sixteenth-century physicians, dismayed at the limited range and largely ineffective medicines available, became focused on retrieving the lost drugs of antiquity.¹²¹ An overseas network of physicians, scholars, travellers and explorers soon formed and individuals and associations ‘co-operated informally with each other, sending plants and information’.¹²² At the same time, the creation of new trade routes to Africa, Asia and America revealed a plethora of exotic species. Imperial powers including the Dutch, Portuguese, Spanish and British became collectors and authorities on plants of the New World.¹²³

By the seventeenth century, botanical enquiry and discovery became intrinsically linked to imperialism, a development that later supported the introduction of

¹¹⁹ Parvord, pp. 332-346. See Forbes Robertson, *Early Scottish Gardeners and their Plants, 1650-1750* (Scotland: Tuckwell Press, 2000), pp. 129-140; Marcus Woodward, *Gerard’s Herball: The Essence thereof distilled by Marcus Woodward from the Edition of TH. Johnson, 1636* (London: Spring Books, 1964), p. xv-xvii.

¹²⁰ Kilpatrick, p. 24; Wear, p. 300. Christian Neoplatonists (scholars who resurrected Plato’s teachings and philosophies) had created gardens in the fifteenth century to reassemble ‘God’s original creative intentions’ and to reveal the potential in plants to control and modify human health. See Drayton, p. 6.

¹²¹ Roy Porter, *The Greatest Benefit to Mankind: A Medical History of Humanity from Antiquity to the Present* (London: Harper Collins Publisher, 1999), p. 199.

¹²² Wear, p. 303.

¹²³ The European search for medicines prompted efforts to make European countries pharmaceutically self-sufficient and therefore able to reduce expenditure on overseas drugs and create a positive trade surplus. Catherine Herbert Howell, *Flora Mirabilis: How Plants Have Shaped Word, Knowledge, Health, Wealth and Beauty* (Washington D.C: National geographic, 2009); Londa Schiebinger, *Plants and Empire: Colonial Bioprospecting in the Atlantic World* (Cambridge: Harvard University Press, 2007), p. 73.

British botanical practices and knowledge to New Zealand. The transfer and cultivation of plants became ‘a mark of European colonialism [and] both cause and effect of European expansion’.¹²⁴ British imperialism relied largely on manufacturing and selling products made from colonial natural resources. The supposed idea that indigenous people did not make efficient use of their land provided justification for colonial science and scientists, who were argued to be best able to efficiently use and distribute colonial plants.¹²⁵ This notion reflected disparate ideas and translations of land and productivity. During this period, the English and Dutch created chartered trading companies, the English East India Company (EIC) and the Dutch East India Company (VOC) respectively, and gained, often through armed conquest, regional trade monopolies – for example, the British in India and the Dutch in Java. The creation of plantations and mass agricultural production severely disrupted local markets and labour forces, and left regions such as India and South America open for further exploitation.¹²⁶

Between the seventeenth and nineteenth centuries, Europeans created entire plant monopolies that formed, dissolved or changed hands as colonies were conquered, abandoned or changed political allegiance.¹²⁷ Medicinal plants provided both the impetus for invasion – through the desire to secure new cures and economic gain – and the means for colonisation, affording a degree of medical comfort and relief to both colonisers and the colonised. The imperial web grew increasingly complex as links between places and people were constantly negotiated and intensified along with the exchange of flora and fauna. The following diagram reveals the factors I identify as the most significant in the development of botany as it was practiced in colonial New Zealand. The institutions I identify, and discuss further in this section, are all British. However, it is important to note that within these institutions, plants and theories from other parts of the world, including New Zealand, were cultivated, investigated and assessed. The outer circle represents broader trends and processes, while the inner ring presents some

¹²⁴ Quote from Drayton, p. 92; Lucile Brockway, *Science and Colonial Expansion: The Role of the British Royal Botanical Gardens* (New Haven: Yale University Press, 2002), pp. 20-31, 103-167.

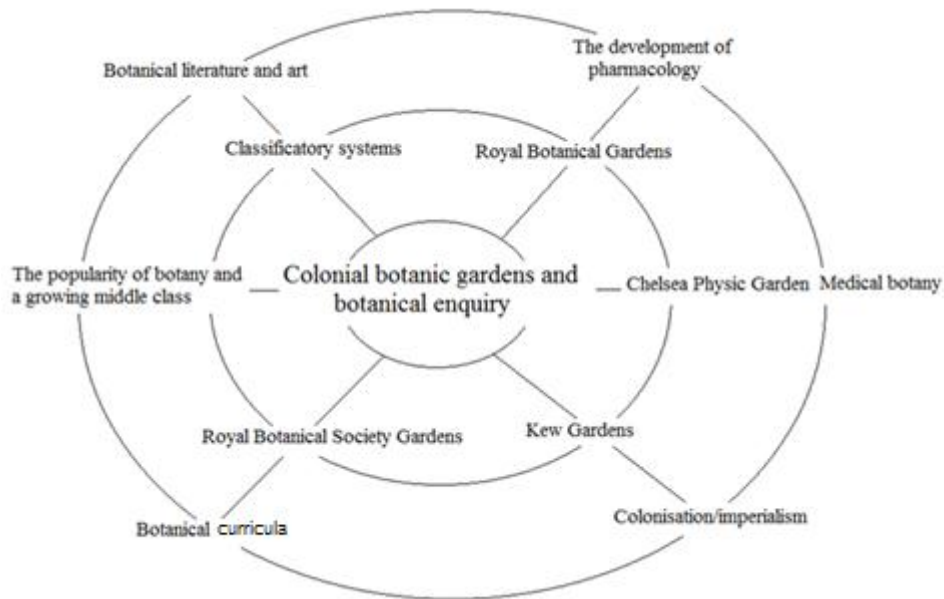
¹²⁵ Brockway, pp. 20-31.

¹²⁶ Grove, pp. 101-125; Brockway, pp. 103-167.

¹²⁷ Brockway, pp. 20-31, 103-167.

of the institutions that both directed and received colonial botanical information during the nineteenth and early twentieth centuries.

Figure 1:2: Factors that directed, influenced and stimulated colonial botanical enquiry and their interconnectedness.



Exploring the development of European science and botany in the eighteenth and nineteenth centuries provides some understanding of how these institutions arose in colonial New Zealand. During the eighteenth century, European scholars and botanists such as the founder of modern biological taxonomy, Carl von Linné (Carolus Linnaeus) (1707-1778), supported imperial motivations and actions. In Europe, newly-formed classificatory systems, reflecting changing and disparate views of nature, sought to bring order to the growing number of plants revealed through colonisation, exploration and trade.¹²⁸ Linnaeus, a Swedish naturalist and later professor of medicine, encouraged his students to travel widely and thereby facilitated the movement of ‘useful’ plants. He gave economic reasons for

¹²⁸ Thomas, p. 84; Campbell-Culver, pp. 9-11. Older systems of classification included the Doctrine of Signatures, which named and classified plants according to their morphology and medicinal use.

botanical enquiry and believed that indigenous knowledge of plants was inferior, had no scientific value, and did not reflect the role God played in their design.¹²⁹

In an increasingly industrial nineteenth century, Linnaean scholarship appealed to a newly-emerging European middle class.¹³⁰ His classificatory system was based on the number and position of pistils (female parts) and stamens (male parts) and although the system shocked some with its sexual imagery, it had widespread appeal.¹³¹ Classificatory systems encouraged the study of natural history, a discipline that, by the late eighteenth century, also played a significant role in the education of Britain's working class.¹³² As discussed in Chapter Six, classificatory systems also provided another avenue of enquiry into medicinal plants. These investigations relied on the translation of plants into botanical specimens and the assumption that plants from the same family possessed similar medicinal properties.

By the nineteenth century, Britain boasted as many botanists as the whole of the rest of Europe, and as plants from the Indian sub-continent, Japan and China flowed into Britain and Europe, a burgeoning culture of professional and amateur botanists provided a rapt and captivated audience.¹³³ Botanical knowledge filtered down from the elite through botanical literature such as William Curtis's *The Botanical Magazine*. Published in London from 1787, this magazine targeted 'such Ladies, Gentlemen and Gardeners... [who] wish to become scientifically

¹²⁹ Paul Lawrence Farber, *Finding Order in Nature: The Naturalist Tradition from Linnaeus to E. O. Wilson* (London: Johns Hopkins University Press, 2000) p. 12. Linnaeus also supported the Hippocratic theory that remedies for specific diseases could be found in areas where the disease was endemic. See Drayton, p. 73

¹³⁰ Bowler, p. 144.

¹³¹ Patricia Fara, *Sex, Botany and Empire: The Story of Carl Linnaeus and Joseph Banks* (New York: Columbia University Press, c2003).

¹³² Farber, p.30.

¹³³ Ray Desmond, *The History of the Royal Botanic Gardens Kew* (London: The Harvill Press, 1995), p. ix. The introduction of plants to Britain was made known to the public through botanical journals such as *Curtis's Botanical Magazine*, edited by William Hooker and monthly editions of *Paxton's Magazine of Botany and Register of Flowering Plants* and *The Ladies Flower Garden of Ornamental Annuals*. See, John Claudius Loudon, *The Garden Magazine and Register of Rural and Domestic Improvement: Comprising Treatises on Landscape Gardening, Arboriculture, Floriculture, Horticulture, Agriculture, Garden Structure, Plans of Gardens and Country Residences, Suburban Villas etc – Also Lists of New and Rare Plants, Fruits and Vegetables* (London: J.C. Loudon FLS HS, 1840).

acquainted with the Plants they cultivate'.¹³⁴ Around the same time, Romantic philosophers and artists, whose drawings and paintings of plants reflected their view of nature as inspiring and sacred, were starting to add another dimension to botanical discovery and appreciation in Britain. Botanical art and the development of Linnaean classification opened the doors for women, many of whom pursued this outwardly civilised, academic and previously male-dominated pastime.¹³⁵ As amateur gardeners, women were increasingly associated with herbs and flowers in garden imagery and literature.¹³⁶ Writing in 1869, Joseph May claimed:

that any farmer, who is worthy of the name, will prepare a small plot of ground for his wife and daughters, and that he will, out of love to them, make it all they can wish or desire.... Give the wife and daughters a place to plant, tend, and rear their flowers; help them if needs be, although it may take an hour sometimes that is hard to spare, and you will a thousand times bless God for so ordering your mind that you did it.¹³⁷

In Europe, established physic gardens and botanic gardens were public spaces in which men and women could pursue their interest in botany.¹³⁸ They were also sites where many of New Zealand's earliest physicians learned the therapeutic properties and identification of medicinal plants, an important and integral part of medical education during the nineteenth century.¹³⁹ The Chelsea Physic Garden focused principally on the collection and cultivation of medicinal plants and trees,

¹³⁴ Howell, p. 148.

¹³⁵ Ann B. Shteir, *Cultivating Women, Cultivating Science: Flora's Daughters and Botany in England 1760 to 1860* (London: John Hopkins University Press, 1996), p.13.

¹³⁶ Leonore Davidoff and Catharine Hall, *Family Fortunes: Men and Women of the English Middle Class 1780-1850*, rev edn (London: Routledge, 2002), pp. 357-397.

¹³⁷ Joseph May, *May's Guide to Farming in New Zealand: Arranged for the Seasons and Climate with a Comprehensive Calendar of the Operations for Each Month of the Year* (Auckland: G.T. Chapman, 1869), p.117, <http://www.enzb.auckland.ac.nz/document?wid=2903&page=1&action=null>, [accessed July 24 2012].

¹³⁸ The first physic garden appeared in Italy attached to universities including Padua and Bologna in the sixteenth century. However, Britain was slow to develop gardens - Scotland's first physic garden opened in 1656 and the Chelsea Physic garden opened under the direction of the Worshipful Society of Apothecaries in 1673. Drayton, 1999; Brockway, 2002; Desmond, 1995, p. 91; Robertson, pp. 129-141.

¹³⁹ James Beattie, *Empire and Environmental Anxiety: Health, Science, Art and Conservation in South Asia and Australasia, 1800-1920* (Basingstoke: Palgrave Macmillan, 2011); James Beattie, 'Natural History, Conservation and Scottish-trained Doctors in New Zealand, 1790-1920', *Immigrants and Minorities* 29, 2 (2010), pp. 281-307; John Adam, *The Origins of the New Zealand Medicinal Garden* (Draft Report for Richard Aiken, 2012).

many of which were processed in a laboratory attached to the nearby Apothecaries' Hall.¹⁴⁰ By the nineteenth century, it was an important centre of learning in England. All of London's medical students studied in its grounds under the enigmatic botanist John Lindley.¹⁴¹ Pharmaceutical Society students received training in the Royal Botanical Society Gardens in Regents Park which had gardens designed specifically to accommodate students in the study of medicine among other subjects.¹⁴²

Scottish universities such as Edinburgh, St. Andrews and Glasgow placed particular emphasis on the study of natural history. Edinburgh's medical students attended lessons at the Royal Botanic Garden Edinburgh where botanical demonstrations and daily lectures were given.¹⁴³ Botanical excursions also took place whereby students learned how to identify and preserve specimens, and make observations on the distribution of plants, layout of the land, soils and localities. These skills became valuable assets as 'the utility of applying scientific methods to the exploitation of colonial environments became more widely recognised' and a great number of Scottish graduates pursued botanical studies in the Empire.¹⁴⁴ In New Zealand, Scottish-trained doctors directed the establishment and curriculum when the Otago Medical School first opened in 1875.¹⁴⁵ They maintained relationships and networks that were established by men such as Glasgow

¹⁴⁰ Sir Hans Sloane (1660-1753), an Irish physician, plant collector and President of the Royal Society from 1727-53, played an important part in the garden's rise to fame, gifting the land to the Apothecaries Society and acting as patron for several years. Isaac Rand (1674-1743), was the first *Horti Praefectus et Praelector Botanicus Chelseiana* (Director of the Garden and Lecturer in Botany at the Society of Apothecaries' Physic Garden, Chelsea). The first head gardener was Phillip Miller (1691-1771). Drayton, p. 36; Penelope Hunting, 'Isaac Rand and the Apothecaries' Physic Garden at Chelsea' in *Garden History*, 30, 1 (2002), pp. 1-23.

¹⁴¹ Chelsea directors focused on gathering and displaying rare and exotic species and exchanged plants with other gardens, particularly Leiden in Holland where many English medical students attended the associated University. See, Hunting, p. 5

¹⁴² E. A. David, 'Book Review: *The Apothecaries' Garden: A New History of the Chelsea Physic Garden*', *Medical History*, 46, 1 (2002), pp. 123-5; Loudon, p. 321; Sue Minter, *The Apothecaries' Garden: A New History of the Chelsea Physic Garden*, (Thrupp: Sutton Publishing, 2000).

According to historian and recent curator of the Chelsea Physic Garden, Sue Minter, the *materia medica*, was largely removed from the medical curriculum by 1899 and the gardens were no longer used by medical students for training purposes. The inclusion and exclusion of *materia medica* in medical curriculums will be discussed further in Chapter Five.

¹⁴³ Beattie, 'Empire and Environmental Anxiety', p. 102; Beattie, 'Natural History, Conservation', pp. 283-4; Grove, pp. 380-473.

¹⁴⁴ Beattie, 'Natural History, Conservation', pp. 285; Beattie, 'Empire and Environmental Anxiety', p. 103.

¹⁴⁵ See Chapter Five, pp. 233-236.

graduate Joseph Hooker who, in his role as Director at Kew Gardens, communicated extensively with fellow Scot and New Zealand scientist James Hector, linking colonial botanical enquiries with prominent British intuitions.¹⁴⁶

The Chelsea Physic Garden and the Royal Botanic Gardens remained significant sites of learning throughout the nineteenth century. However, rivalling these gardens as centres for international exchange and enquiry was Kew Gardens, an important imperial site that demonstrated the supposed superiority of western science. From the mid-nineteenth century, Kew developed strong ties and associations with colonial botanists and contained significant examples of New Zealand flora.¹⁴⁷

Under the direction of botanist Joseph Banks, Kew Gardens developed quickly from a royal summer retreat into a global centre of plant exchange.¹⁴⁸ In 1800, Kew boasted a plant collection and a store of knowledge that rivalled earlier established gardens including Chelsea and the *Jardin du Roi* in Paris.¹⁴⁹ During his time at Kew, Banks was adamant that newly-established colonies should benefit from the plants discovered in the course of exploration and in 1786 prepared a selection of plants to accompany the First Fleet to Australia.¹⁵⁰ These included valuable medicinal plants listed in Table One. By 1828, a number of introduced medicinal plants were growing in Sydney's Botanic Garden including jalap, datura, rhubarb, and ginger.¹⁵¹

¹⁴⁶ Simon Nathan and Mary Varnham (eds), *The Amazing World of James Hector: Explorer, Doctor, Geologist, Botanist, Natural Historian and one of New Zealand's Most Remarkable Figures*, ed. by (Wellington: Awa Press, 2009).

¹⁴⁷ Mea Allan, *The Hookers of Kew, 1785-1911* (London: Joseph, 1967).

¹⁴⁸ 'Kew Gardens', <http://www.kew.org/heritage/people/frederick.html>, [accessed November 14 2012]; Desmond, 1995; Tatiana Holway, *Flower of Empire: An Amazonian Water Lily, the Quest to Make It Bloom, and the World It Created* (Oxford: Oxford University Press, 2013), pp. 74-92.

¹⁴⁹ Banks was one of Britain's botanical elites. From a wealthy family he fostered relationships that would both benefit the gardens and advance his personal career. He appealed to diplomats, army and naval officers, merchants and missionaries to remember Kew's needs when abroad. He formed an alliance with the East India Company, the directors of which became Kew's most generous benefactors. See Desmond, pp. 1-90

¹⁵⁰ Alan Frost, *Sir Joseph Banks and the Transfer of Plants to and from the Pacific, 1786-1798* (Melbourne: The Colony Press, 1993). Banks was a strong advocate for the colonisation of Australia due in part to his fascination with the Australian flora.

¹⁵¹ Royal Botanic Gardens Sydney Special Collection, Series B1, Fraser, Charles, 'List of Esculent Vegetables and Pott Herbs Cultivated in the Botanic Gardens, Sydney, 1827'.

Table 1:1: List of Medicinal Plants prepared by Banks to accompany the First Fleet to Australia, 1786

Botanical Name	Common Name	Medicinal Uses
<i>Mentha</i> spp. L.	Mint	Commonly used as a digestive aid
<i>Matricaria recutita</i> L.	Chemomile [sic],	Used for indigestion and inflammation
<i>Marrubium vulgare</i> L.	Horehound	A pulmonary herb
<i>Lavandula angustifolia</i> Mill.	Lavender	Applied as an oil to burns and skin irritations
<i>Glycyrrhiza glabra</i> L.	Liquorish root	A demulcent used to soothe respiratory and urinary tract infections
<i>Cinnamomum camphora</i> (L.) J. Presl	Camphor plant	recommended by the inventor of homeopathy Samuel Hahnemann to treat cholera
<i>Rheum palmatum</i> L.	Rhubarb	A popular emetic
<i>Ipomoea purga</i> L.	Jalap	cathartic drug
<i>Gingko biloba</i> L.	Gingko biloba	An important and venerated Chinese herb used to stimulate circulation
<i>Althea officinalis</i> L.	Marsh mallow	A demulcent used to sooth respiratory conditions
<i>Valeriana officinalis</i> L.	Valerian	A plant with sedative properties

Source: Alan Frost, *Sir Joseph Banks and the Transfer of Plants to and from the Pacific, 1786-1798* (Melbourne: The Colony Press, 1993), p. 32

Following Banks' death in 1820, Kew experienced a period of significant neglect. However, by 1838, stimulated by extensive reports by botanist John Lindley, the British Treasury sanctioned the transfer of Kew to the Department of Woods and Forests. Sir William Jackson Hooker (1785–1865), father to Joseph and Professor

of Botany at Glasgow University, was appointed new Director.¹⁵² Hooker was keen to re-establish the grounds at Kew as a centre of imperial science and, in 1844-5, encouraged by rumours that Chelsea Gardens had discussed transferring specimens to Kew, he made plans to establish a medical garden. Hooker urged the Board of the Woods and Forests to support a garden that would serve the London University, medical schools and hospitals as well as The Society of Apothecaries. He consulted with the Commissioners for Metropolitan Improvements and assured the Board that there would be no difficulty importing new and rare species given Kew's international connections and associations. Hooker's vision – to create a medical garden on a national scale – never materialised and it was two years before a more modest scheme was established.¹⁵³

Meanwhile, Hooker continued to transfer and exchange plants, including medicinal species, with botanic gardens around the world. His task was aided by inventions such as the Wardian case, developed in the 1830s by Dr Nathaniel Ward (1791–1868).¹⁵⁴ This case, made from glass, protected plants from sea spray, caught water transpired by plants and effectively increased the success of plant exchange.¹⁵⁵ In 1865, William's son, Joseph Hooker, (1817-1911) succeeded his father as Director and, in his father's diligent fashion, continued to establish and maintain international relationships and support colonial pursuits. Joseph Hooker's reputation as a botanist was well established by this time, his work as surgeon/naturalist on Sir James Ross' Antarctic expedition resulting in numerous publications, including *Flora Novae-Zelandiae* published in 1853. This book presented specimens collected during stays in New Zealand in 1841 and 1843 by Hooker, assisted by William Colenson and colonial secretary and surgeon Dr Andrew Sinclair.¹⁵⁶

Sinclair maintained communications with Hooker and in 1844 wrote requesting seeds for medicinal plants for the production of medicines that often spoiled on

¹⁵² Desmond, pp. 127-149; Allan, pp. 180-90; Holway, pp. 88-90.

¹⁵³ Desmond, pp.150-169; Brockway, pp. 121-22.

¹⁵⁴ Allan, p. 135.

¹⁵⁵ Desmond, p. 258.

¹⁵⁶ Allan, pp. 115-136.

the way to New Zealand, as well as any others Hooker may suggest.¹⁵⁷ A letter found amongst Sinclair's papers, presumably written by Hooker and published decades later, includes an extensive list of medicinal plants 'which may be advantageously introduced to New Zealand'.¹⁵⁸ The introduction, naturalisation and cultivation of these plants is discussed further in section two of this chapter.

During the reign of Queen Victoria (1837-1901), Kew established no less than 126 botanic gardens throughout the British Empire, and while collection and display proved a major impetus for plant exchange, most plants moved between botanic gardens had economic or utilitarian value.¹⁵⁹ Several British botanic gardens were developed in India where, since the eighteenth century, the British East India Company had controlled vast tracts of land.¹⁶⁰ In 1858, Company rule transferred to the British Crown and as more British troops were dispatched to the sub-continent, British botanists made concerted efforts to experiment with local medicinal plants to offset the expense of imported drugs.¹⁶¹ Experiments with indigenous medical knowledge and native plants in British colonies relied on European physicians translating the plant into familiar terms and applications; this is discussed further in Chapters Five and Six. Kew played a central role in investigations into indigenous medicines, sending and supporting botanists in the field and holding a valuable repository of plants that by the nineteenth century included numerous species from New Zealand.

¹⁵⁷ These included monkshood, sweet flag, dill, chamomile, angelica, marshmallow, belladonna, hazelwort, cnicus benedictus, bittersweet nightshade, caraway, hemlock, saffron, cumin, datura, liquorice, henbane, Christmas rose, hellebore, savin, spearmint, peppermint, pennyroyal, lobelia inflata, senea snakeroot, anise valerian. *Evening Post*, (EP), 28 October 1886, p. 3.

¹⁵⁸ EP, 28 October 1886, p. 3.

¹⁵⁹ Herbert, p. 143.

¹⁶⁰ Herbert, pp. 150-152. The first British Botanic Garden in India was created in Calcutta by the British East India Company in 1787.

¹⁶¹ In the course of one year, British authorities purchased over £40,000 of the drug quinine – the standard treatment for fever and malaria derived from the South American plant, *Cinchona* spp – for troops stationed in the Bengal Presidency alone. By the nineteenth century, Britain, France and Holland were racing to secure cinchona seed, which was controlled by Spain, and cultivate the plant that stood as 'a symbol of the power of science to put nature on the side of imperialism'. Kew played a central role in the search, collection and cultivation of cinchona although the Dutch achieved supremacy in World market by the 1870s. Ipecacuanha (*Carapichea ipecacuanha* Brot. L.Andersson), a popular emetic drug used to treat dysentery, also came from South America, was cultivated at Kew and later sent to Calcutta Botanic Garden. Although initial trials failed, they were successful in Singapore's Botanic Gardens in 1885 and in less than two years, the first commercial consignment of Malayan ipecacuanha appeared on the London market. Desmond, p. 215, 252; Brockway, pp. 103-141; Drayton, pp. 206-11.

While economic gain continued to drive botanical research, the study of plants also contributed significantly to the development and specialisation of science. The formation of societies such as London's Royal College of Chemistry (1845), the Museum of Economic Geology (1851) and the Royal Society of Medicine (1805) encouraged the specialisation of science and the separation of subjects.¹⁶² According to geographer David Livingstone, science was conducted in the nineteenth and twentieth centuries in various 'venues', including cabinets of accumulation (or curiosities), houses of experiment, field operations, gardens of display and spaces of diagnoses.¹⁶³ In these spaces, writes Livingstone, 'nature has been differentially experienced, objects have been differently regarded, [and] claims to knowledge have been adjudicated in different ways'.¹⁶⁴

In New Zealand, botanical enquiry in the early period of settlement relied largely on observations and experimentation. Botany was as ubiquitous in the colonies as it was in Europe, being practiced in home gardens, in places of business and in different scientific sites. New Zealand's settlers inherited an enthusiasm and fervour for botanical and horticultural enquiry that rivalled anything in Britain. As well, knowledge and skills travelled with early colonists and botanists. However, in the Colony, the study of plants had a slightly different emphasis, direction and role compared to Britain. Between 1850 and 1880, the introduction of plants and animals to New Zealand occurred at an unprecedented rate. With few restrictions in place, the introduction of plants and animals played an integral role in the transformation of the landscape, considered by many involved as a necessary part of colonisation. As indigenous cover was cut down or disturbed, introduced plants took their place.¹⁶⁵ In this period, a significant number of medicinal plants were introduced, cultivated, and their potential worth was examined.

¹⁶² John Pickstone, 'Science in Nineteenth-Century England: Plural Configurations and Singular Politics', in *The Organisation of Knowledge in Victorian Britain*, ed. by Martin Dauton (Oxford: Oxford University Press, 2005), p. 34.

¹⁶³ David N. Livingstone, *Putting Science in Its Place: Geographies of Scientific Knowledge* (Chicago: University of Chicago Press, 2003), pp. 17-86.

¹⁶⁴ Livingstone, p. 86.

¹⁶⁵ James Beattie, 'Acclimatisation and the "Europeanisation" of New Zealand, 1830s-1920s?', *ENNZ: Environment and Nature in New Zealand*, 3, 1 (2008), environmentalhistory-au-nz.org, [accessed July 4 2013].

Botany and Horticulture in Colonial New Zealand, 1850s -1880s

The introduction, cultivation and naturalisation of medicinal plants in New Zealand, following European colonisation, relied on numerous networks and institutions as well as particular regional characteristics and the inheritance and adaptation of ideologies, theories and practices. Environmental factors such as climate, topography and geology – elements that colonists learned to understand and negotiate – also came into play.¹⁶⁶ Between 1850 and 1880, as plants and people arrived in New Zealand in unprecedented numbers, health, like prosperity, seemingly required the introduction of familiar plants, animals and medicine. During this period, the introduction of these familiar objects, I argue, relied largely on the efforts of individuals. They were supported by networks and institutions that by the 1880s had developed significantly to provide forums and systems for more official forms of enquiry.

In 1840, the signing of The Treaty of Waitangi/Tiriti o Waitangi by many Māori Chiefs and representatives of the British Crown established a formal constitutional relationship between Britain and New Zealand. Around the same time, rapid and organised colonisation by predominantly British emigrants began.¹⁶⁷ During the Crown Colony Period (1840 to 1852), a period in which New Zealand was ruled by a succession of Crown-appointed Governors, the number of European residents in New Zealand increased, from an estimated 2000 in 1839 to 28,000 by 1852.¹⁶⁸ Around two thirds came from the United Kingdom and the remainder from

¹⁶⁶ R. Peden and P. Holland, 'Settlers Transforming the Open Country', in *Making a New Land: Environmental Histories of New Zealand*, ed. by Tom Brooking and Eric Pawson, 2nd edn (Dunedin: University of Otago Press, 2013), pp. 89-105; Arnold, Rollo, *New Zealand's Burning: The Settlers World in the Mid 1800s* (Wellington: Victoria University Press, 1994).

¹⁶⁷ New Zealand's European population increased rapidly, from an estimated 2000 in 1839, to around 59,000 by 1858. Statistics show that two thirds of emigrants arriving in New Zealand during the Crown Colony Period, 1840 to 1852 came from the United Kingdom. The remainder arrived from the Australian Colonies. See Jock Phillips & Terry Hearn, *Settlers: New Zealand Immigrants from England, Ireland & Scotland 1800-1945* (Auckland: Auckland University Press, 2008).

¹⁶⁸ King, p. 165.

neighbouring Australian colonies.¹⁶⁹ The dominance of British colonists supported the introduction of predominantly British medical practices and plants.

Most initial European settlement in New Zealand resulted from private immigration schemes, with the New Zealand Company being the most notorious and significant. Auckland alone grew without the help of assisted and organised emigration, its European population in 1850, due largely to its proximity to major ports in the North, becoming the country's capital in 1840, and the arrival of military settlers in the 1850s and 1860s.¹⁷⁰ As a consequence, Auckland's settler population was dominated by single males. New Zealand Company settlements such as Wellington, Wanganui and New Plymouth in the North Island and Nelson, Canterbury and Otago in the South Island, were well established by 1850 and displayed more diversity in age and a more balanced male-female ratio.¹⁷¹ As Table One indicates, the numbers of emigrants continued to increase dramatically between 1851 and 1891, South Island settlements attracting the greatest numbers.¹⁷²

Table 1:2: Population of Europeans in New Zealand, 1851-1891

Year	1851	1861	1871	1881	1891
North Island	17,371	41,641	96,875	193,047	281,474
South Island	9,336	57,380	159,518	296,886	345,184
New Zealand	26,707	99,021	256,393	489,933	626,658

Source: Geoffrey Rice, ed., *The Oxford History of New Zealand*, 2nd edn (Auckland: Oxford University Press, 1992), p. 117

¹⁶⁹ *Further information - British and Irish Immigration.*

<http://www.nzhistory.net.nz/culture/home-away-from-home/sources>, [accessed February 3 2012].

¹⁷⁰ King, pp. 170-3.

¹⁷¹ Brad Patterson, 'It is Curious How Keenly Allied in Character are the Scotch Highlander and the Maori': Encounters in a New Zealand Colonial Settlement', *Journal of Irish and Scottish Studies*, 4, 1 (2010), pp. 163-185; *Further information*, p. 69.

¹⁷² Geoffrey Rice (ed.), *The Oxford History of New Zealand*, 2nd edn (Auckland: Oxford University Press, 1992), p. 117.

According to historian Susan Bulmer, between 1841 and 1852, two-thirds of the Māori population in New Zealand lived in the Auckland province, where interactions with colonists were encouraged by an extensive trade in vegetables grown and supplied by Māori horticulturists.¹⁷³ Māori horticulturists prospered between 1845 and 1860, combining European horticultural techniques with traditional skills, and cultivating plants introduced by traders and explorers decades earlier. Māori sent crops by canoe or ship to Auckland and from there for export, mainly to Australia.¹⁷⁴ Although a significant number of New Zealand's earliest emigrants – an estimated 34.6 per cent – came from agricultural backgrounds, strong regional variances in climate and topography tested existing skills.¹⁷⁵ Many settlers gathered information and sought advice from Māori, whose gardens adapted to and reflected the diversity of climate and environment in the Colony.¹⁷⁶

Alongside agricultural skills and experience, settlers brought expectations that farming in the new colony would be the key to prosperity and wealth.¹⁷⁷ Colonial handbooks encouraged emigrants to 'work the land', an occupation that was supported by favourable reports of the country's climate and fertility. Popular religious discourse encouraged settlers to 'complete God's creation', redeeming what was considered unproductive land in which 'bareness was a sign of the absence of Christian people'.¹⁷⁸ The importance of agricultural and horticultural productivity prevailed in the infant Colony. Early investigations fostered later

¹⁷³ Susan Bulmer, 'Ngā Marā Traditional Māori Gardens', in *A History of the Garden in New Zealand*, ed. by Matthew Bradbury (Auckland: Penguin Books, 1995), pp. 16-38. Many Māori also participated in the timber and flax trade that proliferated in the 1840s.

¹⁷⁴ Evelyn Stokes, 'Contesting Resources: Māori, Pakeha and a Tenurial Revolution', in *Environmental Histories of New Zealand*, ed. by Eric Pawson and Tom Brooking (Melbourne: Oxford University Press, 2002), pp. 35-52.

¹⁷⁵ Statistical analyses reveal that 34% of British colonists in New Zealand in 1841-1852 had fathers that were farmers or engaged in agriculture or horticulture.

'Further information', 2012.

¹⁷⁶ Peter Holland, Jim Williams and Vaughn Wood, 'Learning about the Environment in Early Colonial New Zealand', in *Seeds of Empire: The Environmental Transformation of New Zealand*, ed. by Tom Brooking and Eric Pawson (London: I. B. Taurus, 2011), pp. 34-51.

¹⁷⁷ James Beattie and Paul Star, 'Global Influences and Local Environments: Forestry and Forest Conservation in New Zealand, 1850s-1925', *British Scholar*, III,2 (2010), pp. 191-218; Brooking and Pawson, 2011, p. 8; Raine, 1999.

¹⁷⁸ James Beattie and John Stenhouse, 'Empire, Environment and Religion: God and the Natural World in Nineteenth-Century New Zealand', *Environment and History*, 13,4 (2007), pp. 413-466; John Hill Burton, *The Emigrants Manual, New Zealand, Cape of Good Hope and Port Natal*, (1851), p 16-22; Earp, 1998.

experiments with alternative primary industries, including the commercial cultivation of medicinal plants.

The creation of farms and a pastoral economy relied on the acquisition of large tracts of land and, despite guarantees of territorial protection for Māori written in the Treaty of Waitangi, extensive strategies were put into place by British authorities to buy or confiscate land.¹⁷⁹ The New Zealand Company, waiving the Crown's exclusive right to purchase, bought large tracts of land in the South Island. In 1848, the Crown purchased 20 million acres (81,000 sq. kms.) in the Canterbury region.¹⁸⁰ By the 1860s, more than 34 million acres had been acquired from the South Island tribe, Ngai Tahu. In the North Island, large areas of land in Waikato, Taranaki, The Bay of Plenty, South Auckland, Hauraki, Te Urewera, Hawkes Bay and the East Coast were confiscated in the 1860s from any Māori who allegedly resisted European authority or were implicated in any form of resistance.¹⁸¹ This action provided land for a growing number of Europeans and was, according to historian Michael King, selected more for its fertility and usefulness than for the owner's part in any 'rebellion'.¹⁸²

However, land fertility and usefulness often required hard work and was not always guaranteed. Bush clearing left stumps and roots not easily ploughed, and following an initial period of fertility, soil condition declined. Wellington's early settlers, dismayed at the lack of pastoral and agricultural land, despite promises made by the New Zealand Company, moved on into other areas, such as the Wairarapa, Hawkes Bay and the east coast of the South Island. These areas proved

¹⁷⁹ Brooking and Pawson, p. 16.

¹⁸⁰ 'New Zealand History', <http://www.nzhistory.net.nz/politics/treaty/the-treaty-in-practice/ngai-tahu>; M. P. K. Sorrenson, 'Maori and Pakeha', in *The Oxford History of New Zealand*, ed. by Geoffrey Rice, 2nd edn (Auckland: Oxford University Press, 1992), pp. 141-167.

¹⁸¹ In 1863 the British Crown passed The New Zealand Settlements Act which facilitated the confiscation of 526,000 hectares of Māori land in the Taranaki district. Three years prior, through military intervention, 600,000 hectares of land in nearby Waitara had been claimed despite resistance from local tribal Chief, Wiremu Kingi. This land sale initiated the 'Māori land wars', which led to widespread land confiscations, particularly from owners considered 'rebellious' to the Crown. See Tanira Kingi, *Māori Landownership and Land Management in New Zealand* (Palmerston North: Institute of Natural Resources), http://www.ausaid.gov.au/Publications/Documents/MLW_VolumeTwo_CaseStudy_7.pdf [accessed November 23 2012]; Patterson, pp. 163-185.

¹⁸² King, p. 216.

ideal pastoral land and quickly became the core of the colonial economy.¹⁸³ By the 1860s, sheep farming proved a lucrative occupation and a host of independently-owned mixed farms arose in an ‘enduring egalitarian pattern’ that differed significantly from Britain, where an agricultural labouring class existed with little capital or asset.¹⁸⁴ As pastoralism took hold, the transformation of New Zealand’s landscape rapidly occurred, a change that was considered necessary by those involved.¹⁸⁵ While farmers transformed large tracts of rural land, plans for urban development often included space for botanical gardens and reserves. Botanic gardens became sites of experimentation with medicinal plants.

New Zealand’s first botanic garden opened in Dunedin in 1865 and soon after was supplying trees to schools, hospitals and cemeteries.¹⁸⁶ The history of Auckland’s botanic garden is complex, with authority and control of the Government garden in the Auckland Domain regularly contested. Wellington’s botanical garden opened amidst the formation of scientific institutions including the Geological Society and the Colonial Museum, and the activities of these departments were interwoven and directed by the state.¹⁸⁷ Christchurch Domain took on the roles and responsibilities of a botanic garden in 1864.¹⁸⁸ Many of these early gardens were subject to financial restraints and conflicting visions of science and recreation.¹⁸⁹ They often worked hand-in-hand with acclimatisation societies to facilitate the movement and acclimatisation of plants and animals.¹⁹⁰ Between 1863 and 1871, acclimatisation societies started in Nelson, Otago, Canterbury,

¹⁸³ Brooking and Pawson, p. 15; McAloon, p. 63.

¹⁸⁴ Raine, p. 70.

¹⁸⁵ Paul Star, ‘Humans and the Environment in New Zealand, c. 1800 to 2000’, in *The New Oxford History of New Zealand*, ed. by Giselle Byrnes (Melbourne: Oxford University Press, 2009), pp. 47-71; Brooking and Pawson, p. 13-33.

¹⁸⁶ Eric Dunlop, *The Story of the Dunedin Botanic Garden: New Zealand’s First* (Dunedin: Friends of the Dunedin Botanic Garden in association with Longacre Press, 2002), p. 48.

¹⁸⁷ Winsome Shepherd and Walter Cook, *The Botanic Garden Wellington: A New Zealand History 1840-1987* (Wellington: Millwood Press, 1988), pp. 85-111.

¹⁸⁸ M Barnett, H. Gilpin and Clarence Metcalf, *A Garden Century: The Christchurch Botanic Gardens 1863-1963* (Christchurch: Pegasus Press, 1963).

¹⁸⁹ Franklin Ginn, ‘Colonial Transformations: Nature, Progress and Science in the Christchurch Botanic Gardens’ *New Zealand Geographer*, 65 (2009), pp. 35-47, <http://onlinelibrary.wiley.com/doi/10.1111/j.1745-7939.2009.01146.x/pdf>, [accessed September 6 2012].

¹⁹⁰ The first society established in Paris; *Société Zoologique d’Acclimatation* in 1854, and in 1861, Britain formed the Victorian Acclimatisation Society.

Auckland, Southland, Westland, Wanganui, Hawkes Bay and Wellington.¹⁹¹ The role botanic gardens played as scientific sites is discussed later in the chapter. Town centres also boasted a thriving and vibrant gardening culture modelled largely on British traditions and considered by many as a display of European civility, refinement and colonial progress. Felix Wakefield, son of Edward Wakefield, believed that the consideration, contrivance, early rising and patience required by a good gardener would not only shape the land but would also produce suitable colonists.¹⁹² Many considered the flower and kitchen garden, where medicinal herbs were typically planted, as the women's domain. The Directors of the New Zealand Company appealed to women who, 'through their industry and good taste', would enhance the dwellings of the new colonists with flowers and plants of the homeland and provide 'cheering evidence of the activity of our colonists'.¹⁹³ Women responded resolutely and contributed and participated in a culture of gardening that suffused the colony.

For many, gardening was simply a necessity, part of the domestic routine that would feed, heal and sustain growing families. For others, it was a chance to maintain links with Britain through the exchange of botanical information and reminiscences as well as an opportunity to display uniquely colonial characteristics. Horticultural and botanical societies formed throughout the country from as early as the 1840s. They provided a forum for discussion, competition and comparison, and encouraged the rapid propagation and distribution of introduced plants.¹⁹⁴ By the late 1840s, a large number of imported trees and plants had been introduced and specimens were presented at shows;

¹⁹¹ By the 1880s, writes Thomas Dunlap, many societies had disbanded. Disillusioned with the failure of many species to adapt, members directed their efforts towards botanical gardens, zoos or continued with less ambitious plans such as the introduction of game fish. Thomas R. Dunlap, *Nature and the English Diaspora: Environment and History in the United States, Canada, Australia, and New Zealand* (New York: Cambridge University Press, 1999), pp. 54-56.

¹⁹² Felix Wakefield, *The Gardener's Chronicle for New Zealand*, (Wellington: Printed by Thomas Mc'Kenzie, 1870), p. 5.

¹⁹³ *New Zealand Colonist and Port Nicholson Advertiser*, (NZCPNA) 9 September 1842, p. 2.

¹⁹⁴ Wellington's early settlers formed the first Horticultural Society in 1841 and, encouraged by Colonel William Wakefield, (Edward's brother) the first president, held regular horticultural shows and events. Auckland was quick to follow suit, establishing their society in 1843 and first show in December that same year. Christchurch's Horticultural Society formed in 1861. James Beattie, 'The Empire of the Rhododendron: Reorienting New Zealand Garden History', in *Making a New Land: Environmental Histories of New Zealand*, ed. by Tom Brooking and Eric Pawson, 2nd edn (Dunedin: Otago University Press, 2013), pp. 241-257.

roses, strawberries, hollyhocks, marigolds, ranunculi and dahlias as well as all manner of vegetables and fruits – including hops, melons and grapes – took pride of place at shows. Displays of potherbs – a common term for both culinary and medicinal herbs – appeared alongside vegetables, and growers won awards throughout the 1840s and 1850s. In December 1842, Mr D. Wilkinson of Wellington won first prize for his selection of potherbs; a year later, potherbs grown by Colonel Wakefield won first prize in Wellington.¹⁹⁵

New Zealand's settlers bought plants from local nurserymen, who, according to Paul Star, 'formed a non-Government network right across the British Empire'.¹⁹⁶ The first mention of plants for sale in Wellington comes from the *New Zealand Gazette* in February 1841, when John and George Wade, shipping agents and merchants, advertised fruit trees for sale from Van Diemens Land (now Tasmania). By 1866, there were around twenty-five nurserymen listed in the Wellington area alone, while Auckland's earliest nurserymen faced stiff competition from auctioneers, merchants and shipping agents, many of whom imported and exported to Australia.¹⁹⁷ Ornamental plants, vegetables and fruit trees were the most common articles of sale. In places that necessitated it, such as Canterbury, hedging and shelter trees sold well.¹⁹⁸

Most of New Zealand's early nurserymen trained in Britain, and many hailed from Scotland. Historian Alan Hale characterises their life in New Zealand as hard with little reward. Many, he writes, would dig up and burn their stock after a few seasons, choosing instead to sow grass and make a living from agriculture, or wait for the London market conditions to improve. This supports P. J. Cain and A.G. Hopkins' suggestions that gentlemanly capitalism and the metropolitan economy steered interactions between Britain and the colonies. Imperial expansion, they argue, was the product of 'gentlemen' operating in the financial and service

¹⁹⁵ *New Zealand Gazette and Wellington Spectator*, (NZGWS) 31 December 1842, p. 3; NZGWS, 9 December 1843, p. 2; NZGWS, 21 December 1844.

¹⁹⁶ Star, p. 1.

¹⁹⁷ Alan Hale, *Pioneer Nurserymen of New Zealand* (Wellington: A.H Reed & A.W. Reed, 1955); Robert Cooper, 'Early Auckland Gardens', *Garden History*, 1, 2 (1973), pp. 26-40, <http://www.jstor.org/stable/1586365>, [accessed 25 February, 2012].

¹⁹⁸ Sydney Challenger, 'Pioneer Nurserymen of Canterbury, New Zealand 1850-65', in *Garden History*, 7, 1 (1979), pp. 25-64, <http://www.jstor.org/stable/1586716>, [accessed 25 February 2012].

sectors of London in particular.¹⁹⁹ However, while New Zealand nurserymen maintained strong ties with Britain, they also created and formed associations among themselves and with other colonies and countries.

Much of New Zealand's plant material came from Australian growers or nurseries who traded with plant collectors through colonial botanical networks.²⁰⁰ New Zealand nurserymen also grew a great number of plants from seeds and cuttings that circulated internally. Nurserymen advertised in national newspapers and many wrote columns to enhance their visibility in the community. Christchurch's first mayor, Scottish nurseryman, William Wilson, also known as 'Cabbage' Wilson, wrote a series of articles for the *Lyttelton Times* entitled 'Calendar of Garden and Farm Operations'. William Swale, a contemporary of Wilson's also based in Christchurch, contributed the 'Gardeners Chronicle'.²⁰¹ Newspapers were the forum through which plants and tools were advertised until the 1860s, when printed plant catalogues began to be produced in significant numbers.

British and American plant catalogues catered to a growing number of gardeners and remain for some an 'index of horticultural taste'.²⁰² Most catalogues classified plants as ornamental, vegetable or otherwise, and some included a separate section for medicinal species. For example, G. Thorburn and Sons, Scottish nurserymen who immigrated and established a nursery in New York, included in their 1832 catalogue an extensive section entitled 'Medicinal Herbs, Roots and Pot Herbs, in great variety, cured in the best manner, by the Society of Shakers,

¹⁹⁹ David Lambert and Alan Lester (eds), *Colonial Lives Across the British Empire: Imperial Career in the Long Nineteenth Century* (Cambridge: Cambridge University Press, 2006), p. 4; P. J. Cain and A. G. Hopkins, 'Gentlemanly Capitalism and British Expansion Overseas II: New Imperialism, 1850-1945', *The Economic History Review, New Series*, 40, 1 (1987), pp. 1-26, <http://www.jstor.org/stable/pdfplus/2596293.pdf>, [accessed September 5 2013].

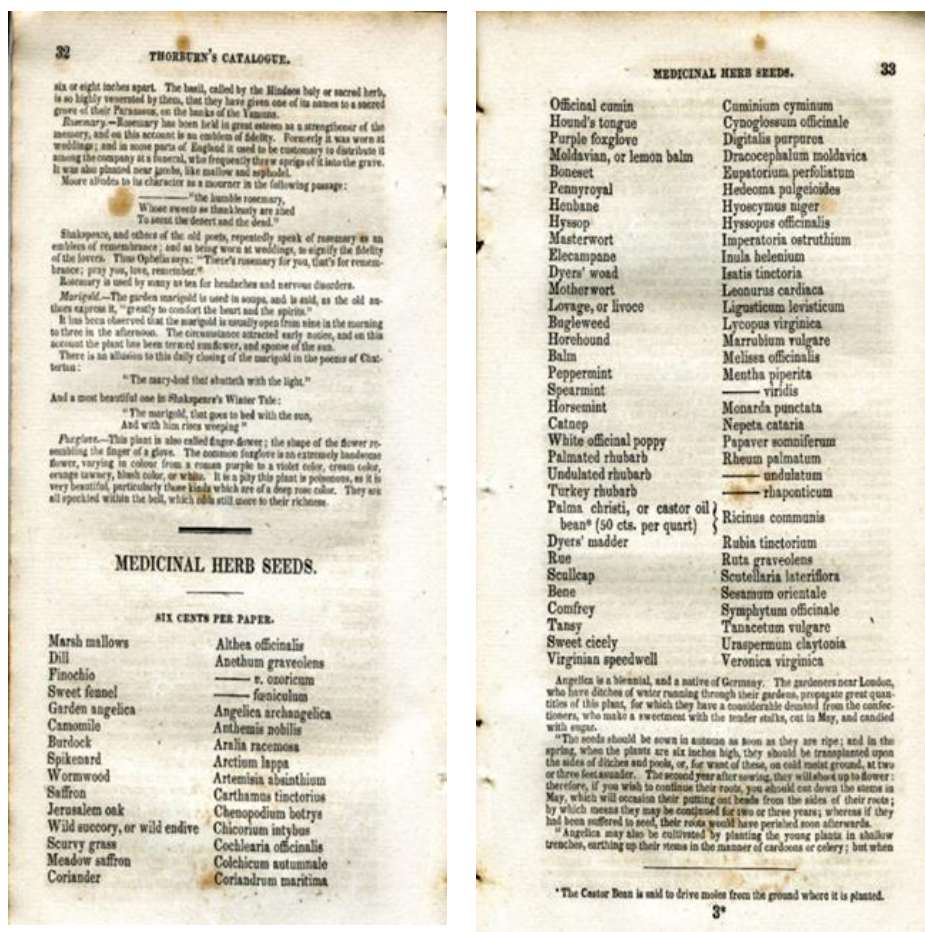
²⁰⁰ James Beattie, *The Empire of the Rhododendron*, pp. 241-257, 365-367.

²⁰¹ *Lyttelton Times*, (LT), 4 December 1852, p. 7.

²⁰² These books differ from earlier catalogues produced by seventeenth-century in Europe by wealthy European aristocrats to showcase their exotic collections and were first printed in book form in the 1830s. See Anna Parvord, *The Tulip* (New York: Bloomsbury, 1999), p. 80; *The Seed and Nursery Catalogue in Europe and the U.S.*, <http://osulibrary.oregonstate.edu/specialcollections/omeka/exhibits/show/seed/mid-19th-century/mid-19th-century-thorburn-1832>, [accessed May 25 2012].

Lebanon, New York'.²⁰³ European and American medicinal plants are included as well as information on their medicinal properties and directions on how to harvest and store them. (See *Figure 1:3*).

Figure 1:3: Catalogue of G. Thorburn and Sons showing a list of medicinal plant seeds on sale



Source: 'The Catalogue of G. Thorburn and Sons, 1832',

<http://osulibrary.oregonstate.edu/specialcollections/omeka/exhibits/show/seed/mid-19th-century/mid-19th-century-thorburn-1832>, [accessed 20 April 2012]

According to Alice Krinsky Formiga, curator at Oregon University, the omission of a medicinal section from most American and British catalogues by the mid-

²⁰³ 'The Catalogue of G. Thorburn and Sons, 1832', <http://osulibrary.oregonstate.edu/specialcollections/omeka/exhibits/show/seed/mid-19th-century/mid-19th-century-thorburn-1832>, [accessed 20 April 2012].

nineteenth century reflects a decline in the private cultivation of medicinal plants.²⁰⁴ This idea is supported by contemporary garden literature.²⁰⁵ According to English gardener Shirley Hibbard in 1877, ‘the herb garden as an institution has ceased to be but it remains for us to say something useful on the herbs that are commonly in request in private households’.²⁰⁶ New Zealand catalogues, however, included medicinal plants until the early twentieth century and there is evidence that settlers remained loyal to the remedies made from these plants. A strong culture of domestic healing and the need to use available resources in isolated settlements arguably supported the continued use and supply of medicinal garden plants.

In 1873, for example, the Martin Brothers of Auckland include in their *Herbs, Roots etc.* section chamomile, fennel, garlic, horseradish, lavender, rue, rosemary and thyme. In their 1891 catalogue, D. Hay and Sons of MontPellier Nursery, Auckland, have a *Herbs and Miscellaneous Root* section in which rue, lavender, thyme, horehound and horseradish appear. In 1893, Dunedin’s George Matthews had an extensive herb section and advertised horehound, hyssop, lavender, rosemary, tansy and wormwood, balm, rue and thyme. In their Spring 1907 catalogue, Howden and Moncrief of Dunedin include a *Sweet and Pot Herbs* section in which anise, balm, chamomile, horehound, hyssop, lavender, pennyroyal, rosemary and rue are listed.²⁰⁷

Plants included in popular nineteenth-century medicines such as foxglove and opium poppy also appear in catalogues under the headings ‘ornamental’ or ‘hedging’. However, given their classification in catalogues and the preparation required to convert these plants to useable form, it is unlikely that home healers

²⁰⁴ ‘*The Seed and Nursery Catalogue in Europe and the U.S.*’, [accessed May 25 2012].

²⁰⁵ S.O. Beeton, *The Book of Garden Management...* (London: S.O. Beeton, c 1850), p 276.

²⁰⁶ Shirley Hibbard, *The Amateurs Kitchen Garden Frame-Ground and Forcing Pit: A Handy Guide to the Formation and management of the Kitchen Garden and the Cultivation of Useful vegetables and Fruits* (London: Groombridge and Sons, 1877).

²⁰⁷ D Hay & Son, Nurserymen : Descriptive Catalogue 1899-1900, With Novelty list. Montpellier Nursery near Parnell, Auckland, New Zealand. 1899, Eph-A-HORTICULTURE-1899-01, Alexander Turnbull Library, Wellington, New Zealand; Ephemera and horticulture sales catalogues issued by New Zealand plant nurseries, 1870-1899]. Eph-A-HORTICULTURE-1870/1899; Messrs Howden and Moncrief’s Catalogue (Otago Witness, 11 July 1889). Alexander Turnbull Library, Wellington, New Zealand. <http://natlib.govt.nz/records/9054854>. [accessed December 21 2013].

grew them for medicinal purposes. Others, such as rue (the leaves of which were used to deter pests and subdue headaches), pennyroyal – an abortifacient and gynaecological herb – chamomile (a sedative and used traditionally in cases of hysteria), and horehound (a pulmonary herb and commonly made into cough pastilles during the nineteenth century) are easily prepared and were unquestionably grown for their medicinal use.²⁰⁸

While evidence suggests that a number of medicinal plants were bought from nurserymen and grown in home gardens, it also indicates that a degree of ‘wild harvesting’ – gathering medicinal plants from the wild – took place in New Zealand during this period. Medicinal plants such as plantain, dandelion and dock frequently appear as ingredients in colonial remedies.²⁰⁹ However, by the nineteenth century, these plants competed with agricultural crops and as such, were considered primarily as weeds by botanists and agriculturists. They had little commercial value and were not cultivated or sold in nurseries. Many of these plants entered the country as extraneous seed amidst imported grains and soon naturalised in various regions in the colony. As botanist G. M. Thomson notes;

English seedsmen are in the habit also of purchasing largely from foreign importers, particularly heavyseeds, as clovers, timothy, rape etc., so that seed brought to this country from any part of Britain is nearly sure to contain a great deal that is not bargained for, even when most carefully selected.²¹⁰

Domestic healers, herbalists and indeed doctors, however, considered the plants to be useful medicaments, translating their botanical classification as weeds into suitable medical applications. For example, dandelion, considered a weed by

²⁰⁸ Maude Grieve, *A Modern Herbal: The Medicinal, Culinary, Cosmetic and Economic Properties, Cultivation and Folklore of Herbs, Grasses, Fungi, Shrubs and Trees with all their Modern Scientific Uses*, 3rd edn (First Published 1931) (London: Tiger Books, 1992); pp. 523, 415; Carol Fisher and Gillian Painter, *Materia Medica of Western Herbs for the Southern Hemisphere* (Privately Published, 1996), pp. 52, 13; Deni Brown, *The Royal Horticultural Society Encyclopedia of Herbs and their Uses: The Definitive A-Z Guide to Herbs* (London: Dorling Kindersley Limited, 2002), pp. 277, 271, 123, 272; James Neil, *The New Zealand Family Herb Doctor: A Guide to Recipes and Herbal Remedies (First published in 1891)* (Twickenham: Tiger Books International, 1998), pp. 92, 121, 94.

²⁰⁹ Murdoch Riley, *Māori Healing and Herbal: New Zealand Ethnobotanical Sourcebook* (Paraparaumu: Viking Sevenses, New Zealand, 1994), pp. 222-5.; Neil, p. 493. See Chapter Three.

²¹⁰ G.M. Thompson, ‘On Some of the Naturalised Plants of Otago’ in *Transactions and Proceedings of the New Zealand Institute* (TPNZI), 7 (1878), p. 371.

botanists, was used by healers to treat headaches and hepatic disorders.²¹¹ It thrived in Banks Peninsula, where according to an *Otago Times* correspondent, settlers gathered the root and sold it on to New Zealand herbalist James Neil.²¹² By 1894, datura, a popular plant for the treatment of pulmonary ailments, was causing concern for the Department of Agriculture due to its aggressive growth in the Rangitikei region.²¹³ Thomson attributes the introduction and naturalisation of hemlock, a plant considered highly toxic and a problem to farmers, to a local herbalist who is condemned by Christchurch botanist John Armstrong, and comments on its widespread distribution in Christchurch.²¹⁴

Conium maculatum, Linn., the hemlock of England, is to be found in considerable quantities in the neighbourhood of Christchurch, where it was sown in the year 1865 by an herbalist, who, unfortunately, cannot be punished for the injury he has done the province by the introduction of this very poisonous plant.²¹⁵

Some plants, such as chamomile and wormwood, were available to settlers from both wild and commercial sources. A number of these plants were from large families with numerous species and by the 1870s were popular medicinal plants. Buying these plants from commercial nurseries assured growers that they were cultivating and later using the correct species. John Armstrong, Christchurch Domain's first curator, noted the naturalisation of chamomile in the Canterbury district in 1871. According to Kirk, by 1880 chamomile had also naturalised in

²¹¹ William Richard Wade, *A Journey in the Northern Island of New Zealand Interspersed with Various Information Relative to the Country and People*, (Hobart: George Rolwegan, 1842), p. 193; John F. Armstrong, '[On the Vegetation of the Neighbourhood of Christchurch, including Riccarton, Dry Bush, etc.](#)', in *TPNZI*, 2 (1869); Thomas Kirk, 'On the Botany of Great barrier Island', in *TPNZI*, 1, 1868.

²¹² *Otago Daily Times (ODT)*, 19 October 1881, p. 2.

²¹³ Colonial Industries Commission, 'Evidence of Mr Thomas Kirk: Economic Plants', *Appendix of the Journals of the House of Representatives (AJHR)*, 1880, H-22, p. 41-45; *The Chemist and Druggist of Australasia (CDA)*, ix, 7 (1894), p. 145.

²¹⁴ G.M Thomson, *The Naturalisation of Animals and Plants in New Zealand* (Cambridge: Cambridge University Press, 1922), p. 414 ; John F. Armstrong, 'On the Naturalized Plants of the Province of Canterbury', *TPNZI*, 4 (1871), pp. 284-290. Hemlock is recommended by James Neil and appears in the 1867 British Pharmacopeia *British Pharmacopeia published under direction of General Council of Medical Education and Registration of the United Kingdom pursuant to the Medical Act 1867 (BP, 1867)* (London: Spotiswood, 1867), pp. 90, 37, 113, 157, 220. Neil, pp. 121, 139.

²¹⁵ Armstrong, 1871, p. 286.

Auckland.²¹⁶ On Rakiura/Stewart Island, close to early whaling stations in the south of the South Island, the introduction of wormwood by Captain William Sherburd (used to treat Māori for consumption and intestinal worms and traditionally used to brew the liquor, absinthe) became local legend, the plant surviving in home gardens until the late twentieth century.²¹⁷ Chamomile was advertised and sold by Auckland nurserymen, while Dunedin nurseryman George Matthews sold wormwood to customers presumably familiar with its applications.²¹⁸

Prior to the 1880s, the commercial cultivation of medicinal plants in New Zealand catered largely to a domestic market. However, a handful of entrepreneurs recognised the potential value in large-scale cultivation of medicinal species to a growing international pharmaceutical industry. In 1875, for example, W. P. Moat organised an opium-growing competition in the Rodney district near Auckland after securing seed from Messrs. Hood, well-known Melbourne manufacturing chemists.²¹⁹ Girling Butcher, in the Waikato, designed a perfume plantation on the estate of John Brookes of Churchill, around 112 kilometres south of Auckland. Besides perfume plants, Butcher planned to grow ‘those for pharmacy’.²²⁰ Newspaper reports from this period encouraged Waikato farmers to grow mustard – used to treat colds, flus and rheumatism – as seeds sold at 14-16 shillings per bushel in England.²²¹

Although Sir George Grey (1812-1898) – Governor of New Zealand from 1845-53 and again in 1861-68 – reportedly encouraged Moat’s opium-growing competition, attempts to commercially cultivate medicinal plants were privately

²¹⁶ Kirk, 1880, p. 32; Armstrong, 1871, p. 284.

²¹⁷ Riley, p. 222. Neil lists this plant as one of the finest anthelmintics in his book *The New Zealand Family Herb Doctor* (1891), a text sold and consulted by healers throughout the colony. Neil, p. 25.

²¹⁸ Ephemera and horticulture sales catalogues issued by New Zealand plant nurseries, 1870-1899]. Eph-A-HORTICULTURE-1870/1899

²¹⁹ According to Moat, Messrs. Hood were the first to introduce opium seed to Australia. *Daily Southern Cross (SDC)*, 18 August, 1875, p. 3.

²²⁰ *CDA*, September, ii, 1887, p. 238.

²²¹ *Waikato Times (WT)*, 12 December 1874, p. 2.

funded and received little support from the New Zealand Government.²²² This began to change in the 1880s, due in part to developments and institutions established by Premier Julius Vogel. In the 1870s, in the wake of years of war between Māori and Europeans, public debt, increasing tension between provincial and central Government, the beginnings of an economic recession, and low levels of immigration, Vogel initiated an expansionist policy. This included an extensive assisted emigration scheme, the purchase of more Māori land and the construction of infrastructure, including railways, telegraph lines, roads and bridges. Aimed at reviving a flagging economy, Vogel borrowed considerable sums of money on the London capital market, and New Zealand's economy underwent a temporary boom. Under Vogel's policy, 'the central Government assumed responsibility for colonisation and development', and attempted to establish a tradition of state involvement in scientific research.²²³ By the 1880s, colonial botanists received increased support and through state-funded institutions such as experimental farms and agricultural colleges, they explored the economic potential of economic plants, including medicinal species. While nurseries continued to supply medicinal plants to home gardeners and healers, the Government placed greater emphasis on agricultural development, including exploring the potential for profit afforded by a growing international pharmaceutical market.

Government Science and Agricultural Alternatives, 1880s -1920s

By 1881, thanks to on-going continued organised emigration, the European population of New Zealand soared to 470,000.²²⁴ The Māori population officially stood at 44, 099.²²⁵ English emigrants continued to be a significant majority of New Zealand's settler population, while the Irish and Scots made up most of the remainder.²²⁶ Agricultural labourers still made up a large proportion of emigrants

²²² King, pp. 228-235; History on-line – British and Irish Emigration, <http://www.nzhistory.net.nz/culture/home-away-from-home/where-to>, [accessed December 19 2012].

²²³ Raewyn Dalziel, 'The Politics of Settlement', in *The Oxford History of New Zealand*, ed. by Geoffrey Rice, 2nd edn (Oxford: Oxford University Press, 1992), pp. 87-112. Quote from p. 103.

²²⁴ King, pp. 210, 231.

²²⁵ Various Authors, 'Census of the Māori Population, *AJHR* (1881), G-03, pp. 1-26.

²²⁶ Wellington and Canterbury settlements were made up largely of English emigrants – a reflection of their New Zealand Company origins. The Irish dominated in Auckland due to the and

and in 1881, around eighty per cent of all colonists professed to be Protestants.²²⁷ As mentioned, the New Zealand Government became increasingly involved in scientific research, encouraging experiments with potentially profitable plants and animals. Scientific institutions and an increasing centralisation of science in New Zealand supported these endeavours.

The Otago Provincial Government had earlier confirmed the advantage of employing scientifically-trained men, taking on a young Scotsman, James Hector, to survey and discover alluvial gold deposits. Hector soon moulded New Zealand's scientific community, creating roles and institutions for himself and many of his fellow Scots.²²⁸ Following a move to Wellington – the new colonial capital – Hector gained Government support and financial backing to resurrect the New Zealand Society. Revived and renamed the New Zealand Institute, under Hector's direction this organisation incorporated several provincial societies, including the Philosophical Institute of Canterbury, the Auckland Institute, the Otago Institute and the Westland Naturalists' and Acclimatisation Society. The consolidation of these societies was consistent with an increasing centralisation of Government encouraged by the abolition of provincial Governments in 1876.²²⁹

also made up a large proportion of the population in the South Islands West Coast Gold fields. Otago and Southland were home to a large number of Scots who were instrumental in establishing Dunedin and Otago settlements. See, 'New Zealand History On-line – British and Irish Emigration', 2012. Jock Phillips and Terry Hearn, *Settlers: New Zealand Immigrants from England, Ireland and Scotland, 1840-1945* (Auckland: Auckland University Press, 2008); Donald Harman Arkenson, *Half a World from Home: Perspectives on the Ireland in New Zealand, 1860-1959* (Wellington: Victoria University Press, 1990); Brad Patterson, Tom, Brooking and Jim McAloon, *Unpacking the Kists: The Scots in New Zealand* (Montreal: McGill-Queens University Press with Otago University Press, 2013); Lydon Fraser and Angela McCarthy (eds) *Far From Home: The English in New Zealand* (Dunedin: Otago University Press, 2012).

²²⁷ Despite this, according to historian John Stenhouse, 'the religious temperature of the Colony seldom rose above lukewarm'. John Stenhouse, 'Darwinism in New Zealand', in *Disseminating Darwinism: The Role of Place, Race, Religion and Gender*, ed. by Ronald L. Numbers and John Stenhouse (Cambridge: Cambridge University Press, 21999), pp. 61-91.

²²⁸ At this time Scotland was producing more scientists than could be locally employed. See, Francis Lucian Reid, 'Promoting Science: New Zealand Institute', in *The Amazing World of James Hector: Explorer, Doctor, Geologist, Botanist, Natural Historian and one of New Zealand's Most Remarkable Figures*, ed. by Simon Nathan and Mary Varnham (Wellington: Awa Press, 2009), pp. 63-73.

²²⁹ Ross Galbreath, *DSIR, Making Science Work for New Zealand: Themes from the History of the Department of Scientific and Industrial Research, 1926-1992* (Wellington: Victoria University Press, 1998), pp. 11-34.

The New Zealand Institute brought provincial scientists together and received just enough funding to produce an annual journal, the *Transactions and Proceedings of the New Zealand Institute* (TPNZI). The journal soon became the most distinguished – and the primary – forum for the publication of scientific research in New Zealand.²³⁰ From its second edition, botany formed a distinct section that regularly included botanical surveys of specific regions as well as anatomical and physiological investigations of localised naturalised plants. Colonial botanist, Thomas Kirk was a regular contributor, presenting detailed sketches, such as *Figure 1:4*, which accompanied his investigations.

Figure 1:4: Botanical illustration by Colonial botanist Thomas Kirk



Source: Thomas Kirk, 'On the Occurrence of Orobanche: A New Genus to the Flora of New Zealand', *Transactions and Proceedings of the New Zealand Institute*, 2, (1869), p. 106, http://rsnz.natlib.govt.nz/volume/rsnz_02/rsnz_02_00_002180.html, [accessed May 28 2014]

²³⁰ Reid, p. 68; James Beattie, 'Natural History, Conservation', p. 19.

Hector's extensive influence and pervasive presence in New Zealand's scientific community was afforded largely by the Colony's place in the British Empire. His life's work is an excellent example of historians David Lambert and Alan Lester's conception of imperial careering – the establishment and maintenance of occupations and positions forged and influenced by imperial motivations and pursuits.²³¹ Thomas Kirk, Hector's contemporary and Government employee in New Zealand during the last half of the nineteenth century, also worked in an imperial context. The associations both men made were controlled, enabled and constructed through imperial networks.²³² Kirk corresponded regularly with British authorities and institutions, particularly Joseph Hooker at Kew, and the numerous positions he held in New Zealand illustrate the opportunities made available by an ever-expanding Empire.²³³

Kirk's work in New Zealand illustrates the influence of changing international and national understandings of nature and industry that became entwined with notions of nationhood and the creation of wealth. According to Livingstone:

Regional cultures have appropriated scientific knowledge differently according to their sense of self-understanding and put it to different uses. The very meaning of a particular scientific theory or text has shifted from one place to another. Indeed scientific inquiry itself has signified different things in different regional environments.²³⁴

In New Zealand, scientific research supported visions of progress, self-sufficiency and nation building, and according to Ross Galbreath, was driven largely by the prospect of economic benefits.²³⁵ New Zealand scientists such as Kirk were employed by newly-established scientific organisations, and work, such as investigations into medicinal plants, was conducted at specialised research stations. This helped to bolster colonial science and reinforced affiliations between colonial and overseas institutions.

²³¹ Lambert and Lester, pp. 1-32.

²³² Lambert and Lester, p. 23.

²³³ Lambert and Lester, p. 22. Lanna Brown, *The Forestry Era of Thomas Kirk, F.L.S.: First Chief Conservator of State Forest, New Zealand* (Wellington: New Zealand Forestry Service, 1968), p. 3.

²³⁴ Livingstone, p. 89.

²³⁵ Galbreath, pp. 11-34.

Arriving in New Zealand from Coventry on 9 February 1863, Kirk wasted no time pursuing his interest in botany, collecting and cataloguing specimens within one month of his arrival.²³⁶ He quickly impressed New Zealand's scientific community with his aptitude and fervour for botanical collecting, mapping and classifying. In 1866, Kirk accepted the role of surveyor and became meteorological observer in 1868. One month later he became Secretary for the Auckland Institute and Curator of the Auckland museum, a post he held for over ten years.²³⁷ In Auckland, Kirk undertook numerous expeditions and began publishing furiously. He visited and made extensive botanical surveys on Great and Little Barrier Islands, and with fellow botanist and trained geologist Frederick Hutton, around the East Coast of Northland, Thames, Waikato, Rotorua and Taupo.²³⁸ As an integral member of New Zealand's scientific community, Kirk contributed to information that converted New Zealand's diverse and dynamic environment into universal terms, placing it into a context of international academic discourse. His knowledge and skills were ideally suited to assess the economic potential of New Zealand's flora and introduced plants.

By the 1870s, Kirk held various posts and positions, including Secretary and Treasurer of the Auckland Acclimatisation Society (1869-73), and botany lecturer at Auckland College and Grammar School; in 1871, he was elected a fellow of the Linnaean Society of London.²³⁹ In 1874, Kirk, his wife and children moved to Wellington, where opportunities equally abounded. Kirk lectured in Natural Sciences at Wellington College, joined the Wellington Philosophical Society in 1874, and became its president in 1889. He also served several terms as Governor of the New Zealand Institute.²⁴⁰ Of the 138 papers Kirk submitted to the

²³⁶ F. Bruce Sampson, *Early New Zealand Botanical Art* (Auckland: Reed Methuen, 1985), pp. 116-117.

²³⁷ John Adam, 'III. The Kirk Years, 1870-1874' in *The Auckland Horticultural Society Newsletter* (date unknown).

²³⁸ Rewa Glenn, *The Botanical Explorers of New Zealand* (Wellington: A.H. & A.W. Reed, 1950), pp. 141-148.

²³⁹ Kirk also lectured in botany at Lincoln College from 1881-1884.

²⁴⁰ During this period, Kirk became acquainted with Premier Julius Vogel who lived close by, and with whom Kirk discussed matters of forestry and conservation. Vogel acknowledged Kirk's input when he passed the first Forestry Act in 1874. After the second Forests Act passed in 1885, Kirk was made Chief Conservator of Forests and formed the Forest and Agricultural Branch of the Lands Department. Kirk's work in this capacity reflects growing ecological concerns regarding conservation of the land, plants and species displacement. Kirk's position as Chief Conservator of

Transactions and Proceedings of the New Zealand Institute, many describe previously unrecorded species or discuss plant distribution and occurrence. Others discuss the suitability of introduced species for agricultural or horticultural application and debate the impact on, and economic potential of, native species. The diverse nature of Kirk's work highlights the number of sites in which scientific research took place during this period and the demands placed upon a relatively small number of Government-funded colonial scientists.²⁴¹ Vogel's policy had initiated increased state-support for science. However, by the 1880s, parliamentarians in response to an economic recession were more concerned with 'practical solutions to immediate problems than in advancing scientific understanding in the hope of future benefit'.²⁴² Experiments with economic plants continued in specialised scientific sites, although support for these and other agricultural developments was often limited and subject to financial constraint.

Indeed, by the early 1880s, funding had been largely withdrawn from botanic gardens, bringing to a halt their propagation and distribution of amenity plants. However, most gardens continued as sites of botanical research and investigation. Medicinal plants were included in lists of 'economic plants' trialled in Wellington, Christchurch and Dunedin. Exploring these lists of plants provides insight into those species most popular during this period, and those that presumably had the potential to contribute to the colonial economy. Botanist, surveyor and artist, John Buchanan compiled a list of medicinal plants 'which might be cultivated in the Botanical Garden – Wellington, if seeds could be got'. This list includes jalap, several varieties of capsicum, datura, henbane, foxglove, lavender, peppermint, thyme, rosemary, horehound, camphor and hops.²⁴³ In Dunedin, in the early 1880s, the government supported trials of soapwort and medicinal rhubarb and in 1882, the Secretary of the Pharmaceutical Society wrote to the Dunedin Domain Board, requesting that space be set aside for medicinal plants in the botanic garden. The Board replied that they were bound to attend to the cultivation of medicinal plants

Forests was short-lived and after three years and a change of Government, Kirk's position was disbanded. Lanna, pp. 5-15

²⁴¹ Galbreath, p. 12.

²⁴² Galbreath, pp. 11-15.

²⁴³ Hocken Library, Dunedin, MS-603/12, John Buchanan, 'List of Medicinal Plants which might be Cultivated in the Botanical Garden –Wellington if Seeds Could be Got'.

and a fair collection was already in the garden. They requested a list of possible plants.²⁴⁴

In November 1881, John Armstrong, curator at Christchurch Domain wrote that a number of economic plants – including ornamental and medicinal species – had already been distributed in the colony. In the same year, Thomas Potts appealed to the Domain Board to pay greater attention to economic plants, including arrowroot, Peruvian bark, liquorice, lavender and opium poppy.²⁴⁵ In 1884, with the help of an unemployed relief gang, Armstrong prepared a plot designed specifically to trial economic plants. That same year he prepared a report entitled ‘Notes on the Economic Plants – Suitable for Cultivation in New Zealand’. This report, published in *The New Zealand Country Journal*, includes the following medicinal plants: mustard, caraway, chicory, and coriander.²⁴⁶

By the late 1880s, still in the midst of an economic recession and in an era where scientific method prevailed, farmers in New Zealand and Australia began to participate in research that linked the trained and untrained, and the state with the individual.²⁴⁷ New Zealand botanists took great interest in Australian endeavours to commercially cultivate medicinal plants, noting growing and processing techniques and the potential market for specific plants. These observations influenced and guided New Zealand endeavours. News and information relating to trials and experiments with medicinal plants appeared in trans-Tasman publications, including *The Chemist and Druggist of Australasia* (CDA), established in 1859.²⁴⁸ This journal and others kept botanists and chemists in both Australia and New Zealand abreast of the developments occurring in each country.

²⁴⁴ Dunlop, p. 48; *Otago Daily Times* (ODT), 10 August 1882, p. 4.

²⁴⁵ John Armstrong, *Canterbury Public Domain Minutes, 1864-1906* #1, p. 126.

²⁴⁶ John Armstrong, ‘Notes on Economic Plants-Suitable for Cultivation in New Zealand’, *The New Zealand Country Journal*, 8, 3, (1884), pp. 259-260.

²⁴⁷ Vaughan Wood and Eric Pawson, ‘Flows of Agricultural Information’, in *Seeds of Empire: The Environmental Transformation of New Zealand* (London: I. B. Taurus, 2011), pp. 139-159.

²⁴⁸ Trans-Tasman scientific associations such as the Australasian Association for the Advancement of Science also encouraged the exchange of botanical information. Established in 1888, this Association, according to historian Roy MacLeod, ‘was to become one of the greatest factors in the spread of knowledge throughout the colonies’ and enhanced communications and co-operation between New Zealand and Australia. Roy MacLeod, ‘From Imperial to National Science’, in *The Commonwealth of Science: ANZAAS and the Scientific Enterprise in Australasia, 1888-1988*, ed. by Roy MacLeod, (Oxford: Oxford University Press, 1988), p. 40.

According to *Chemist and Druggist* correspondent Thomas G. Pearce, by 1895, the number of growers cultivating opium poppies in Bacchus Marsh, Victoria, had risen from seven to twenty-three in the space of a few years.²⁴⁹ Victoria growers supplied a ready-made market in Melbourne and many employed young men from the poorest parts of Melbourne to harvest the opium. The output of opium from the region reached 1,045 pounds in the season of 1894 and one grower alone supplied over 20,000 poppy-heads to a Melbourne firm in 1895.²⁵⁰ In Adelaide, homeopaths were appealing for the cultivation of medicinal plants, particularly poke root, used to treat diphtheria. In 1882 in Gippsland, east of Melbourne in Australia's Victoria State, the cultivation of chicory and arrowroot was trialled by local growers.²⁵¹ In 1890 Paul Kleesattel, a chemist in Gippsland who turned to commercial herb growing, sent the editorial board of the *Chemist and Druggist* a sample of insect powder he had grown after procuring seed with much trouble from Zara, the capital of Dalmatia.²⁵²

Kirk kept abreast of these international developments and trials with medicinal plants and in 1880, presented a report on economic plants to the Commissioners on Local Industries in Wellington. In this he recommends further investigation and possible trials on several medicinal plant species, including the castor oil plant, cinchona, opium poppy, hemlock, foxglove and wormwood, henbane and liquorice. Liquorice, Kirk notes, was already in cultivation in Nelson in the upper regions of New Zealand's South Island, while henbane, belladonna and cinchona grew well in Auckland. In Kirk's opinion, Australian growers grew opium in a very careless manner and he includes directions on both the cultivation of the poppy and harvest of the opium.²⁵³

Most the plants described by Kirk were included in the 1885 *British Pharmacopeia (BP)* which was, by this time, used routinely by New Zealand's

²⁴⁹ CDA, viii,12 (1895), p. 259.

²⁵⁰ CDA, viii,12 (1895), p. 259.

²⁵¹ *North Otago Times*, (NOT), 1 April 1870, p. 3; CDA, July 18 1882.

²⁵² CDA, Jan 1, (1890), p. 8.

²⁵³ Colonial Industries Commission, 'Evidence of Mr Thomas Kirk: Economic Plants', *AJHR*, 1880, H-22, p. 41-45.

doctors and chemists and herbalists.²⁵⁴ Wormwood is omitted from the *BP*, possibly due to its increased notoriety as an important ingredient in absinthe, a liquor that was eventually banned in Britain in 1914. Kirk's report, however, suggests the continued use and popularity of this plant as an anthelmintic in New Zealand, presumably by herbalists or domestic healers as well as doctors. Castor oil is also omitted from the 1885 *BP*, but remained an important domestic herb and is described in the *New Zealand Edition Illustrated Medical Guide* (1903) as an essential item 'which should find a place in every home'.²⁵⁵ Kirk produced a more comprehensive report that same year, in which he gave the origins and potential of forty-two medicinal plants.²⁵⁶ Included in this list, alongside such potential earners as opium, are plants 'adapted for cultivation in cottage-gardens'.²⁵⁷ Following Kirk's guidelines and advice, the Agricultural College of Canterbury opened in 1882 and began trialling economic plants, among them a number of medicinal species.²⁵⁸

Through the 1890s, although investigations into alternative crops and industry continued, state support for these endeavours waivered. According to historians Tom Brooking and Paul Star, doors closed to alternative agricultural developments in New Zealand and 'between 1890 and 1930 the source of New Zealand's economic prosperity narrowed to an almost total dependence on the growth of grass for conversion by cattle and sheep into dairy produce, wool and meat'.²⁵⁹ By 1892, many state-sanctioned agricultural endeavours in New Zealand were organised and managed by the newly-formed Department of Agriculture, established by a newly-appointed practical-minded Liberal Government. Kirk was employed as acting biologist for the Department in 1892, and while experiments with grasses and alternative pastures were a focus, he pursued his interest in

²⁵⁴ *British Pharmacopeia Published Under the Direction of the General Council of Medical Registration and Education of the United Kingdom Pursuant to the Medical Act, 1885* (London: Spottiswoode and Co, 1885) (*BP*, 1885), pp. 415, 427, 417, 418, 422, 337.

²⁵⁵ Philip E. Musket, *New Zealand Edition Illustrated Medical Guide, Vol 1* (Wellington: William Brookes, 1903), pp. 402, 410.

²⁵⁶ Thomas Kirk, 'A Short List of Medicinal Plants which may be Profitably Cultivated in New Zealand', *AJHR* (1880), 6-H, p. 22.

²⁵⁷ Kirk, 'A Short List of Medicinal Plants', p. 44.

²⁵⁸ Author Unknown, 'Agricultural College, Canterbury: Papers relative to', *AJHR* (1882), E-07.

²⁵⁹ Paul Star and Tom Brooking, 'The Farmer, Science and the State in New Zealand', in *Seeds of Empire: The Environmental Transformation of New Zealand*, ed. by Tom Brooking and Eric Pawson (London: I.B. Taurus, 2011), p. 159-178; King, pp. 237-9.

medicinal plants as best he could. Under his direction, the Department engaged individual farmers in trials with economic plants and, by the turn of century increased the rate of experimentation with the opening of experimental stations and farms.²⁶⁰

Kirk was instrumental in establishing plantations and experimental stations, including Momohaki in the Taranaki district on the south west coast of New Zealand's North Island. From its beginning, Momohaki's progress and results from trials were published in the *New Zealand Journal of Agriculture*. In 1898, nurseryman Frank Callender reported briefly on trials at Momohaki on medicinal and perfume plants, mentioning ginger, arrowroot and liquorice, and expressed his intention to grow other medicinal varieties as well as perfumery plants.²⁶¹ A visiting journalist, that same year described the station and noted twenty-six beds of English herbs, grown for their medicinal use.²⁶² No further reports relating to medicinal plants have been found and despite its success and utility, the station ran consistently at a loss, eventually closing in 1925.²⁶³

Kirk's interest in medicinal plants continued, and in 1893 he took up the post of examiner and lecturer of botany for the New Zealand's Pharmaceutical Society.²⁶⁴ He was particularly keen to establish a viable opium industry in New Zealand and worked closely with farmers and horticulturists, recognising the advantage of employing individuals for research. In 1899, he tallied the economic potential of opium cultivation in New Zealand;

Opium to the weight of 3,003 lb valued at 4,723 pounds was imported during the last year and on this £2 per pound duty was paid. About 2,750 lb is used annually. Why should not this money be retained in the Colony? The cultivation and preservation of the crude opium is very simple. Specimen

²⁶⁰ Tom Brooking and Paul Star explore the significant contribution to colonial agriculture made by individual farmers experimenting with grass seeds and pasture mixes between 1890 and 1920. Many shared their findings and investigations at Agricultural and Pastoral Association meetings. Similarly, Kirk engaged farmers in trials with medicinal plants. See Brooking and Star, pp. 159-178.

²⁶¹ 'Report from Momohaki', *Journal of Agriculture*, 27 May (1898), pp. unknown.

²⁶² *Wanganui Herald (WH)*, 30 August 1898, p. 2.

²⁶³ *Taranaki Herald (TH)*, 14 June 1909, p. 2; 'Experimental Work at Momohaki State Farm' *Bee and Poultry Journal*, April, (1887), p. 108; *The New Zealand Farmer*, xix, 6 (1899), pp. 189-90.

²⁶⁴ CDA, x, 9 (1895), p. 190.

packets of seed, with full instructions were sent to suitable localities and reports to hand afford further proof of the suitability of the plant for cultivation in portions of the Colony.²⁶⁵

Kirk distributed opium seed to individuals and local Agricultural Departments in 1899 with instructions on cultivation and harvest and appeals to farmers to record their success or failures. D. Ross of the Waikato Division replied that ‘amongst the seed distributed by head office, the opium poppy grew most luxuriantly and a good deal of seed has been saved’.²⁶⁶

Despite Kirk’s best attempts, extensive experimentation and numerous appeals, it appears that the cultivation of medicinal plants in New Zealand never became a viable commercial industry. The export of medicinal plants from Australia was also never substantive.²⁶⁷ Possibly, the distance from major pharmaceutical manufactures in Britain and America made the export of large quantities of plant material, necessary for the production of drugs, economically unviable. Additionally, New Zealand’s focus on agriculture and pastoral development presumably stifled attempts at alternative industries.

In New Zealand, by the turn of the twentieth century, dairy farming was the dominant agricultural industry, driven by the development of new grasses, fodder crops and inorganic fertilisers, as well as refrigerated export and a guaranteed market in Britain. The Department of Agriculture, which had provided relatively little support to pastoral farming before World War One, increased assistance to farmers as the export value of grass-based products began to rise.²⁶⁸ In 1912, farmer-politician William Massey (1856–1925) gained political power and

²⁶⁵ Thomas Kirk, ‘Report of Biologist T.W. Kirk’, *The Journal of the Department of Agriculture* (Wellington: John Mackay Government Printer, 1899), p. 206.

²⁶⁶ D. Ross, ‘Waikato Division of Agriculture’, *The Journal of the Department of Agriculture* (Wellington: John Mackay Government Printer, 1899), p. 12.

²⁶⁷ In 1889, a correspondent from the brokers, Hett and Field wrote that Australian drugs and other similar goods had low market value in the United Kingdom, although the opium market in Victoria was met by local growers. *CDA*, 14, 2 (1889), p. 43

²⁶⁸ Tom Brooking, Robin Hodge and Vaughan Wood, ‘The Grassland’s Revolution Reconsidered’, in *Environmental Histories of New Zealand*, ed. by Eric Pawson and Tom Brooking (Melbourne: Oxford University Press, 2002), pp. 169-183.

provided further support to the industry.²⁶⁹ By 1920, New Zealand's so-called 'grassland revolution' was in full swing.²⁷⁰ By 1925, farming production made up sixty per cent of total production in the country and ninety-five per cent of all exports. In 1926, following British guidelines and recommendations, the Scientific and Industrial Research Act was passed and a Department (DSIR) and advisory Council formed.²⁷¹ Under the direction of Secretary Dr Ernest Marsden, and with significant financial support from Britain, the Department brought all existing scientific institutions together, developed new institutions and 'sought a more effective and efficient means of matching the resources of science to the needs of economic development'.²⁷² Plant breeding was a primary focus for the Department but trials revolved around agricultural and horticultural plants.²⁷³ Secondary industries, such as drugs from the cultivation of medicinal plants, were largely ignored.

Meanwhile, the potential to profit considerably from the cultivation of medicinal plants continued to rise. Popular medicines, although increasingly inorganic, still contained large amounts of plant material. Compromised trade routes during World War One led to renewed appeals for cultivation in Australia, Britain and New Zealand, and the price of plant material, such as belladonna leaves and root, rose considerably. The prices of chamomile, dill, dandelion, valerian, digitalis, fennel, henbane and stramonium were also expected to rise.²⁷⁴ In England 'materia medica' farms were established at Mitcham, Carshalton, Hitchin, Ampthill, Long Melford, Steppingley, Market Deeping and Wisbech, endeavours that continued throughout the 1920s. While New Zealand farmers and Government concentrated on the conversion of grass into wool, meat and dairy products, and strove to protect its privileged place in the British market, by the late 1920s large firms in Europe grew the majority of medicinal plants that ended

²⁶⁹ Galbreath, pp. 13-14.

²⁷⁰ Eric Pawson and Tom Brooking, 'Introduction', in *Seeds of Empire: The Environmental Transformation of New Zealand*, ed. by Tom Brooking and Eric Pawson (London: I.B. Taurus, 2011), pp. 1-13; King, p. 238.

²⁷¹ Galbreath, pp. 13-33.

²⁷² Galbreath, p. 9.

²⁷³ Galbreath, pp. 34-57.

²⁷⁴ *Evening Post*, (EP) 28 October 1886, p. 3; *Wanganui Chronicle* (WC), 26 October 1886, p. 2.

up in patent and proprietary medicines exported to manufacturing chemists around the world.²⁷⁵

Conclusion

This chapter has explored the origins, introduction, study and cultivation of medicinal plants and medico-botanical knowledge in New Zealand during the nineteenth and early twentieth centuries. It has also identified the major influences and networks that assisted this movement and exchange. From early Greek origins, western botanical research fulfilled a need to record, share and exchange understandings of medicinal plants and their applications. From the time it was transcribed, this information was subject to different interpretations and uses by many cultures. The first section of this chapter discussed some of the major social and cultural influences that affected the development of western herbals – books used by healers discussed in the course of this thesis. The Greek manuscript, *De materia medica* written in c.70 AD, remained a primary source of medico-botanical information for centuries, guiding people from various cultures and subject to numerous translations, interpretations and adaptations.

De materia medica described plants from around the Greek and Roman Empire as well as Asia – plants that eventually entered Europe aided by invasion, trade and colonisation. After several centuries of translation, refinement and debate by mainly Greek and Arab scholars, botanical scholarship was augmented by an age of exploration and trade that revealed a veritable cornucopia of potentially profitable plant species. Imperial powers, keen to accumulate wealth and demonstrate power, supported botanical discovery and investigations. By the sixteenth centuries, universities, physic gardens and royal and aristocratic

²⁷⁵ McAloon, pp. 94-117. For example, the chief collecting center in the world, for monkshood was the Swiss Alps, Salzburg, North Tyrol, Vorarlberg, Japan, and Spain. Belladonna was gathered largely from wild plants growing in Southern Europe while goldenseal was cultivated in America and England. Dried commercial leaves of henbane came largely from Germany and Russia. Author Unknown, 'The Cultivation and Collection of Medicinal Plants in England', *The British Medical Journal*, 2, 2809, (1914), p. 760. Entrepreneurs continued to try their luck. In 1934, an English millionaire outfitted a ship, renamed it Golden Hope, handpicked 60 unemployed men and sent them to South America and the Andean slopes to cultivate ipecucuanha, digitalis, jalap and other drugs for English chemical factories. EP, 19 January, 1934, p. 7.

patronage aided botanical research in European countries, including France, Sweden and England. Botanical research, once made to display and understand God's design, became increasingly empirical, driven by the search for effective medicine, potential profit and successful colonisation.

By the nineteenth century, botany was a recognised discipline with standardised understandings taught in most European universities. Standardisation was largely achieved by classificatory systems such as that devised by the Swedish naturalist Carl von Linné. In Britain, natural history became an increasingly popular subject, extended to 'include the works of man as well as God', and its connection with landed estates and imperial expansion loaned it a degree of social prestige.²⁷⁶ In New Zealand, botany was intrinsically linked to colonial development and progress.

Between 1850 and 1880, the number of European emigrants in New Zealand increased dramatically and the introduction of plants and animals made irrevocable changes to New Zealand's landscape and environment. Nurserymen and botanists played a pivotal role in the introduction and dispersal of plants in the colony while gardeners participated and contributed to a culture which valued plants as both symbols of progress and potential wealth. Lay gardeners bought and grew medicinal plants in home gardens. Additionally, evidence suggests that many medicinal species naturalised easily and quickly in New Zealand.

By the 1880s, economic recession encouraged the New Zealand government to experiment with economic plants, including medicinal species. Government botanist Thomas Kirk was a major force behind attempts to initiate an industry based on the cultivation of medicinal plants. Despite his best efforts, extensive experimentation and renewed appeal for medicinal plants during World War One, this industry was never realised. By the early twentieth century, according to British and American gardening writers, growing medicinal plants in home gardens was also on the decline. In 1907, gardening columnist J. Gebbie noted that it was once every garden that grew its fair share of herbs, medicinal and

²⁷⁶ Pickstone, p. 34.

culinary but now, it is only the few cottage gardens in which they can be found.²⁷⁷ Despite this, New Zealand nurserymen provided a selection of medicinal plants up until the 1920s, suggesting the continued cultivation of these in New Zealand gardens.

While availability largely dictated the use of certain medicinal plants in colonial New Zealand, broader medical theories, trends and opinions also came into play. The following chapter describes the colonial medical culture in which domestic healers, herbalists and doctors investigated, applied and adapted medico-botanical knowledge.

²⁷⁷ *Otago Witness (OW)*, 21 August 1907, p. 10.

Chapter Two

New Zealand's Colonial Medical Culture, 1850s - 1920s

Who administered the anaesthetic we do not know; it was probably Dr Purdie, who had been trained in Scotland, and worked under Dr Simpson; but we do know that Mrs Fenton, wife of the Anglican clergyman, “held the arteries” and acted the part of amateur assistant.¹

This chapter examines the development of a colonial medical culture in New Zealand including the ideas, beliefs, policies and events that directed and influenced the use of medicinal plants by domestic healers, herbalists and doctors. It highlights an eclectic approach to medical care that combined the skills and experiences of different healers, such as Dr Purdie and Mrs Fenton described in the quotation above, who maintained and expressed often disparate views about health and wellness. The influence of British and American medical practices are discussed here and highlight the heterogeneity of medical practices in colonial New Zealand. This chapter also introduces the healers described in the following chapters and explores the contexts in which they worked, as well as the local and international exchange of medical knowledge.

As discussed in the Introduction to this thesis, the transfer of British culture to its colonies has been a prominent theme in New Zealand's medical historiography.²

¹ Robert Valpy Fulton, *Medical Practice in Otago and Southland in the Early Days: A Description of the Manner of Life, Trials, and Difficulties of some of the Pioneer Doctors, of the Places in which, and of the People among whom they Laboured* (Dunedin: Otago Daily Times and Witness Newspapers, 1922), p. 22.

² For example, Pamela Wood's revealing research on nineteenth-century perceptions of dirt and decay demonstrates the transfer of British beliefs and initiatives to New Zealand where they directed and influenced Public Health policy. Pamela Wood, *Dirt: Filth and Decay in a New World Arcadia* (Auckland: Auckland University Press, 2005). See also Catharine Coleborne, 'Health and Illness, 1840s-1990s', in *New Oxford History of New Zealand*, ed. by Giselle Byrnes (Melbourne: Oxford University Press, 2009), pp. 487-511; Derek Dow, *Safeguarding the Public Health: A History of the New Zealand Department of Health* (Wellington: Victoria University Press, 1995); Linda Bryder (ed.), *A Healthy Country: Essays on the Social History of Medicine in New Zealand*

Section One of this chapter explores the introduction of British medical discourse and practices to New Zealand, but argues that Britain was not the only source of colonial medical theory and ideas. French physicians led the way in pharmacological research during the eighteenth and early nineteenth centuries, while medical botany emerged as a distinct and defined modality from America in the early 1800s.³

Medical theories and practices were brought to New Zealand by men and women who applied them with varying degrees of authority, determined by broader social, political and economic processes. Section Two shows how the construct of Victorian gender stereotypes influenced medico-botanical knowledge. Later, Chapter Three, furthers this discussion by focusing on gender, domestic healers and their use and interpretation of medicinal plants.⁴ Historian Judith Raftery reveals how popular medical theories and discourse informed domestic medical practices while domestic care in turn was crucial to the viability of so-called ‘irregular’ and ‘unorthodox’ modalities.⁵ In a similar vein, this section explores the influence of prominent medical discourse in the home. It argues that New Zealand women, with the assistance and support of many men, became increasingly organised in their provision of informal health care during the late nineteenth century.

Throughout the nineteenth century, herbalists, like doctors, made concerted efforts to organise and define their practice, and gain public respect and state approval. American and British herbalists, otherwise known as medical botanists, defined

(Wellington: Bridget Williams Books Limited, 1991); Linda Bryder, ‘Two Hundred Years of Public Health in Australia and New Zealand’, in *The History of Public Health and the Modern State*, ed. by Dorothy Porter (Amsterdam: Editions Rodopi, B.V., 1994), pp. 313-335.

³ Roy Porter, *The Greatest Benefit to Mankind: A Medical History of Humanity from Antiquity to the Present* (London: Harper Collins Publisher, 1999), pp. 306-320; P. S. Brown, ‘Herbalists and Medical Botanists in Nineteenth-Century Britain’, *Medical History*, 26 (1982), pp. 405-420.

⁴ New Zealand historians who use gender as a category of historical analysis include, Raewyn Dalziel, ‘Colonial Helpmeet’, in *Women in History: Essays on European Women in New Zealand*, ed. by Barbara Brookes, Charlotte Macdonald and Margaret Tennant (Wellington: Allen and Unwin Limited, 1986), pp. 55-69; Claire Toynbee, *Her Work and His: Family, Kin and Community in New Zealand 1900-1930* (Wellington: Victoria University Press, 1995).

⁵ Judith Raftery, ‘Keeping Healthy in Nineteenth-Century Australia’, *Health and History*, 1, 4 (1999), pp. 274-298; Richard Travers, *Domestic Medicine, with Special Reference to Australia* (Sydney: The Royal Australian College of Physicians, 1990), p. 8. Jennifer Hagger, *Australian Colonial Medicine* (Adelaide: Rigby, 1979).

themselves through their association with a labouring class and their aversion to inorganic medicines. This chapter describes how herbalism came to be defined as a distinct medical practice and examines the rise of medical botanical movements in Britain and America as well as their introduction to New Zealand during the late nineteenth century. It introduces James Neil, Dunedin's foremost herbalist in the 1890s, who is discussed further in Chapter Four. Medical botanists retained the tradition from which pharmacology developed. This chapter examines the origins and promotion of this practice as well as the motivations of its practitioners.

New Zealand's early physicians arrived with similar understandings and approaches to health and disease due to the standardisation and regulation of medical education in Britain and Europe during the early nineteenth century. Colonial doctors prided themselves on their knowledge of the latest medical techniques and developments. Additionally, many fostered ingenuity and an inclination to experiment with medicinal plants. Section three of this chapter looks at the eclectic approach to medical care applied by many of New Zealand's early doctors. It discusses the professionalization of medicine and the subsequent definition of orthodox and unorthodox medical practices, and explores medical education in New Zealand; in particular the influence of the Scottish medical curriculum which included botany, the natural sciences and *materia medica*.⁶

Healthy Land, Healthy People?

The nineteenth century was a period of immense social and political change. Revolutions on both sides of the Atlantic, and industrial and technological innovations – including steam engines, printing presses and later electricity – transformed many parts of the world. The Napoleonic Wars engaged Europe and perpetuated the insurgency that accompanied the French Revolution. Britain rose to the height of maritime and global power, ruling over colonies, dominions, territories, protectorates and mandates conquered and gained during the previous

⁶ James Beattie, 'Natural History, Conservation and Scottish-trained Doctors in New Zealand, 1790-1920', *Immigrants and Minorities*, 29, 2 (2010), pp. 281-307.

age of discovery. European nations struggled to apply the Enlightenment ideals of reason and rationality while they managed the effects of industrialisation that encouraged urbanisation and an unprecedented rise in the Anglo population.⁷

Disease and poverty thrived in this new urbanised and industrial environment and prompted an era of immense medical reform, organisation and development. The anatomical and physiological experimentation conducted in Europe during the eighteenth century changed the way people viewed health and disease and helped to shape the doctor-patient relationship. The ‘medical gaze’, initiated by French physicians, and described by Michel Foucault in *Birth of the Clinic*, reduced the patient to a complex, compliant system of recordable events made possible by medical inventions such as the stethoscope.⁸ In the nineteenth century, doctors turned this gaze onto society. In Britain, public health services were provided in an attempt to mitigate the spread of disease, relieve the burden on the Poor Law purse, and maintain the health of the British workforce. The introduction of Public Health policy marked the beginning of a long and complex relationship between medicine and the state.⁹

Britain’s public health services were based chiefly on the recommendations of the Poor Law Secretary, Edwin Chadwick, who identified the source of disease in London as a miasma that arose from organic waste and decay.¹⁰ Miasmatic theory was a scientific hypothesis based on long-standing associations between people’s

⁷ Porter, 1999; James Belich, *Replenishing The Earth: The Settler Revolution and the Rise of the Anglo-world, 1783-1939* (Oxford, New York: Oxford University Press, 2009); James Belich, *Making Peoples. A History of New Zealanders From Polynesian Settlement to the End of the Nineteenth Century* (Auckland: The Penguin Press, 1996); Tony Simpson, *The Immigrants: The Great Migration from Britian to New Zealand, 1830-1890* (Auckland: Godwit Publishing, 1997).

⁸ Michel Foucault, *The Birth of the Clinic: An Archaeology of Medical Perception* (Translated by Alan Sheridan) (France: Presses Universitaires de France, 1963). The stethoscope was invented by René Théophile Hyacinthe Laennec (1781-1826) who first described it in his treatise, *Traité de L’auscultation mediate* (1819). See Porter, ‘Greatest Benefit to Mankind’, p. 309.

⁹ Medical Guilds and Associations had been formed from as early as the sixteenth century in Britain under Royal charter. However, it was not until the 1830s that health care became a State concern. See Porter, 1999; Deborah Lupton, *Medicine as Culture* (London: Sage Publications, 1994), p. 30-32.

¹⁰ Sylvia Tesh, *Hidden Arguments: Political Ideology and Disease Prevention Policy* (New Brunswick: Rutgers University Press, 1988), pp. 25-32; Peter Thorsheim, *Inventing Pollution: Coal, Smoke and Culture in Britain since 1800* (Athens: Ohio University Press, 2006), p. 12; Peter Baldwin, *Contagion & the State in Europe, 1830-1930* (Port Chester: Cambridge University Press, 1999).

health and their immediate environment that was used by colonisers during the nineteenth century to promote New Zealand as a land free from disease.¹¹ Hippocrates had explored links between climate and health and the use of medicinal plants recorded in ancient pharmacopeia and biblical scripture and cemented nature's role in maintaining health and mitigating disease. While pathogenic germ theory gained currency in crude medical laboratories, an environmental approach to medical practice and disease prevention gained public support and initiated the sanitary revolution of the nineteenth century.¹² These developments, and others, directed early emigration policies and medical practices in colonial New Zealand.

Disease, poverty, widespread unemployment and overcrowding 'pushed' an estimated fifty million people from the British Isles during the late eighteenth and early nineteenth centuries.¹³ Colonising propaganda promised opportunity, health, wealth and prosperity, 'pulling' emigrants to foreign shores and remote lands. In 1858 the *New Zealand Emigrants' Bradshaw* urged Britons to hurry to New Zealand, where the 'toiling tenant farmer, the competition stricken tradesman, the drudging clerk, the embarrassed merchant, the struggling professional man in the populous city pent' may 'enjoy rude health and plenty'.¹⁴ The young colony appeared to be the antithesis to disease and was promoted as an inherently healthy land. New Zealand's climate was hailed as particularly suited to the English constitution.¹⁵ British doctors prescribed emigration as a means to cure, and the pursuit of health became a major impetus for emigration to the antipodes.

¹¹ Wilbert M. Gesler, 'Therapeutic Landscapes: Medical Issues in Light of the New Cultural Geography', *Social Science of Medicine*, 34, 7 (1992), pp. 735-746; James Beattie, 'Colonial Geographies of Settlement: Vegetation, Towns, Disease and Well-Being in Aotearoa/New Zealand, 1830s-1930s', *Environment and History*, 14, 4 (2008), pp. 583-610; Tesh, pp. 25-32; Thorsheim, pp. 10-19; Caroline Hannaway, 'Environment and Miasmata', in *Companion Encyclopedia of the History of Medicine* Vol. I, ed. by W. F. Bynum and Roy Porter (London: Routledge, 1993), pp. 292-309.

¹² Tesh, 1988; Wood, 2005.

¹³ Belich, 2009; Michael King, *The Penguin History of New Zealand* (Auckland: Penguin Books, 2003), p. 165; Simpson, 1997.

¹⁴ The European colonisation of New Zealand began in earnest in 1840, supported and encouraged by the British Government who had, after years of trade and enterprise in the Pacific, entered into a formal constitutional relationship with New Zealand, bringing it into that family of nations known as the British Empire. New Zealand's European population increased rapidly from an estimated 2000 in 1839, to around 59,000 by 1858. See, King, p. 165; Simpson, p. 120.

¹⁵ Charles Heaphy, *Residence in New Zealand 1842*, facs edn (*First Published 1842*) (Dunedin: Hocken Library, 1968); H. W. Petre, *An Account of the Settlements of the New Zealand Company*,

Assisted emigrants were reputedly subject to rudimentary health checks before they embarked. However, in reality, emigrant ships proved effective incubators and notorious transporters of disease.¹⁶ Limited space reduced the opportunity to isolate infected persons while an inadequate diet exacerbated illness, creating situations described by author H. B. Morton as loathsome, and a horror.¹⁷ In 1842 the Legislative Council of New Zealand passed a Quarantine Act which provided for quarantine stations and the regulation of harbours.¹⁸ Quarantine, according to Derek Dow, was often the first line of defence against infection in countries subject to large-scale emigration or extensive trade.¹⁹ Frances Maclean suggests that the impetus for this Act was a cholera epidemic in Britain. Local rivalries, financial considerations and developments beyond New Zealand, states Dow, also played a part.²⁰ High rates of disease aboard emigrant ships, a continued concern for Māori – who were suffering from the effects of introduced disease – and the desire to reassure or appraise intending emigrants and encourage European colonisation, I argue, also drove this legislation.

Quarantine was used to assess, isolate and discriminate, and the crude criteria for assisted emigration to New Zealand, as described below, reflect prevailing prejudicial attitudes of the time:²¹

Emigrants, to be eligible [for free passage], must be complete men and women. No person who, through accident or otherwise, may have lost any member, such as an eye, a leg, a finger etc., is eligible, nor is anyone, defective intellectually, or who may have incipient insanity, nor are fatuous persons, granted free passage. Those who are eligible must be of good personal appearance,

from Personal Observation during a Residence there (London: Smith, Elder and Co, 1842); Unknown Author, *All about New Zealand: Being a Complete Record of Colonial Life*, facs edn, (Christchurch; Kiwi Publishers, 1996).

¹⁶ Smallpox, cholera and influenza were common aboard emigrant ship and up until the late nineteenth century people with pulmonary conditions were encouraged to New Zealand to for the sake of their health. See F. S. Maclean, *Challenge for Health: A History of Public Health in New Zealand* (Wellington: Government Printer, 1964); Linda Bryder, "'A Health Resort for Consumptives': Tuberculosis and Immigration to New Zealand, 1880 – 1914", *Medical History*, 40 (1996), pp. 453-471.

¹⁷ H. B Morton, *Recollections of Early New Zealand* (Auckland: Whitcombe and Tombs Limited, 1925), p. 13.

¹⁸ Maclean, pp. 34-59; Dow, 1995.

¹⁹ Dow, 'Safeguarding the Public Health', p. 21.

²⁰ Maclean, p. 34.

²¹ Tesh, pp. 11-21.

active, intelligent, practical labourers, able to play their part in the game of life, and to hold their own in their respective callings against all comers; they must also be persons of good moral character, sober, honest and steady ... In short, the Government want to plant this land with a people physically and morally superior ...²²

In 1874, colonial physician Andrew Newman claimed that, ‘had it been possible to maintain a rigorous and perfect system of quarantine, these isles might have been kept for ever free from typhoid, measles, and other zymotic diseases’.²³ This was not the case, however, and by the 1860s, the implications of promoting New Zealand as a ‘floating sanatorium’ became apparent.

European births and deaths in New Zealand were recorded in ‘Blue Books’ from 1848 onwards. Regional hospitals, following their inception in 1848, published medical records in colonial newspapers.²⁴ Surgeon-Major Arthur Thomson was among the first to produce a national analysis of health, releasing the results of a comprehensive study on the health of British troops in the 1850s.²⁵ Thomson was interested in the effects of climate on health, and after conducting comparative analyses of soldiers stationed at various colonial outposts, maintained that New Zealand’s climate was particularly suited to the British constitution. Although the climate remained conducive to health, the filth and decay – confirmed by Chadwick as the cause of disease in Britain – soon affected emigrants in New Zealand’s larger settlements.²⁶

²² Unknown Author, p. 11.

²³ Andrew Newman and F. W. Frankland, ‘Is New Zealand a Healthy Country? An Enquiry with Statistics’, *Transactions and Proceedings of the Royal Society of New Zealand (TPNZI)*, 15 (1882), pp. 493-510.

²⁴ Reports appeared in the *New Zealand Spectator and Cook's Strait Guardian (NZSCSG)*, 5 February 1848, p. 3; *NZSCSG*, 8 December 1849, p. 2; *Wellington Independent (WI)*, 8 April 1854, p. 1.

²⁵ James Beattie, *Empire and Environmental Anxiety: Health, Science, Art and Conservation in South Asia and Australasia, 1800-1920* (Basingstoke: Palgrave Macmillan, 2011), pp. 57-59; Laurie Gluckman, *Touching On Deaths: A Medical History of Early Auckland Based on the First 384 Inquest* (Auckland: Doppleganger, an imprint of Southern Publishers Group, 2000), pp. 32-34; Dr Weeks, the first resident doctor in Taranaki, collected etiological information, from April to October, 1841 and made a regional analysis. See W. H. Skinner, *Pioneer Medical Men of Taranaki 1834 to 1880* (Christchurch: Caper Press, 1984).

²⁶ Wood, 2005; Mclean, 1964.

Dunedin's Coroner, Dr Thomas Hocken, reported the town's death rate in 1864 as approximately equal to that of Manchester, a densely populated, highly industrial town. Representatives from the Dunedin Sanitation Commission confirmed that febrile deaths during 1863 and 1864 were two and half times higher than in the worst areas of London.²⁷ Infectious diseases such as scarlet fever and cholera spread rapidly, leaving settlers vulnerable and susceptible to subsequent strains. In 1864, scarlet fever ravaged the colonial population already compromised by diarrhoea, dysentery and typhoid fever. In the 1860s, scarlet fever killed more people per capita than the influenza pandemic of 1918. Typhoid fever appeared as an epidemic in 1860 and ranked close to pulmonary tuberculosis in the 1870s as a major cause of death.²⁸

The need for medical care in New Zealand during this period was met by a diverse group of practitioners and lay healers who applied an eclectic approach to medical care. Chemists and druggists in New Zealand played a vital role in this process, providing the raw and compound drugs to domestic healers, herbalists and doctors, and facilitating the flow and exchange of information and medicine. As unofficial 'go-betweens', chemists, druggists or apothecaries maintained a position in society established centuries earlier. Since the fourteenth century, apothecaries had been mixing, prescribing and dispensing plant-based medicines. They were instrumental in establishing the Chelsea Physic Garden in London in 1673, a garden designed specifically to showcase and trial medicinal plants from around the world.²⁹ Their role as providers of plant-based medicines was encouraged

²⁷ Dow, *'Safeguarding the Public Health'*, p. 20.

²⁸ Maclean, 1964, pp. 334-345, 246-282.

²⁹ The Apothecaries Act, (1815) was conceived and encouraged by the Royal College of Physicians, who, since 1518 had sought to suppress competition and control the medical market. Apothecaries occupied a prominent and respected role in England, having proved themselves during the Great Plague of London, and the Act served the interest of both parties. Doctors were concerned by apothecaries encroaching on their territory by consulting as well as earning increasing large profits from the sale of drugs. Apothecaries, in turn were troubled with the growing number of druggists and chemists entering the market. The Apothecaries Act gave power to the Society of Apothecaries to license and set standards and criteria for registration. Apothecaries were obliged from this point on to make up medicines prescribed by doctors while doctors were required to obtain the Licentiate of the Society of Apothecaries (LSA) if they wished to dispense medicine as part of their practice. As a consequence most nineteenth century physicians held dual degrees. W. S. Copeman, *The Worshipful Society of Apothecaries of London: A History, 1617-1967* (Oxford: Pergamon Press, 1967), pp. 37-43; Charles Lawall, *Four Thousand Years of Pharmacy: An Outline History of Pharmacy and the Allied Sciences* (Philadelphia: J. B. Lippincott, 1927), pp. 352-437; Rex Wright-St. Clair, *A History of General Practice and of the Royal*

during the eighteenth century, as urbanisation restricted opportunities to grow or gather plants from the wild and as new species enticed and intrigued an increasing number of medical practitioners. Healing became increasingly medication-centred, and doctors recognised the advantage of having a product as well as knowledge for which they could charge.³⁰

By the nineteenth century, as pharmacology emerged as a distinct discipline in medical and scientific circles, pharmacy and chemistry added another level of assessment and framework for understanding medicinal plants, further encouraging the proliferation of medicines. Early analyses were most successfully undertaken in France. Professor of Anatomy Francois Magendie isolated the constituent strychnine and, together with Pierre Joseph Pelletier, performed experiments with popular emetics. Pelletier went on to refine other constituents including caffeine, nicotine, cinchonine, quinine and atropine. In 1803 and 1804, morphine was extracted from raw opium by French pharmacists C. L. Derosne and Armand Seguin.³¹ This discovery is also attributed to Sertürner, a German pharmacy student who used chemical methods to isolate the active constituent.³²

The elevation and definition of pharmacy as an occupation was encouraged by the increased standardisation and commercialisation of medicines and began in earnest in Britain in 1841 with the formation of the Pharmaceutical Society of Great Britain.³³ The Society's Charter was presented in 1843 and specified its objectives and goals, which included the advancement of chemistry and pharmacology and the protection of Society members. Through the first Pharmacy Act (1852), the Society was granted powers to conduct examinations, present qualifications and establish registration, which became compulsory by 1868. The

New Zealand College of General Practitioners (Wellington: The Royal New Zealand College of General Practitioners, 1989), p. 3; Laurie Gluckman, *Tangiwhai: A Medical History of New Zealand Prior to 1860* (Christchurch: Whitcoulls Limited, 1976), p. 50.

³⁰ Porter, 'Greatest Benefit to Mankind', p. 268; Roy Porter, 'Before the Fringe, 'Quackery' and the 18th-Century Medical Market', in *Studies in the History of Alternative Medicine*, ed. by Roger Cooter (Houndmills: Palgrave Macmillan, 1988), p. 10.

³¹ Porter, 'Greatest Benefit to Mankind', pp. 333-4.

³² Enrique Raviña (ed.), *The Evolution of Drug Discovery: From Traditional Medicines to Modern Drugs* (Weinham: Verlag GmbH, 2011), p. 11.

³³ Glenn Sonnerdecker and Edward Kremers, *Kremers and Urdang's History of Pharmacy* (United States of America: American Institute for the History of Pharmacy, 1976), pp. 107-118.

Pharmaceutical Journal entered circulation in 1841 and, in 1863, the British Pharmaceutical Conference was conceived and designed to promote research and professional development.

In New Zealand, the practice of pharmacy was not tightly controlled until the Pharmacy Act (1880) became operative in 1881.³⁴ Three years prior, at Radcliffe's Hotel in Christchurch, a group of Canterbury chemists proposed a national association and the amalgamation of several regional societies. In 1879, the first combined meeting of pharmacists occurred; headquarters at Wellington and local committees at Auckland, Christchurch and Dunedin were established. By 1880, the Pharmaceutical Society of New Zealand had 128 members, excluding sixty assistants and twenty-seven apprentices.³⁵ The nomination of the Pharmacy Board and national registration followed the Pharmacy Act (1880).³⁶

New Zealand chemists stocked a large range of goods and kept up-to-date with overseas developments through trade journals and pharmaceutical literature. They provided the raw ingredients to domestic healers and herbalists, stocked a wide range of patent and proprietary medicines, as illustrated in *Figure 2:1*, and maintained a competitive (many consulted as well as dispensed) but complementary relationship with colonial doctors.³⁷ They often gave medical advice while they dispensed and in many ways were part of a medical culture that mimicked Britain's but displayed uniquely colonial characteristics.

³⁴ F. N. Fastier, *Pharmacy Teaching at Otago University: How it Began* (Dunedin: Amidine Publications, 1992), p. 5.

³⁵ Reg Combes, *Pharmacy in New Zealand: Aspects and Reminiscences* (Auckland: Ray Richards for the Pharmaceutical Society of New Zealand, 1981), pp. 20-23.

³⁶ A second Pharmacy Act in 1898 established an apprenticeship system and young pharmacists received much of their training from older chemists who they were bound to for years. A short course was provided by the Pharmacy Board and correspondence guides in libraries and second hand book shops suggest extra mural learning was a popular option. An exam set by the Pharmacy provided entry to the profession. The apprenticeship scheme stayed in place until the 1960s and it was not until 1955 that a pharmacy department was established at Otago University. Michael Belgrave, "Medical Men" and "Lady Doctors" The Making of a New Zealand Profession, 1867-1941, Unpublished PhD. Thesis, Victoria University of Wellington, 1985, p. 289; Louise Shaw, 'From Family Helpmeet to Lady Dispenser: Women Pharmacists 1881-1939', *New Zealand Journal of History*, 32, 1 (1998), pp. 23-42; Combes, p. 23; Murray Frost, *Behind the Dispensing Screen: Early New Zealand Pharmacists* (Hamilton: M.R. Frost, 2004); Edward Leigh, *Memoirs of an Old Chemist: An Autobiography* (Cambridge: Cambridge Independent, 1980); C. H. Farquharson, *An Historical Outline of New Zealand Pharmacy*, (Auckland: Whitcombe and Tombs, 1929).

³⁷ Belgrave, pp. 289-290.

Figure 2:1: Chemist shop of Mr Eccles, a well-known chemist in Napier and Hastings in the 1880s -1890s.



Source: Murray R. Frost, *Behind the Dispensing Screen, Early New Zealand Pharmacists* (Hamilton: M.R. Frost, 2004). Hocken WZ 417 F732, <http://www.otago.ac.nz/library/exhibitions/pharmacy/>, [accessed May 3 2014]

In Britain, despite agitations for medical reform made by practitioners and patients alike, patients remained largely discerning consumers, choosing from a wide range of practices and practitioners. Educated physicians attended to mainly middle-to-upper-class patients who could afford their services, promote their social status and suffer their heroic treatments.³⁸ Paupers were typically attended by untrained Public Health Officers. The majority of people consulted chemists, midwives, bonesetters, folk or faith healers, or relied on domestic medicine and an

³⁸ Heroic medicines refer to the often painful medical procedures that were common during the nineteenth century such as bloodletting, purging, trepanning and blistering. David Dary describes these as treatments the patients had to be more heroic than the physicians to stand. David Dary, *Frontier Medicine: From the Atlantic to the Pacific 1492-1941* (United States of America: Vintage books, Random House, 2009), p. 30.

increasing range of patent and proprietary medicines.³⁹ By the 1880s, New Zealand's medical scene presented similar choices and followed similar trends, although these services were relatively limited. Apart from the altruistic and heroic accounts of frontier and backblock doctors recounted by historians such as Robert Fulton, many of New Zealand's earliest educated medical men followed in the footsteps of their British counterparts, attending colonial officials and moving in political circles.⁴⁰ Chemists settled predominantly in larger towns, as did herbalists.⁴¹ New Zealand's earliest settlers were advised by colonial administrators to nurture ingenuity and self-reliance, guidance that extended to health and wellness and encouraged the widespread practice of domestic medicine.⁴²

Colonial handbooks and guides encouraged emigrants to learn simple first aid, travel with medicine chests and obtain handbooks on domestic medicine. For example, as late as 1897, *Brett's Colonists' Guide* suggests learning how to bleed, set a broken limb and bind wounds.⁴³ Medical manuals and handbooks became essential and valuable commodities up until the 1920s. This reflected the nature of colonisation in New Zealand, which often took place in remote rural locations. Domestic medical care became a vital and important part of colonial life and remained so for some time as the following section shows.

Domestic Healers in Colonial New Zealand

Women played a significant and important role as domestic healers in colonial New Zealand. Many were employed as domestic servants, which was a feminised occupation in New Zealand throughout the nineteenth century. Indeed, from 1840 until 1890 it was the largest and most important form of employment in the colony. In 1881, fifty-five per cent of the 24,826 women employed in New

³⁹ Porter, 1999; Beatrice and Sydney Webb, *The State and the Doctor* (London: Kessinger Publishing, 1910).

⁴⁰ Fulton, 1921; Belgrave, 1985.

⁴¹ Simpson, p. 44.

⁴² Colin Simkin and Bruce Hardie, *Statistics of New Zealand for the Crown Colony Period 1840-1852*. (Auckland: Dept. of Economics, Auckland University College, 1954).

⁴³ Thomas Wilson Leys, (ed.), *Brett's Colonists' Guide and Cyclopaedia of Useful Knowledge: Being a Compendium of Information by Practical Colonists upon...* (Auckland: H. Brett, 1897).

Zealand worked as domestic servants.⁴⁴ Domestic healers (as noted in Chapter Three), used medicinal plants with which they were familiar – species introduced from their homelands – while they experimented with native plants growing in their immediate environment. Experiments with native species demonstrate the exchange and adaptation of medico-botanical knowledge in the colony as well as the acceptance of women as botanical investigators, and link both formal and informal worlds of botany and gardening with domesticity and health care.

Nineteenth-century gender ideologies and expectations directed how and where domestic healers collected, constructed, exchanged and applied their skills and knowledge of plants.⁴⁵ Gender stereotypes and ideologies were constructed and perpetuated over time through political and economic processes and in secular and religious literature, further explored in Chapter Three.⁴⁶ Additionally, by the nineteenth century, medical handbooks such as the *Ladies' Handbook of Home Treatment* (1895) and Kellogg's *Ladies' Guide in Health and Disease* (1895) added a biological explanation and scientific justification that encouraged the medicalisation of women's lives.⁴⁷

The advent of gynaecology during this period prescribed a biological uniqueness to women and supported the assumption that women were unfit to pursue an academic or professional career. While many doctors claimed that rigorous intellectual study would undermine the health of women's reproductive organs, most agreed that women were entirely suited to the role of nurse.⁴⁸ Illustrations in

⁴⁴ Charlotte Macdonald, 'The Eclipse of Domestic Service in New Zealand Homes c.1830s-1940s', in *At Home in New Zealand: History, Houses, People*, ed. by Barbara Brookes (Wellington: Bridget Williams Books, 2000), p. 52.

⁴⁵ Elaine Leong and Sarah Pennell, 'Recipe Collections and the Currency of Medical Knowledge in the Early Modern 'Medical Marketplace'', in *Medicine and the Market in England and its Colonies, c. 1450-c. 1850*, ed. by Mark S. R. Jenner and Patrick Wallis (Houndmills: Palgrave Macmillan, 2007), pp. 133-153; Coleborne, pp. 487-511; Raftery, pp. 274-298; Hagger, 1979.

⁴⁶ Dalziel, pp. 55-69. In New Zealand, colonial women were considered ultimately responsible for preserving the moral fibre of society. By creating a haven of peace and tranquillity in their home and an environment of pure and gracious sanctity, they were seen to be nurturing their position in society which would always be inferior to the men. Mary Wilson Carpenter, *Health, Medicine and Society in Victorian England. Victorian Life and Time Series* (Santa Barbara: Library of Congress Cataloging-in-Publication Data, 2010), p. 149.

⁴⁷ E. S. Richards, *Ladies' Handbook of Home Treatment* (Warbuton, Victoria: Signs Publishing Company, 1939); J. H Kellogg, *Ladies' Guide in Health and Disease* (London: International Tract Society, Limited, 1895).

⁴⁸ Carpenter, p. 150.

domestic manuals, such as *Figure 1:2*, emphasis this stereotype. Nursing was deemed a natural extension of women's roles as mothers and nurturers, and New Zealand men and women supported and adopted these perceptions to varying degrees.

Figure 2:2: Illustration of the gendering of the role of nurse and patient



The popular belief that women's reproductive organs made them unstable and subject to hysteria was transported to the colony by emigrants and in the pages of medical texts. These works assigned whole chapters to the 'peculiarities' of women.⁴⁹ Initially, New Zealand's hospitals were ill-equipped to deal with such peculiarities. Dr Fitzgerald, Superintendent at Wellington Hospital, appealed in 1848 for more space for women and children. The Hospital as it stands, wrote Fitzgerald, cannot adequately accommodate more than two women at a time.⁵⁰

Source: Alvin Wood Chase, *Dr Chase's Third, Last and Complete Receipt Book and Household Physician or Practical Knowledge* (Dunedin: Malcolm & Grigg, 1887), p. v

⁴⁹ Kellogg, 1895; A. W. Chase, *Dr Chase's Third, Last and Complete Receipt Book and Household Physician or Practical Knowledge for the People* (Dunedin: Malcolm & Grigg, 1887); Richards, 1939; Carpenter, pp. 149-177.

⁵⁰ *New Zealand Government Gazette* (Province of new Munster) (NZG), 1, 7 (1848), p. 32.

In 1865, Dunedin Hospital had six wards for men and only two for women, although women were allocated a 'higher proportion of air and space'.⁵¹ Midwifery, in particular, was considered a domestic practice and Christchurch Hospital refused to admit any women in an advanced stage of pregnancy.⁵²

New Zealand women responded to their relative exclusion from medical institutions as both patients and practitioners by establishing formal and informal roles as health care providers. They practiced medicine as domestic servants, community figures, trained and untrained nurses, midwives, and from the late nineteenth century, qualified doctors.⁵³ While this thesis focuses specifically on their role in a domestic setting, it is interesting to note the scope and extent to which New Zealand women supported and contributed to colonial medical culture. Private nurses were employed in New Zealand from as early as 1842 – Charles Brown, a Wellington bricklayer, wrote that his wife was employed as a nurse and earning £4 to £5 per month attending on ladies.

As Table 2:1 illustrates, the number of nurses in New Zealand during the 1870s and 1880s exceeded the numbers of doctors in the colony. In 1878, the numbers of doctors increased significantly from 1874 but so had the numbers of nurses which skyrocketed from 259 to 970.⁵⁴ From 1878, 'midwife' was listed as an occupation and 'sick nurses' became a category in 1891. In that same year (1891), nurses

⁵¹ Frances Mulnennan, *Dunedin Hospital: An Account of the Period, 1851-1900*, Unpublished MA Thesis, University of Otago, 1974, p. 50

⁵² F. O. Bennet, *Hospital on the Avon: The History of the Christchurch Hospital, 1862-1962* (Christchurch: North Canterbury Hospital Board, 1962), p. 45.

⁵³ Cathy Ross, *Women with a Mission: Rediscovering Missionary Wives in Early New Zealand* (Auckland: Penguin Books, 2006); Charlotte Macdonald, *A Woman of Good Character* (Wellington: Allen and Unwin New Zealand Limited and Historical Branch, Department of Internal Affairs, 1990); Frances Porter and Charlotte Macdonald (eds), *My Hand Will Write What My Heart Dictates: The Unsettled Lives of Women in Nineteenth-century New Zealand as Revealed to Sisters, Family and Friends* (Auckland: Auckland University Press and Bridget Williams Books, 1996); Barbara Brookes, Charlotte Macdonald and Margaret Tennant (eds), *Women in History 2: Essays on European Women in New Zealand* (Wellington: Bridget Williams Books, 1992).

⁵⁴ Nurses were included in the national census by 1874. They were placed in the Domestic Class, although distinguished in parenthesis from domestic servants and servants of charitable institutions. In 1874, 248 doctors were listed in the census and 259 nurses. By 1878, the number of doctors had increased by to 578 while the number of nurses had risen considerably to 970. The overall population of New Zealand from 1874 to 1878 increased by 37%. *Census of the Colony of New Zealand (CCNZ)*, 1 March, 1874 (Wellington: George Didsbury, Government Printer, 1875), page unknown; *CCNZ*, 3 March, 1878 (Wellington: George Didsbury, Government Printer, 1880), p. 289.

were omitted from the domestic section of the census, and quite possibly those who previously filled this category identified as sick nurses instead. It is difficult to tell whether nurses employed privately, and in early hospitals, were trained in institutions or learned their skills in a domestic situation.⁵⁵ What is clear from this analysis is that in numbers, nurses, sick nurses and midwives surpassed those of doctors during the 1870s and 1880s and that their contribution to the health of the colonial population was significant.⁵⁶

Table 2:1: The relative numbers of doctors, nurses, midwives and sick nurses listed in national censuses, 1874, 1878, 1881, 1886 and 1891

Year	Numbers of medical men/women listed in the national census	Numbers of midwives listed in the national census	Numbers of sick nurses listed in the national census	Numbers of nurses (not domestic servants) listed in the national census
1874	248 (all men)	Not a category	Not a category	259
1878	578 (all men)	126	Not a category	970
1881	317 (all men)	51	Not a category	408
1886	344	59	Not a category	582
1891	362	251	736	Not a category

Source: *Census of the Colony of New Zealand (CCNZ)*, 27 February, 1871; CCNZ, 1 March, 1874, page unknown; CCNZ, 3 March, 1878, p. 289; CCNZ, 3 April, 1881, p. 248; CCNZ, 5 April, 1891, p. 246-7

⁵⁵ Mrs Elizabeth Grace Neill, born in 1846 in Edinburgh, came to New Zealand in the 1890s and in 1895, was made assistant to Dr Macgregor, Inspector-General of Hospitals and Charitable aid. In this role, Neill was instrumental in establishing a national register and training for nurses in New Zealand and advocated for trained nurses only to be employed in public and private hospitals. Supported by Macgregor, she drafted a Bill which was passed in Parliament as The Nurses Registration Act, 1901. Following this Act, 'in all appointments of nurses in hospitals under the control of boards constituted under "the Hospitals and Charitable Institutions Act, 1885" preference of employment in regard to future vacancies shall be given to registered nurses'. Hester Maclean, *Nursing in New Zealand: Histories and Reminiscences* (Wellington: Tolan Printing, 1932); Duncan MacGregor, 'Hospitals and Charitable Institutions of the Colony', *Appendix to the Journals of the House of Representatives (AJHR)* (1901), H-22, pp. 1-49; *Statutes of New Zealand*, 1901, No. 12, An Act to Provide for the Registration of Trained Nurses in New Zealand.

⁵⁶ *Census of the Colony of New Zealand (CCNZ)* 27 February, 1871, page unknown; CCNZ, 1 March 1874, page unknown; CCNZ, 3 March, 1878, p. 289; CCNZ, 3 April, 1881, p. 248; CCNZ, 5 April, 1891, p. 246-7.

Mrs Emma Whitworth was reputedly the first trained midwife in the country although she did not arrive until 1865, by which time a number of European children or those with mixed European-Māori parentage had been born.⁵⁷ Robert Fulton describes the ‘Howdies’, a group of Scottish women who became well-known midwives in the Otago district during the 1860s. Howdie’s, so-called through their habit of addressing patients with ‘how d’ ye fin’ yersel’ the morn?’, applied medical techniques and procedures that often went against the advice of attending physicians. Despite this, they gained the approval and respect of many doctors, who saw no harm in their ministrations and were, according to Fulton, grateful for their assistance.⁵⁸ Additionally, elite women, such as Lady Mary Barker, often found themselves providing medical care to those less fortunate than themselves.⁵⁹ In *Station Amusements in New Zealand* (1873), Lady Barker describes one such occasion:

took some minutes to understand that it was Fenwick, a gigantic Yorkshireman, who had been seized with what Pepper would call the “choleraics,” and who, in spite of having swallowed all the mustard and rum and “pain-killer” left on the premises, grew worse and worse every moment.... I knew quite as little of medicine as my husband did of law, but of course we decided instantly that we ought both to go and see what could be done in any way to relieve either the body or mind of the sufferer.⁶⁰

For centuries, women have applied knowledge accrued through experience, intuition and literature. Much of the early literature available to domestic healers attempted to define the boundaries of domestic health, thereby supporting the role of educated physicians in society. While the scope of medical advice was still relatively wide (including for example, setting broken limbs, and – by the late

⁵⁷ Women’s Division of the New Zealand Farmers’ Union (W.D.N.Z.F.U) (eds), *Brave Days: Pioneer Women of New Zealand* (Dunedin: A. H. & A. W. Reed for the Women’s Division of the New Zealand Farmers’ Union, 1939). According to M. P. K. Sorrenson, no statistics on Maori-European births were kept before 1886, however, evidence suggests intermarriage was common before 1840 and continued beyond that date. M. P. K., Sorrenson, ‘Maori and Pakeha’, in *The Oxford History of New Zealand*, ed. by Geoffrey Rice, 2nd edn (Auckland: Oxford University Press, 1992), p. 143.

⁵⁸ Fulton, pp. 230-31.

⁵⁹ Mary Barker, *Station Amusements in New Zealand* (London: William Hunt and Company, 1873); Charlotte Godley, *Letters from Early New Zealand, 1850-1853* (Christchurch: Whitcombe & Tombs, 1951); Adela Stewart, *My Simple Life in New Zealand* (London: Robert Banks and Son, 1908).

⁶⁰ Barker, p. 263.

nineteenth century – using hypodermic needles), many authors still recommended the presence of a doctor if possible.⁶¹ This is not surprising when we consider that most authors of domestic medical manuals up until the mid-twentieth century were in fact educated male doctors.⁶² Consequently, domestic healers were provided with up-to-date knowledge and ideas, combining these with remedies and more traditional practices transferred from their homelands. The construction of a ‘domestic medical curriculum’ is discussed further in the following chapter.

According to Judith Raftery, in Australia during the 1880s, a tradition of self-care and preventative health fuelled a growing resistance to the medical establishment and, as a consequence, the numbers of so-called irregular practitioners and patent and proprietary medicines increased.⁶³ In New Zealand, I argue, these traditions did not so much fuel a resistance, but encouraged an eclectic approach to health care and the acceptance of medical practices such as herbalism. Evidence suggests that women worked co-operatively with doctors (as the Howdies did in the 1860s), a relationship strengthened in the 1880s by increased numbers of women’s organisations and strong suffrage and temperance movements.⁶⁴ During this period, New Zealand women established formal organisations – often working under the auspices of men – designed to address the ills of society, instil elements of social purity and enforce standards of behaviour they hoped men would meet.⁶⁵ Organisations such as the various branches of the Ladies’ Benevolent Society, the

⁶¹ Richards, 1939; Henry Lyman, Christian Fenger, H. Webster Jones and W. T. Belfield (eds), *The Practical Home Physician and Encyclopaedia of Medicine: A Management of Disease; Giving the History, Cause, Means of Prevention and Symptoms of all Diseases of Men, Women and Children and most Approved methods of Treatment with Plain Instructions for the Care of the Sick, Australasian Edition* (Canada: The World Publishing c. 1880); Edward Foote, *Plain Home Talk: Embracing Medical Common Sense, About the Human System, the Habits of Men and Women, the Causes and Prevention of Disease, Our Sexual Relations and Social Natures, Embracing Medical Common Sense, Applied to Causes, Prevention, and Cure of Chronic Diseases, the Natural Relations of Men and Women to Each Other, Society, Love, Marriage, Parentage Etc.* (New York: Murray Hill Publishers, 1873); William Buchan, *The Special Edition of Domestic Medicine or the Family Physician* (Edinburgh: R. Aitken, 1774).

⁶² For example, Robert John Thornton, lecturer on botany at Guys Hospital in London wrote in 1815, *A New Family Herbal or Popular Account of the Natures and Properties of the Various Plants used in Medicine, Diet and the Arts* (London: Richard Phillips, 1815); Kellogg, 1895; Chase, 1887; Foote, 1873; Lyman, 1880.

⁶³ Rafferty, 1999.

⁶⁴ Dalziel pp. 55-69.

⁶⁵ Ann Else, *Women Together: A History of Women's Organisations in New Zealand: Ngā rōpū wāhine o te motu* (Wellington: Historical Branch Dept. of Internal Affairs: Daphne Brasell Associates Press, 1993), pp. 55-69.

Methodist Ladies' Guild, the Girls' Friendly Society and the New Zealand League of Mothers recognised and addressed the need for medical care for women and children.⁶⁶ They distributed information and promoted self-help and domestic care. Many embraced the personal behaviour theory of disease stemming from the American popular health movement.⁶⁷

At the same time, an increased acceptance of science and the scientific analysis of medicinal plants changed the way domestic healers obtained, processed and used applied plants. Many relied heavily on patent and propriety medicines as manufacturers marketed their medicines to appeal to popular opinions and meet consumer demand. A consumer society encouraged by the expendable incomes of the middle class, the growing sophistication of advertising, and the popularity of patent medicines, all contributed to the commodification of medicinal plants in the late nineteenth century. Taking advantage of this were nineteenth-century herbalists, whose practices focused on the promotion and sale of plant-based medicines. Herbalists, this thesis argues, were important providers of medical care in colonial New Zealand. Investigating their use and interpretation of medicinal plants highlights not only the presence of medical theories and influences from America, but also the exchange and adaptation of these in response to the colonial environment.

Herbalists and Nineteenth-Century Herbalism

Herbal medicine has a history as old as humanity itself. The *Ebers Papyrus*, dating back to 1550 BC, is considered one of the first pharmacopoeias from which hundreds subsequently arose. In China, the earliest reference to medicinal plant use is contained in a document that dates back to around 2697 BC, during the

⁶⁶ Charlotte Macdonald, Merimeri Penfold and Bridget Williams (eds), *The Book of New Zealand Women, Ko Kui Ma Te Kaupapa* (Wellington: Bridget Williams Books, 1991); Brookes, Macdonald, Tennant, 1992; Else, 1993.

⁶⁷ Personal behavior theory of disease has been associated with the personal behaviour theory of disease which rests on the assumption that health is a direct consequence of lifestyle. Personal behaviour theory has been associated with the advent of the middle class in Europe which gave people more time to pursue recreational activities and explore alternatives to social institutions such as medicine and religion. Tesh, p. 21.

reign of the Yellow Emperor, Huangdi.⁶⁸ The first Chinese pharmacopeia, translated as *Shen Nong's Canon on Materia Medica*, is thought to have been written during the first century BC. The origins of Western medical practice, pharmacy and pharmacology have been attributed to the Greeks and Romans and, as discussed in Chapter One, for centuries the study of health and disease was linked to botanical enquiries and investigations.

In the sixteenth century, the dissolution of monasteries brought medical care into the secular realm and from this point on we see the advent of distinct medical practices and a medical pluralism that prevailed in Britain during the eighteenth and nineteenth centuries.⁶⁹ Physic gardens were developed in the sixteenth century alongside hospitals and infirmaries, and the first vernacular herbals appeared.⁷⁰ John Gerard's *The Herball or General Histories of Plantes* (1597) and Nicholas Culpeper's *Complete Herbal* (1653) were among the most popular herbals and appealed to the growing literate public. These manuals rejected theology in favour of reason, challenged the elitism of educated physicians, and maintained that medicine should be a public asset rather than a commercial enterprise. They were designed to impede the commercialisation of medicine and thwart the growing authority of Royal physicians. This view was upheld and perpetuated by others, including John Wesley, who published the *Primitive Physick* in 1747. Wesley, a prominent Methodist Minister, promoted the use of herbal medicines and in doing so, established links between Methodism and herbalism that nineteenth-century herbalists later took advantage of.

⁶⁸ Antoine Al-Achi, *An Introduction to Botanical Medicines: History, Science, Uses and Dangers* (Connecticut: Praeger Publishers, 2008).

⁶⁹ Medical pluralism included various medicaments and approaches to disease. For example, Swiss physician, Philippus Theophrastus Bombastus von Hohenheim, otherwise known as Paracelsus, experimented with inorganic compounds and helped introduced metal salts to medicine. Inorganic medicines remained popular up until the eighteenth century. However, plants continued to form the basis of most drugs and were used and applied by physicians and lay healers with equal aptitude, or, lack thereof. See Catharine Herbert Howell, *Flora Mirabilis: How Plants Have Shaped World Knowledge, Health, Wealth and Beauty* (Washington D.C: National Geographic, 2009); Ravina and Kubinyi, pp. 1-21; Howell, 2009; Nicholas Culpeper, *Pharmacopeia Londinensis or the London Dispensatory, Further Adorned by the Studies and Collections of the Fellows now Living of the Said College*, <https://archive.org/stream/2548018R.nlm.nih.gov/2548018R#page/n3/mode/2up>, [accessed May 11 2014].

⁷⁰ Porter, 'Greatest Benefit to Mankind', p. 198.

By the eighteenth century, a plethora of practitioners provided medical care in Britain and shared little, according to historian Roy Porter, apart from their inefficacy.⁷¹ As educated doctors sought status and control over the medical market, the number of manuals that provided ‘practical physic’ multiplied and the divide between so-called alternative practices such as herbalism and institutional medicine increased.⁷² Many doctors openly criticised certain practices and certain practitioners who they believed deceived the public with ineffective remedies and brought shame to the practice they were struggling to define as a profession. Doctors controlled medical registration through codes of ethics and initiated debates relating to quackery and charlatanism. Some adopted terms such as ‘regular’ or ‘orthodox’ and assigned opposite titles; ‘irregular’ and unorthodox’ to their competition, emphasising their detachment and promoting their authority.⁷³ In response, so-called ‘irregular’ practitioners such as homeopaths, hydrologists and herbalists launched similar campaigns, adopting rigorous philosophies and seeking ways to distinguish and define themselves and their practices.

In the nineteenth century, according to P. S. Brown, herbalism was resurrected in the guise of a new and exciting therapy. During the early nineteenth century, American herbalist Samuel Thomson proposed a seemingly new and novel system of herbal medicine.⁷⁴ This system, like the earlier construct, antagonised the medical establishment and gained enthusiastic public support in the process.⁷⁵ Thomson rejected and condemned the ‘poison’ of modern physicians, criticised

⁷¹ Porter, *Greatest Benefit to Mankind*, pp. 304-396.

⁷² Practical medical manuals published in England included John Archer's *Every Man His Own Doctor* (1671); Alexander George Gordon's, *The Complete English Physician* (1778); George Cheyne's, *The English Malady* (1733) and *The Natural Method of Curing the Diseases of the Body and the Disorders of the Mind* (1742); Charles Hall's, *Medical Family Instructor* (1785); Bernard Lynch's, *Guide to Health* (1744); Lewis Robinson's, *Every Patient His Own Doctor* (1778); Hugh Smith's, *Family Physician* (1760) and William Welwyn's, *Physick for Families* (1681). See Samuel Rogal, ‘Pills for the Poor: John Wesley's Primitive Physick’, *The Yale Journal of Biology and Medicine*, 51 (1978), pp. 81-90.

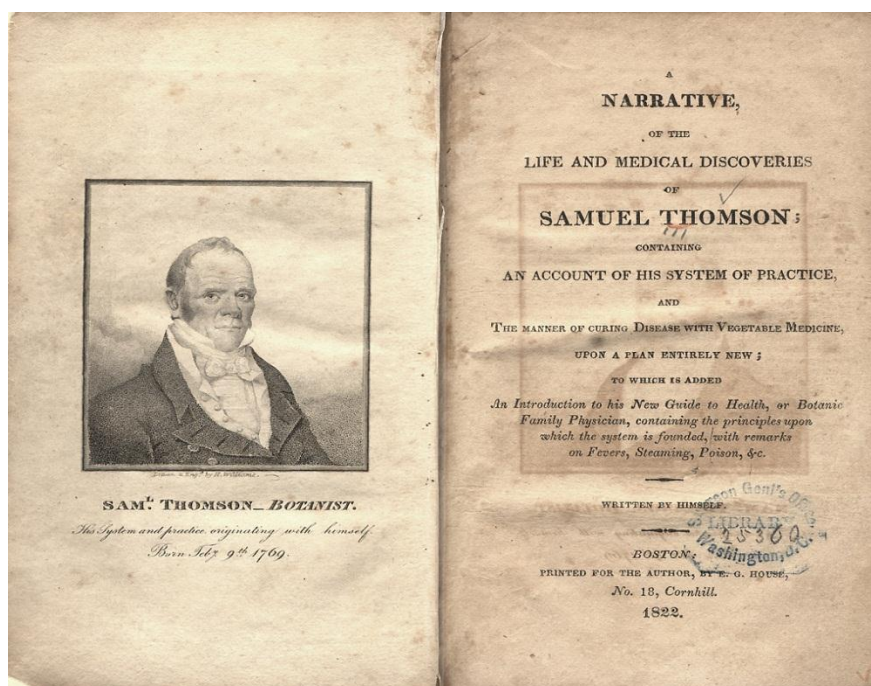
⁷³ Wright-St. Clair, 1985.

⁷⁴ Brown, pp. 405-420.

⁷⁵ Ursula Miley and John Pickstone, ‘Medical Botany around 1850: American Medicine in Industrial Britain’, in *Studies in the History of Alternative Medicine*, ed. by Roger Cooter (New York: St. Martin's Press, 1988). pp. 140-153; William G. Rothstein, ‘The Botanical Movements’, in *Other Healers: Alternative Medicine in America*, ed. by Norman Gevitz (London: John Hopkins Press, 1998), p. 42; Joanne Birch, ‘A Comparative Analysis of Nineteenth Century Pharmacopoeias in the Southern United States: A Case Study Based on the Gideon Lincecum Herbarium’, *Economic Botany*, 63, 4 (2009), pp. 427-440.

the growing elitism and cost of orthodox medical care, and established Friendly Societies, a form of medical assurance that helped with the cost of treatment.⁷⁶ Building on links forged by Wesley, Thomson perpetuated the association between herbal medicine and Methodism, gaining favour with the hundreds of men and women who were guided by the Methodist gospel. As the popularity of Thomson's system increased, Thomsonian infirmaries were established and national conventions were organised.⁷⁷ By the 1830s, the system was making its way across the Atlantic, transferred in the pages of books, such as Thomson's narrative shown below, and by trained herbalists keen to establish trade and business.

Figure 2:3: The inner cover of Samuel Thomson's autobiography



Source: Samuel Thomson, *A Narrative of the Life and Medical Discoveries of Samuel Thomson: Containing an Account of his System of Practice, and the Manner of Curing Disease with Vegetable Medicine...* (Ohio: Howard and Little Publishers, 1829), <https://archive.org/details/2575005R.nlm.nih.gov>, [accessed May 27 2014]

⁷⁶ Rothstein, p. 42; *The Thomsonian Botanical Watchman*, 1, 1 (1834), p. 1. <http://archive.org/stream/thomsonianbotani00alba#page/4/mode/2up>, [accessed October 8 2013].

⁷⁷ Gevitz, p. 46.

In 1830, Albert Isaiah Coffin introduced Thomsonianism into Britain where it became immediately popular in the industrial towns of the North. The system spread rapidly and was popularised and adapted by men such as George Stevens and his brother John Stevens, as well as William Fox and Joseph Nadin.⁷⁸ All were medical botanists and all maintained and perpetuated the growing rift between herbalists and physicians. Thomson and his advocates maligned orthodox medicine in a similar and parallel fashion to the campaign that prevented them from gaining professional status. According to Australian herbalist John Broadbent, the medicaments employed by doctors were ineffective and, at worst, harmful. In his attack on the medical establishment he wrote:

Notwithstanding the darkness, uncertainty, and doubt in which medical science is involved – its incapability of answering the desired object of such a science; if its remedial agents were innocent there would be much less occasion for a reform than there is now.⁷⁹

Medical botanists formed independent societies, including the People's Medico-Botanic Association and the British Thermo-Botanic Society. They appealed for national unity and leaders lobbied for a place on the medical register and consideration in the 1858 Medical Act. The General Medical Council opposed their application and accused them of bad practice and poisoning. Inquests were held, though few convictions were made, and the popularity of medical botanical systems continued to grow.⁸⁰ By 1890, a National Association of Medical Herbalists had formed and continued to push to be included on national medical registers. They were repeatedly denied this request yet their popularity increased. By the late 1840s, tours and meetings were held and independent local societies established. These societies were democratically run. They hosted lectures, collected testimonials, and by 1847, a fortnightly *Botanical Journal* was

⁷⁸ Brown, pp. 405-420.

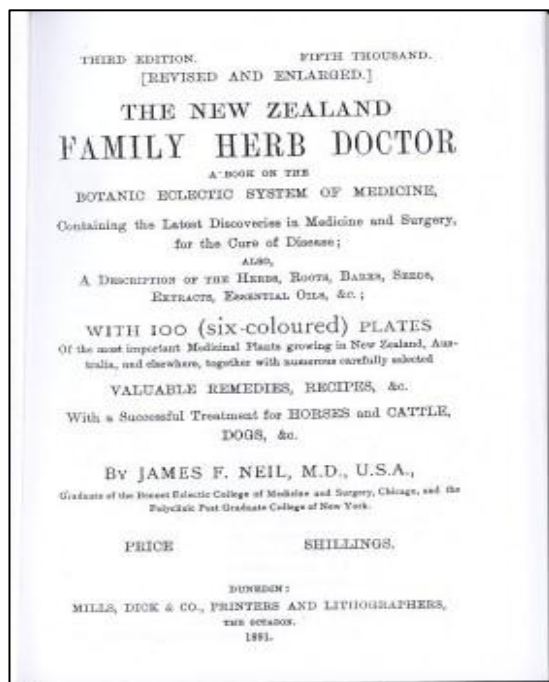
⁷⁹ John Broadbent, *The Australian Botanic Guide, Being a Family Handbook of Botanic Treatment* 2nd edn (Melbourne: Centennial Printing and Publishing, c. 1880), p. 9.

⁸⁰ In 1882, the National Association of Medical Herbalists of Great Britain (NAMH) had an estimated 200 members while, in 1885, the Society of United Medical Herbalists of Great Britain listed 102. In the *Light of Day*, (1891) J. P. Dowling, estimated there to be 800 bona fide herbalists practising in the United Kingdom. See P. S. Brown, 'The Vicissitudes of Herbalism in Late Nineteenth and Early Twentieth Century Britain', *Medical History*, 29 (1985), pp. 71-92. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1139482/pdf/medhist00076-0075.pdf> [accessed February 29 2012].

conceived. The *Journal* predicted a day when medical botany would become the dominant system of care.⁸¹

It is difficult to determine when medical botany as a distinct practice arrived in New Zealand. But by the 1880s, Thomsonianism was well ensconced in Australia and New Zealand, introduced by advocates – such as James Neil – who travelled freely between countries sharing and gathering knowledge on their way. By 1891, Neil was New Zealand’s first self-proclaimed herbalist. He adhered to and promoted Thomson’s system in New Zealand and his most influential work, *The New Zealand Family Herb Doctor* (1891) was distributed widely in the colony. It contains a picturesque portrayal of Samuel Thomson, which includes his persecution by the ‘regular’ medical profession.⁸²

Figure 2:4: The inner cover of Neil’s *Family herb Doctor*, 1891



Neil and his associates were encouraged to practice Thomsonianism during a brief sojourn in Melbourne, Australia, where they stayed with a woman who was an enthusiastic practitioner and advocate.

Source: James Neil, *The New Zealand Family Herb Doctor: A Guide to Recipes and Herbal Remedies* (First Published 1891) (Twickenham: Tiger Books International, 1998)

⁸¹ Miley and Pickstone, p. 149.

⁸² James Neil, *The New Zealand Family Herb Doctor: A Guide to Recipes and Herbal Remedies* (First published in 1891) (Twickenham: Tiger Books International, 1998), p. 18.

In Melbourne, the medical botanical movement was supported and promoted by John Broadbent's 'Botanic Laboratory' and his release in 1889 of *The Australian Botanic Guide: Being a Family Handbook of Botanic Treatment*.⁸³ Neil went on to work with herbalists in Britain before returning to New Zealand in 1872 and establishing a herbal dispensary in Dunedin in 1876.

In Chapter Six, I explore Neil's practice in more detail and discuss the plants applied by Thomson and the adaptation of the system by Neil. I discuss the relationship between herbalists and doctors, men I introduce below who, like Neil, adapted their skills and knowledge to meet colonial demands. Indeed, Neil added to his medical botanical knowledge by attending lectures in medicine at medical universities including Otago, and like many of his fellow colonials, he applied an eclectic approach to medical care. While he promoted Thomson's stance, Neil was diplomatic in his assessment of doctors' practices and resisted maligning the medical profession outwardly. His book includes a list of medicines used by regular practitioners, not 'so much to recommend their use' but to instruct and guide readers as to their properties and application. Some, states Neil, do in fact work in harmony with nature, while others he considers to be poisons. Neil also included a list of native medicinal plants and laments the fact that little attention had been given to these plants and their uses.

⁸³ Broadbent's manual begins predictably with a critical assessment of the medical profession. However, he includes testimonies from eminent doctors who have 'had the magnanimity' to apply Thomson's system and commend its application. A comprehensive and prosaic *materia medica* forms the bulk of this book and a price list for herbs is included by Broadbent who has, like many of his contemporaries abandoned Wesley's doctrine of 'free' health for all.

New Zealand Doctors: Professionalisation, control and role

While it was a wilder country than Britain with a milder climate, it was, at least in the towns, in all ways a piece of Britain, with British culture and civilisation transplanted to the Antipodes.... [doctors] saw themselves as British doctors practicing British medicine in a British Colony.⁸⁴

As expressed in the quote above, New Zealand doctors arrived in the antipodes with the training, beliefs and goals instilled in them in their homelands. Most were British and arrived from an environment in which doctors had been making concerted efforts to control the medical market and increase the status of their practice. For over a century, British physicians, dismayed at the lack of professional standards, low status and inconsistent incomes, agitated for reform and medical control. They formed medical associations, created codes of ethics and lobbied for legislation, regulation and standardisation. In 1832, the Provincial Surgical and Medical Association formed as the platform for reform with the *Lancet*, a weekly medical journal, as its vehicle. Similar Associations were started in America (American Medical Association, 1847), France (Association Générale des Médecins de France, 1858) and Canada (Canadian Medical Association, 1867). After years of politicking and appealing to a somewhat *laissez-faire* British Government, the Association achieved state support and changed its name to the British Medical Association.⁸⁵ In 1858 a Medical Act established a unified medical register and a General Medical Council. The General Medical Council was made up entirely of Association doctors and became an ethico-legal watchdog, supporting the campaign that promoted registered doctors as conventional, progressive and superior.⁸⁶

⁸⁴ Wright-St. Clair, p. 11.

⁸⁵ John Armstrong, *The Common-Health and Beyond: New Zealand Trainee Specialists in International Medical networks, 1945-1975*, Unpublished PhD Thesis, University of Waikato, 2012, pp. 79-80.

⁸⁶ Peter Freund and Meredith McGuire, *Health, Illness and the Social Body* (New Jersey: Prentice Hall, 1999), p. 207; Kevin Dew, *Borderland Practices: Regulating Alternative Therapies in New Zealand* (Dunedin: University of Otago Press, 2003), pp. 9-21; Porter, 'Greatest Benefit to Mankind', p. 354.

British-trained doctors in New Zealand initially established medical policies that followed the British model.⁸⁷ For example, early hospitals in Auckland, Wanganui, New Plymouth and Wellington were designed to meet the medical needs of Māori and only provided care to emigrants who could prove evidence of sufficient pauperism. This mandate mimicked Britain's Poor Law policy and the organisation of medical care during this period.⁸⁸ The ideologies of the British Medical Association were also transferred to the colony and from 1874, the New Zealand censuses divided the medical faculty into regular and irregular practitioners.⁸⁹ However, when we examine the knowledge and practices applied by some of New Zealand's early doctors, this distinction is anything but clear. In New Zealand, particularly during the early period of settlement, 1840-1880, doctors combined practices considered both 'irregular' and 'regular', as the following examples illustrate, confusing the campaign against certain practitioners. This eclectic approach to medical care combined with an emphasis on medical botany encouraged by the Scottish medical curriculum, I argue, supported experimentation with medicinal plants.

Glascow graduate Dr John Patrick Fitzgerald, for example, arrived in New Zealand with the New Zealand Company. He was appointed Colonial Surgeon by Governor Hobson and was made Superintendent at Wellington Hospital when it opened in 1847.⁹⁰ Fitzgerald is considered the originator of the New Zealand Hospital system despite his somewhat unorthodox medical regime that combined the latest medical techniques with treatments that were considered alternative by his British contemporaries.⁹¹ Fitzgerald was reputedly the first to use anaesthesia during an operation on a Māori Chief, Hiangarere in 1847.⁹² Fitzgerald was also

⁸⁷ Armstrong, pp. 95-100; Wright-St Clair, pp. 15-40.

⁸⁸ Armstrong, p. 95; Wilson D. Macdonald, *A Hundred Years of Healing: Wellington Hospital, 1847-1947* (Wellington: A. H Reed & A. W. Reed, 1948); Webb, 1910.

⁸⁹ Simkin and Hardie, 1954.

⁹⁰ Macdonald, 1948. It is difficult to assess the use of medicinal plants in colonial hospitals. Early reports focus primarily on patient numbers and affability. Hospital supplies and import figures provide some clues. However, drugs, or plants based medicines, were rarely included. Hospital supplies for Wellington in 1856 include convalescent foods such as rice, sago, mutton, beef and barley, indicating a strong emphasis on medical regime. *NSCSG*, 9 December 1854, p. 2.

⁹¹ Dow, p. 32.

⁹² Macdonald, p. 19; Gluckman, '*Tangiwai*', p. 63.

an advocate of hydrotherapy, making baths and steams standard treatments at Wellington Hospital.⁹³

Dr William Purdie, another medic who applied seemingly unorthodox treatments, arrived in Dunedin in 1849 with his wife and six children after serving time as a ship's surgeon aboard the New Zealand Company emigrant ship, the *Mooltan*. Purdie had served as an apprentice under Mr Walter Rankin and, like Fitzgerald, had been a student of Glasgow University. Purdie also attended Edinburgh University, where he was taught by leading surgeon, William Mackenzie, and anatomist, James Jeffrey. In Edinburgh, Purdie also worked alongside Dr James Simpson, a pioneer of anaesthesia who achieved recognition through his work in combating a serious outbreak of cholera in Cannongate in 1832.⁹⁴ Purdie was a practicing homeopath and recorded his reticence to use homeopathics aboard the *Mooltan*, suggesting an opposition to this practice by New Zealand Company representatives. Purdie reputedly introduced homeopathy to New Zealand but little was recorded about this aspect of his medical practice, which by all accounts, was extremely successful.⁹⁵

Botany and *materia medica* were important subjects within nineteenth-century British medical curricula, a syllabus most New Zealand doctors were familiar with when they arrived in the colony. In the early-to-mid nineteenth century, medical students throughout Britain could study at one university and choose to sit their exams at another, a situation made possible through the standardisation of the medical curriculum.⁹⁶ Despite this, differences in curriculum and emphasis on subjects did exist. English universities gained a reputation for providing a classical education that prepared physicians to attend to the upper classes of

⁹³ Macdonald, p. 18.

⁹⁴ Fulton, p. 22.

⁹⁵ Homeopathy was the brainchild of German physician, Christian Friedrich Samuel Hahnemann and was introduced to Britain in the 1830s by Dr Frederick Hervey Foster Quin. According to medical historian, Peter Morrell, Quin concentrated on introducing homeopathy to qualified doctors who attended upper-class clientele. Quin established the British Homeopathic Society (1843), a London homeopathic hospital (1850) and the British Journal of Homeopathy (1844). Despite this, homeopathy was excluded from medical registers by the General Medical Council who described it as unscientific and 'alternative'. Peter Morrell, *A History of Homeopathy in Britain*, http://homeoint.org/morrell/articles/pm_brita.htm, [accessed March 7 2012].

⁹⁶ Porter, '*Greatest Benefit to Mankind*', p. 317

English society, while Edinburgh University presented a comprehensive medical curriculum that, by the 1820s, was attracting an estimated 400 hundred students a year.⁹⁷ According to Porter, Edinburgh's appeal resided in the practical aspects of the curriculum, relatively low fees, lack of religious restrictions and use of the English language.⁹⁸

As discussed in Chapter Five, Scottish-trained doctors and Scottish medicine played a prominent role in the development of New Zealand as a young colony, the influence encouraging and supporting investigations into medicinal plants.⁹⁹ In 1871, sixty-three doctors listed on the New Zealand Medical Register had qualified in Scotland, eight-two in England. By 1891, Scottish-trained doctors outnumbered their English counterparts and by 1901, 131 Scottish physicians were registered, compared to ninety-five English. According to Belgrave, this trend continued through to the twentieth century.¹⁰⁰ Scottish-trained doctors regularly occupied official roles in the colony and when Otago Medical School began, they appealed to Edinburgh University for lecturers and Professors.¹⁰¹ Their influence on Otago's medical curriculum is discussed further in Chapter Five.

Evidently, doctors in New Zealand enjoyed a relative freedom to integrate practices deemed irregular by British medical institutions such as the British Medical Association. This freedom, combined with a strong emphasis on botany in medical curricula and the novelty of colonial flora, encouraged experiments with native medicinal plants. Early explorers and visitors to New Zealand had observed and recorded the use of New Zealand's native medicinal plants by Māori, and colonial doctors experimented with these upon their arrival.¹⁰² Dr Crocome,

⁹⁷ Beattie, 2010; John D. Comrie, *History of Scottish Medicine to 1860* (London: Wellcome Historical Medical, 1927), pp. 234- 254.

⁹⁸ Porter, '*Greatest Benefit to Mankind*', p. 291.

⁹⁹ Beattie, 2011; Beattie, 2010.

¹⁰⁰ Belgrave, p. 100; Beattie, '*Empire and Environmental Anxiety*', p. 17.

¹⁰¹ D. W. Carmalt Jones, *Annals of the University of Otago Medical School, 1875-1939* (Wellington: A. H. Reed & A. W. Reed, 1945), p. 52; Dorothy Page, *Anatomy of a Medical School: A History of Medicine at the University of Otago, 1875-2000* (Dunedin: Otago University Press, 2008).

¹⁰² Christina Macdonald, *Medicines of the Māori: From their Trees, Shrubs, and other Plants, Together with Foods from the Same Sources* (Auckland: Collins, 1973); Alan Clark, *The Great Sacred Forest of Tāne, Te Wao Tapu Nui a Tāne: A Natural Pre-history of Aotearoa New Zealand*

the first doctor in the Otago district, used native plants in much the same way as local Māori. Historian Angela Caughey also refers to his medicinal garden in Dunedin.¹⁰³

Dr Francis Alexander Monckton, who we meet again in Chapter Five, experimented at length with medicinal plants and gave instructions on their use in *Hints for the Bush Surgery in New Zealand*, published 1858.¹⁰⁴ Monckton had a particular interest in the antiseptic and curative properties of flax (*Phormium tenax*) and wrote separate articles on the subject.¹⁰⁵ His investigations and other enquiries as well as the networks and processes used to gather, understand and translate indigenous medical information, are explored in more depth in Chapter Five.

In recognition of the need to provide some form of medical training in New Zealand, the Otago Medical School was established in 1875 under the auspices of Otago University, which opened in 1869. The University and the Medical School were closely linked to Scotland and Edinburgh graduates were well represented on staff.¹⁰⁶ Otago's first medical curriculum included chemistry, biology, anatomy, and surgery, and was based largely on Edinburgh's syllabus. Dr John Macdonald taught *materia medica* for the first seventeen years in the 'Edinburgh tradition', teaching students to prepare and prescribe and the course is described by Bell and Hercus as a 'marathon of memory'.¹⁰⁷ By the late nineteenth century, advances in pharmacology, as well as the popularity and proliferation of patent and proprietary

(Auckland: Reed Publishing, 2007); P. Williams, *Te Rongoā Māori: Māori Medicine* (Auckland: Reed Publishing, 1996); S. Brooker, R. Cambie and R. Cooper, *New Zealand Medicinal Plants: A Handbook of the Auckland War Memorial Museum* (Auckland: Unity Press, 1962).

¹⁰³ Fulton, p. 8. Angela Caughey, *Pioneer Families: The Settlers of Nineteenth Century New Zealand* (Auckland: David Bateman, 1994).

¹⁰⁴ Alexander Turnbull Library, Wellington, New Zealand, MS-Papers 429, 'Hints for Bush Surgery, 1858.

¹⁰⁵ Fulton, p. 73; In 1885 the *Australasian Medical Gazette* published an article submitted by Monckton on the virtues and properties of Phormium tenax. *Evening Post (EP)*, 7 February, 1885, p. 2.

¹⁰⁶ The Medical School struggled initially to gain respect and in 1875, delegates were sent to Britain to gain recognition and support from the General Medical Council and establish reciprocity with British Universities and licensing bodies. They achieved only limited success. Sir Charles Hercus and Sir Gordon Bell, *The Otago Medical School under the First Three Deans* (Great Britain: E. & S. Livingstone, 1964), pp. 5-17.

¹⁰⁷ Hercus and Bell, p. 264.

medicines, affected the preparation and application of medicinal plants by New Zealand doctors. Additionally, a number of New Zealand doctors, following in the footsteps of their British contemporaries, were making efforts to encourage and support the professionalisation of medicine.

From as early as the 1850s, New Zealand doctors had organised meetings, and formed associations, seeking cohesion and standardisation of medicine in New Zealand. In 1873 the influential Otago Association was formed in Dunedin by Dr T. M. Hocken who was elected the first president.¹⁰⁸ Under Hocken's leadership, New Zealand's first national Medical Society amalgamated with the powerful British Medical Association in 1876 to form the New Zealand British Medical Association (NZBMA).¹⁰⁹ From its beginnings, the Association drafted Bills and presented these to Parliament, pushing their objectives which were almost identical to the British organisations. They began to define and chastise 'alternative' practitioners, campaigns that culminated in the somewhat ineffective Tohunga Suppression Act (1907), aimed at eliminating traditional Māori medical practice, and the Quackery Prevention Act (1908) which sought to control the sale and distribution of patent and proprietary medicines.¹¹⁰ Association members lobbied for these Acts claiming altruistic motivations.¹¹¹ However, protestors argued that blanket prohibition would cause strife and neglect in areas where access to medical treatment was already limited.

A faith and devotion to herbalists, homeopaths and chemists, the formation of medical lodges (Friendly Societies as they became known) and increasing involvement by the state continued to frustrate and compromise the earning potential of medical men in the colony.¹¹² In Britain and America, reactions to the

¹⁰⁸ Hocken was educated at Durham University as well as Dublin University and was conferred by the Royal College of Surgeons. Hocken quickly took up the post of coroner, produced a lengthy and detailed report for the Sanitary Commission, and held a position as honorable physician and surgeon at Dunedin Hospital. Wright-St Clair, p. 10.

¹⁰⁹ Wright-St. Clair, p. 23

¹¹⁰ Raeburn Lange, *May the People Live: A History of Māori Health Development 1900-1920* (Auckland: Auckland University Press, 1999).

¹¹¹ Wright-St. Clair, pp. 59-67.

¹¹² Members of the Friendly Societies paid an annual fee, to a local or contracted doctor who was then obliged to attend to the member and his or her family free of charge. See Wright-St. Clair, pp. 81-87.

reification of disease and control by the medical fraternity led to discourse on preventative health and support for preventative health and the personal behaviour theory of disease.¹¹³ Therapies such as herbalism and homeopathy gained ground under the guise of preventative health and in New Zealand the number of herbalists and other 'irregular' practitioners increased significantly during the 1890s. Belgrave identifies thirty-three types of 'alternative' medical practices in New Zealand during this time and although their numbers never matched those of educated physicians, their presence continued to antagonise some doctors.¹¹⁴

Herbalists outnumbered any other modality during the 1890s, and while homeopaths presented British physicians with their greatest competition, herbalists enjoyed a significant share of the colonial medical market.¹¹⁵ These numbers reflect the acceptance and popularity of herbalism in New Zealand. This practice, I argue, was as prominent and important as domestic health care and the services provided by registered doctors.

Conclusion

This chapter has set the scene for the following chapters by exploring the response to disease and ill-health from domestic healers, herbalists and doctors. It has provided an overview of British medical culture and theory around the time of New Zealand's colonisation and revealed the prominent theories and beliefs that governed early colonial medical policies and practices. By describing the organisation, practices and goals of domestic healers, herbalists and doctors in New Zealand, it has introduced the reader to the networks, individuals and practices that were integral parts of colonial medical culture and which form the core of discussion in subsequent chapters.

¹¹³ This movement has been associated with the personal behaviour theory of disease which rests on the assumption that health is a direct consequence of lifestyle. Personal behaviour theory has been associated with the advent of the middle class in Europe which gave people more time to pursue recreational activities and explore alternatives to social institutions such as medicine and religion. See Tesh, p. 21.

¹¹⁴ Belgrave, p. 307.

¹¹⁵ In 1881, 3 herbalists were listed in the national census. By 1901 this number leapt to 36. See Belgrave, p. 307.

Prominent nineteenth-century scientific and medical theories such as miasmatic theory dictated early colonial medical policies and practices. Associations made by medical men between specific environments and health led to the assumption that New Zealand was an inherently healthy land. This belief buoyed colonial endeavours and was perpetuated by authorities keen to attract emigrants to the young colony. By the 1860s, however, disease was widespread, brought to New Zealand aboard emigrant ships and encouraged by reports of the country as a ‘floating sanatorium’. Injuries and accidents also impinged on well-being and emigrants were advised in colonial manuals to maintain their own health and learn adequate first-aid. Chemists and druggists supported this system of self-help, providing plant-based drugs, patent and proprietary medicines and the raw ingredients for nostrums, or family remedies. Chemists played a vital role in colonial society forming links between patients and healers, and practitioners and practices.

Domestic healers often provided the first line of defence against disease, attending and treating family and friends, employers and travellers. Evidence suggests that most domestic healers in colonial New Zealand were women and their role as domestic nurses and doctors conformed to Victorian gender-stereotypes. Domestic medical manuals also helped to define and legitimise domestic health and were important guides for New Zealand’s domestic healers. Often written by medical men, they combined up-to-date medical information with procedures many considered outdated, supporting and encouraging an eclectic approach to medical care that characterised New Zealand medical culture during the mid-to-late nineteenth century.

Section Three of this chapter examined the emergence of herbalism as a distinct medical practice in Britain and the motivations to do so – an impetus that similarly drove nineteenth-century herbalists in America, Britain and British colonies. From the sixteenth century, medical men and authors such as Nicholas Culpeper and John Gerard helped to promote a growing divide between medical practices that focused on medicinal plants, and those that continued to use heroic and inorganic treatments. They also discouraged the growing elitism of medicine

and as consequence, herbalism became defined by a resistance to medical institutions and the rejection of inorganic medicaments.

Many physicians encouraged this divide as they competed for patients, disparaged herbalists and attempted to raise the status of medicine in Britain. By the nineteenth century, American herbalist Samuel Thomson resurrected the perspective of earlier herbalists, presenting a seemingly novel system of herbal medicine and placing it in opposition to a regular medical faculty. Herbalist James Neil became a major and prominent advocate of Thomson's demonstrating the influence of both American and British plants and information. This chapter introduced Thompson's herbal system and James Neil, whose practice and interpretation of medicinal plants is the focus of Chapter Four.

While British doctors amplified campaigns against so-called irregular practitioners, New Zealand's earliest physicians enjoyed a freedom afforded by few regulations and practical need to apply an eclectic approach to medical care. Many combined elements of practices deemed irregular by their British counterparts, demonstrating an adaptation of a regular medical education in response to the colonial environment. This chapter gave a brief outline of the organisation of medicine by doctors in colonial New Zealand, including the formation of societies and associations. It emphasised the role of medicinal plants and the inclusion of botany in nineteenth-century medical curricula and touched upon experiments with native medicinal plants, a subject explored in each of the following chapters.

As Chapters Three, Four and Five demonstrate, the plants that domestic healers, herbalists and doctors in New Zealand relied on were much the same. However, how each group used, interpreted or translated these often differed considerably. Broader influences, such as political ambitions or associations between religion and health, often came into play. For domestic healers – the subject of the following chapter – gender largely dictated the places in which domestic healers practiced. However, contrary to popular belief, I argue that herbal medicine was not, historically, 'women's medicine'. Furthermore, domestic healers relied on a large and varied 'domestic medical curriculum' that included medical

receipts/recipes, medical literature, public lectures, newspaper articles, international medical discourse and often extensive experience. This array of information made domestic health fluid and adaptable, necessary characteristics in the colonial environment.

Chapter Three

A ‘Domestic Medical Curriculum’: The Domestic Use of Medicinal Plants in New Zealand, 1850s-1920s

In nineteenth-century New Zealand, domestic healers cared for the sick by applying skills and knowledge obtained through experience, education and demonstration. These sources of information constituted a ‘domestic medical curriculum’, the diversity of which reflects the eclectic nature of the care provided. This chapter describes the people who provided this care and the places in which they practiced, and examines in depth one crucial aspect of domestic health practices central to this thesis: the use of medicinal plants. By locating health care in domestic spaces, and later, in informal and formal health and welfare institutions in New Zealand, this chapter reveals the changing boundaries of ‘domestic medicine’ over time. It argues that, despite attempts to define the limits of domestic medical practices by authors of domestic medical manuals, by the late nineteenth century domestic health practices blurred private and public health parameters. By exploring which plants healers used and how, this chapter reveals the values and influences that directed the use of plants, including personal experience, domestic medical literature, popular medical discourse and pharmaceutical research.

Section One contextualises domestic medical care by exploring New Zealand’s colonial homes and the gendered division of labour. It looks inside New Zealand’s early homes and discusses the significance of colonial gardens and the provision of domestic health care. This section argues that women provided the majority of domestic health care in colonial New Zealand, a role largely determined by Victorian domestic ideology and associations of morality and health. This role

was strengthened during the late nineteenth century, as New Zealand women became increasingly organised and socially active.

Between 1850 and 1880, medicinal plants were an integral part of domestic medical care. Section Two examines some of plant species used by New Zealand's domestic healers and the associated information that directed their use. During this period, emigrants continued to plant species familiar to them, combining shop-bought plant material with introduced plants gathered from the wild. Domestic medical manuals and personal collections of medical receipts guided domestic healers, who recorded their observations and shared their experiences, assessing the value of information by noting their source and the experiences of others. Gradually, healers integrated local resources, experimenting with native medicinal plants and exchanging medical skills and information with Māori.

Finally, Section Three discusses broader social changes that affected the lives of New Zealand women between 1880 and 1920 and their use of medicinal plants, for example, the pervasiveness of patent medicines, and the increasing influence and acceptance of scientific principles. During this period, a proportion of New Zealand women became increasingly organised, campaigning for women's rights and advocating discourse emerging from the American popular health movement. While domestic ideologies remained largely intact, the nature and sphere of women's work extended into a public space, confusing definitions of private and public health. Historian Katharine Allen places domestic health within the sphere of science, consumerism and imperialism, and reveals the close relationship between medicine, science and the collection and use of medical recipes and receipts.¹ In a similar vein, this section suggests that New Zealand women were influential in determining the value and legitimacy of certain medical practices.

¹ Katharine Allen, *England's Domestic Chemists: Science and Consumerism in Eighteenth-Century Recipe Collections*, Unpublished MA Thesis, University of Saskatchewan, 2011.

The Colonial Home Clinic and the Gendered Nature of Domestic Medical Care

For many settlers, home was a dynamic and fragile space that, according to historian Margaret Tennant, was a site of adaptation, compromise and experimentation, both ‘an ideological construct and a site of human interactions of a particularly intense kind’.² Arguably, the most intense interactions involved health and healing. Death occurred frequently in colonial homes and sickness was a regular visitor.³

Constructed by land owners, labourers or local Māori, the first European homes in New Zealand were often rudimentary abodes, such as that depicted in *Figure 3:1*, assembled from a variety of available materials. For example, many of Wellington’s first settlers lived in tents or crude huts erected in haste by the New Zealand Company. Other, more prosperous colonists purchased portable cottages in England and assembled these on arrival.⁴ In the drier regions of Otago, Canterbury, New Plymouth and Nelson, cob homes made from layers of mixed hay, straw and grass with stone-wall foundations were popular. In the heavily forested North, in the vicinity of an active timber industry, wooden houses became the preference.⁵ Made from natural and available products, these homes highlighted the relationship colonists had with their new land, and demonstrated the need and tendency to search and experiment with local resources.

² Margaret Tennant, ‘The Decay of Home Life? The Home in Early Welfare Discourses’, in *At Home in New Zealand: History, Houses, People*, ed. by Barbara Brookes (Wellington: Bridget Williams Books, 2000), p. 24.

³ Francis Porter and Charlotte Macdonald (eds), *My Hand Will Write What My Heart Dictates: The Unsettled Lives of Women in Nineteenth-century New Zealand as Revealed to Sisters, Family and Friends* (Auckland: Auckland University Press and Bridget Williams books, 1996), pp. 451-482.

⁴ Helen Simpson, *The Women of New Zealand* (London: George Allen and Unwin, 1962), pp. 68, 72; *New Zealand Gazette and Wellington Spectator* (NGWS), August 1839, p. 1.

⁵ Apart from a small number of ‘big houses’ commonly occupied by high-ranking Government employees or members of the clergy, the majority of settler’s homes were small and comprised of two to three bedrooms, a sitting room and a kitchen. Statistics relating to the number of new houses, occupants and building materials appeared in colonial newspapers during the 1850s-60s in reports that represented local growth and progress. In 1852, Provincial Governments took over the responsibility of emigration, and schemes designed to attract emigrants, boost populations and build communities, ensued. *Nelson Examiner and New Zealand Chronicle* (NENZC), 16 December, 1843, p. 371. Barbara Brookes, *At Home in New Zealand: History, Houses, People* (Wellington: Bridget Williams Books, 2000).

Figure 3:1: An example of an early rudimentary colonial home



Source: Anthony Flude, 'The Live and Times of Women Folk,' <http://homepages.ihug.co.nz/~tonyf/women/nzwomen.html>, [accessed May 27 2014]

As discussed in Chapter One, most colonial homes had gardens, often with an impressive selection of introduced plants. Many gardens were spaces that displayed ownership and control over nature and a seemingly civilised presence in an otherwise apparently untamed landscape.⁶ Garden historians such as Katie Holmes, Katharine Raine and Dianne Lawrence have produced erudite analyses that reveal the motivations and symbolism of colonial gardening.⁷ These authors reveal effectively how women were intimately involved with the creation and maintenance of colonial gardens. As Lawrence notes, gardens were often a reflection of 'genteel women's expertise', which included an appreciation of

⁶ Matthew Bradbury (ed.), *A History of the Garden in New Zealand* (Auckland: Penguin Books, 1995); Sydney Challenger, 'Pioneer Nurserymen of Canterbury, New Zealand 1850-65', *Garden History*, 7, 1 (1979), pp. 25-64.

⁷ Katie Holmes, Susan K. Martin and Kylie Mirmohamadi, *Reading the Garden: The Settlement of Australia* (Melbourne: Melbourne University Press, 2008), pp. 1-57; Dianne Lawrence, *Genteel Women: Empire and Domestic Material Culture, 1840-1910* (Manchester: Manchester University Press, 2012); Katharine Raine, 'Domesticating the Land', in *Fragments: New Zealand Social and Cultural History*, ed. by Bronwyn Dalley and Bronwyn Labrum (Auckland: Auckland University Press, 2000), pp. 76-97; Katherine Raine and John Adam, 'The Settlers Gardens', 'Victorian Gardens', in *A History of the Garden in New Zealand*, ed. by Matthew Bradbury (Auckland: Godwit, 2010), pp. 64-86.

nature, knowledge of flowers and botanical artistry.⁸ According to Lawrence, while colonial women grew seeds and plants from around the world, many – such as Adela Stewart and Christchurch settler Jane Deans – also displayed an enthusiasm for growing native New Zealand plants.⁹ Stewart also took delight in the practical and productive side of gardening, making frequent references in her memoirs to the productivity of her garden, bottling and storing excess produce.¹⁰ The kitchen garden, which was often hidden from view lest it disrupt the serenity and order of the flower garden or front garden, typically required more work than other relatively permanent plants. It was, according to Lawrence, structured and rigorously maintained and as such, would have precise areas for herbs.

Most colonists grew vegetables, pulses and grains, as well as culinary and medicinal herbs in kitchen gardens to feed and sustain growing families.¹¹ Farmer's guides, newspaper columns and colonial guides encouraged the cultivation of plants that had both culinary and medicinal virtues, such as marjoram, parsley, thyme, chamomile and chives. According to nineteenth-century garden writer George Johnson, 'every housewife knows their [herbs'] great value, not only to give relish to her cooking, but in making teas for sick members of a household'.¹² It is important to note that 'the image of household medicine as being [solely] from the garden to the kitchen is perhaps an over-sentimental one' that overlooks the already by then extensive commodification of health.¹³ Despite this, as revealed in Chapter One, medicinal plants were included in many New Zealand gardening guides and nursery lists, suggesting their continued cultivation in private gardens in the colony. As noted by Johnson above, wives and mothers were charged with cultivating and preparing medicinal plants.

The garden, and in particular the kitchen garden, was in many ways an extension of the domestic sphere in which men and women attended to specific duties as

⁸ Lawrence, p. 137.

⁹ Lawrence, p. 157.

¹⁰ Adela Stewart, *My Simple Life in New Zealand* (London: Robert Banks and Son, 1908).

¹¹ Katharine Raine, 'The First European Gardens' in *A History of the Garden in New Zealand*, ed. by Matthew Bradbury, (Auckland: Penguin Books, 1995), pp. 53- 65.

¹² *The Taranaki Almanac and Directory-Farm and Garden*, (New Plymouth: W. H. J. Seffren, 1868), pp. 37-62; George Johnson, *The Cottage Gardener; or Amateur and Cottages Guide to Outdoor Gardening and Spade Cultivation*, Vol. 1 (London: WMS Orr, c. 1859), p. 27.

¹³ Allen, p. 70.

decreed by nineteenth-century gender stereotypes well established in Britain by the 1830s and 1840s.¹⁴ For centuries, scholars proposed reasons and causes for the separation of the sexes. Ancient texts, including the teachings of Aristotle and the bible, provided biological explanations that fed the debate.¹⁵ By the nineteenth century, physicians aimed to reveal the workings and influence of female generative organs. Most agreed that a woman's anatomy and physiology made her more susceptible than men to mental and emotional distress or hysteria, and ultimately better suited for domestic duties.¹⁶

Many women supported these ideas in books such as *The Women of England, Their Social Duties and Domestic Habits* (1839) by Mrs Sarah Stickney Ellis which described and defined appropriate feminine behaviour and etiquette.¹⁷ Furthermore, by the 1840s, European intellectuals considered childhood a natural stage in human development and the bourgeois ideal of the family expressed in gender-specific roles became part of the dominant culture, promoted in popular society as the only proper way to live.¹⁸ Against the backdrop of increasing capitalism, the advent of the middle class and campaigns against slavery, British homes became primary sites for the struggle against sin, as defined by religious groups such as the Evangelicals and the Methodists.¹⁹ Links between morality and

¹⁴ Catherine Hall, 'The Early Formation of Victorian Domestic Ideology' in *Fit Work for Women*, ed. by Sandra Burman (London: Croom Helm, 1979), pp. 15-31; Carroll Smith-Rosenberg, *Disorderly Conduct: Visions of Gender in Victorian America* (New York: Oxford University Press, 1986).

¹⁵ According to Aristotelian decree, men and women possess a similar physiology, although in perfect (male) and flawed (female) versions. Roy Porter, *The Greatest Benefit to Mankind: A Medical History of Humanity from Antiquity to the Present* (London: Harper Collins Publisher, 1999), pp. 128-131.

¹⁶ Hall, p. 25. By the late nineteenth century, medical handbooks such as the *Ladies' Handbook of Home Treatment* (1895) and *Kellogg's Ladies' Guide in Health and Disease* (1895) enforced these ideas, adding a scientific justification that encouraged gender stereotypes and the division of labour. E. S. Richards, *Ladies' Handbook of Home Treatment* (Warbuton, Victoria: Signs Publishing Company, 1939); John Harvey Kellogg, *Ladies' Guide in Health and Disease* (London: International Tract Society, 1895).

¹⁷ Raewyn Dalziel, 'Colonial Helpmeet', in *Women in History: Essays on European Women in New Zealand*, ed. by Barbara Brookes, Charlotte Macdonald and Margaret Tennant (Wellington: Allen and Unwin Limited, 1986), pp. 55-69; Mary Wilson Carpenter, *Health, Medicine and Society in Victorian England. Victorian Life and Time Series* (Santa Barbara: Library of Congress Cataloging-in-Publication Data, 2010), p. 149.

¹⁸ Hall, p. 31; Eric Olssen, 'Families and the Gendering of European New Zealand in the Colonial Period, 1840-80', in *The Gendered Kiwi*, ed. by Caroline Daley and Deborah Montgomerie (Auckland: Auckland University Press, 1999), pp. 37-63.

¹⁹ Hall, pp. 21-23.

health emerged over the course of European history and by the nineteenth century, popular medical discourse further encouraged this association. Medical manuals advised the public to avoid unnatural excesses and monitor personal habits.²⁰ Those who fell ill were judged morally culpable and, in a colonial context, were considered dangerous and redundant.

In New Zealand, maintaining a healthy home and mitigating disease were tasks considered conducive to a progressive and civil society. Early colonisers encouraged virtuous women to settle in New Zealand and to fulfil the role of social and moral guardians.²¹ Victorian ideologies and understandings of biology contributed to the belief that women were natural healers. Several domestic medical texts, such as William Buchan's *Domestic Medicine* (1769), identified women as primary domestic care givers. Despite this, historian Lisa Smith argues that 'men were more involved in domestic medicine than medical historians have considered'.²² According to Smith, the tendency for researchers to define male and female medical knowledge is problematic and overlooks the role played by men in the domestic sphere.

Indeed, in New Zealand, a tradition of self-care that relied heavily on domestic remedies and practices extended to single men. William Rysdale emigrated to New Zealand in 1863 and served with the 3rd Regiment Waikato Militia from October 1863 until August 1865. During this period, he wrote regularly to his family in Lincolnshire. Headaches, writes Rysdale – from which he suffered from regularly 'back home' – happened infrequently in New Zealand and he offers a cure for them to his sister:²³

²⁰ Deborah Lupton, 'The Social Construction of Medicine and the Body', in *The Handbook of Social Studies in Health and Medicine*, ed. by Gary Albrecht, Ray Fitzpatrick and Susan Scrimshaw (2000), pp. 51-63.

²¹ Edward Wakefield believed that European notions of family and gender were central to successful systematic colonisation and that European women, with their natural inclination as 'moral guardians', would ensure civility and order in the seemingly unruly frontier. Angela Wanhalla, 'Family, Community and Gender', in *The New Oxford History of New Zealand*, ed. by Giselle Byrnes (Melbourne: Oxford University Press, 2009), pp. 447-465.

²² Lisa Smith, 'The Relative Duties of a Man: Domestic Medicine in England and France, ca. 1685-1740', *Journal of Family History*, 31 (2006), pp. 237-256

²³ Hamilton City Library Archives, MS, 190, 1881, Rysdale, William; Papers, p. 5-7.

the best remedy I have for them [headaches] is to get Dandelion roots, just rinse the dirt off in cold water, don't let them stand in it, as you will lose some of the strength, then just four or five handfuls into a pot with about a gallon to half a gallon, then strain it, and drink it hot sweetened at meal times instead of tea, and between meals, drink it cold, it acts upon the liver.²⁴

Despite the number of single men forced to care for themselves, evidence suggests that in colonial New Zealand, most domestic healers were women. Women compiled the personal collections of receipts used as evidence in this chapter, and frequent references in colonial literature point toward a prevalence of female domestic healers. Furthermore, women made up the majority of domestic servants and governesses in New Zealand throughout the nineteenth century, occupations that involved the provision of domestic medical care.²⁵ By identifying the importance and prominence of domestic healers and their use of medicinal plants, this thesis also acknowledges the role of women in colonial medical culture and their contribution to the construct of medico-botanical knowledge.

The nature and scope of care provided by healers during this period depended largely on the availability or absence of doctors and the limitations of medical practice. By the mid-nineteenth century, medical developments such as the so-called bacterial revolution and the increasing influence of pharmaceutical science, bolstered physicians' claims to authority and encouraged the professionalisation of medicine.²⁶ Yet regardless of such developments, domestic medicine provided the first line of defence against most illness or disease. Even when doctors attended patients, their advice and care often relied on the continued ministrations of domestic healers. Although most medical manuals attempt to define the limits of domestic care – encouraging the attendance and presence of physicians for

²⁴ The detail in Rysdales' letter displays a depth of understanding of the plant, its properties and use as a hepatic tonic. Later, he refers to his use of podophyllin pills, a popular pill used during the nineteenth century for colic and glandular conditions, made from the rhizome of American Mayapple, *Podophyllum peltatum*. He combines these pills with his dandelion cure, demonstrating the compatibility of commercial pharmaceuticals and home grown medicines. Rysdale, p. 6.

²⁵ Charlotte Macdonald, 'The Eclipse of Domestic Service in New Zealand Homes c.1830s-1940s', in *At Home in New Zealand: History, Houses, People*, ed. by Barbara Brookes (Wellington: Bridget Williams Books, 2000), p. 157; Olssen, p. 42.

²⁶ Peter Freund and Meredith McGuire, *Health, Illness and the Social Body* (New Jersey: Prentice Hall, 1999); Lupton, 1994.

certain situations – evidence suggests domestic healers performed the same treatments and procedures as practiced by educated physicians.

There was no doctor within thirty miles. Indeed, no one knew where one was to be found. The women learnt to nurse very well. Two neighbours, one with ten children and the other with twelve, used to help each other turn about, and a finer, healthier lot of children were never born.²⁷

Before the turn of the twentieth century, for example, particularly in rural areas – as illustrated in the quote above – New Zealand women provided the majority of midwifery and gynaecological care in a domestic setting.²⁸ Many were trained midwives who claimed formal learning at overseas institutions such as City of London Lying-in Institution or Melbourne's Lying-in Hospital and Infirmary for Disease Peculiar to Women and Children. Others relied on the advice of local doctors and their own often extensive experience.²⁹ As well as midwifery, domestic healers attended to everyday conditions such as headaches, toothache and boils. Success in dealing with more serious ailments – such as consumption,

²⁷ Women's Division of the New Zealand Farmers' Union (W.D.N.Z.F.U.) (eds), *Brave Days: Pioneer Women of New Zealand* (Dunedin: A. H. & A. W. Reed for the Women's Division of the New Zealand Farmers' Union, 1939), p. 36.

²⁸ According to early hospital reports, out of the 393 cases admitted to Hokitika hospital in 1869-68, only four were gynecological and in 1858, at Auckland Hospital, only six of the 225 patients admitted were evidently gynecological (uterine disease and ovarian dropsy). During 1882, a total of 5496 patients were admitted to New Zealand provincial hospitals and out of these, only 153 were females admitted for 'diseases of the generative system' (Dunedin admitted 85 of these and Christchurch, 25). In 1886, only 187 cases out of 6381 patients admitted to New Zealand hospitals, were obviously gynaecological in origin. *The County of Westland Gazette (CWG)*, June 7, 1869; *Auckland Provincial Government Gazette (APG)*, February 15, 1859, p. 22; George Wallington Grabham, 'Hospitals in New Zealand', *Appendix of the Journals of the House of Representatives (AJHR)* (1886), H-19, pp. 1 -22; George Wallington Grabham, 'Hospitals in New Zealand', *AJHR* (1882), H-3A, pp. 1-34; Alison Clarke, *Born to a Changing World: Childbirth in Nineteenth-Century New Zealand* (Wellington: Bridget Williams Books, 2012).

²⁹ New Zealand midwives, like their Australian counterparts, advertised in colonial newspapers and for some colonial women, midwifery was an important source of income, although before registration, payment was irregular and varied in amount and type. Madonna Grehan, *Heroes or Villains? Midwives, Nurses and Maternity Care in Mid-Nineteenth Century Australia*, http://www.thefreelibrary.com/_/print/PrintArticle.aspx?id=214458324, [accessed February 27, 2013]; Sally Pearman, 'From Autonomy and Back Again: Educating Midwives Across a Century', *New Zealand College of Midwives Journal*, 33 (2005), pp. 4-9. In 1857, Mrs Isabella Stewart of Milton Grove, Nelson, claimed a first-class certificate from the Professor of Midwifery at Edinburgh University. *New Zealand Examiner and New Zealand Chronicle, (NZENZC)*, 11 April 1857, p. 1.

rheumatism, scrofula, abscesses, ulcers and injuries – bolstered their reputations and further developed their skills.³⁰

Early Reliance on Familiar Plants, 1850s -1880s

As discussed in Chapter One, nurserymen, botanists, agriculturists and gardeners introduced medicinal plants into New Zealand throughout the nineteenth century. Many popular species, used regularly by British practitioners, such as dandelion, plantain and dock, naturalised easily and readily in their new environment. This caused concern for some – a concern that depended on the individual's perception and interpretation of the plant as a pest or weed. In 1894, the newly-created Department of Agriculture, for example, lamented the spread of datura (from which the popular drug stramonium is made) in the Rangitikei district, and the introduction of Scotch thistle by patriotic Scottish settlers wreaked havoc in sown pastures in Canterbury.³¹ For others, particularly domestic healers, the introduction of medicinal plants supported the use of medical practices that relied on familiar plants and their products. From their perspective, so-called weed species, like the dandelion, were useful and to be encouraged.

Colonists were quick to recognise and use familiar introduced medicinal species. Plantain, first recorded in New Zealand in 1839, was a particular favourite, growing readily in various locations and 'quite as general[ly] as in England'.³² Māori and European healers prepared plantain poultices for skin eruptions, irritations, burns and sprains.³³ Watercress, which by 1860 was threatening to choke the river Avon in Christchurch, was used in cases of eye infections.³⁴ The common dock, which almost certainly arrived by accident in agricultural seed mixes and quickly spread throughout the colony, was applied to stings and

³⁰ Porter and Macdonald, p. 89.

³¹ *The Chemist and Druggist of Australasia (CDA)*, 9, 7 (1894), p. 145; Riley, p. 238.

³² Murdoch Riley, *Māori Healing and Herbal: New Zealand Ethnobotanical Sourcebook* (Paraparaumu: Viking Sevenses, New Zealand, 1994), p. 222.

³³ Riley, pp. 224-5.

³⁴ Riley, p. 247; John Armstrong, 'On the Naturalized Plants of the Province of Canterbury', *Transactions and Proceedings of the New Zealand Institute (TPNZI)*, 4 (1871), pp. 284-290.

wounds, and used as a blood cleanser.³⁵ Raspberry leaves and tansy, when brewed together, created a ‘squaw-tea’ that Agnes Harrold, a Canadian emigrant who settled on Rakiura/Stewart Island in the 1860s, gave to local women in labour.³⁶

Medicinal plants also arrived in the Colony as dried ingredients for plant-based medicines. Many colonists arrived with ‘cases of drugs’ and ready-made medicine chests sold alongside medical manuals in Britain. Commissioned by chemists and made by cabinet-makers, these chests contained both compound medicines such as Dover’s Powder, developed in the eighteenth century by the physician Thomas Dover and consisting largely of powdered opium, ipecacuanha and potassium sulphate.³⁷ Popular ‘simples’ – remedies that are made up of one plant – such as rhubarb, jalap, aloes, ginger and ipecacuanha were also included.

Domestic medical manuals and colonists’ handbooks often provided a list of recommended medicines as well as directives for their use. For emigrants destined for the Antipodes, British and American manuals were most popular and were readily available in bookstores, grocers and chemists throughout New Zealand and Australia. These books and the information they contained moved with colonists – the popularity and adaptation of their information changing in accordance to different environments and contexts. For example, British manuals such as Culpeper’s *English Physician* and William Buchan’s *Domestic Medicine* initially guided American pilgrims but became less popular following the

³⁵ Riley, pp. 317-8; Maida Barlow. ‘Harrold, Agnes’, from the Dictionary of New Zealand Biography. Te Ara - the Encyclopedia of New Zealand’, URL: <http://www.TeAra.govt.nz/en/biographies/1h10/harrold-agnes>, [accessed May 11 2014]; Barbara Harper, *Petticoat Pioneers: South Island Women of the Colonial Era*, Vol. 3 (Wellington: A. H. & A. W. Reed, 1980), pp. 94-7.

³⁶ ‘Squaw tea’ is a generic term for a popular remedy prescribed by domestic healers in various cultures. In traditional Chinese medicine, squaw tea or *Ma Huang* is made from the plant *Ephedra sinica* - the same plant native Americans used and later taught Mormon pioneers in America to prepare. Harrold’s use of this remedy reflects her North American background and the introduction of practices familiar to her. Harper, pp. 94-7; Maude Grieve, *A Modern Herbal: The Medicinal, Culinary, Cosmetic and Economic Properties, Cultivation and Folklore of Herbs, Grasses, Fungi, Shrubs and Trees with all their Modern Scientific Uses*, 3rd edn (First Published 1931) (London: Tiger Books, 1992), p. 286; Anton Sohn, *The Healers of Nineteenth Century Nevada* (Nevada: University of Nevada, 1997), pp. 59-67.

³⁷ Royal Pharmaceutical Society, ‘Information Sheet: 16, Domestic Medicine Chests’, <http://www.rpharms.com/museum-pdfs/16-medicine-chests.pdf>, [accessed March 14 2013].

American Revolution.³⁸ Subsequently, American writers were encouraged to be original in their literary productions during a period when America was overwhelmingly rural and the need for domestic medical guides was self-evident.³⁹ Many authors ‘nationalised’ manuals, and the number of medical manuals published in America flourished. Sent to Britain for sale, these books encouraged the integration of American medicinal plants such as senega and capsicum into British and European herbals. Domestic healers in New Zealand readily incorporated American plants and were particularly influenced by the American popular health movement, as discussed in the following section.

As the extent of colonisation increased and as discourse on the influence of climate upon health assumed prominence, writers produced manuals intended specifically for New Zealand and Australian emigrants. The Australian-published *Tegg’s Handbook for Emigrants* (1839) includes a ‘Domestic Pharmacopeia’. This explains how to prepare syrups, tinctures, infusions, liniments and poultices from a list of ingredients that include both processed drugs, such as Dover’s Powder, and raw plant ingredients such as rhubarb, ginger and jalap.⁴⁰ For Tegg, like many of his contemporaries, ‘domestic medicine’ consisted largely of combining commercially processed plants and applying these in a domestic setting.⁴¹ *Figure 3:2* shows Tegg’s recommended layout of an emigrant’s medical chest.⁴² The plants prescribed by Tegg are those cultivated by European, American and British drug manufacturers and evidence suggests that New Zealand colonists relied heavily on commercially-prepared medicines imported by chemists or grocers. This reliance reflects an initial dependence on familiar remedies and treatments based on well-known ingredients and medicines.

³⁸ Norman Gevitz, ‘But all Those Authors are Foreigners’: American Literary Nationalism and Domestic Medical Guides’, in *The Popularization of Medicine, 1650-1850*, ed. by Roy Porter (London: Routledge, 1992), pp. 232-252.

³⁹ The first American published medical guide, *Every Man His Doctor* was written by John Tennant in 1730 and America’s first medical journal appeared in 1797. Gevitz, pp. 232-252.

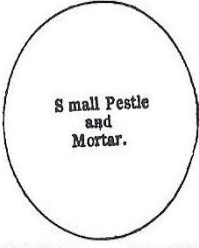
⁴⁰ Thomas Tegg, *Tegg’s Handbook for Emigrants: Containing Useful Information and Practical Directions on Domestic, Mechanical, Surgical, Medical and other Subjects Calculated to Increase the Comforts and add to the Conveniences of the Colonist* (London: Thomas Tegg, 1873).

⁴¹ Tegg’s list of medicaments includes a price list – indicating an assumption that all ingredients will be available and bought in the colonies. Tegg, pp. 96-98.

⁴² Tegg, p. 96.

Figure 3:2: Standard emigrant's medical chest

A Tray, 26 inches long, and 17½ wide, and four deep.
2 oz. square.

	Æther.	Aloes.	Phos- phorus.	Potash.		Croton Oil.	Powdered Opium.	Essence of Pepmt.	Essence of Ginger.	Sulph. Zinc.	Tr. Myrrh.
MEDICINE-CHEST. 8 oz. square.	Sweet Spts. Nitre.	Camphor.	Spermaceti Ointment.	Grain Scales and Weights.						Sulphate of Iron.	Paragoric.
	Spirits of Hartshorn.	Ginger.	Turner's Cerate.	Hyosciamus.	Coloc.			White Wax.	Acetate of Lead.	Laudanum.	
	Spts. of Sal Volatile.	Jalap.	Yellow Basilicon.	 Small Pestle and Mortar.				Yellow Wax.		Lavender Drops.	
	Sulphuric Acid.	Rhubarb.	Spermaceti.					Ext. Opium.	Blue Pill.		Merc. Oint.
	Tincture of Jalap.		Caustic.	Sulph. Quinine.	Red Pre- cipitate.	Ipecacu- anha.	Dover's Powder.	Calomel.	James' Powder.	Ant. Wine.	

2 oz. square.

Source: Figure One: Thomas Tegg, *Tegg's Handbook for Emigrants: Containing Useful Information and Practical Directions on Domestic, Mechanical, Surgical, Medical and other Subjects Calculated to Increase the Comforts and add to the Conveniences of the Colonist* (London: Thomas Tegg, 1873), p. 96

The reliance on familiar remedies was supported by the introduction of personal collections of medical receipts or recipes. According to historian Katharine Allen, there are parallels between the structure and recording of both seventeenth- and eighteenth-century medical receipts and the structure and recording of scientific reports. These similarities, she argues, indicate an 'appreciation and public awareness of natural philosophy and a growing recognition of the household as an epicentre of experimental activities'.⁴³ In Europe, this trend diminished by the late eighteenth century, due largely to the depreciation of women's knowledge. Medical receipt writing became increasingly a leisure activity. An analysis of late-nineteenth and early-twentieth-century medical receipts and domestic medical knowledge referred to by colonists in New Zealand's suggests that the home once

⁴³ Allen, p. 5.

again became a site of legitimate experimentation and one that also reflected an appreciation of nineteenth-century science and standardisation.

Elizabeth Jane (1849-1942) and her husband Frederick Joseph Locke (1847-1914) arrived from Guernsey, England to Port Chalmers (Otago) on 16 February 1873. They brought five books they presumably referred to in New Zealand that contained medicinal receipts collected by Jane, who worked as a cook at Castle Eden in Durham prior to their departure.⁴⁴ The earliest, dated 1739-40, includes plants used routinely by British practitioners, such as liquorice, opium and tansy. For jaundice, instructions for the preparation of barberry bark are included, while alkany root is recommended for the treatment of chilblains. Most recipes involve a degree of preparation – for example steeping plant material in oil, alcohol or water – and conjure images of the kitchen dispensary. Others are ‘simples’ – remedies made from one plant.⁴⁵ The following remedy for ‘fits’ (seizures) is most likely reproduced from seventeenth and eighteenth-century herbals, when animal products were common components of European *materia medicas*:

Take earth moles just as they are taken out of the earth, then dry them in an oven with the hair, blood, guts and everything till they powder very fine, let the person or the child take as much as will lie upon a sixpence three times a day before they expect to fit or any symptoms of fitting are coming and to repeat until the changing moon, but be sure never to take it if the fits are upon them. When the moles are taken out of the oven they should be hung in a paper bag and so powdered when you want them.⁴⁶

Dated c. 1820, the second book in this series includes remedies for rheumatism, biliousness, headaches, jaundice, coughs, colds, weak stomachs and toothaches – examples of the ailments and illnesses treated regularly during this period.⁴⁷

Directions in this collection are more complicated than earlier receipts and reflect developments in the pharmaceutical industry. Instructions on how to prepare pills,

⁴⁴ Hocken Library, Dunedin, AG-561-04, 1739-40, Dorothy Harvey Book of Receipts; Hocken Library, Dunedin, AG-561-06, Dorothy Harvey Book of Receipts; Hocken Library, Dunedin, AG-561-07, Dorothy Harvey Book of Receipts; Hocken Library, Dunedin, AG-561-08, Dorothy Harvey Book of Receipts.

⁴⁵ Hocken Library, Dunedin, AG-561-04, 1739-40, Dorothy Harvey Book of Receipts

⁴⁶ Hocken Library, Dunedin, AG-561-04, 1739-40, Dorothy Harvey Book of Receipts

⁴⁷ Hocken Library, Dunedin, AG-561-06, Dorothy Harvey Book of Receipts.

lozenges, boluses, plasters and poultices showcase the repertoire of domestic medical care. Household ingredients such as soap, eggs, sugar and syrup help bind and provide a medium for medicinal plants, and unlike the previous collection, the only animal product recommended is hartshorn, powdered red deer horn.⁴⁸

Spanish liquorice is recommended for colds, indigestion and biliousness; the herb's name is indicative of the country in which it is cultivated and processed. Ever since domestic medicine was described as a distinct system by early authors such as William Buchan, it has been proclaimed safer than that prescribed by a physician.⁴⁹ The reasons for this include the relatively high use of plant-based medicines as opposed to the inorganic compounds such as arsenic and mercury which were becoming increasingly popular within the medical fraternity. Spanish liquorice, wrote Elizabeth Jane, 'is an excellent medicine to cleanse and strengthen the stomach and purify the blood, relieves headaches and sickness and is so purportedly safe that it may be taken without danger at any time'.⁵⁰

As discussed in Chapter One, the extensive cultivation of medicinal plants collected from around the world occurred at specific sites throughout the British Empire, such as botanic gardens. Many of these plants feature strongly in personal collections of receipts – their presence being as 'symbols of Empire in Briton's daily routines'.⁵¹ Opium – native to India – was included in several remedies from Jane's collection, both in powdered and tincture form (laudanum) while camphor, also native to China, is recommended for toothache, colic and fever. Nutmeg and ginger, originally from South East Asia, appear in remedies for jaundice and stomach upsets. Aloes from the Middle East are also included and sassafras, the North American herb popularised and introduced to Britain by Sir Walter Raleigh in 1602, is described by Jane as cure for a rheumatism, one that purportedly sold for one hundred guineas. Senna, another American herb, is described as a most

⁴⁸ Made from the horns of the male red deer, this product was attributed with sudorific qualities (promotes sweating) and was used to treat fever and dysentery. Dr Phelps Brown, *The Complete Herbalist, or the People their own Physicians by the use of Nature's Remedies Describing the Great Curative Properties found in the Herbal Kingdom* (New Jersey: Dr O. Phelps Brown, 1897), pp. 303, 344; Hocken Library, Dunedin, AG-561-06, Dorothy Harvey Book of Receipts.

⁴⁹ William Buchan, *The Special Edition of Domestic Medicine or the Family Physician* (Edinburgh: R. Aitken, 1774), pp. ix-xvii.

⁵⁰ Hocken Library, Dunedin, AG-561-07, Dorothy Harvey Book of Receipts.

⁵¹ Allen, p. 71.

effective aperient.⁵² Rhubarb, a stalwart of Chinese medicine, was cultivated initially for export by China (and later Russia) and was not introduced to Europe until the late eighteenth century.⁵³ Despite this, it was a common and popular ingredient used by European healers such as Jane, who notes its use as a remedy for biliousness and indigestion.

Remedies collected or created in the colony show the tendency to combine commercially-prepared medicines with home-made formulations. In 1868, Agnes Emma Hall, a Canterbury colonist, turned to popular painkillers – including laudanum and chloroform – for her toothaches, before finding relief from a home-made fomentation of poppy heads and chamomile flowers.⁵⁴ Frances Caverhill, who occupied a Canterbury sheep station, Hawkeswood, between 1850 and 1896, relied on ingredients including castor oil (as an emetic), mustard (in a poultice), marshmallow and arrowroot (infusions for inflammation) as well as patent medicines such as Gregory’s mixture, made from rhubarb, magnesium and ginger and commonly prescribed for stomach pain.⁵⁵

Domestic healers typically referenced the source of the information they recorded. Elizabeth Jane settled with her husband in Dunedin, where large numbers of doctors practiced, drawn to the area during the 1860s gold rushes.⁵⁶ In her collections, she notes several doctors as the sources of receipts, for example, Dr Reece, who provided a recipe for bilious pills; Dr Thornton, who recommends coffee for the treatment of fever; and Dr Boarhearease, who also prescribed a remedy for fever. Jane also acknowledged Mrs Fox for her comprehensive instructions for the production of bilious pills, Mrs Clarkes, whose pills appeared to be a general cure-all, and Mrs Hayes, who contributed a recipe for a ‘spewing’ medicine. M. Pradiar, writes Jane, is a gentleman who has found a remedy for

⁵² Hocken Library, Dunedin, AG-561-07, Dorothy Harvey Book of Receipts.

⁵³ Deni Brown, *The Royal Horticultural Society Encyclopaedia of Herbs and their Uses: The Definitive A-Z guide to Herbs* (London: Dorling Kindersley Limited, 2002), p. 19.

⁵⁴ Jean Garner and Kate Foster (eds), *Letters to Grace: Writing Home From Colonial New Zealand* (Christchurch: Canterbury University Press, 2011), p. 98.

⁵⁵ Frances Caverhill, *A Year at Hawkeswood: The Diary of Frances Caverhill for 1865*, Vols I and II (Christchurch: Nag’s Head Press, 1981), pp. 47, 60, 69.

⁵⁶ Twenty percent of New Zealand’s doctors registered in Otago in 1871. Twenty-one per cent in 1891. Michael Belgrave, “Medical Men” and “Lady Doctors” The Making of a New Zealand Profession, 1867-1941, PhD Thesis, Victoria University of Wellington, 1985, p. 265.

gout that consists of a thin linseed poultice applied with a yellow liquid, presumed to be saffron-infused spirits.⁵⁷ To the reader, these names reveal little. But to Jane, the source arguably denotes the worth of the information. Given their capricious social status in the colony, recipes from physicians may have been considered either valid or dubious. The ‘presence of receipts “authorised” by women of superior social standing might indicate a blurring of deferential formalities in matters domestic.’⁵⁸ Furthermore, the exchange of medical receipts between middle-to-upper class women suggests that in nineteenth-century New Zealand, domestic medicine was not considered a lower class of medicine than that provided by educated doctors.

Difficulties in employing and retaining servants in New Zealand meant that many middle-class women undertook duties usually appointed in Britain to the labouring class, including the provision of domestic health care.⁵⁹ Additionally, many middle-class colonial women, encouraged by evangelical ideals, concerned themselves with the health and welfare of others. This often led to the informal exchange of information and ideas between women of different classes and backgrounds. For example, Jane, a young woman who worked for Sarah Amelia Courage (c1845 -1901), author of *Lights and Shadows Of Colonial Life: Twenty Six Years In Canterbury, New Zealand*, obviously learnt a great deal from her mother and offered her employer the benefit of her advice, as the following excerpt shows:

mother she took and dragged him backwards through a gorse hedge; but he got no better. So last of all she was told to catch nine mice and fry ’em and give him to ’em each morning, then wait three mornings and give him three more - waiting another three - then give him the rest; and sure enough after he had all of them there was a change, and after a bit he got quite well.⁶⁰

⁵⁷ Hocken Library, Dunedin, AG-561-07, Dorothy Harvey Book of Receipts; Hocken Library, Dunedin, AG-561-08, Dorothy Harvey Book of Receipts.

⁵⁸ Sara Pennell (ed.), *Women and Medicine: Remedy Books, 1533-1865, From the Wellcome Library for the History and Understanding of Medicine, London*, (London: Primary Source Microfilm Library for the Wellcome Library for the History and Understanding of Medicine, 2004), p. 17.

⁵⁹ Macdonald, ‘The Eclipse of Domestic Service’, p. 44.

⁶⁰ Sarah Amelia Courage, *Lights and Shadows Of Colonial Life: Twenty Six Years In Canterbury, New Zealand* (Christchurch: Whitcoulls, 1976), p. 82.

Collections of receipts often contain several recipes for the same ailment, actions indicative of a practicable approach to treatment. According to Roy Porter, only a handful of medicines – such as mercury, digitalis, amyl nitrate, quinine and plant-based emetics – were effective during this period.⁶¹ Experimentation and an approach that combined remedies, therefore, increased a patient's chances of recovery. Jane collected several recipes for rheumatism, including one from Mrs Bouyer, Mrs Cooper, Major Cartwright and Mrs Hayes.⁶² Accompanying some recipes are testimonials to their worth. For example, Mr Sutton's plaister [sic], which is 'not to be shown to a medical man – the material to be bought at different druggists', proved particularly efficacious:⁶³

Virtues of this plaister [sic], applied to the stomach it relieves pain and takes away aches and pains, swelling bruises, draws out humours, particularly good for rheumatism. The lady who gave me this receipt said one of her servants had a lump under her throat the size of a nutmeg which went off without breaking the skin.⁶⁴

In New Zealand, the adaptation of medical receipts included the incorporation of native medicinal plants, a practice that relied on observations and knowledge taught by Māori. In many ways, the use of native plants by domestic healers supported more formal lines of enquiry, providing an apparently legitimate impetus for investigation during a period when indigenous medicine was disparaged and discouraged by public health authorities.⁶⁵ When perceived as boundary objects, as advocated by Susan Leigh Star, the use of native medicinal plants by domestic healers contributed to the translation of traditional Māori herbal knowledge into European medicaments.⁶⁶ As discussed in Chapters Four

⁶¹ Mercury successfully treated syphilis and ringworm, digitalis strengthened the heart, amyl nitrate dilated arteries while quinine cured malaria and colchicum eased gout. Iron was a popular tonic and plant-based emetics and purgatives including ipecacuanha and senna were routinely prescribed. Porter, p. 674.

⁶² Hocken Library, Dunedin, AG-561-08, Dorothy Harvey Book of Receipts.

⁶³ Hocken Library, Dunedin, AG-561-04, 1739-40, Dorothy Harvey Book of Receipts.

⁶⁴ Hocken Library, Dunedin, AG-561-07, Dorothy Harvey Book of Receipts.

⁶⁵ Reactions from the New Zealand Government and Department of Health towards indigenous medical practices is discussed further in Chapter Five.

⁶⁶ Susan Leigh Star, 'This is not a Boundary Object: Reflections on the Origin of the Concept', *Science, Technology and Human Values*, 35, 5 (2010), pp. 601-617; See also, Susan Leigh Star and James R. Griesemer, 'Institutional Ecology, 'Translations and Boundary Objects: Amateurs and professionals in Berkley's Museum of Vertebrate Zoology, 1907-39', *Social Studies of Science*, 19 (1989), pp. 387-420.

and Five, herbalists and doctors assisted this process, constructing their own translations and inadvertently co-operating despite diverse opinions and political agendas. The process of translation is discussed in more detail in Chapter Six.

As historians Peter Holland, Jim Williams and Vaughan Wood state, in Māori culture certain knowledge was privy to the observer, immediate family or tribe.⁶⁷ Protocols surrounded the disclosure of such information and some indigenous knowledge, particularly that related to food gathering and the use of native plants, was considered tapu (sacred) and too revered to share. Early traders, explorers and missionaries often lived in close proximity with Māori and were often the first to adopt aspects of Māori life and culture to assist with cross-cultural exchange.⁶⁸

As evidenced in her book, *Our Maoris*, Lady Mary Ann Martin combined European remedies with traditional Māori herbal practices. Wife of first Chief Justice William Martin, Lady Mary established a hospital in Tauranga in the Bay of Plenty where she treated mainly Māori with traditionally British remedies, including mustard poultices, rosemary tea, elder shoots and wild marshmallow.

For coughs we made rosemary tea with treacle and a *soupeçon* of ipecacuanha; for dropsy, the tops of elder shoots and Spanish broom. For swelled joints we applied poultices of sea-weed, and the wild marsh-mallow for sores. Mustard plasters were in constant request.⁶⁹

However, Martin also observed and recorded Māori medical practices, integrating some of these into her own provision of care, for example, in her use of seaweed dressings for skin conditions.⁷⁰ This practice also took place elsewhere in New Zealand. In an isolated mining town in the Hokitika region, Catharine Wallace used traditional Māori remedies – koromiko leaves and flax root brew – to treat

⁶⁷ Peter Holland, Jim Williams and Vaughn Wood, 'Learning about the Environment in Early Colonial New Zealand', in *Seeds of Empire: The Environmental Transformation of New Zealand*, ed. by Tom Brooking and Eric Pawson (London: I. B. Taurus, 2011), pp. 34-51.

⁶⁸ Indeed some embraced aspects of Māori culture and lives, married Māori women, had children and were termed by historian Michael King as Pakeha-Māori. Pakeha is the Māori term for European and according to Michael King was in general use in New Zealand from the 1830s. Michael King, *The Penguin History of New Zealand* (Auckland: Penguin, 2003), p. 117, 168.

⁶⁹ Lady Mary Ann Martin, *Our Māoris* (London: The Committee of General Literature and Education appointed for the Society for promoting Christian Knowledge, 1884), p. 74.

⁷⁰ Martin, p. 74.

her children for dysentery and constipation.⁷¹ Agnes Harrold, on Rakiura/Stewart Island, also recommended koromiko leaves, and by the late 1880s a Napier chemist made the plant a stock standard in his dispensary.⁷²

Arguably, no European was more commercially successful in the collection of traditional Māori medical knowledge and the popularisation of native medicinal plants than the missionary Marie Henriette Suzanne Aubert, better known as Mother Mary Joseph Aubert (1825-1926).⁷³ By the time Aubert signed a contract with leading pharmaceutical company Kempthorn and Prosser in 1891, she had already worked closely with Māori for over thirty years. In that time she observed protocol, gathered and shared information, and established relationships that ultimately allowed her to commercialise aspects of Māori culture inaccessible to others.

Drawn to the New Zealand mission by the charismatic Bishop Pompallier, Aubert arrived in the colony in 1860s. Landing in Auckland, she joined The Sisters of Mercy who trained for 'religious life and the work of education of the young people of their sex'.⁷⁴ Following Pompallier's advice and example, Aubert quickly learnt Te Reo (Māori language) and became well acquainted with Māori culture. In Auckland, she worked closely with Māori women and befriended Peata, a woman of high mana (status/respect), who Pomapallier purportedly converted to the Catholic faith.

⁷¹ Harper, p. 227.

⁷² Harper, p. 237; Thomas Wilson Leys (ed.), *Brett's Colonists' Guide and Cyclopedia of Useful Knowledge: Being a Compendium of Information by Practical Colonists upon...* (Auckland: H. Brett, 1897), p. 480.

⁷³ Born in a small village not far from Lyon, France, Aubert like countless other bourgeois women following the French Revolution devoted herself to a religious way of life. Against her parents' wishes and desperate to join a congregation, she sought guidance from the Benedictine nuns and worked with laywomen in Lyon and Tarare on numerous charitable endeavours. In France, Aubert volunteered and nursed for the Sisters of Charity, looking after Crimean veterans and cholera victims. During this period, she learnt the medical and pharmaceutical skills that eventually made her one of New Zealand's most well-known medicine manufacturers and healers. Jessie Munro, *The Story of Suzanne Aubert* (Auckland: Auckland University Press with Bridget Williams Books, 1996); Jessie Munro (ed.), *Letters on the Go: The Correspondence of Suzanne Aubert* (Wellington: Bridget Williams, 2009); Pat Rafter, *Never Let Go!: The Remarkable Story of Mother Aubert* (Wellington: A. H. & A. W. Reed, 1972); Barbara Harper, *Unto These Least: The Story of Mother Aubert and Her Great Work* (Wellington: Home of Compassion, 1992).

⁷⁴ Munro, *The Story of Suzanne Aubert*, p. 69.

While Pompallier's mission and reputation began to unravel in the 1860s, Aubert remained devoted to the Māori mission, struggling to preserve the institutions and schools they had established. When the Auckland mission disbanded, Aubert settled into life at the Marist Mission at Meanee, not far from the growing township of Taradale in New Zealand's Hawke's Bay.⁷⁵ At Meanee, Aubert taught catechism, trained the local choir, prepared the church for feast days and widened her circles of association, forming relationships with local chiefs and 'discovering a more effective channel of Māori mission...'.⁷⁶ By 1872, Aubert was identifying herself as a sicknurse, and was regularly welcomed at six or seven pā (villages). As disease raged through pā in the aftermath of the Waikato Wars, Aubert was on hand to provide medicine and care. She became a recognised figure, often seen gathering herbs from the hills and fields and accompanied by Māori women, who were presumably guiding and teaching the nun.⁷⁷

Aubert's ability to collect and collate information gathered from a number of sources and informants aided her success as a healer and entrepreneur. As well as collecting oral traditions from Māori, she also referred to contemporary medical literature and communicated with other missionaries and healers who provided care to Māori, including Lady Mary Martin. Martin wrote a small book on Māori medicine which she lent to a grateful Aubert.⁷⁸ While Aubert undoubtedly used these familiar plants, she also experimented with various combinations and alternatives, reading contemporary literature and following medical trends such as experimenting with blue gum.⁷⁹ As she notes;

⁷⁵ Pompallier was driven during the late 1860s by the thought that Māori would turn to Catholicism as they increasingly rejected Protestant ideals in the wake of the Waikato Wars. Munro, *The Story of Suzanne Aubert*, p. 111; Munro, 'Letters on the Go', pp. 60-99.

⁷⁶ Munro, *The Story of Suzanne Aubert*, p. 115.

⁷⁷ Rafter, p. 39.

⁷⁸ Munro, *The Story of Suzanne Aubert*, p. 116; 'Story: Martin, Mary' <http://www.teara.govt.nz/en/biographies/1m19/martin-mary-ann>, [accessed January 13 2014].

⁷⁹ Blue gum, *Eucalyptus globula*, was a poplar medicinal plant that many believed also purified the air, mitigating miasma. Sarah Amelia Courage, author of *Lights and Shadows of Colonial Life: Twenty-Six Years in Canterbury New Zealand* (1896) writes of her frequent use of eucalyptus that was introduced to New Zealand from Australia, propagated in early botanic gardens, and investigated for its medicinal application. Courage, p. 20; See also, James Beattie, *Empire and Environmental Anxiety: Health, Science, Art and Conservation in South Asia and Australasia, 1800-1920* (Basingstoke: Palgrave Macmillan, 2011), pp. 51-55.

I've discovered a herb [blue gum] which I've been using in an ointment to cure in three months a cancerous sore which has been defeating every remedy. It was an Irish woman sixty years old. She's been cured for four months now and she's not feeling any fatigue. I'm trying it out now on other people.⁸⁰

By this time, Aubert was concocting medicines that appealed to Māori and European alike. In 1873, for example, Aubert treated 1,353 people with medicines that she provided for free. Through her faith in prayer and God, Aubert effectively translated not only the physical side of Māori healing – using native ingredients and indigenous knowledge to create Europeans remedies – but also the spiritual. Her faith and strong religious convictions, combined with her interest in pharmacy, produced an approach to medicine that appealed to Māori, who regarded her as a skilled doctor and faithful friend.⁸¹

In 1894, Aubert dissolved her contract with Kempthorn and Prosser and for a few years following, the pharmaceutical manufacturer, Sharland, took responsibility for the marketing and advertising of her medicines.⁸² Biographer Jessie Munro argues that in their campaign, Sharland emphasised the safety and naturalness of the medicines, while the 'Māoriness' of the remedies was largely ignored. Although Māori were involved from the beginning – local hapu, Ngati Hau and Ngati Ruaka gathered the plants and assisted in their preparation – Aubert was credited with the 'discovery' of the medicines and likened to the Jesuit missionaries, who introduced cinchona to its colonies from South America.⁸³

Despite this, Aubert did not entirely strip the indigenous element from her medicines. She gave all her remedies Māori names acknowledging both the origins of the plants included and the source of her information and continued to work closely with Māori. In her letters and memoirs, she notes that most of her knowledge of medicinal plants came from Māori sources. While the combination of scientific and indigenous, or indeed 'folk' translations of plants was typical of

⁸⁰ Munro, *The Story of Suzanne Aubert* 1996, p. 118.

⁸¹ Munro, *The Story of Suzanne Aubert* 1996, pp. 196-207; Rafter, p. 39-47.

⁸² Munro, *Letters on the Go*, pp. 172-174; Rafter, pp. 63-64.

⁸³ Munro, *The Story of Suzanne Aubert*, p. 200.

domestic healers, Aubert's commercial endeavours and the need to market her medicines undoubtedly encouraged this combination.

Although members of the scientific community debated the medicinal value of native plants on the basis of non-existent scientific enquiry and methodology, domestic healers retained a broad view of legitimacy.⁸⁴ Prior to the 1880s, experiences, anecdotes and observations provided an impetus for experimentation and for many domestic healers, this evidence was as valid, and in many ways more applicable, than scientific analysis. Evaluation of a medicine or medicinal plant depended largely on an individual's experience or the testimonial of a respected source. By the 1890s, however, broader changes to the lives of New Zealand women encouraged greater organisation of health care, while popular medical discourse provided new frameworks for understanding the properties and applicability of plants.

A Combination of 'Traditional' and 'Modern' Influences, 1880s - 1920s

Between 1880 and 1920, white New Zealand became predominantly urban dwelling. State bureaucracy began to grow, as did organisation in the private sector.⁸⁵ As discussed in Chapter One, colonial scientific institutions became more organised and collaborative while practical scientific research, including experimentation on medicinal plants, was encouraged and supported by the New Zealand Government.⁸⁶ An increasing array of patent and proprietary medicines, medical theories and political agendas emerged, and New Zealand became a 'curious mix of traditional and modernising influences' – influences that can be

⁸⁴ *Brett's Colonists' Guide* includes the following disclaimer: 'It must be observed, however, that, though the Māori usage is accurately given, their observation cannot be relied upon as scientifically settling the properties of these plants, and persons who are disposed to try them must proceed with caution, lest they aggravate instead of relieving their ailments'. Leys, p. 480.

⁸⁵ Erik Olssen, 'Women, Work and Family 1880-1926', in *Women in New Zealand Society*, ed. by Philida Bunkle and Beryl Hughes (Auckland: George Allen and Unwin, 1980), pp. 159-184.

⁸⁶ Ross Galbreath, *DSIR, Making Science Work for New Zealand: Themes from the History of the Department of Scientific and Industrial Research, 1926-1992* (Wellington: Victoria University Press, 1998), pp. 11-34.

detected in the nature and breadth of domestic medical practices.⁸⁷ Up until the 1920s, domestic healers continued to play a vital role in maintaining the health of New Zealand's population, despite increased state intervention into health and welfare.⁸⁸

Broad changes to the lives of New Zealand women affected their use of medicinal plants and extended the sphere in which they provided care. By the 1880s, the number of women in New Zealand had risen through organised emigration targeting single women, and men no longer statistically dominated the population.⁸⁹ Women moved to urban centres from farms in search of work as greater employment opportunities arose in towns. Many considered a few years' employment as a valuable interlude between school and marriage.⁹⁰ Domestic service remained the most popular form of employment for New Zealand women while the advent of manufacturing enabled thousands of women, particularly from the main centres – Dunedin, Wellington and Auckland – to enter factory employment, especially in textiles and clothing.⁹¹ Greater demands on women's time encouraged consumerism of convenient domestic products, including patent and proprietary medicines. Chemists prepared appropriate forms of plant-based medicines such as powders – individually wrapped packets of powdered plants, often mixed with inorganic compounds – pills, capsules and cachets.⁹² The publication of domestic medical manuals flourished, while the practice of

⁸⁷ Rollo Arnold, *New Zealand's Burning: The Settlers World in the Mid 1800s* (Wellington: Victoria University Press, 1994), p. 123.

⁸⁸ Between 1907 and 1908, for example a number of health-related Acts were passed including an amended Public Health Act, Sale of Food and Drug Act, Medical Act, Quackery Prevention Act, Poisons Act, Dentists Act, Lunatics Act, Opium Act and the consolidation of the Contagious Diseases Act as well as the Tohunga Suppression Act. See, Department of Health, New Zealand, *'Chronological List of Some Noteworthy Events in the History of New Zealand Health Services'*, (Wellington: Information Centre, Ministry of Health, 1971), pp. 11-12, www.moh.govt.nz/...nsf/0/.../Chronological%20List%201769-1970.pdf, [accessed July 4 2013].

⁸⁹ By 1901, in the four main towns there were more women than men and in the provinces Auckland, Wellington, Hawkes Bay, Otago and Canterbury there was an excess of women aged 21 to 40. Olssen, 'Women, Work and Family', p. 160.

⁹⁰ In 1874 only 11.1 % of women were actively engaged in the work force, by 1921 the figure rose to 20.7%. Olssen, 'Women, Work and Family', p. 161.

⁹¹ By 1881, fifty-five per cent of all women employed in the colony worked as domestic servants. Macdonald, 'The Eclipse of Domestic Service', p. 52.

⁹² Cachets were ravioli-like preparations that masked the bitter taste of popular medicines such as charcoal, used to treat flatulence.

recording and compiling medical receipts appears to have declined, indicating a greater reliance on shop-bought remedies.⁹³

The growing popularity of germ theory, coupled with the introduction of public health policies and the advent of nurses training in New Zealand, encouraged a perceived divide between ‘folk’ or domestic medicine and public health. As a consequence, untrained midwives lost favour in the eyes of some public health officials, and those employed in public health institutions were replaced by women trained in hospitals and medical schools.⁹⁴ From their advent, New Zealand’s hospitals employed masters, matrons, housekeepers or house stewards – untrained men and women who often provided medical assistance. By the 1880s, a concerted effort was made to replace the untrained care givers with ‘probationers, drawn from a higher order of society’.⁹⁵ Throughout the 1890s, Mrs Elizabeth Grace Neill (1846-1926), a nurse and advocate for nurses’ training and registration in New Zealand, lamented the number of untrained women who

⁹³ Six private collections of medical receipts are referred to in this chapter and all are written prior to the 1880s. 260 manuscripts make up a substantive collection of remedy books held at the Wellcome Library for the History and Understanding of Medicine, London. Out of these, ninety-seven (37%) are dated in the nineteenth century. Seventeen (17%) of the ninety-seven are dated in the mid to late nineteenth century, indicating either a decline in the number of collections compiled during this period or a decline in the preservation of collections from this period. Pennel, 2004.

⁹⁴ Members of the New Zealand Medical Association, who were by this stage agitating for increased medical professionalism met in April 1886 to discuss their concerns relating to midwifery and the ‘total lack of qualifications amongst some of the women practising as midwives’. In 1904, the New Zealand Government passed the Midwives Registration Act which provided for the better training and the registration of midwives. The Act allowed all women of ‘good character’ with a minimum of three years experience practicing as ‘*bona fide*’ midwives as well as those with a certificate in midwifery from any recognised training school, to register on payment of a prescribed fee. In 1906, 662 women registered under this provision; only sixty three of these acknowledged an actual qualification. The Act also decreed that of January 1, 1907, only those registered as midwives were lawfully able to practice and assume the name of midwife. See Alison Bashford, ‘Medicine, Gender and Empire’, in *Gender and Empire*, ed. by Phillipa Levine (Oxford: Oxford University Press), p 126; Rex Wright-St. Clair, *A History of the New Zealand Medical Association: The First Hundred Years* (Wellington: Butterworths of New Zealand, 1987), p. 26; Duncan MacGregor, ‘Hospitals and Charitable Institutions of the Colony’, *AJHR* (1901), H-22, pp. 1-49.

⁹⁵ Wellington Hospital provided the first official training school for nurses in 1883. Auckland followed suit in 1891, as did Christchurch in 1891 and Dunedin in 1893. Christchurch Hospital which opened in 1865 employed its first trained nurse in 1885 although she had only 6 months experience in a London Hospital. From 1886, New Plymouth Hospital employed trained nurses, the first being Miss Blackley who was trained in Manchester Royal Infirmary. By 1887, a nurses training scheme was initiated and by the following year, nurse were taught at Otago Medical School. This scheme, ironically was run by a Miss Burton, herself an untrained nurse. See F. S. Maclean, *Challenge for Health: A History of Public Health in New Zealand* (Wellington: Government Printer, 1964), p. 45.

adopted the title of nurse in public and private settings.⁹⁶ In many ways, this strengthened the divide between domestic health and public health. Domestic remedies and care came to be classified as ‘traditional’ or old-fashioned compared to the seemingly more modern and progressive care provided in hospitals and other public health institutions.

Campaigns to standardise nursing training paralleled concerted efforts by members of the New Zealand British Medical Association to regulate the practices of ‘irregular’ and untrained practitioners. Practitioners became increasingly specialised, no longer combining different approaches and techniques, but forced instead to choose sides in the ‘irregular medicine’ versus ‘regular medicine’ debate. Consequently, certain medicines became associated with different medical approaches. While many rejected what they considered to be ‘old time’ remedies – such as tincture of digitalis – others, such as James Neil (quoted below), continued to use plants considered outdated, basing their loyalty on experience:

This preparation [Tincture of digitalis]...was at one time held in high estimation, but has since fallen into disuse ... The tinctures, concentrated medicines, and most valuable pharmaceutical preparations, are generally not kept in stock by wholesale pharmacutists ... We import mainly from America.⁹⁷

In 1879, American drug manufacturers Parke, Davis and Co. developed a process for the standardisation of plant-based medicines by chemical assay, and before long ‘scientifically proven’ medicines flooded the market.⁹⁸ The scientific translation of medicinal plants is explored further in Chapter Six. Chemists performed stringent tests dictated by British formularies and pharmacopeia designed to standardise the drugs they sold. Domestic medical manuals made distinctions between those plants favoured or rejected by physicians. The *Australasian Practical Home Physician* recommends the use of buckthorn but

⁹⁶ Maclean, p. 24.

⁹⁷ James Neil, *The New Zealand Family Herb Doctor: A Guide to Recipes and Herbal Remedies (First published in 1891)* (Twickenham: Tiger Books International, 1998), p. 192.

⁹⁸ Milton L Hoefle and Warner Lambert-Parke Davis, ‘The Early History of Parke-Davis and Company’, *Bulletin of Historical Chemistry*, 25, 1 (2000), pp. 28-34.

notes ‘it is not ordinarily used by physicians’.⁹⁹ Contrarily, *Cascara sagrada*, informs the author, is ‘recognised by the medical profession as the best known laxative ... best attained by using the cascara cordial manufactured by Parke, Davis and Co’.¹⁰⁰ As herbalists and others continued to use the same plants vetoed by physicians, the plants themselves became increasingly defined as ‘traditional’ remedies.

Contrary to the popular perception that domestic remedies were unscientific, ‘antiquated formulae’, domestic healers also adopted a scientific approach to their practice.¹⁰¹ This trend was supported by the popularity of domestic science. Although ‘few historians of science have considered daily domestic duties, particularly domestic medicine, as science’, by the late nineteenth century, domestic duties and household management became increasingly standardised and scientific, with the aid of organised education.¹⁰² A female curriculum that included subjects such as literacy, economics and health was created for girls in schools and training institutions.¹⁰³ Teaching was a popular profession for women and many women found ‘satisfying niches schooling genteel and respectable girls’.¹⁰⁴

The advent of this domestic curriculum and the increasing influence of science affected the advice given to, and the approach taken by, domestic healers. By the 1890s, most domestic manuals, such as Kellogg’s Ladies Guide pictured in *Figure 3:3*, included substantial sections on anatomy and physiology, and instructions on how to prepare plants became increasingly refined. Additionally, they emphasised diagnosis and the application of specific treatments and regimes.

⁹⁹ Henry Lyman, Christian Fenger, H. Webster Jones and W.T. Belfield, *The Practical Home Physician and Encyclopaedia of Medicine: A Management of Disease; Giving the History, Cause, Means of Prevention and Symptoms of all Diseases of Men, Women and Children and most Approved methods of Treatment with Plain Instructions for the Care of the Sick...Australasian Edition* (Canada: The World Publishing Co, c. 1880s), p. 1076.

¹⁰⁰ Lyman *et al*, p. 1085.


¹⁰¹ ‘Sale of Food and Drugs Act, *The British Medical Journal (BMJ)*, June 1 (1895), p. 1219.

¹⁰² Allen, p. 3.

¹⁰³ *North Otago Times (NOT)*, 13 September 1886, p. 2; *Star*, 26 November 1892, p. 4.

¹⁰⁴ James Belich, *Making Peoples, A History of New Zealander’s From Polynesian Settlement to the End of the Nineteenth Century* (Auckland: The Penguin Press, 1996), p. 388.

Figure 3:3: The contents from Kellogg's 'The Ladies Guide' showing sections on anatomy and physiology

	
PREFACE.....	1
ANATOMY AND PHYSIOLOGY OF REPRODUCTION.	
Man the masterpiece—Animated atoms—Study of microscopic life— The protozoa—The amoebae—Similarity between plants and animals—Marvels of minute living forms—Distinguishing feature of animals and vegetables—The body an aggregation of living cells.	
GENERAL SURVEY OF THE BODY.....	27
The digestive system—The alimentary canal—The teeth—The salivary glands—The oesophagus, or meat-pipe—The stomach— The intestines—The liver—The pancreas—The spleen—The portal system—The five digestive juices—The elements of food —The saliva—The gastric juice—The bile—The pancreatic juice—The intestinal juice—Absorption—Disintegration and elimination—Assimilation—The motive system—The nervous system—Brain cells—Nerve fibres.	
THE REPRODUCTIVE SYSTEM.....	37
The zoöperm—The ovum—The organs of reproduction—The ovary —The womb, or uterus—The fallopian tubes—The bladder—The rectum—The perinaeum—Blood-supply of the uterus and ovaries —Nerves of the uterus and ovaries—Supports of the uterus— Broad ligaments—The pelvis—The sacrum—The coccyx— The symphysis—Promontory of the sacrum—Differences be- tween the male and the female pelvis—Proper proportion of the form in females—Canal of the pelvis—Curve of the pel- vic cavity—Pelvis of the guinea-pig—Pelvis of the cow— Changes in the pelvis prior to childbirth in the human female	2 [v]

Source: Kellogg, p. v

Patient observation was the first and foremost diagnostic technique and domestic manuals included comprehensive descriptions of diseases to assist with diagnosis. Many incorporated detailed diagnostic instructions, such as that described below from *The Practical Home Physician and Encyclopaedia of Medicine* (c.1880):

A point which should never be forgotten in household practice is to inspect the throat wherever an individual is suffering from any indefinite ailment; if this were a more general practice, mothers would often be spared the surprise and chagrin which occurs when, upon the first visit of the physician, he discovers in the throat of the child, who may have been ill for several days, a thick, white coating of diphtheritic membrane.¹⁰⁵

During this period, the scope of domestic care remained broad. Domestic manuals prepared and instructed healers to treat both simple everyday ailments, such as headaches and colds, and severe disorders including spinal meningitis, apoplexy

¹⁰⁵ Lyman *et al*, p. 52.

and cancer of the stomach.¹⁰⁶ As demonstrated in Chapter Six through a case study on the highly poisonous plant, *Aconitum napellus*, few controls surrounded the use and sale of drugs in New Zealand in the nineteenth century. As a consequence, domestic healers, like educated physicians, used plants that had potentially fatal side effects.¹⁰⁷ In *Brett's Colonist's Guide* (1897) medicines for internal use include *Aconitum napellus*, a plant described in another manual as 'one of the most powerful drugs employed'.¹⁰⁸ Other plants recommended to, and used by, domestic healers include *Atropa belladonna*, otherwise known as deadly nightshade and described as a violent poison; *Hyoscyamus niger*, used similarly to belladonna and equally toxic; and *Conium maculatum*, reportedly used to poison prisoners in Ancient Greece.¹⁰⁹

As the information available to domestic healers became increasingly broad, so too did the sphere in which they practiced. During New Zealand's early period of European settlement, New Zealand women, in their role as 'moral guardians', established welfare organisations that replicated British initiatives. Benevolent Societies, the Women's Christian Temperance Movement (WCTU), the Young Women's Christian Association (YMCA), homes for the elderly and refuges for 'fallen women' were 'morally charged' institutions, designed to instil British ideals of morality and civility.¹¹⁰ These organisations maintained a strong focus on health and wellbeing and by the 1880s, they provided a forum for trained and untrained women to provide care and medical advice. These actions extended the

¹⁰⁶ Lyman *et al*, pp. 338, 207, 296, 293.

¹⁰⁷ Acts such as the Adulteration of Food and Drugs Act (1877) were designed largely to prevent the contamination of existing consumer products and did little to regulate or monitor the sale of potential harmful drugs. Early legislation (for example the 1866 Food and Drug Act) regulated the sale of specific poisons including arsenic corrosive sublimate prussic acid, essential oil of bitter almonds and strychnine, but exempted medicines that contained these products. *Statutes of New Zealand*, 1866, No. 55, An Act to Prevent the Adulteration of Articles of Food or Drink; *Statutes of New Zealand*, 1877, No. 48, An Act for Preventing the Adulteration of Food or Drugs, and the Selling or Exhibiting for Sale Adulterated or Unwholesome Food or Drugs of any Kind.

¹⁰⁸ Lyman *et al*, p. 1080.

¹⁰⁹ Leys, pp. 468-479; Grieve, pp. 391-2.

¹¹⁰ The first Ladies Benevolent Societies formed in Auckland and Onehunga in 1857 and 1863 respectively. See Margaret Tennant, 'Welfare Organisations', in *Women Together: A History of Women's Organisations in New Zealand, Ngā Rōpū Wāhine o te Motu*, ed. by Anne Else (Wellington: Historical Branch, Department of Internal Affairs, Daphne Brasell Associates Press, 1993), p. 109-119; Sandra Coney, 'Health Organisations', in *Women Together: A History of Women's Organisations in New Zealand, Ngā Rōpū Wāhine o te Motu*, ed. by Anne Else (Wellington: Historical Branch, Department of Internal Affairs, Daphne Brasell Associates Press, 1993), pp. 241-253.

realm in which women provided care, complicating simple binary definitions of public and private health.¹¹¹

Most women involved with health and welfare organisations were urban-based and from the middle-to-upper-classes; in other words, in a social position to engage with modern medical discourse. The form of assistance provided varied according to need, and in accordance with America's middle-class, many New Zealand women advocated the progressive ideals of the American Popular Health Movement.¹¹² By the 1890s, health movements in America, led by charismatic doctors such as John Harvey Kellogg and supported by institutions like the American School of Medicine (Eclectic), became increasingly popular, particularly appealing to a burgeoning middle-class. Advocates and disciples rejected the increasing number of inorganic medicines available and sought to 'live in a manner consistent with natural law'.¹¹³ They highlighted the dangers of opium and chloral, popular and powerful addictive sedatives, recommending instead regime and lifestyle to combat drug addiction and the associated ills of decadence. Drugs like opium, writes Kellogg, lead to 'complete mental, physical, and moral demoralization'.¹¹⁴ Many of Kellogg's contemporaries, such as fellow American Dr Edward Foote, recommended instead a return to traditional cures and the use of plants in their natural unadulterated state.

Nearly all kinds of vegetable medicines, such as sarsaparilla, yellow dock, elder flowers, uva ursi, rhubarb, Iceland moss, and other useful roots and herbs which are thrown into the medicine market, are either adulterated in such a way as to elude the detection of those acquainted with the botanical description, fragrance, and flavour of the pure articles, or have been rendered inefficient by being gathered at the wrong season of the year.¹¹⁵

¹¹¹ Additionally, district nursing developed in response to increasing numbers of sick poor in New Zealand to whom the state displayed a degree of ambivalence. This also challenged 'spatial, social and public-private boundaries'. Pamela Wood and Kerri Arcus, 'Poverty, Philanthropy and Professionalization: The Establishment of a District Nursing Service in Wellington, New Zealand, 1903', *Health and History*, 13, 1 (2011), pp. 44-64.

¹¹² Coney, pp. 242-3.

¹¹³ Sylvia Tesh, *Hidden Arguments: Political Ideology and Disease Prevention Policy* (New Brunswick: Rutgers University Press, 1988), p.21.

¹¹⁴ Kellogg, p. 223.

¹¹⁵ Edward Foote, *Plain Home talk: Embracing Medical Common Sense, About the Human System, the Habits of Men and Women, the Causes and Prevention of Disease, Our Sexual Relations and Social Natures, Embracing Medical Common Sense, Applied to Causes, Prevention, and Cure of*

Supported by the American influence, herbalism underwent a period of resurgence in the 1890s, further encouraging and perpetuating the use of medicinal plants by domestic healers as opposed to inorganic medicines. Thomsonianism, a popular American system of herbalism, became popular in New Zealand immediately following its introduction, thanks largely to the prominent herbalist James Neil.¹¹⁶ Newspaper columns and medical manuals reflected this trend, publishing articles that encouraged the preparation of medicines from simple ingredients. The *Te Aroha News*, for example, printed an excerpt from an English paper that described simple and easily prepared ‘green ointments’ for common ailments, based on readily available medicinal plants such as chickweed, groundsell, solomon’s seal, violets, chamomile and hyssop.¹¹⁷ These articles created a link between herbalists and domestic healers and supported the role of herbalists in New Zealand society. Articles presented medical discourse from America that informed and influenced domestic healers and their choice of remedies.¹¹⁸

During an era of ‘grassroots discontent’ and mass literacy in America, various religious dissenting sects and socio-political groups also created healing movements that appealed particularly to the middle- and upper-classes.¹¹⁹ Although disparate in their practices and philosophies, many groups denounced modern lifestyles, and instead looked to nature for cures and advocated the use of medicinal plants. The influence of these groups and their philosophies was felt in the colonies. It appealed to members of the public who resented campaigns run by medical organisations such the New Zealand British Medical Association to

Chronic Diseases, the Natural Relations of Men and Women to Each Other, Society, Love, Marriage, Parentage... (New York: Murray Hill Publishers, 1873), pp. 193-194.

¹¹⁶ The number of herbalists in New Zealand increased significantly during this period, making up the majority of ‘irregular practitioners’ included in New Zealand censuses between 1886 and 1916. Belgrave, p. 307.

¹¹⁷ *Bush Advocate (BA)*, 10 April, 1905, p. 2.

¹¹⁸ For example the following articles discuss the benefits of American health resorts and reports from the American Health Association twenty-nine annual convention.’ ‘An American Health Resort’, *Evening Post (EP)*, 19 November 1898, p. 3; ‘Oppose Dr Koch’s Theory’, *Bruce Herald (BH)*, 3 March 1903, p. 7.

¹¹⁹ Porter, p. 390.

restrict the practices of other healers and control the provision and direction of medicine.¹²⁰

In New Zealand in 1885, for example, Mrs Emma Bono gave evidence at a coroner's inquest relating to the care she had given to a young Māori girl, Mehema Ratima, brought to her by the girl's aunt and uncle, Hokimate and Te Raumahiwa Te Rango. Mrs Bono stated her affiliation with an order known as the Children of Truth. This organisation followed the teachings of several American Orders, including Christian Science – a popular metaphysical movement developed by Mary Baker Eddy in 1879. Christian Science advocates prayer over medicine, and Mrs Bono determined her diagnosis, as the paper reported, while in a 'semi-trance or clairvoyant state'. However, Bono also prescribed a herbal remedy that included poplar bark, bayberry bark, black cohosh, golden seal, anise seed and cinnamon.¹²¹

Patent and proprietary medicine manufactures, attuned to this demand, marketed their remedies as safe alternatives to adulterated medicines. In New Zealand, according to a correspondent for the *Chemist and Druggist of Australasia*, consumers bought patent and proprietary medicines at a rate reportedly greater per capita than anywhere else in the world.¹²² Increasing tariffs on the patent and proprietary medicines from the 1880s onwards caused constant concerns to wholesalers and consumers and fed debate on the worth of patent medicines.¹²³ While some manufacturers claimed that the consumption of patent medicines was

¹²⁰ During the late nineteenth century, New Zealand doctors struggled to gain respect and authority in New Zealand, battling against state intervention and popular opinion. In 1872 the first Public Health Act was passed, significantly one year before the New Zealand British Medical Association (NZBMA) formed. The NZBMA resented the growing influence of the state in matters of health and in particular criticised the "increasing burden of hospital expenditure". In addition, Friendly Societies which originated in England were established in New Zealand to assist the poor in accessing medical services. These societies which effectively spread the cost of medical treatment for patients antagonised and compromised the earning potential of medical men in the colony and NZBMA ran constant campaigns against them, accusing members of being too wealthy to belong and abusing a system designed to help only the poor. Campaigns such as this and efforts to suppress their competition compromised doctors reputations and standing in communities. See Wright-St Clair, p. 106.

¹²¹ Porter and Macdonald, p. 478.

¹²² *CDA*, 8, 4 (1893), pp. 68-9; *CDA*, number unknown, 1 (1888), p. 128.

¹²³ *Thames Star (TS)*, 29 August 1900, p. 4; *Auckland Star (AS)*, 31 May 1888, p. 8; *Wanganui Chronicle (WC)*, 29 August 1900, p. 2

a sign of wealth and civility, others argued that it was an expression of ignorance.¹²⁴ Regardless, for many of New Zealand's domestic healers, patent medicines were useful, readily available and their pervasiveness arguably suggests a perceived of respectability.

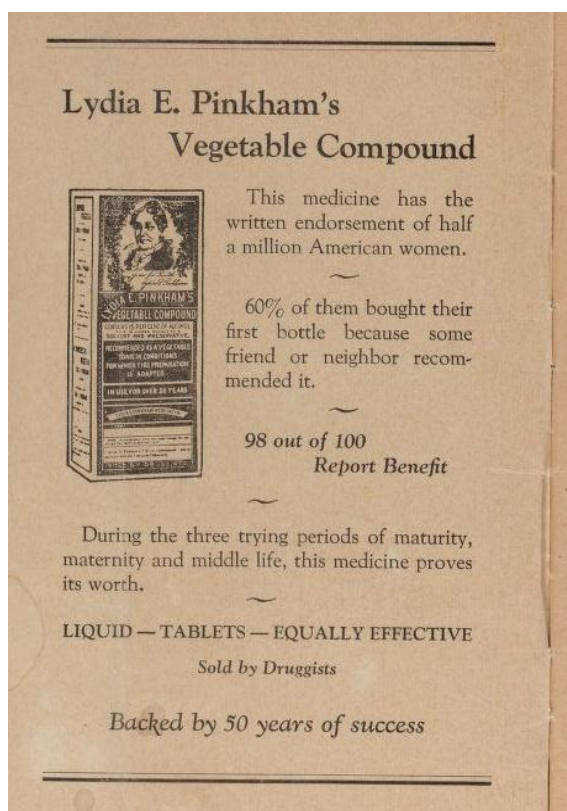
American-made remedies, such as Lydia Pinkham's herbal pills, were popular in New Zealand. These were marketed as 'herbal' remedies or were claimed to be based on traditional indigenous recipes. In 1873, Massachusetts-born Lydia E. Pinkham founded the Lydia E. Pinkham Medicine Company in order to market a vegetable compound developed to relieve a number of conditions, particularly those specific to her female friends and relatives. The compound, which comprised of black cohosh, life root, unicorn root, pleurisy root, fenugreek seed, and a substantial amount of alcohol, was incredibly popular and the business was immediately successful, grossing \$300,000 the year of Pinkham's death in 1883.¹²⁵ Pinkham also produced regular pamphlets and books, including *Home Nursing*, from which *Figure 3:4* is taken, and '*Pinkham Pamphlets*'. This literature provided alternative treatments for specifically female ailments, such as menstrual disorders during a period when orthodox treatments included ovariectomy, or, removal of the ovaries.¹²⁶

¹²⁴ In 1893, a correspondent writing for the *Otago Daily Times (ODT)* reported the opinion of Mr H.R. Packard of Chicago, who proposed there could be no better test of prosperity and civilisation of a community than the quantity of patent medicines it consumes. Arguing this point, columnist Thackeray James writes, that 'in the colonies the ignorant and half-educated have more money at command than the same elsewhere and can afford themselves luxuries – patent medicines to wit'. *CDA*, 8, 4 (1893), pp. 68-9.

¹²⁵ Schlesinger Library, Radcliffe Institute, Harvard University, MC 181, Lydia E. Pinkham Medicine Company Records, *Home Nursing*, Summer (1931), Series II, Advertising records, 1873-1968; Pinkham pamphlets, <http://pds.lib.harvard.edu/pds/view/4089243?n=569&imagesize=1200&jp2Res=.25&printThumbnails=no>, [accessed July 31 2013].

¹²⁶ Porter, p. 363.

Figure 3:4: Inner cover of 'Home Nursing' by Lydia Pinkham, c. 1930s



The success of Pinkham's compound relied largely on Pinkham's business savvy and marketing skills. Understanding the nature of domestic medicine, Pinkham marketed her compound directly at women and placed her image on most of her packaging, suggesting an affinity with her consumers. Despite their popularity, few patent medicines escaped the condemnation of Edward Bok, editor of the already successful *Ladies' Home Journal* in America – the first journal to gain a membership of one million people and the first in 1892 to ban advertisements by patent medicine manufacturers.¹²⁷

Source: 'Lydia Estes Pinkham (1819–1883)', <http://ocp.hul.harvard.edu/ww/pinkham.html>, [accessed November 18 2013]

Bok's campaign struck a blow to what had become a multi-million dollar patent medicines industry elevated by the likes of Pinkham. With some medicines containing up to 40 per cent alcohol, Bok gained the support of women's temperance movements and was determined to 'expose the disgraceful violation of the confidence of women by these nostrum venders in selling their most confidential letters to anyone who would buy them'.¹²⁸ Despite a strong women's temperance movement in New Zealand, the import and sale of patent medicines remained constant throughout the late nineteenth century.

¹²⁷ CDA, number unknown, 6 (1922), p. 278.

¹²⁸ Bok kept up his campaign and legislation including The United States Pure Food and Drug Act followed in several states - a blow from which the patent medicine industry never recovered. CDA, number unknown, 6 (1922), p. 278.

Figure 3:5: Patent medicines and sundries department in the Auckland warehouse of Messrs' Sharland and Co., c. 1897



Source: The Cyclopaedia of New Zealand (Wellington Provincial District) (Wellington: The Cyclopaedia Company, 1897), pp. 487-489, <http://nzetc.victoria.ac.nz/tm/scholarly/tei-corpus-cyclopaedia.html>, [accessed September 15 2013]

Several New Zealand drug wholesalers imported and manufactured patent medicines in the late nineteenth century. This included the larger firms, such as Sharland and Company Limited, and the New Zealand Drug Company Limited, the latter an initiative of Kempthorn and Prosser.¹²⁹ According to historian Simon Shield Wilson, New Zealand's larger drug companies opened to meet demand and to reduce the time chemists and consumers waited for imported products. While they played a significant role in the colony's medical and economic culture, argues Shield Wilson, they 'never came close to competing with the volume of products imported from overseas'.¹³⁰ Sharland and Company formed in Auckland

¹²⁹ Other drug manufactures in New Zealand included H. C Smart Ltd, Auckland Drug Company, A.E. Dunn, Woolams Ltd and William Sutton and Co.

¹³⁰ Simon Shield Wilson, *From Eau de Cologne to Rat Poison: Kempthorne Prosser and Co.'s New Zealand Drug Company Limited, 1869-1918*, Unpublished Masters Thesis, University of Otago (2010), p. i.

in 1865 and grew quickly, establishing offices in Wellington, a warehouse in Auckland and acid works in Tauranga.¹³¹

Figure 3:6: An article in the Grey River Argus on Aubert's remedies

THE WEALTH OF NEW ZEALAND.

NEW ZEALAND is a country which is blessed with great mineral wealth, and it also must have struck all travellers and residents what an immense amount of beautiful foliage covers every hill-top and valley.

So far science has not done much to discover the hidden good qualities contained in the vegetation of this colony, but there has been a lady at work for the past 30 years, who has devoted her life to actions of mercy, and being of benefit to mankind generally. We refer to **MOTHER MARY JOSEPH AUBERT**, who has spent most of her life amongst the Maoris, and during that time she has been fortunate in discovering the most valuable remedies for diseases in the vegetation which grows everywhere around us. It is most natural that a country so bountifully supplied by Nature in mineral should also have its vegetable wealth, and we must all be truly grateful to **MOTHER MARY JOSEPH AUBERT** for her untiring research, and which will now bring in its own reward to herself in the fact that her life has not been mis-spent, but will hereafter be of great benefit to suffering humanity.

Source: *Grey River Argus*, 14 August 1891, p. 4

Kemphorn and Prosser grew equally fast and sought to exploit New Zealand's local products, industry and ingenuity. In 1891, the firm entered into a contract with Mother Mary Joseph Aubert, introduced earlier.¹³² Designed to relieve common complaints such as influenza, liver dysfunction, sunstroke, inflammation, lumbago and rheumatic fever, her popular range included Wanena (for cuts, bruises), Paramo (for liver complaints), Marupa (for coughs, influenza), Karana (for digestive complaints), Kekako plasters (for lumbago), and Natanata (for vomiting and diarrhoea).¹³³

Aubert's remedies appealed to both the traditional and the modern consumer – they met the demand for medicine specific to New Zealand colonists, met scientific industry standards, contained sufficiently 'herbal' ingredients, and were based on an indigenous system of healing. Kemphorn and Prosser recognised the advantages and appeal of Aubert's medicines and advertised accordingly. In *Figure 3:6*, the article, released by company in 1891, describes Aubert as a

¹³¹ *The Cyclopaedia of New Zealand (Wellington Provincial District)* (Wellington: The Cyclopaedia Company, 1897), pp. 487-489, <http://nzetc.victoria.ac.nz/tm/scholarly/name-412282.html>, [accessed June 3 2013].

¹³² Munro, 1996.

¹³³ After a few short years, however, Aubert withdrew her contract after discovering the company diluting stock, reducing the efficacy of her medicines and increasing the rate of fermentation. Shield Wilson, pp. 102-3; Margaret Tennant, 'Mother Mary Joseph Aubert', in *The Book of New Zealand Women/ Ko Kui Ma Te Papa*, ed. by Charlotte Macdonald, Merimeri Pinfold and Bridget Williams (Wellington: Bridget Williams Books, 1991), pp. 29-31.

philanthropist and botanist and the plants she discovered as ‘the wealth of New Zealand’.¹³⁴

As the patent medicine industry flourished, the incorporation of native plants increased the popularity of certain plant species, and evidence suggests that domestic healers continued to experiment with plants collected from the wild. Olga Sansom, who lived and worked in Southland and Stewart Island in the early 1900s, recorded the use of native medicinal plants by Stewart Islanders. A long history of intermarriage between South Island Māori, Ngāi-Tahu and Europeans may have facilitated this exchange.¹³⁵ In her diaries, she notes the use of toe toe for piles, rata leaves for intestinal complaints and kowhai for itchy sores. Other plants she mentions include koromiko, manuka, and karamu as well as introduced species such as wormwood, dandelion, red clover, sage, St. John’s wort and plantain. Some of these plants, notes Sansom, were cultivated specifically for their medicinal use.

Ngaio leaves were heated for poultices and also the big, hairy marshmallow leaves, an introduced plant something like the garden hollyhock. The leaves and roots of the marshmallow he also boiled, using the liquid as a gargle for a sore throat. You will still find the marshmallow growing in some of the old gardens where it is cultivated.¹³⁶

Although recipes for patent medicines were closely guarded and protected by their patent, increased pressure from the public and medical fraternity led to the disclosure of ingredients and formulae which provided further guidance for domestic healers.¹³⁷ While some patent medicines combined only two or three ingredients, others combined every plant known to possess similar qualities, in an approach that mirrored domestic medical practices. Table 3:1 compares the

¹³⁴ *Grey River Argus (GRA)*, 14 August 1891, p. 4.

¹³⁵ Michael Stevens, ‘The Ocean is our only Highway and Means of Communication’: Maritime Culture in Colonial Southern’, *Journal of New Zealand Studies*, 12 (2011), pp. 155-169.

¹³⁶ Riley, p. 288.

¹³⁷ Australasian patent laws, as of 1881, decreed that any manufacturer who gained a patent secured the rights to such patented article for three years. At the end of three years a payment of 50/ secured the patent another three years – 100/, another seven. If either payment was omitted, the patent becomes void and the recipe/ invention is open to the public. *CDA*, number and edition unknown (1881), p. 83.

relatively simple formula for Holloway's Pills with the more complicated Page Woodcock's Wind Pills.¹³⁸

Table 3:1: Compound formulas published in *The Chemist and Druggist Diary*, 1881

<u>Holloway's Pills</u>	<u>Grammes</u>	<u>Page Woodcock's Wind Pills</u>	
Sulphate of	0.20	Extract of gentian root	10 oz
Soda Saffron	0.20	Extract of camomile flowers	7 oz
Pepper	0.45	Powder of extract of aloe	4 oz
Rhubarb	1.70	Powder of Turkey rhubarb roots	4 oz
Socotrine aloes	4.00	Powder of Jamaican ginger	2 oz
		Powder of gum myrrh	2 oz
		Powdered Castile soap	4 oz
		Powder of ipecacuanha	1 ½ oz
		Compound extract of colocynth	2 oz
		Essential oil of peppermint	1 dracham
		Essential oil aniseed	1 dracham

Source: *CDA*, number and edition unknown (1881), pp. 88-89

While pharmaceutical journals published formulae to assist chemists, the British Medical Association (BMA), still largely influential in New Zealand, released a book that included analyses of popular medicines, designed to expose patent medicines and their advertisers as fraudulent and misleading.¹³⁹ This campaign, like Edward Bok's, targeted false advertising rather than the remedies themselves, which more often than not, included plants and other ingredients recognised and also prescribed by the medical fraternity.

As will be seen from the analyses given below of a number of nostrums advertised as remedies for epilepsy it was found that

¹³⁸ *CDA*, number and edition unknown (1881), pp. 88-9.

¹³⁹ British Medical Association, *Secret Remedies: What they Cost and What they Contain* (London: British Medical Association, 1909).

all, with one exception, contained bromide salts, that is to say, a drug the effect of which is described and discussed in every medical work dealing with the disease ... The exceptional preparation contains vervain (*Verbena officinalis*) which held a place in the old pharmacopoeias and herbals.¹⁴⁰

From these recipes and their analysis, we can see which plants remained popular and which the BMA considered ‘traditional’ or ‘modern’. Although patent medicine manufacturers frequently ‘bulked up’ their products with inorganic inert ingredients such as sugar and soap, several medicinal plant species remained standard ingredients. In the 1909 edition of *Secret Remedies*, for instance, these included aloes, ginger, liquorice, bryony, chamomile, gentian, peppermint and bearberry.¹⁴¹

These plants remained, therefore, valuable commodities, and domestic medical care, with the support of patent and proprietary medicines, remained an important system of care in New Zealand. Infectious diseases such as typhoid, measles and smallpox still caused death and suffering well into the early twentieth century, testing public health services and forcing the recruitment of domestic healers and medicines. During the 1918-19 influenza epidemic, for example, domestic healers employed various methods to protect themselves and their loved ones. It was more than ten years prior to the routine use of antibiotics. The fight against flu, therefore, relied predominantly on community initiative and voluntary effort, which was already well organised though exhausted due to the war effort. Fumigation stalls were the primary preventative treatment offered by the state. However, their efficacy was questionable and camphor bags, quinine tablets, garlic, onion, brandy and whiskey were among some of the domestic practices employed.¹⁴²

By the 1920s, preventative health measures remained paramount and the sale of patent and proprietary medicines continued. In a New Zealand Farmer’s Trading

¹⁴⁰ British Medical Association, p. 124.

¹⁴¹ British Medical Association, 1909.

¹⁴² Geoffrey Rice, *Black November: The 1918 Influenza Pandemic in New Zealand* 2nd edn, (Christchurch: Canterbury University Press, 2005), pp. 96, 108, 116,152.

Catalogue distributed in 1921, a selection of sick room requisites – including eye baths, enema kits, thermometers, ear syringes and douche cans – showcase the nature and extent of domestic care.

Figure 3:7: Advertisements for 'sickroom' requisites in the New Zealand Farmer's Trading Catalogue, 1921

NO DEPOSIT, TWO YEARS' TERMS, ONE YEAR'S INTEREST. 237

MISCELLANEOUS GLASSWARE & SICKROOM REQUISITES

No. 11480—BREAST OR NIPPLE SHIELD.—Where the breast has become sore, this will be found of great benefit. Price, 1/8 each.

No. 11489—BABY SOAP-FONTEIN.—Of excellent quality. Could supply much cheaper, but prefer to sell only good, sound articles. Best rubber. Price, 2s. each.

No. 11488—PUFF NOZZLE.—Epidemic quality Xylonite. Price, 1/6.

No. 11486—EYE SHIELD.—Each Price, 6d. each.

No. 11509—EYE BATHS.—Filled with liquid it can be pressed round about setting any of the liquid. Price, 6d. each.

No. 11500—MEDICINE DROP TUBE.—Separate box. With this tube you press the bulb and draw up the liquid which is accurately dropped by means of bulb slowly. Price, 6d. each.

No. 11500—ENEMA.—Comparatively simple, easy the making of having three in the home. Made of the best and hose tubes, warranted in good condition. Price, 7/3 each.

No. 11506—Cheaper Line, with Vulcanite. Price, 6/6 each.

No. 11507—INFANT ENEMA.—Best quality red rubber with flat base. Capacity, two fluid ounces. Price, 1/11 each.

No. 11510—FAGINAL DOUCHES.—Red rubber bulb and shield with curved hard rubber spray pipe. Constructed in such a manner as to produce a whirling spray. Approximate capacity, 3 fluid ounces. Price, 1/2 each.

No. 11511—DOUCHERS.—Cans are of best white porcelain enamel on sheet steel; very strongly made. Complete with best quality rubber tubing and vulcanite fittings, each packed in cardboard box. Price, 2/5 each.

No. 11508—BEST QUALITY SPOON FEEDER.—Both rubber ends come off, enabling the bottle to be thoroughly cleaned. Price, 1/3 each.

TABLE SPOONS

No. 11501—GOSMA FEEDER.—Free from covers, and the graduation tells the quantity consumed. A novel feature is the air channel blown into neck of bottle. These in conjunction with teats, convey air into bottle when suction is exerted by the infant, and food is thereby released in small quantities in a normal and natural manner. Complete with teats in cardboard box. Price, 1/- each.

No. 11503—"FRENCH" FEEDING BOTTLES.—Frenx Nursing Bottles are the result of a demand for a nursing bottle made of the same material as the famous Frenx Transparent Oven Dishes—to withstand extremes of both heat and cold. Packed in cardboard box. Price, 1/9 each.

No. 11505—EXTRA TEATS.—For 2-hole feeders of every description. Made of best quality rubber. Teats: Price, 6d. each. Valves, 2d. each.

No. 11510—LAKERS TEATS.—In best quality white and hard rubber. Price, 6d. each.

No. 11500—EAR SYRINGE.—10s Price, 1/11 each.

No. 11502—PINKIE STALLS.—Made from soft leather, heat in appearance, soft and comfortable in use. Shipped with wrist band attached. Price, 6s. each.

No. 11512—SPARKLET SYSTEM.—A simple and quick mode of making soda-water. Makes soda-water in 1 minute. Large size only. Price: Size "C," 10/6 each.

No. 11512—SPARKLET BUBBLER.—To be used with the above syphons. Price: Size "C," 4/- per dozen.

No. 11509—CLINICAL HOSPITAL THERMOMETER.—Rounds; 2 1/2 in. 30 seconds. In cases of fever these are very necessary for taking the temperature of the patient. Please note that these are not returnable. Each sent in metal tubular case, to ensure safe carriage. Price, 2/3 each.

No. 11502—THERMOMETERS.—Japanned Steel Case with distinct figures. The figured plate is silvered brass, black filled figures. Approximate scale range 9° to 210° F. Selected quality, and guaranteed reliable. Price: Size "C," 2/3; 100s. 2/11.

BUY DIRECT FROM THE FARMERS' TRADING CO. AND SAVE MONEY.

Source: Farmers Trading Company Limited, *Catalogue May 1931*, (Auckland: The Company, 1931), p. 237

In the same catalogue, two pages dedicated to patent medicines indicate the prevalence and continued popularity of these medicines. Plants that were popular in the mid-nineteenth century – such as arnica, camphor, cascara, eucalyptus, saffron, ipecacuanha and peppermint – remained standard ingredients and did so until the advent of drugs such as sulpha derivatives introduced in 1936, penicillin in 1941; streptomycin in 1948; Part-Amino-Salicylic Acid (PAS, used to treat

tuberculosis) in 1950; and hydrocortisone in 1952.¹⁴³ By then, armed with both the perceived elements of modern science and the tools of the past, domestic healers continued to treat themselves and others, while the medical community debated furiously and created codes of ethics and boundaries all in the name of increased medical professionalisation.

Conclusion

Domestic healers, the majority of whom were women, provided an invaluable and widespread service in New Zealand during the nineteenth and early twentieth centuries. In the face of increased specialisation and fracturing within the medical community, their approach to health and wellness remained subjective and eclectic. The ‘domestic curriculum’ they constructed and relied upon included their own often extensive experiences, while their use of plants reveals the adoption of new approaches and trends as well as the persistence of tried and true techniques.

During the early period of European settlement in New Zealand, domestic healers relied heavily on experience and domestic medical literature to guide their use of medicinal plants. By the late nineteenth century, changes to the lives of New Zealand women – including greater employment and educational opportunities, and the formation of women’s associations – led to a more collective response to sickness and disease and greater access to medical information. Domestic healers sought advice from further afield, and a new set of influences directed their use of plants, including the American popular health movement, the popularity of patent and proprietary medicines, and medical and pharmaceutical research. The concept of an informal ‘domestic medical curriculum’ acknowledges the wide range of sources that constitute the body of knowledge constructed, exchanged and relied upon by domestic healers. This curriculum includes domestic medical manuals, unpublished personal collections of medical receipts, the oral exchange of

¹⁴³ Alice Silverso (ed.), *The Last Thirty Years: The History of the Canterbury Area Health Board, 1963-1993* (Christchurch: Bookhouse Publishing, 1995), pp. 382-383.

information in informal and formal institutions, and the often extensive personal experience of health and wellness.

Between 1850 and 1880, domestic healers were relatively autonomous in their practice despite the wide net they cast to gather information. Many relied on collections of medical receipts and drugs brought to the Colony, using mainly introduced and familiar medicinal plant species. Chemists and grocers provided the raw ingredients for nostrums (family remedies) and healers combined these with plants gathered from the wild. Compilers of medical receipts collected several remedies for the same complaint, noting the sources and presumably the worth of the information. Domestic healers were quick to incorporate and adopt pharmaceutical developments, such as the advent of pills, while they remained adept at creating tinctures, poultices and decoctions. Unrestrained by medical exams or a university curriculum, they experimented with native plants, extending their own curriculum and, to a degree, legitimising the use of native plants.

Broad social and cultural changes in the 1880s changed the lives of many New Zealand women and in turn influenced their use of medicinal plants. Greater opportunities for employment and education meant less time spent in the domestic environment and greater reliance on patent and proprietary medicines. Increased state intervention in the organisation of health and welfare supported organisations previously established by middle to upper class women. These organisations provided another forum for domestic health practices, extending the sphere from which women provided care and disseminated medical information.

The increasing specialisation and standardisation of medicine, science and education created arbitrary definitions and distinctions between different forms of healing. As a consequence, the elements of care, including medicinal plants, were similarly classified. Several popular medicinal plants were recast as ‘folk’ remedies, and were perceived by some as inferior to scientifically tested plants and constituents. Others advocated the use of these seemingly ‘traditional’ medicines, supporting campaigns against the increased use of inorganic drugs and fighting against efforts to suppress various types of healing such as herbalism and homeopathy.

Women involved in formal and informal health and welfare organisations in New Zealand advocated the ideals of the American popular health movement, which encouraged the use of unadulterated drugs and so-called traditional medicines. At the same time, domestic medical manuals and patent and proprietary medicines, which sold in New Zealand at an unprecedented rate, contained increasing amounts of inorganic ingredients and adopted scientific techniques. Many medical herbalists – the subject of the following chapter – supported domestic health practices. They encouraged the view of medicinal plants and domestic medicine as safe, and despite campaigns run by both doctors and herbalists to discredit one another, herbalists sought validation from doctors and encouraged the commercialisation of medicine.

Chapter Four

Nineteenth-Century Herbalists and their use of Medicinal Plants, 1850s-1920s

The use of medicinal plants has been an integral part of often complex and dynamic historical medical systems and regimes. Chapter Two discussed how medical herbalism became defined as a distinct subject with the advent of a western medical curriculum, a division that reflected increased medical specialization and the organization of medicine. This chapter expands on that discussion and describes the events and processes that led to the definition of nineteenth-century herbalism. It creates a space for nineteenth-century New Zealand herbalists in medical historiography; a space situated between domestic medicine and the ‘regular’ medical faculty. It argues that various elements of herbalism linked domestic health practices with more organised forms of medicine. In doing so, this chapter identifies the plants used and advocated by herbalists, and central to this thesis, shows how herbalists interpreted or translated these plants in order to define and distinguish their practices from others.

Section One of this chapter reviews the origins of colonial herbalism and explores the influence of lay medical knowledge and practices. It reflects briefly on the organization of medicine in Britain from the sixteenth century onwards and considers the events and processes that led to the initial definition of medical herbalism as practiced in colonial New Zealand. This section recognizes contributions made by sixteenth-century herbalist Nicholas Culpeper, whose text continued to guide western herbalists and was available to New Zealand colonists throughout the nineteenth century.

Section Two of this chapter discusses the most influential nineteenth-century western herbalist, Samuel Thomson, introduced in Chapter Two. Born in America in 1769, Thomson revived herbal medicine as a discrete and novel

system of medicine that differed in practice and philosophy to regular medical practice. This section explores the social and political contexts that bolstered Thomson's system and examines its appeal and popularity in America, Britain, Australia and New Zealand. Specifically, it explores the plants and practices of Thomson's chief advocate in New Zealand, James Neil, and identifies differences and similarities among nineteenth-century herbalism, domestic health care and regular medical practice. This comparison reveals the external and local influences that supported the popularity of herbalism in New Zealand, and explains the notion and process of translation.

James Neil was New Zealand's first, self-proclaimed herbalist and is the focus of Section Three of this chapter. A relative lack of source material makes it difficult to explore medical herbal practices in colonial New Zealand, and as a consequence medical herbalism in New Zealand is often overlooked by historians. This chapter's major contribution to medical historiography is its description of the organisation and practice of commercial herbalism in nineteenth-century New Zealand, as revealed through a case study of Neil, including an analysis of his book, *The New Zealand Family Herb Doctor* (1891). It discusses the adaptation of Thomson's system by Neil and the inclusion of native New Zealand plants, and describes how the exclusion of herbalists from New Zealand's national medical register influenced their practices and role in New Zealand society.

The Separation and Construction of Medical Herbalism

The origins and development of western herbal medicine created a corpus of knowledge that supported the separation of herbalism as a distinct medical practice in the sixteenth century. Propelling and encouraging this separation were reactions to the increased organisation of medicine and attempts to control the medical market by governing bodies such as the Royal College of Physicians. By the nineteenth century, a similar resistance to medical control and professionalization was expressed by some medical men, supporting the so-called resurrection and reinvention of herbalism. Samuel Thompson and James Neil were instrumental in asserting herbalism as a distinct and legitimate medical

practice. They based their practices on medico-botanical knowledge that had developed over centuries, and on sentiments expressed by sixteenth-century herbalists.

As noted in the Introduction, in early Egyptian, Indian and Chinese medical practice, medicinal plants played an important and dominant role. On the contrary, the Greek philosophers, considered the founders of western medical practice, initially focused more on regime than therapeutics. Hippocrates emphasised the influence of nature, rejected supernatural associations and initiated a humoral theory of disease that persisted for centuries.¹ Not until Greek medicine spread through the Mediterranean did the medical colossus of the Roman era, Galen unite medical theory with practical therapeutics, including medicinal plants. As discussed in Chapter One, a *materia medica* that later dictated and directed western medical practice was systematised during this period by Theophrastus and Dioscorides and as Greek texts moved into Islamic states, Arab scholars and physicians added Persian, Indian and Arabian plants. By the second century AD, Latin translations of Greek teachings were moving to the West via Sicily and Spain.²

These early ‘herbals’ were manuscripts that contained descriptions of medicinal plants and their uses. They guided British monks who were important providers of medical care between the fifth and tenth centuries.³ Monasteries were centres of learning and healing during this period and their gardens were precursors to physic gardens established by the great universities of Italy, Spain, France and

¹ Many people during this period believed good health relied on maintaining a balance of four bodily constituents or humors; blood, phlegm, black bile and yellow bile. These humors were thought to exist in equilibrium and in relation to external elements such as climate, seasons, celestial bodies as well as internal processes such as age and emotion. Ill health of body or mind reflected an imbalance of humors and could be consequently restored by addressing the imbalance. Roberta Bivins, *Alternative Medicine: A History?* (Oxford, Oxford University Press, 2007), p. 9; G Foster and B. Anderson, *Medical Anthropology* (New York: John Wiley and Sons, 1978), pp. 51-66; Vivian Nutton, ‘Humoralism’, in *Companion Encyclopedia of the History of Medicine*, Vol. I, ed. by W. F. Bynum and Roy Porter (London: Routledge, 1993), pp. 281-292.

² These include Abū Alī al Husayn b. ‘Abd Allāh b. Sīnā (980-1037) - the first Islamic physician to advocate experimentation and observation of medical applications and author of *The Canon of Medicine*. Anna Parvord, *The Naming of Names: The Search for Order in the World of Plants* (London: Bloomsbury Publishing, 2005), p. 100.

³ Agnes Arber, *Herbals: Their Origin and Evolution*, 2nd edn (Cambridge: Cambridge University Press, 1938), pp. 1-13.

England as they first offered medical degrees.⁴ Although the advent of medical education created a form of medical hierarchy, with educated physicians at the top and lay healers at the bottom, this chapter argues that the use of medicinal plants did not vary greatly between the educated and uneducated. Indeed, western herbal knowledge arose not only from the foundations described above, but also from the historic use of medicinal plants by lay healers around the world.⁵ The link between herbalism and lay medical practices supported its popularity and appealed to colonists used to a system of self-care.

Despite the production of herbals and later pharmacopeia, medico-botanical knowledge was not easily concealed or controlled by any particular group. Before the advent of biochemical analysis, information that guided the use of medicinal plants was produced largely through experimentation and experience. Access to plants was the only criterion governing their use, and as educated physicians pursued alternative forms of treatment, lay healers were arguably the leaders in medico-botanical experiments and applications. Many doctors secured a living by subscribing to popular beliefs and practices, theories that inadvertently influenced the direction of medicine. Physicians such as Theophrastus Philippus Aureolus Bombastus von Hohenheim, otherwise known as Paracelsus, incorporated lay ideas of health and wellness into their practices and produced literature that was a combination of folk and paid practice.⁶ Herbal manuals, in particular, epitomised this approach.

⁴ Peter J. Bowler, *The Norton History of the Environmental Sciences* (New York: W. W. Norton, 1993), p. 56.

⁵ Other aspects of medical care, apart from the use of medicinal plants, differed considerably between educated physicians and lay healers. Theophrastus Phillipus Aureolus Bombastus von Hohenheim (c. 1493-1542), commonly known as Paracelsus, popularised chemical theories of disease championing inorganic remedies such as mercury and salt and incorporating these with esoteric doctrines. He also promoted lay ideas of health and wellness, 'lapping up the lore he heard from peasants'. Roy Porter, *The Greatest Benefit to Mankind: A Medical History of Humanity from Antiquity to the Present* (London: Harper Collins Publisher, 1999), pp. 201-202; See also, Françoise Loux, 'Folk Medicine', in *Companion Encyclopedia of the History of Medicine*, Vol. I, ed. by W. F. Bynum and Roy Porter (London: Routledge, 1993), pp. 661-676.

⁶ Porter, pp. 201-202.

Hundreds of herbals were produced during the sixteenth and seventeenth centuries.⁷ Many were reproductions of earlier texts with the introduction of new ‘discoveries’ or novel plants uncovered during the course of colonisation and exploration.⁸ These books proved to be popular guides for practitioners as well as apothecaries and herb sellers.⁹ They inadvertently united lay healers with educated practitioners, combining so-called folk lore with aspects of western medical education and imperial investigations.¹⁰ Herbal remedies and indeed herbalism has shared an association with domestic and lay healers ever since, an association perpetuated and encouraged by commercial herbalists.

An era of European botanical exploration and investigation, explored in Chapter One, further encouraged and supported a focus on medico-botanical enquiry. As the commodification of medicine encouraged enterprise and competition, medical men such as John Gerard focused their attention on the study of medicinal plants, perpetuating the use and importance of plants as medicine.¹¹ An elected and active member of the Court of Assistants of the Barber-Surgeons’ Company, and ‘herbarist’ in gardens belonging to Lord Burleigh, Gerard gathered and received medicinal plants from all around the world, making use of an already extensive network of plant exchange. In 1597, he produced *The Herball or Generall History of Plantes*, a comprehensive and extensively illustrated volume of medicinal plants.¹²

⁷ Parvord, 2005; Arber, 1938; Wilfrid Blunt and Sandra Raphael, *The Illustrated Herbal* (London: Francis Lincoln Publishers, 1979).

⁸ For example, an American herbal for Spanish Roman Catholic Cardinal Francisco de Mendoza, (1508-1566) by Aztec scholar Martín de la Cruz, and *Coloquios dos Simples, e Drogas he Cousas Mediçinais da India* (*Dialogues about Simples and Drugs and Medical Matters from India*) by Garcia D’Orta from the Portuguese State of India.

⁹ Blunt and Raphael, pp. 12-32.

¹⁰ Agnes Arbor, in her analysis of the origin and evolution western herbals, illustrates clearly how herbal manuscripts from the fifteenth and sixteenth centuries combined aspects of so-called folk lore with the learning’s and teachings of educated physicians and practicing herbalists. See Arbor, pp. 138-163.

¹¹ Although Gerard’s authority and reputation is disparaged by historian Agnes Arbor, his book indisputably remained an important and influential herbal for centuries with editions still being produced in the 1960s. Arbor, pp. 129-135.

¹² Marcus Woodward, *Gerard’s Herball: The Essence Thereof Distilled by Marcus Woodward from the Edition of T. H. Johnson, 1636* (London: Spring Books, 1964), p. xv.

In Gerard's herbal, plants are described as virtuous gifts of God, more accessible and safer than the inorganic medicines popular during this time. As the excerpt below illustrates, Gerard regarded plants as infinitely safer and more effective than those prescribed by physicians. This view persisted for centuries and became a point of difference for herbalists such as New Zealand's James Neil, and their trade.

and yet this dusty mettall, or excrement of the earth (which was first deeply buried least it should be an eie-sore to grieve the corrupt heart of man) by forcible entry made into the bowels of earth, is rather snatched at of man to his owne destruction, than directly sent of God to the comfort of this life....Contrariwise, in the expert knowledge of herbes, what pleasure still renewed with variety? What small expense? What security? And yet what an apt and ordinary manes to conduct man to that most desired benefit of health? ¹³

During the sixteenth century, medical knowledge became increasingly organised and specialised. Herbalism slowly emerged as a distinct medical practice driven largely by people's resistance to medical authority and by the continued need for an alternative to educated physicians. Herbalists became increasingly associated with a political perspective that resisted the authority of medical institutes and supported the use of lay knowledge and 'folk lore'. As Section Two of this chapter reveals, this resistance was reconfigured during the nineteenth century by American, British and colonial herbalists in response to similar attempts to control and regulate medical practice organisations such as British and American medical associations.

The formation of medical guilds and associations in Britain and Europe afforded privileges to some practitioners and created controls and standards that affected the use of medicinal plants. In 1512 in London, Henry VIII passed an Act requiring all who practiced medicine – 'a great multitude of ignorant persons' – to sit an exam set by the Bishop of London or Dean of St. Paul's Cathedral.¹⁴ Definite divisions were drawn between surgeons, physicians, apothecaries and barbers as the jostle for medical control ensued. London's College of Physicians

¹³ Woodward, p. 4.

¹⁴ Benjamin Woolley, *The Herbalist: Nicholas Culpeper and the Fight for Medical Freedom* (London: Harper Collins Publishers, 2005), p. 35.

accused the Company of Barbers and Guild of Surgeons of ‘small cunning’ and deemed their practice dubious through the Quacks’ Charter of 1543.¹⁵ Physicians who held elite positions and could afford a medical education chastised those who could not. Those who practiced without qualifications criticized the growing elitism of the medical faculty.¹⁶

Educated physicians were accused of concealing medical knowledge and medico-botanical knowledge became a currency in the fight for medical control, used by the uneducated or subjugated to resist the growing authority of doctors. Nicholas Culpeper was among those who resented medical institutions such as the College of Physicians, claiming that their organisation and controls made medical care unavailable to London’s poor.¹⁷ His life and works contributed to the definition of herbalism, not as a component of British medicine, but as a separate medical practice. The resistance and antagonism that motivated Culpeper became a distinct feature of the practice adopted by nineteenth-century herbalists including colonists, John Broadbent in Australia and James Neil in New Zealand.¹⁸

As a child, Culpeper spent much of his time in the scullery surrounded by the company of women where he learned to use medicinal plants.¹⁹ These beginnings presumably encouraged Culpeper’s respect for domestic medical practices. The acceptance and support of these became another defining feature of herbalism, one that persisted into the nineteenth century and appealed in colonial societies such as New Zealand. Sent to Cambridge for an education at age sixteen, Culpeper eventually landed in London apprenticed to an apothecary, Simon White. There, Culpeper extended his knowledge of herbs as he fought against the College of Physicians and their attempts to control apothecaries and their trade.

¹⁵ Woolley, p. 38.

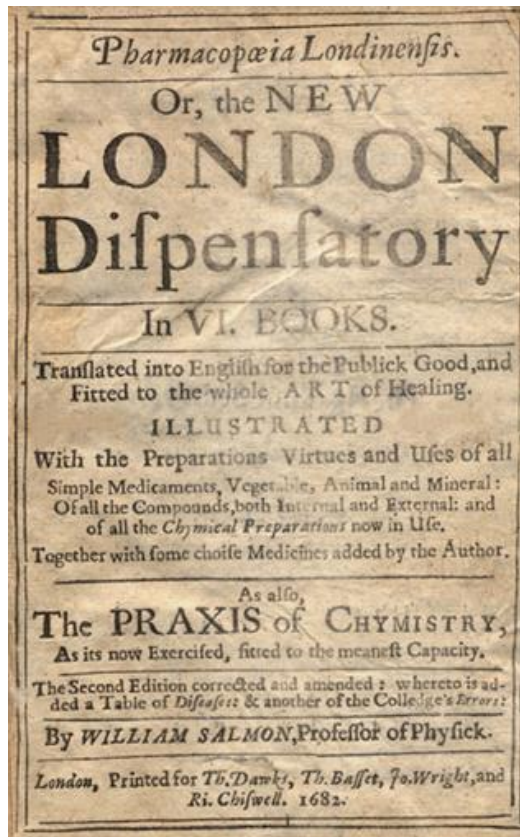
¹⁶ Porter, pp. 209-215.

¹⁷ Benjamin Woolley, *Heal Thyself: Nicholas Culpeper and the Seventeenth-Century Struggle to Bring Medicine to the People* (London: Harper Collins, 2004); Graham Toby, *Culpeper's Medicine: A Practice of Western Holistic Medicine New Edition* (London: Singing Dragon, 2013).

¹⁸ A similar resistance to medical authority and the apparent deprecation of herbalism is expressed in Samuel Thompson’s *Botanical Watchman* during the nineteenth century. This is discussed further in the following section.

¹⁹ Woolley, ‘*The Herbalist*’ p. 19.

Figure 4:1: Culpeper's translation of the London Dispensatory, 1649



During this period, tensions were high between the Society of Apothecaries and the College of Physicians.²⁰

Culpeper principally resented the suppression of lay healers, prompting him to write an unauthorized translation of the College's pharmacopeia, *A Physicall Directory, or Translation of the London Dispensatory* in 1649.²¹

Encouraged by its popularity and provoked by the College's reprisal, Culpeper subsequently wrote *The English Physician Enlarged* (1653), which underwent numerous revisions and editions, eventually becoming known simply as *Culpeper's Herbal*.²²

Source: Pharmaceutical History Collection, <http://www.hshsl.umaryland.edu/resources/historical/pharmacy/>, [accessed May 28 2013]

Around four hundred plants featured in Culpeper's original herbal, their common names given preference over their Latin names. Comprehensive descriptions as well as numerous illustrations of each plant are provided, as well as any associated folk lore, their planetary virtues and governance, and instructions for their use. Subsequent editions of *Culpeper's Herbal* remained in circulation for

²⁰ Woolley, 'The Herbalist', p. 123.

²¹ Concerned with apothecaries growing self-sufficiency, the College sent men to monitor the sale of drugs and advocated strict adherence to the *Pharmacopiea Londinensis*. They made constant complaints against apothecaries, attempting to place them in a subordinate position by seeking authority for all prescriptions sold. Woolley, 'The Herbalist', pp. 123-129.

²² Porter, p. 210.

centuries and the text sold throughout New Zealand during the nineteenth century, guiding herbalists and domestic healers alike.²³

Culpeper's Herbal, like Gerard's earlier work, contributed to an ever-growing collection of international botanical scholarship. The books achieved widespread fame and authority and became guides to both lay and educated medical practitioners.²⁴ However, it was Culpeper's explicit resistance to the organisation of medicine that made his book contribute to, and support, the separation of herbal medicine from surrounding medical frameworks. As an antagonist to the medical establishment, Culpeper's medical practices and beliefs, including his focus on medicinal plants, became isolated and defined as a distinct system of medicine – his opposition to medical authority and control, a defining feature of his practice. During the eighteenth century, *Culpeper's Herbal* guided British herbalists who worked autonomously in a pluralistic, diverse and relatively unregulated medical culture.²⁵

By the nineteenth century, as medical associations made renewed attempts to control their competition, nineteenth-century herbalists resurrected and emphasised Culpeper's political opinion and became increasingly organised in their approach to, and practice of, medical botany. British legislation, inadvertently, further isolated and defined herbalism as a distinct medical practice. The 1815 Apothecaries Act affirmed a working relationship between doctors and apothecaries, effectively ignoring all other health care providers and legitimising the status of physicians, chemists and druggists.²⁶ This trend continued as the advent of medical registration, enacted in Britain's 1858 Medical Act, excluded all unqualified healers from official roles and affiliation to national medical

²³ Advertisements for the sale of Culpeper's herbal and articles that detailed Culpeper's herbs appeared in the following newspapers among others. *New Zealand Herald (NZH)*, 6 August 1878, p. 1; *Hawke's Bay Herald (HBH)*, 10 December 1881, p. 3; *Daily Southern Cross (DSC)*, 5 May 1875, p. 4; *Otago Witness (OW)*, 18 December 1890, p. 35; *Mataura Ensign (ME)*, 14 January 1904, p. 6.

²⁴ Arber, 1932; Parvord, 2005; Blunt and Raphael, 1979.

²⁵ Roy Porter, 'Before the Fringe, 'Quackery' and the 18th-Century Medical Market' in *Studies in the History of Alternative Medicine*, ed. by Roger Cooter (Houndmills: Palgrave Macmillan, 1988), pp. 1-27.

²⁶ S. W. Holloway, 'The Apothecaries' Act, 1815: A Reinterpretation. II. The Consequences of the Act', *Medical History*, 10, 3 (1966), pp. 221-236, DOI:10.1017/S0025727300011091, [accessed July 2012]; W. S. Copeman, *The Worshipful Society of Apothecaries of London: A History, 1617-1967* (Oxford: Pergamon Press, 1967).

governing bodies.²⁷ The legislation encouraged the proliferation of alternative titles, including herbalist, by men and women whose education and experience did not meet the requirements of national medical registration.

This trend was apparent in America also, where so-called frontier medicine included diverse medical philosophies, beliefs and practices that compromised the earning potential of educated doctors.²⁸ The American Medical Association were similarly attempting to control and regulate their practices, enforcing codes of ethics and restricting enrolment in medical universities.²⁹ Meanwhile, legitimising and confirming the status of herbalists in the early 1800s was American herbalist, Samuel Thomson (1769-1843). Thomson's system spread throughout Britain and its colonies from the 1830s. By the time Thomson's system reached New Zealand and Australia, it was a diffuse imperial system of herbal medicine, incorporating values developed on the American frontier, using Native American medico-botanical knowledge along with British interpretations and adaptations.

Samuel Thomson and Thomsonian Medicine

Samuel Thomson, pictured in *Figure 4:2*, was a New Hampshire farmer and self-taught medical man who popularised herbalism in America in the early 1800s, humbly naming the system, Thomsonianism.³⁰ As physicians strove to create standards, cohesion and codes of ethics, Thomson and his acolytes rejected and criticised their authority, continued to use plants considered outdated, and publically admonished medical associations which refused them entry on account

²⁷ *British Medical Act 1858*, <http://www.legislation.gov.uk/ukpga/Vict/21-22/90/enacted>, [accessed September 5 2013].

²⁸ Norman Gevitz, 'But all Those Authors are Foreigners' American Literary Nationalism and Domestic Medical Guides', in *The Popularization of Medicine, 1650-1850*, ed. by Roy Porter (London: Routledge, 1992), pp. 232-252.

²⁹ Peter Freund and Meredith McGuire, *Health, Illness and the Social Body* (New Jersey: Prentice Hall, 1999), pp. 189-216; Deborah Lupton, 'The Social Construction of Medicine and the Body', in *The Handbook of Social Studies in Health and Medicine*, ed. by Gary Albrecht, Ray Fitzpatrick and Susan Scrimshaw (2000), pp. 51-63; Roberta Bivins, 'Histories of Heterodoxy', in *The Oxford Handbook of the History of Medicine*, ed. by Mark Jackson (Oxford: Oxford University Press, 2011), pp. 578-97; Ursula Miley and John Pickstone, 'Medical Botany around 1850: American Medicine in Industrial Britain', in *Studies in the History of Alternative Medicine*, ed. by Roger Cooter (New York: St. Martin's Press, 1988), pp. 140-153.

³⁰ Gevitz, pp. 232-252; Miley and Pickstone, pp. 140-153.

of their decreed disobedience. By this period, herbalism was recognised as an ‘irregular’ medical system, placed in opposition to the ‘regular’ medical faculty.³¹

Figure 4:2: Samuel Thomson



According to historian Michael Flannery, Thomson’s system flourished in the unique brand of frontier egalitarianism that characterised the Jacksonian period in America (c. 1829-1854).³² In 1829, Tennessee war hero, Andrew Jackson assumed the Presidency, prompting a new era in the young republic.

Source: ‘The Thomsonian System, Monadnock Moment No. 120, Era 3: Revolution and the New Nation – 1763 to 1820’, <http://hscnh.org/resources/monadnock-moments/thomsonian-system/>, [accessed May 28 2014]

In Flannery’s words:

Jackson’s election represented the fulfillment of a popular emocratic spirit that emerged from complex sociopolitical and socioeconomic forces: western expansion, a widespread agrarian populace, and a broadly diffused fervent American Protestantism built upon a priesthood of all believers.³³

A preference for experience over theory, instinct over acquired knowledge and equality among men and women – as opposed to elitism and restrictive institutions – provided the ideal background for systems such Thomson’s. Indeed, as Martha Lister claims, ‘mid-19th- century health care in America was

³¹ William Rothstein, ‘The Botanical Movements and Orthodox Medicine’, in *Other Healers in America: Unorthodox Healers in America*, ed. by Norman Gevitz (London: John Hopkins Press, 1998), pp. 29-52.

³² Michael Flannery, ‘The Early Botanical Medical Movement as a Reflection of Life, Liberty, and Literacy in Jacksonian America’, *Journal of the Medical Library Association*, 90, 4 (2002), pp. 442–454.

³³ Flannery, p. 443.

characterised by domestic medicine, self-care and sectarianism'.³⁴ Thomson worked hard to appeal to the common person, and in a fashion often contradictory to his own philosophy, sold patents to his system, wrote books about the subject and sold medicines he claimed should be accessible to all.³⁵ In New Zealand and indeed Australia, Thomson's system reached its height of popularity in the 1880s, and arguably appealed to people who were displaying a similar resistance to increased control exerted by the state and medical associations.³⁶

Thomson purportedly devised his system of medicine through experience and observation, and in a social and political context comparable in many ways to those experienced by New Zealand and Australian herbalists decades later. Medicine was less organised and specialised in America than in Britain during the early nineteenth century.³⁷ In America, few medical regulations existed, encouraging a proliferation of so-called 'quacks' – practitioners with the freedom to experiment and develop alternatives to the medicine practiced by physicians allowed onto national registers.³⁸ Thomson and his herbalists were part of a wider health movement called the Botanical Medical Movement (led by Thomson and eclectic practitioner, Wooster Beach), which arose in response to their exclusion from registers and need for alternatives.³⁹ By the mid-nineteenth century, colonial

³⁴ Martha M. Libster, 'A History of Shaker Nurse-Herbalists, Health Reform, and the American Botanical Medical Movement (1830-1860)', *Journal of Holistic Nursing*, 27, 4 (2009), pp. 223, <http://jhn.sagepub.com>, [accessed June 3 2014].

³⁵ Gevitz, pp. 232-252; Miley and Pickstone, pp. 140-153; Rothstein, pp. 29-52.

³⁶ Historians such as James Belich describe a 'great tightening' in New Zealand society during the 1880s. Book censorship tightened and Government-endorsed patrols policed public displays of affection in cinemas, streets and dance halls. Farmers were forced through legislation, to keep mating cattle in the back paddocks to protect the public from impropriety. Disease became synonymous with immorality and entangled with moral panics about prostitution, alcohol consumption, vagrants, Chinese immigrants and socialists. Organisations such as the Women's Christian Temperance Union and the Ladies' Benevolence Society formed to address some of these perceived social ills while public health policies exerted increased control over people's lives and stimulated popular discourse relating to health, diet and welfare. James Belich, *Paradise Reforged, A History of the New Zealanders from the 1880s to the Year 2000* (Auckland: The Penguin Press, 2001), pp. 121-146.

³⁷ David Dary, *Frontier Medicine: From the Atlantic to the Pacific 1492-1941* (London: Vintage books, Random House, 2009), p. 30; Michael Belgrave, "Medical Men" and "Lady Doctors" The Making of a New Zealand Profession, 1867-1941, Unpublished PhD Thesis, Victoria University of Wellington, 1985, pp. 40-50.

³⁸ Freund and McGuire, pp. 206-109.

³⁹ Libster, pp. 223-225.

practitioners were afforded a similar freedom and many of New Zealand's doctors applied an eclectic approach to medical care, as discussed in Chapter Two.

The sick in both America and British colonies experienced similar conditions of isolation and limited access to medical care. Furthermore, discouraged by the limitations of medicine and the continued use of heroic and painful remedies, American, Australian and New Zealand colonists were equally open to 'irregular' treatments and patent and proprietary medicaments. An American Patent Act, established in 1790, encouraged the production of patent herbal medicines and by 1850, a Boston wholesale drug catalogue listed around six hundred popular patent medicines.⁴⁰ In New Zealand and Australia, although the manufacture of patent medicines never reached the scale of the American industry, patent medicines were imported almost as soon as Europeans arrived and were consumed at great rates, encouraging the growth of domestic health practices, herbalism, and the use of plant-based medicines.⁴¹ Thomson and his acolytes experienced a period of great success in America, and by the 1820s, the system was introduced to Britain. In New Zealand and Australia, it was practiced and promoted from the 1860s.⁴²

Reciting elements of ancient Greek medical beliefs, Thomson's theory of disease rested on the idea that health was a consequence of a correct balance between two opposite principles: hot and cold.⁴³ Thomson assumed that a loss of heat constituted the immediate cause of disease and initially suggested a few simple plant-based remedies administered as a 'course' of medicine.⁴⁴ Despite the use of

⁴⁰ Dary, p. 250.

⁴¹ Belgrave, pp. 290-292; Thousands of advertisements for patent and proprietary medicines appeared in colonial newspapers from as early as 1839 including the following examples. *New Zealand Gazette and Wellington Spectator (NZGWS)*, 6 September 1839, p. 1; *Nelson Examiner and New Zealand Chronicle (NENZC)*, 9 April, 1842, p. 18; *New Zealand Colonist and Port Nicholson Advertiser (NZCPNA)*, 30 August 1842, p. 1.

⁴² Miley and Pickstone, p. 141; Advertisements for Thomson's system of herbalism appeared as early as this one in the *Colonist*, 23 May 1865, p. 1.

⁴³ The human body, according to Samuel Thomson, consisted of the basic elements of earth and water, kept in motion by fire and air. Earth and water made up the bodily solids while fire and air were the cause of life and motion. P. S. Brown, 'Herbalists and Medical Botanists in Nineteenth-Century Britain', *Medical History*, 26 (1982), pp. 407, 409; James C. Whorton, *Nature Cures: The History of Alternative Medicine in America* (United States of America: Oxford University Press, 2002), pp. 25-49.

⁴⁴ Miley and Pickstone, p. 140; Rothstein, pp. 42-3; *The Thomsonian Botanic Watchman*, 1, 2 (1834), p. 24, <http://archive.org/stream/thomsonianbotani00alba#page/24/mode/2up>, [accessed October 7 2013]; *The Thomsonian Botanical Watchman*, 1, 3 (1864), p. 34.

Greek philosophy and Native American medical practices such as steam treatments and American plants, Thomson claimed that his system was unique and inventive, appealing to a colonial and frontier mentality of innovativeness and enterprise.⁴⁵

Thomson's system also focused strongly on the use of medicinal plants. Many were familiar medicinal species used by local domestic healers, while others Thomson purportedly 'discovered' in the course of his career.⁴⁶ As he attended a patient with dysentery, for example, Thomson discovered the medicinal actions of sumac in 1807. In 1814, he allegedly realised the potential of hemlock bark. This bark, gathered from *Pinus Canadensis*, a tree native to North America, subsequently formed the basis of a popular Thomsonian medicine named 'coffee'. Combined with bayberry bark and lily root, it was taken by mouth or by injection as an all-over restorative tonic. Thomson also claimed to be the first to use the leaves of red raspberry.⁴⁷

By 1822, Thomson produced his most influential work, *New Guide to Health*, which passed through many editions and reproductions.⁴⁸ Later editions were produced under the title *Thomson's Materia Medica or Botanic Family Physician*, the thirteenth edition edited by Samuel's son, John Thomson. Although Thomson developed a relatively concise and defined system of treatments, his inclination to experiment with local plants and knowledge was adopted by his followers and advocates in New Zealand and Australia, as discussed in the following section.

Thomson's system initially relied on a course of six botanically-based numbered remedies. Number One was a botanic emetic, *lobelia infalata*, used to cleanse the

⁴⁵ Samuel Thomson, *New Guide to Health; Or Botanic Family Physician. Containing a Complete System of Practice on a Plan Entirely New: With a Description of the Vegetables Made Use of and Directions for Preparing and Administering them to Cure Diseases to Which is Prefixed, A Narrative of the Life and Medical Discoveries of the Author* (Ontario: W. Willes, 1831), https://archive.org/details/cihm_01684, [accessed 7 May 2014]; Rothstein, p. 43; *The Thomsonian Botanic Watchman*, 1, 2 (1834), p. 24.

⁴⁶ *The Thomsonian Botanic Watchman*, 1, 2 (1834), p. 24.

⁴⁷ Lloyd Library and Museum, *Samuel Thomson and the Poetry of Botanic Medicine, 1810-1860*, <http://www.lloydlibrary.org/Haller/hallerpoetrytwo.html>, [accessed October 7 2013], page unknown.

⁴⁸ Samuel Thomson, 1831.

stomach and induce perspiration.⁴⁹ This plant was administered in three ways – as a powder made from the leaves and pods, as a tincture made from the green herb, and as a powder made from the seeds. Most of the criticisms of Thomson’s system related to purported poisonings by lobelia.⁵⁰ However, Thomson interpreted and promoted the plant in a manner contrary to that of regular physicians, translating it into a safe and effective emetic that worked, as he claimed, ‘in harmony with the principles of life’.⁵¹

The dried seeds and pods of the cayenne pepper – used to stimulate and retain heat in the stomach while obstructions flowed out – constituted remedy Number Two in Thomson’s repertoire. Other stimulants, including common red peppers, ginger, or black pepper, were used as substitutes if cayenne could not be found. Steam baths were included in Thomson’s system, followed by medicines to further cleanse the stomach and digestive tract. The Number Three remedy consisted of bayberry combined with the root of white pond lily. Alternatives to pond lily included the inner bark of hemlock, the root of marsh rosemary, the bark, leaves and berries of sumac, the leaves of witch hazel, the leaves of red raspberry, or the roots and tops of squaw weed or black cohosh. Remedy Number Three sought to improve digestion and included teas and tonics made from a variety of barks, roots and berries. Thomsonians also applied poultices made from ginger, red slippery or sweet elm bark as well as draughts of brandy and wine mixed with further herbs such as prickly ash.⁵²

Despite his claim to be significantly different from regular medical practice, a number of the plants Thomson recommended appeared in official British and

⁴⁹ Thomson claims to have ‘discovered’ this herb at age four. Thomson, ‘*New Guide to Health*’ p. 27.

⁵⁰ In the *Thomsonian Botanic Watchman*, numerous references to regular physicians concern over Lobelia are included. For example the following excerpt from 1834. ‘A hue and cry is raised by the doctors over the Lobelia inflata as a deadly poison. We have known many people who have been in the habit of taking over a number of years and have been restored from a feeble state to a good health’. *The Thomsonian Botanic Watchman*, 1, 1 (1834), p. 10.

⁵⁰ *The Thomsonian Botanic Watchman*, 1, 2 (1834), p. 25.

⁵¹ Emetics were an important part of Thomson’s practice and witch hazel leaves also proved effective for this cause. In accordance with medical theories that date back to the Egyptians and then the Greeks, cleansing the innards with laxatives and emetics kept the flow and balance of bodily fluids, humours and gases. Porter, pp. 50, 99; Whorton, pp. 25-49.

⁵² Rothstein, pp. 29-52.

American pharmacopeia, texts that guided regular physicians. Out of seventy plants named as Thomson's *materia medica*, the sixteen presented in Table 4:1 also appeared in the 1860 edition of *Pharmacopeia of the United States of America* as well as Culpeper's translation of the *London Pharmacopeia* and the 1858 *Prescribers' Pharmacopeia of London*.⁵³

From the beginning, Thomson established himself as a political and medical activist. Jailed in 1809 and charged with murder for which he was soon acquitted, Thomson cut a controversial figure as a leader – his incarceration fuelling his rejection of organized medicine and inadvertently promoting his own profile and system.⁵⁴ The vehicle for his resistance was *The Thomsonian Botanical Watchman*, a monthly periodical set up to support Thomson's practice in a 'philosophical and argumentative' way, present foreign and domestic news and affairs, and respect 'true religion'.⁵⁵ It included numerous testimonials and medical information, such as lessons on anatomy and physiology, diagnosis and disease.

⁵³ By 1860, thirty-four of Thomson's seventy plants were included in *The Pharmacopeia of the United States of America* while only twenty-two were present in the comparable English text, *The Prescribers Pharmacopeia Containing all the Plants in the London Pharmacopeia* (1858). This is understandable considering Thomsonism originated in America and Thomson displayed a fascination with American plants and Native American medicine. Interestingly, although most of Thomson's plants are absent from Britain's mid-nineteenth century pharmacopeia, out of the seventy plants Thomson prescribes, forty-two appear in an early edition of Culpeper's *A Physicall Directory, or Translation of the London Dispensatory* (1720). This befits Thomson's philosophy of retaining passé but arguably still effective plant knowledge. It demonstrates the introduction of British medico-botanical information to America and the subsequent development of the British Pharmacopeia. *The Pharmacopeia of the United States of America, Fourth Decennial Revision* (Philadelphia: J. B. Lippincott, 1864), <http://babel.hathitrust.org/cgi/pt?id=chi.73666149;view=1up;seq=4>, [accessed October 7 2013]; Author Unknown, 'Botanic and Common Names of Plants', *The Thomsonian Botanic Watchman*, 1, 2 (1834), p. 24; Thomas F. Cock, *The Prescribers Pharmacopeia Containing all the Plants in the London Pharmacopeia Arranged in Classes According to their Actions with their Composition and Doses* (New York: Samuels and William Wood, 1853), <http://archive.org/stream/61860730R.nlm.nih.gov/61860730R#page/n5/mode/2up>, [accessed October 7 2013].

⁵⁴ Thomson was accused of poisoning patients with *Lobelia inflata*, a plant that physicians at his trial claimed was safe.

⁵⁵ *The Thomsonian Botanical Watchman*, 1, 1 (1834), p.1.

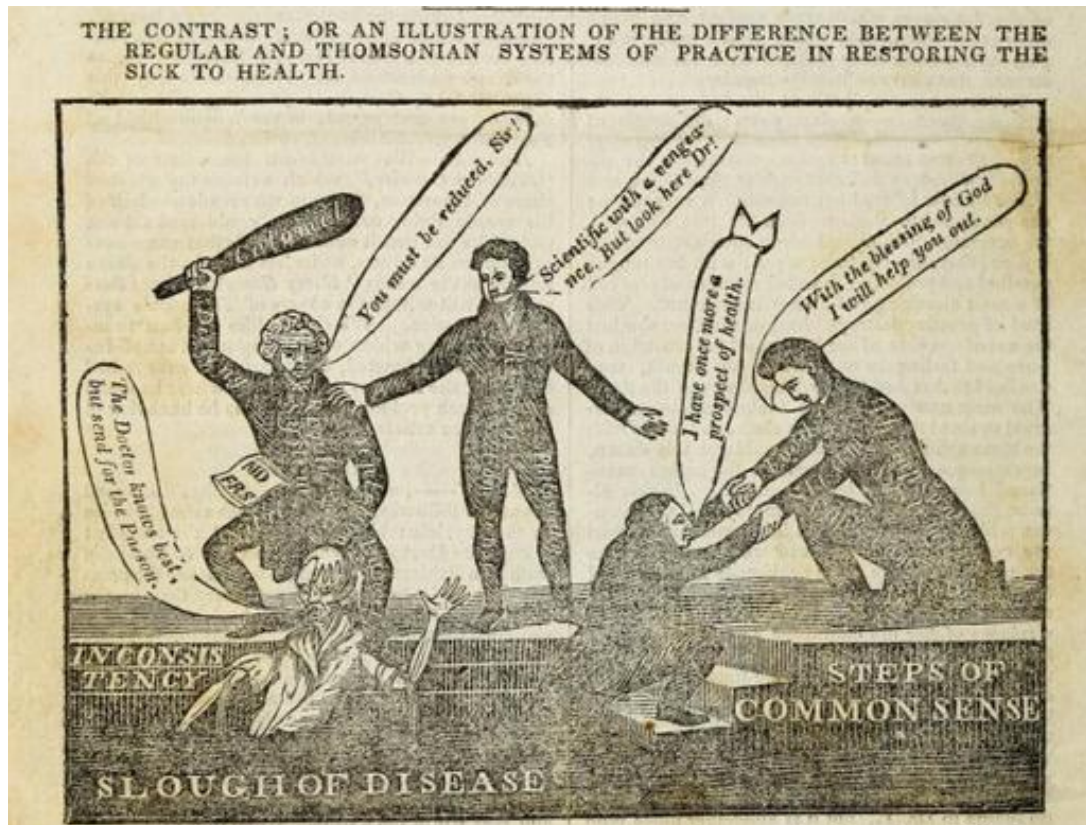
Table 4:1: Plants that appear in Thomson's *materia medica* as well as 1853 *Prescribers Pharmacopeia of London*

<i>Botanical Name</i>	<i>Common Name</i>
<i>Amyris kataf</i>	myrrh
<i>Anthemis cotula</i>	wild chamomile
<i>Anthemis nobilis</i>	chamomile
<i>Artemesia absymthium</i>	wormwood
<i>Capsicum annuum</i>	African pepper
<i>Gauries camphora</i>	camphor
<i>Hedeoma pulegiordes</i>	elecampane
<i>Innula helenium</i>	pennyroyal
<i>Lobelia inflata</i>	Indian tobacco
<i>Marrubium vulgare</i>	horehound
<i>Mentha pepperita</i>	peppermint
<i>Piper nigrum</i>	black pepper
<i>Rumex crispus</i>	dock
<i>Sinapsis nigra</i>	black mustard
<i>Zingiber amonum</i>	ginger

Source: 'Botanic and Common Names of Plants', *The Thomsonian Botanic Watchman*, 1, 2 (1834), p. 24; Thomas F. Cock, *The Prescribers Pharmacopeia Containing all the Plants in the London Pharmacopeia Arranged in Classes According to their Actions with their Composition and Doses* (New York: Samuels and William Wood, 1853),

Despite its claim to resist mingling in politics, the pamphlet also became a forum to demonstrate against the inequity within the medical faculty. Articles that supported herbalists' fight for medical registration and rights to practice appeared frequently and Thomson and his followers openly criticised the medicine of 'regular' practitioners, condemning the use of inorganic drugs such as mercury and alcohol and addictive herbs such as opium. Illustrations, such as Figure 4:3, emphasised the purported differences between Thomsonians and regular physicians.

Figure 4:3: Illustration in the first edition of *The Thomsonian Botanic Watchman*, 1834



Source: *The Thomsonian Botanical Watchman*, 1, 1 (1834), p.8

Despite the antagonism, a degree of co-operation existed between some registered physicians and Thomsonians and many claim Thomson used this affiliation to gain corroboration.⁵⁶ This co-operation illustrates Susan Leigh Star and James Griesemer's notion of reconciliation – the need for actors with often contrary opinions to co-operate in order to reconcile various meanings or interpretations of objects (in this case medicinal plants) and legitimise their findings.⁵⁷ In the *The Thomsonian Botanic Watchman*, numerous testimonials appear, with particular attention drawn to those from medical professionals or politicians. In 1834, a letter from Stephen Gladding taken and presented by Judge Dimmock, praised Thomson and his practice. Thomson demonstrated its veracity by offering one

⁵⁶ Miley and Pickford, p. 147.

⁵⁷ Susan Leigh Star and James R. Griesemer, 'Institutional Ecology, 'Translations and Boundary Objects: Amateurs and professionals in Berkley's Museum of Vertebrate Zoology, 1907-39', *Social Studies of Science*, 19 (1989), pp. 388.

hundred dollars to anyone who could prove it false.⁵⁸ In Britain, Thomas Harle, a registered and experienced physician, concluded that Thomson's system was based on reason and truth. Investigating Thomson's system, Harle found himself 'running his head against incontrovertible facts'.⁵⁹ Harle formed a partnership with Coffin, Thomson's major advocate in Britain, boosting Coffin's reputation and sharing responsibility for examining and certifying Thomson's herbalists.

While the American influence is clearly evident in the herbal system introduced and popularised later in New Zealand, it also exhibited British elements that were incorporated as Thomsonianism system spread through the United Kingdom. By the 1830s, the popularity of Thomson's system began to wane in America, diluted through absorption into both alternative and regular practices and by the creation of various forms of herbalism.⁶⁰ Thomson himself became disillusioned with the actions of some of his herbalists, who operated in a similar fashion to the medical faculty he abhorred.⁶¹ Charging exorbitant prices and seeking legislative support for an industry that privileged the professional herbalist over the lay healer, changed Thomson's system from a movement of self-help and compromised Thomson's aim to make every man and woman a doctor. In Britain, however, amidst social and political unrest, Thomson's system re-established a degree of proletarian appeal.

In Britain, herbalists aligned themselves with radical and working-class movement and many welcomed their American counterparts who appeared successful and ambitious. British herbalists faced a more organised medical orthodoxy than in America, and while they formed associations and were active practitioners in their communities, 'their failure to unite in a cohesive group impeded any successful pursuit of professional status'.⁶² In New Zealand, as I argue in the following section, herbalists struggled in the face of increased state control and social security. Britain legislation, such as Britain's Medical Act (1858) introduced financial implications for herbalists, excluded them from any

⁵⁸ *The Thomsonian Botanical Watchman*, 1, 1 (1834), p. 10.

⁵⁹ Miley and Pickford, p. 147.

⁶⁰ Rothstein, pp. 29-52.

⁶¹ Rothstein, p. 46.

⁶² Brown, p. 81.

organised form of medical registration and denied them rights to claim compensation for their services.⁶³ Herbalists were vulnerable to patient deceit, could not refer to themselves as legally qualified and were excluded from official roles, including military or naval physicians, surgeons or medical officers, emigrant ship's surgeons, roles in hospital infirmaries, dispensaries as well as lunatic asylums, goals and parish friendly societies or relief societies.⁶⁴

Despite this, British herbalists enjoyed a great deal of public support. A number resided in Britain's northern industrial towns where, entwined with radical movements and attacks on medical and religious establishments, the notion that medical botany was democratic medicine appealed to a largely Methodist population.⁶⁵ Labouring class men such as Joseph Evans of Manchester drew crowds to his house to hear his lectures on medicinal plants and healing. The Scottish Dr Whitelaw also achieved local fame, introducing the American Vegetable Practice to Britain after spending two years studying the practice of Native Americans.⁶⁶

Albert Isaiah Coffin introduced Thomsonianism to Britain in the 1830s, and after initially failing to establish the practice in London, eventually succeeded and achieved relative fame in Manchester. There, he organized meetings and seminars, and made tours through villages distributing circulars claiming to make each man their own doctor after listening to four lectures. Coffin aimed, like his mentor, to establish local societies, democratically run with an elected member who would visit and prescribe for all who applied to the society.⁶⁷ Friendly societies would spread the cost of treatment, and a collection of herbs and roots were kept and dispensed by the society to ensure the purity of the medicines supplied. Regular meetings in which practitioners reported difficult or successful cases acted as a type of ethical watchdog and a *Botanical Journal* was formed in 1847. Coffin was

⁶³ *British Medical Act 1858*, <http://www.legislation.gov.uk/ukpga/Vict/21-22/90/enacted>, [accessed September 2 2013].

⁶⁴ P. S. Brown, 'The Vicissitudes of Herbalism in Late Nineteenth and Early Twentieth Century Britain', *Medical History*, 29 (1985), pp. 71-92.

⁶⁵ Miley and Pickford, pp. 140-153; Brown, 'The Vicissitudes of Herbalism', p. 74.

⁶⁶ Miley Pickstone, p. 145.

⁶⁷ Miley and Pickstone, p. 146.

promptly joined by others – including George Stevens, William Fox and Joseph Nadin – who spread the system throughout Britain.

Thomson's system presented a degree of order and consolidation to a practice becoming increasingly marginalised by registered physicians. Herbalists reportedly made the majority of 'irregular' practitioners in Britain in 1854 and many recognised the advantages of affiliating themselves with a governing body or recognized medical system.⁶⁸ By the 1880s, The National Association of Herbalists in Great Britain and the Society of United Medical Herbalists of Great Britain had formed, and an estimated 800 herbalists were practicing in the United Kingdom.⁶⁹ Many of these men brought their skills and experience to New Zealand.

Medical Herbalism in Australia and New Zealand, 1880s -1920s

The success of Thomson's system in Britain is attributed to the charisma of its practitioners, the social and cultural unrest into which it was introduced, and the appeal of a seemingly safe and non-addictive system to groups such as temperance societies.⁷⁰ In the British colonies, out of necessity, practicality and a desire to embrace seemingly progressive ideals, many colonists supported medical herbalists, whose practices were both familiar and reminiscent of their home lands, and representative of new systems and standards. Herbalists combined lay information with medical advice from regular physicians. They engaged the sick in medical debates, effectively linking domestic health practices with more organised forms of medicine. Arguably, then, medical herbalists worked at the border of domestic and professional medicine, successfully appealing to the working- or labouring-classes, while they pursued the same structure and status in much the same ways as their regular counterparts. In a colonial context, where medical organisation was arguably more flexible than Britain's, this goal appeared more attainable.

⁶⁸ Brown, 'The Vicissitudes of Herbalism', p. 412.

⁶⁹ Brown, 'The Vicissitudes of Herbalism', p. 74.

⁷⁰ Coffin was a strict teetotaler and fined anyone entering a meeting or attempting to join the Association under the influence. Miley and Pickstone, pp. 148-9.

Herbal systems such as Thomson's supported and promoted domestic health care and self-help, a prerequisite for colonials settling in isolated areas or infant colonies such as New Zealand. According to historian James Belich, war, gold, and industry, based on the ideals of 'progressive' colonisation, stimulated various rates of regional growth in colonial New Zealand.⁷¹ People were drawn in and out of regions as these opportunities ebbed and flowed, taking with them trades and skills, including various medical practices. In New Zealand, early advertisements suggest that herbalists, like their 'regular' counterparts, practiced predominantly in larger towns where the size of the population provided a large enough market for their services.⁷² However, as noted in Chapter Three, medical skills were equally necessary in isolated areas, and several factors make it difficult to determine exactly how many, and where, herbalists practiced in New Zealand during the mid-nineteenth century. For example, the negative opinions towards herbalists held by some medics were expressed in the colony, and consequently herbalists were excluded from any form of medical registration.⁷³ Furthermore, ill-defined lines between 'regular' and 'irregular' medical practice meant that herbalists may have identified as doctors, while many doctors who practiced herbalism but feared reproach from their peers, may have rejected the title of herbalist.⁷⁴ In Australia, where many settlements were equally, if not more

⁷¹ Towns and farms, writes Belich, often developed quickly, then struggled for viability, before one or two rapid spurts of development determined the settlement's permanency. James Belich, *Making Peoples: A History of New Zealanders From Polynesian Settlement to the End of the Nineteenth Century* (Auckland: The Penguin Press, 1996), pp. 367-376.

⁷² *The Cyclopaedia of New Zealand* (Canterbury Provincial District), p. 185, <http://nzetc.victoria.ac.nz/tm/scholarly/tei-Cyc03Cycl-t1-body1-d3-d26-d6.html>, [accessed October 15 2013]; *The Cyclopaedia of New Zealand* (Wellington Provincial District), <http://nzetc.victoria.ac.nz/tm/scholarly/tei-Cyc01Cycl-t1-body-d4-d27-d4.html>, [accessed October 15 2013]. Belgrave presents the geographical distribution of doctors in New Zealand during the nineteenth and early twentieth centuries in his Doctoral thesis. Belgrave, pp. 256, 262, 264.

⁷³ Belgrave, p. 19; Rex Wright-St Clair, *A History of the New Zealand Medical Association: The First Hundred Years* (Wellington: Butterworths of New Zealand, 1987), pp. 59-65. P. S. Brown identifies similar problems trying to identify and determine the numbers of practicing herbalists in Britain during this period also. Brown, pp. 71- 93.

⁷⁴ According to Rex Wright St-Clair, medical registration was compulsory in New Zealand from 1868, but this did not prevent unregistered practitioners from practicing as long as they did not claim to be registered. A Medical Act passed in 1849 gave degrees of authority to registered doctors in New Zealand, but did not prevent unregistered practitioners from practicing or assuming the title of doctor. Rex Wright-St Clair, p. 59; Medical Practitioners Act, 1849, http://www.nzlii.org/nz/legis/hist_act/mpa184913v1849n2335/, [accessed October 10 2013].

isolated than in New Zealand, the distribution of herbalists was wide and by the early twentieth century, they were present and practicing in most States.⁷⁵

The popularity of herbalism in Melbourne in particular attracted interest from New Zealand's self-proclaimed first herbalist, James Neil.⁷⁶ Neil attributes his introduction to Thomsonianism to an unnamed woman who he met in Melbourne in the 1860s who strongly advised Neil to begin the practice in New Zealand.⁷⁷ Thomson's system of herbalism was presumably introduced to Australia by both American and British advocates. In Melbourne, herbalist John Broadbent zealously supported and promoted the medical botanical movement with his 'Botanic Laboratory', shown in *Figure 4:4*, and the release of *The Australian Botanic Guide Being a Family Handbook of Botanic Treatment*.⁷⁸

Broadbent's manual begins predictably with a critical assessment of the medical profession and a promotion of Thomsonianism. He also includes disparaging comments about homeopathy, which he describes as inefficient and not always entirely harmless. Despite his aversion to 'regular' medicine, Broadbent includes testimonies from distinguished doctors, whom he refers to as 'old school physicians' who have 'had the magnanimity' to apply Thomson's system and commend its application.⁷⁹

⁷⁵ Phillipa Martyr, *Paradise of Quacks: An Alternative History of Medicine in Australia* (Sydney: Macleay Press, 2002), pp. 242-3.

⁷⁶ Victoria became the capital of Australian herbalism in 1901 with the formation of The Australian Union of Herbalists. Martyr, pp. 244-45.

⁷⁷ James Neil, *The New Zealand Family Herb Doctor: A Guide to Recipes and Herbal Remedies (First published in 1891)* (Twickenham: Tiger Books International, 1998), p. 19.

⁷⁸ Broadbent was also editor of the *Australian Botanic Practitioner and Journal of the Australasian Society of Medical Botanists*. Martyr, p. 147.

⁷⁹ Broadbent, p. 19.

Figure 4:4: Broadbent's Botanic Laboratory in Melbourne



Source: Broadbent, p. v

A comprehensive and prosaic *materia medica* forms the bulk of Broadbent's manual and provides some clues as the plants recommended and used by Australian Thomsonians. The number of plants in Thomson's *materia medica* had increased significantly by this period. As well as the seventy plants listed in the 1864 *Thomsonian Botanic Watchman*, Broadbent's manual gives descriptions and directions for an additional one hundred and eighty plants.⁸⁰ A number of these are popular species included in official American and British pharmacopeia, such as senna, ginger, sarsaparilla, dandelion, ipecacuanha, buchu, cardamom, nutmeg, black cohosh, liquorice and sassafras.⁸¹ Like many of his contemporaries, Broadbent abandoned the physician, John Wesley's, doctrine of 'free' health for all and in the back of his book includes a price list for around three hundred and thirty-four herbs.⁸² This list reflects the ever-increasing commodification of health and wellness. Furthermore, the number of remedies and ailments for which they

⁸⁰ *The Pharmacopeia of the United States of America*, 1864; Author Unknown, 'Botanic and Common Names of Plants', p. 24; Cock, 1853.

⁸¹ Broadbent, pp. 64-85.

⁸² Broadbent, pp. 9, 35.

are prescribed, reveal the process of medicalisation – assigning a medical interpretation to specific processes or aspects of life.⁸³ Medicalisation is a process typically associated with doctors.⁸⁴ However, as this manual and others reveal, herbalists were equally involved in attributing a medical or pathological interpretation to physiological processes, such as a loss of appetite.

Broadbent’s manual prescribes powders, pills, ointments, syrups and tinctures.⁸⁵ Most are elaborate compound medicines, containing at least three plants in each prescription. The following recipe for anti-cholera powder contains nine ingredients, two of which are compound medicines, bringing the total number of plants in the remedy to seventeen.

ANTI-CHOLERA POWDER

Composition powder	2 oz	To be well mixed. This is an excellent remedy for all cases of diarrhoea, cholera, or cholera morbus, and one that ought to be kept in every household. Dose: A teaspoonful in half a cupful of hot water, every one to two hours. ⁸⁶
Stomach bitters	2 oz	
Tormentilla root	2 oz	
<i>Pinus canadensis</i>	2 oz	
Bayberry	1 oz	
Cinnamon	½ oz	
Nutmeg	½ oz	
Rhubarb	½ oz	
Cayenne	½ oz	

By the 1880s, Thomson’s system was well established in New Zealand, thanks to James Neil. Neil had established a successful chain of herbal dispensaries and his most popular publication, *The New Zealand Family Herb Doctor* (1889) was widely distributed throughout the colony.⁸⁷ Neil’s experience in Australia, and

⁸³ Freund and McGuire, pp. 199-201.

⁸⁴ Freund and McGuire, p. 200.

⁸⁵ Powders included specific compositions for diarrhoea, indigestion, constipation, loss of appetite, menstrual disorders, dyspepsia, enema, anti-choleric, diuretic and all over restoratives. Pills for the liver, indigestion, headaches, bilious, female disorders, rheumatism, diuretics, coughs nerves, and flatulence. Ointments included those for skin eruptions, itching, burns, intestinal disorders - administered through injection. Various syrups are recommended for pulmonary disorders, dysentery, pains and swellings, coughs and rheumatism. Tinctures included anti-spasmodics, nerviness, circulatory stimulants, anti-rheumatics and dyspeptics.

⁸⁶ Broadbent, p. 90.

⁸⁷ *The New Zealand Family Herb Doctor* reached 5000 copies and three editions by the end of 1891. George Griffiths, *Book & Print in New Zealand: A Guide to Print Culture in Aotearoa* (Wellington: Victoria University Press, 1997), http://nzetc.victoria.ac.nz/tm/scholarly/tei-GriBook-_div3-N11AEE.html, [accessed November 7 2013].

later Britain and America, influenced and shaped his approach to and practice of herbalism in New Zealand. In all three countries that Neil visited in the course of his herbal training, similar attempts to ostracise herbalists from national medical registers were being made. By the 1880s, while the American Medical Association was establishing codes of ethics that excluded 'irregular' practitioners, the British Medical Association was becoming increasingly active in Australasia, exercising 'a theocratic use of exclusion and ostracism'.⁸⁸ This common thread may well have united herbalists practicing in societies and cultures that displayed both profound similarities and differences.

Despite his claim of being New Zealand's first herbalist, Neil was one of a number of herbalists practicing and advertising in the colony from as early as the 1860s.⁸⁹ Herbalist Dr Westwood advertised regularly in Dunedin during this period, as did H. Barraclough in Wellington and later Nelson.⁹⁰ Between 1870 and 1890, the numbers of herbalists advertising in New Zealand newspapers increased significantly.⁹¹ Men such as Richard Ayres, H. Britton, James Nosworthy, Professor Thomas Guscott, Professor Ellis, E. W. Hall and, of course James Neil, advertised frequently during this period in regions throughout New Zealand.⁹² Additionally, Sydney herbalist R. T. Selby provided a herbal mail-order service for the sale of herbs in New Zealand.

⁸⁸ Matry, p. 195; Freund and McGuire, p. 207.

⁸⁹ *OW*, 2 October 1863, p. 1.

⁹⁰ *Colonist*, 23 May 1865, p. 1; *OW*, 12 December 1863, p. 1.

⁹¹ Indeed, Barraclough and Westwood were the only herbalists to advertise in the eighty-four New Zealand newspapers digitised by Papers Past between 1850 and 1870.

⁹² *Observer*, 8 September 1883, p. 9; *Star*, 1 June 1880, p. 2; *Wanganui Herald (WH)*, 12 July 1890, p. 2; *Auckland Star (AS)*, 19 January, 1872; *Observer*, 29 September 1883, p. 9; *Bay Of Plenty Times (BOPT)*, 30 March 1878, p. 2.

Figure 4:5: Advertisement for Dunedin herbalist Mrs Louisa Hawkins

Public Notices.

MRS LOUISA HAWKINS' improved Female Pills; quickly remove all irregularities. 3s 6d and 5s per box.

MRS LOUISA HAWKINS' Steel and Pennyroyal Pills, 3s 6d box; indispensable to ladies. Compound Tansy Pills, 5s box.

MRS LOUISA HAWKINS' Dual Box Pills, 4s 6d, for poorness of blood. Boujran's, 4s 6d. Bland's Iron Pills, 4s gross.

EITHER Sent Post Free on receipt of price in Stamps. Address—Mrs HAWKINS, 101 George street, Dunedin.

Source: *OW*, 23 June 1892, p. 24

Only two female herbalists appear in newspapers and directories during this period; Madam E. A. Thompson from Christchurch and Dunedin-based Mrs Louise Hawkins, who sold patent remedies as well as her own 'female pills', advertised in *Figure 4:5*, for 'all irregularities and ailments ladies are subject to'.⁹³ What form of organisation, if any, herbalists established during this period, is difficult to determine and it appears that, like other medical practitioners, they operated largely independently. Between 1881 and 1914, herbalists provided doctors with their greatest competition and, like doctors, they became increasingly organised, creating associations and seeking professional status. Neil was arguably the most visible and active of all medical herbalists in New Zealand in the nineteenth century. Exploring his life, education and political activities sheds light on the activities of medical herbalists in colonial New Zealand and also reveals broader trends and social opinions.

⁹³ Louisa Hawkins advertised in numerous newspapers and appeared in directories including; *New Zealand Tablet (NZT)*, 28 February 1890, p. 10; *Oamaru Mail (OM)*, 2 April 1878, p. 2; *WH*, 12 July 1890, p. 2; *The Cyclopedia of New Zealand (Canterbury Province)* (Christchurch: The Cyclopedia Company, 1903), p. 259.

Born in Paisley, Scotland, to William and Mary (née Davidson) Neil, James Neil immigrated as a young man to Melbourne, Australia. He left Melbourne in 1860, arrived at the Otago goldfields and within eight years moved to the West Coast, marrying Ann Hardie in Hokitika in 1868.⁹⁴ Soon after, he returned to Scotland and while en route in Melbourne was introduced to Thomson's system of medical botany. After several years working in Glasgow with a herbalist and later a dentist named Clark, Neil returned to New Zealand, arriving in Dunedin in 1872.⁹⁵

The 1870s were fruitful years for Neil. He established his first dispensary in Dunedin before opening further stores in Auckland, Timaru, Invercargill, Wellington and Napier.⁹⁶ In 1881, Neil decided to augment his herbal training with a medical education, enrolling at Otago University's Medical School. There, the animosity aimed at 'quacks' during this period was most likely felt by the herbalist, who only attended three sessions at this institution. Instead, Neil chose to travel to America and attend the Bennett Eclectic College in Chicago, graduating in 1883. The following year, he returned to America and attended a school for medical graduates, the Polyclinic in New York.⁹⁷ In between study, he managed his growing franchise, gave public lectures on Christianity and campaigned against spiritualism, producing a pamphlet subtly entitled, *Spiritualism and Theosophy: Twain Brothers of the Antichrist*.⁹⁸

⁹⁴ *Observer*, 23 May 1914, p. 17; *New Zealand Herald (NZH)* 9 May 1914, p. 10.


⁹⁵ Neil, pp. 19-22.

⁹⁶ Hocken Library, Dunedin, MS-2103, Minute Book of Annual General and Directors' Meetings of James Neil Limited, 1910-1921, Callan and Gallaway: Miscellaneous legal records; Neil, pp. 18-22.

⁹⁷ Also known as The Stuyvesant Clinic which dispensed free medical care to German immigrants on the Lower East Side in the 1880s. <http://www.nyc-architecture.com/LES/LES020.htm>, [accessed October 15 2013].

⁹⁸ Neil was particularly committed to maligning spiritualism, and gave open air lectures on the subject after his passion and zeal resulted in a refusal to allow him speak at a Christian convention. *NZT*, 28 August 1909, p. 5; *Otago Daily Times (ODT)*, 21 October 1901, p. 1.

Figure 4.6: Advertisements for Neil's dispensaries in Dunedin and Auckland

<p>A. TURNER & CO., GROCCERS, &c., OLD POST-OFFICE STORE, CORNER OF Albany and King Streets, Dunedin.</p>	<p>IF YOU WOULD ENJOY GOOD HEALTH USE NATURE'S OWN HERBAL REMEDIES Manufactured at Neil's Botanic Dispensary</p>
<p>BOTANIC  DISPENSARY.</p> <p>JAMES NEIL, HERBALIST.</p> <p><small>Wholesale and Retail Dealer in Botanic, Homoeopathic, and Patent Medicines, Druggists' Sundries, Pure Chemicals, &c.; Grocer, Preserver, Manufacturer, and Importer of Herbal Medicines, Extracts, Oils, Tinctures, Botanic and Medical Appliances.</small></p> <p><i>Teeth carefully Extracted, Stopped and Cleaned.</i></p> <p><small>Sole manufacturer of the celebrated Dandelion Coffee and Pill, which are now highly prized by hundreds as the best remedy for Indigestion and its train of symptoms; the Botanic Cough Syrup and Composition Powders, Balm of Gilead, &c.</small></p> <p>96, GEORGE STREET, DUNEDIN.</p>	<p>Indigestion, Flatulency, and Constipation can be cured by taking NEIL'S CASCARA BITTERS. Chronic Rheumatism cured by using Neil's Rheumatic Cure and Liniment, price 3s 6d. All sufferers from a DE-RANGED LIVER can be relieved by using Neil's Liver Tonic, price 2s 9d. A boon to Asthmatics is Neil's Asthma Powders, in tins 1s and 2s 2d; relieves every time. Patent and Homoeopathic Medicines in stock, and the largest stock of Herbs and Herbal Preparations in New Zealand.</p> <p>When Doctors Fail send symptoms to Neil's Botanic Dispensary, WELLESLEY STREET EAST, AUCKLAND.</p>

Source: The Pamphlet Collection of Sir Robert Stout, Volume 35, <http://nzetc.victoria.ac.nz/tm/scholarly/Stout35-fig-Stout35P010138a.html>, [accessed October 15 2013]; Thames Advertiser, 24 April 1893, p. 4

Neil's interpretation of Thomson's system emphasised its original focus on lay healing and domestic health, an emphasis that may well have contributed to Neil's success in New Zealand. Neil objected to the commodification of medicine and, unlike Broadbent, he encouraged readers to grow and gather medicinal plants from the wild. According to Neil, plants are simple gifts from our 'Divine Benefactor'.⁹⁹ A short list of prepared remedies and compounds with prices and shipping details is included in his book. However, clear descriptions of the plants are also present and in a section entitled, 'Cultivation of herbs, Roots Etc,' Neil gives instructions for the propagation of several species, including rue, southernwood, hyssop, feverfew, wormwood, motherwort and valerian:

⁹⁹ Neil, p. 5.

VALERIAN, ENGLISH (*Valeriana officianalis*)

The great wild valerian is a large, handsome plant, with a perennial, fibrous root, an erect stem, and grooved, two to four feet high...Our picture will enable it to be identified. [It] is growing in most botanical gardens, and can be cultivated privately ... The roots are the part used in medicine. They should be collected in the spring, dried, and separated from the adhering earth, then kept from the damp and air. The decoction is made in the usual way, and ordinary dose.¹⁰⁰

‘Few will seek to cultivate those that experience has taught us grow best wild’, wrote Neil, who believed that some plants, such as burnet (*Pimpinella sanguisorba*), were more effective medicines if gathered from the wild.¹⁰¹ Neil’s faith in nature was intrinsically linked to his faith in Christ and he maintained the belief that God provided all of man’s needs to heal.¹⁰²

While Neil imported a lot of plant material from Britain and America, he was innovative when it came to gathering and making use of the medicinal species that had naturalised in New Zealand. He bought wild dandelion root from Christchurch settlers, and also gathered cleavers, koromiko, raspberry leaves, fumitory, fennel, horehound and barbary bark growing in the wild.¹⁰³ Neil established a plant nursery in Caversham (Dunedin) to cultivate species that would grow in the colony but did not sustain wild populations. Unfortunately, no evidence of this garden survives, but in the pages of Neil’s book, he refers to growing burdock, comfrey, hyssop and rue at Caversham. These plants were converted into saleable items in a factory in Dunedin where by 1885, Neil had four employees, a workforce that suggests that more plants were grown and processed in the area.¹⁰⁴

Neil wanted every plant used by New Zealand herbalists and healers to be eventually cultivated in the colony and he had attempted several introductions

¹⁰⁰ Neil, pp. 99-100.

¹⁰¹ Neil, pp. 148, 31.

¹⁰² Neil expresses his explicitly religious beliefs in the first pages of his book. ‘One thing is certain’ writes Neil, ‘that sin and suffering came into our world; this being so, we have reason to thank God for giving us the means to cure’. Neil, p. 1.

¹⁰³ Neil, p. 510.

¹⁰⁴ *ODT*, 26 March 1890, p. 2.

himself, including mandrake and *Cascara sagrada*. He also pushed for the local manufacture of herbal medicines. As an active member of the Otago Protectionists Association, Neil appealed to the Tariff Commission in 1895 to increase the tariff on manufactured medicines and medical compounds.¹⁰⁵ Describing himself as a manufacturing chemist, he argued that there was no incentive for local industry, as the tariff on plant material and raw spirits was the same as manufactured products. According to Neil, increasing the tariff on manufactured products would prevent ‘grocers and others from spoiling the trade’ by selling a two-and-sixpenny article at a profit of one or two pounds.¹⁰⁶ The Tariff Commission questioned Neil’s motivation, suggesting that the herbalist was simply seeking to increase his own trade, and in an argument that mimicked later debates on patent and proprietary medicines, it relayed its concern that a higher tariff would negatively impact on consumers.

Meanwhile, Neil continued to manufacture products using imported and locally grown plants, combining Thomson’s philosophy with colonial ingenuity. By the 1890s, herbalists were a varied and eclectic group of healers, competing with one another as well patent and proprietary medicines.¹⁰⁷ While they maintained similar principles and philosophies – most importantly, a focus on medicinal plants – many, such as Neil, created their own preparations and sought a point of difference. Ironically, it was the exclusion of herbalists from governing bodies – the organisations that enforced standardisation and controls – which ultimately afforded herbalists a degree of freedom in their approach to medical care. Contrary to Broadbent’s complex preparations, Neil included a list of simples – single plants taken separately as infusions, decoctions, extractions, inhalations, ointments, syrups or tinctures – and his dandelion pills won international trade awards.¹⁰⁸ Neil’s ‘Mother’s Friend - Soothing Syrup’, was purportedly more effective than a similar medicine made by Isaiah Coffin.

¹⁰⁵ Tariff Commission ‘Report of the Tariff Commission, Together with the Minutes of Proceedings and Evidence, proposed Amended Tariff and Estimate of the Financial Effect of the Proposed Tariff’, *AJHR* (1895), H-02, p. 85.

¹⁰⁶ Tariff Commission, ‘Report of the Tariff Commission’, *AJHR* (1895), H-02, pp. 84- 85.

¹⁰⁷ Rothstein, p. 47.

¹⁰⁸ *ODT*, 26 March 1890, p. 2; Neil, pp. 128-148.

In his herbal, Neil includes a list of medicines used by regular practitioners, not ‘so much to recommend their use’, but to instruct and guide readers as to their properties and application.¹⁰⁹ In doing so, Neil supported Thomson’s doctrine that every man and woman should understand physiological and medical processes and maintain their own health. Some substances, stated Neil, do work in harmony and are also used by medical herbalists. Others he considered to be poison. Neil rated these drugs by placing the words, ‘safe’, ‘use carefully’ or ‘dangerous’ next to each. He also explains the signs and abbreviations used by regular physicians, ‘as many have been poisoned by dog Latin’.¹¹⁰ As well as several varieties of acid and inorganic compounds such as potassium and sulphur, a number of plants – including aloes, aconite, arnica, belladonna, cannabis, cinchona, hemlock, foxglove, ginger, henbane, ipecacuahna jalap, nux vomica and black cohosh – appear in the list. Although some herbalists used these plants, Neil emphasises the fact they are potentially dangerous and associated more with regular practice and physicians. These lists contribute to the classification of certain plants as ‘folk’ or ‘traditional’ remedies.

In further support of self-care and domestic health, Neil advocated gaining knowledge of anatomy and physiology, explaining and describing the body in scientific, but easily understood, terms.¹¹¹ Indeed, as regular practitioners increasingly employed scientific terminology, effectively limiting the knowledge accessible to domestic healers, herbalists extended the definition of science, describing it in comprehensible terms. Scientific medicine and terminology, as defined by regular practitioners, supported the medical gaze and made patients compliant, uninformed vehicles of disease.¹¹² In 1895, for example, a Harley Street physician wrote to the *British Medical Journal* lamenting the simplification of medical terminology.¹¹³ There are a number of times, writes the anonymous physician, when he wished to dispense undecipherable drugs to his patients who

¹⁰⁹ Neil, p. 151. `

¹¹⁰ Neil, p. 153.

¹¹¹ Neil, pp. 245-253.

¹¹² Michel Foucault, *The Birth of the Clinic: An Archaeology of Medical Perception* translated by Alan Sheridan (Paris: Presses Universitaires de France, 1963), pp. 112-120; Freund and McGuire, p. 213; Deborah Lupton, *Medicine as Culture* (London: Sage Publications, 1994), pp. 23-24. Belgrave, p. 313.

¹¹³ Julius Althaus, ‘The Nomenclature of the British Pharmacopeia’, *British Medical Journal (BMJ)* 2, 1817 (1895), pp. 1064.

grow alarmed when they read such ingredients as nux vomica, strychnine, arsenic and chloroform in their prescriptions. Like the French physician Laennec, who spoke in Latin to his students across his patients so they remained unaware of their treatment, this Harley Street doctor preferred his treatments to be as anonymous as his opinion.¹¹⁴

Conversely, Thomson's system, as practiced by Broadbent and Neil, relied on a regime of remedies, contained explicit religious sentiment and encouraged patients to be active in their pursuit of health. Broadbent describes science as knowledge, and the science of medicine, as the art of preventing and curing disease.¹¹⁵ While Broadbent ridicules the science taught in medical universities, describing this as archaic and old-dated, he promotes Thomson's 'science of life' as progressive:

It is now the wonder of the more enlightened of the present generation how the belief in witchcraft could have been obtained amongst the most learned of the 16th century. So it will be the wonder of future generations, that their forefathers of the 19th century should be so hoodwinked as to swallow down deadly poisons, be bled, blistered and physicked ...¹¹⁶

In an approach typical of both herbalists and domestic healers, Neil combines elements of his varied education with his experience and response to the colonial environment. Neil was encouraged in this approach at the appropriately named Eclectic College of America. The Eclectic Practice of Medicine was first devised by New York physician and herbalist Wooster Beach, who, like many others, believed the best way to compete with regular physicians was to gain a medical qualification.¹¹⁷ In 1830, Beach, with several other physicians, established a school in Worthington, Ohio, to provide students with a scientific knowledge of botanical medicine. Beach coined the term 'eclectic' to distinguish his system from Thomson's. In 1842, after anti-dissection riots forced the closure of the Worthington school, the college moved to Cincinnati, where its popularity grew

¹¹⁴ Charles Newman, *The Evolution of Medical Education in the Nineteenth Century* (London: Oxford University Press, 1957), p. 27.

¹¹⁵ Broadbent, p. 1.

¹¹⁶ Broadbent, pp. 13-4.

¹¹⁷ Rothstein, pp. 47-50; Rolla L. Thomas, *The Eclectic Practice of Medicine* (Cincinnati: The Scudder Brothers, 1907), <http://www.swsbm.com>, [accessed September 3 2013].

and the college became known as the only medical botanical institute to award degrees.¹¹⁸

Throughout the nineteenth century, eclectic medicine experienced fluctuating periods of acclaim and disdain. As early as the 1840s, Professor John King of the Eclectic Medical Institute began concentrating the resinous material of plants, creating convenient and popular medicines used by regular and irregular physicians. By the late 1850s, however, these compounds were in general dispute, being considered ineffective and too easily adulterated, a blow that damaged the reputation of the eclectics and their practice. Many considered the medicines prescribed by eclectics as simply the botanical equivalents of heroic medicine – medicines the patient had to be more heroic than the physician to stand.¹¹⁹ By the 1880s, however, John Scudder, a pharmacologist and manufacturer of pharmaceuticals, reinvigorated the Institute, making policy the use of gentle drugs, both palatable and effective.¹²⁰

The influence of eclecticism can be detected in Neil's advice and recommendations. His famous dandelion pills are largely effective, writes Neil, because they contain podophyllin and leptandrin – concentrated resins like those discovered by John King. Certain heroic treatments are also recommended by Neil, who suggests the following rather harrowing directions for the removal of birth marks or 'mothers' marks.

If parents wish to do it themselves, the simplest way to do it is to thread a darning needle with a white cotton crochet thread, pass it through the base of the tumour or elevation, tie it on top, cut off the ends...now put on a slippery elm poultice between muslin cloths, renew every six hours till the part festers and comes off; then dress with healing ointment.¹²¹

While doctors sought feedback and were concerned primarily with the judgement of their peers, herbalists encouraged and collected testimonials from the lay public.

¹¹⁸ Rothstein, p. 47.

¹¹⁹ Dary, p. 30; Harvey Wickes Felner, *Historical Sketch of the Eclectic Medical Institute, Cincinnati* (Cincinnati: The Lloyd Library, c. 1911), <http://www.swsbm.com>, [accessed September 3 2013].

¹²⁰ Rothstein, pp. 47-50.

¹²¹ Neil, p. 272.

Indeed, Neil speaks directly to domestic healers in his book and assumes a degree of knowledge on their part. Some doses he describes simply as ‘ordinary’ and he omits the virtues of some plants such as wormwood, which, in his words is ‘so well known a description is not needed’.¹²²

Ironically, despite their advocacy of domestic health and ‘free health’, herbalists charged for their services and their medicines and competed for customers in a capitalistic medical market. Thomson sold the ‘rights’ to his system to other herbalists who then received a copy of his book, *New Guide to Health; or, Botanic Family Physician, Containing a Complete System of Practice* (1822) and membership to one of Thomson’s Friendly Societies.¹²³ Broadbent included an extensive list of herbs and prices at the end of his manual, and Neil actively marketed and promoted his own formulae through advertising such as that shown in *Figure 4:7*.¹²⁴

Like domestic medical manuals, Neil includes numerous references to the source of information, referring repeatedly to Thomsonian herbalists, Drs. Beach, Coffin and Skelton, as well as academics, eclectic practitioners and lay healers. Neil asserts medicine is an intuitive art and despite his explicit praise of Thomson, he stresses regularly that people should use their own sense and judgement when it comes to health and healing. An entire section of Neil’s book is contributed by a ‘woman who has had much experience with domestic medicine’.¹²⁵ Including local lay information made herbalism a dynamic system and further increased the number of plants relied on by herbal practitioners. Like domestic healers, Neil also experimented with native plants.¹²⁶

¹²² Neil, p. 25.

¹²³ Rothstein, p. 43; Thomson, ‘*New Guide to Health*’, pp. 10-12.

¹²⁴ Broadbent, pp. 173-188; *Southland Times (ST)*, 9 May 1903, p. 3; *Timaru Herald (TH)*, 3 July 1889, p. 4.

¹²⁵ Neil, p. 468.

¹²⁶ Neil, pp. 492-495.

Figure 4:7: Advertisements for Neil's medicines

DR CHRISTIAN relates the case of a young man who died from drinking Brandy immoderately for several days in succession. On examination after death his stomach was found to be in a state of mortification, and the whole of the small intestine in an incipient state of inflammation.

DR NEIL says:—If such effects are produced in healthy individuals by the use of Alcohol, it is the height of madness to recommend it as a Medicine in cases of Sickness. It may arouse the energies of an exhausted system for the moment, but will soon be followed by Drowsiness, Stupor, and Death.

For this reason we say **USE HERBS**; the Herbs that the Great Creator of the Universe has in His Divine Wisdom provided, whereby every disease to which frail man is heir can be completely cured if only taken in time.

—

Asthma, Bronchitis, Coughs and Colds, Diarrhoea and Dysentery, Karache, Headache, Liver Complaint, Neuralgia, Paralysis, Quinsy, Indigestion, Rheumatism, Sciatica, &c., &c.,

ALL VANISH BEFORE DR NEIL'S WONDERFUL HERBAL REMEDIES.

—

Reader be warned ere the Lamp of Life go out. Consult **DR NEIL**, and thus prolong your useful life, don't think of dying under fourscore years.

Everything required to make you Healthy and Happy can be had at

DR. NEIL'S,
BOTANIC DISPENSARY, TIMARU.

—

N.B.—Agents in every Town in New Zealand.

NEIL'S
BALM OF GILEAD
OR
COLD CURER.
IS ABSOLUTELY THE STANDARD
Remedy For Chest Complaints.
It will CURE a cold.
PRICE, 2s PER BOTTLE.

For Indigestion, Acidity, Wind, etc.—**NEIL'S DIGESTIVE PANACEA** is the most successful medicine. It has cured others. It will cure you. 1s 6d per bottle.

Those who are troubled with Kidney Complaints and pains in the back will find a cure in our **KIDNEY CURE.** It contains no dangerous drugs, and is absolutely safe. 2s 6d per bottle.

Do you want a Tonic? **NEIL'S IRON TONIC BITTERS** is an ideal tonic. It makes new blood and instils vigour into the body. 2s 6d per bottle.

For Neuralgia Try our **NEURALGIC MIXTURE.** It is a positive cure for this complaint. 1s 6d and 2s 6d per bottle.

To Tone up the Liver use **NEIL'S LIVER TONIC**

For Worms in Children Neil's **WORM and TONIC SYRUP** acts most satisfactory, as it brings children back to a healthy condition. 1s per Bottle

NEIL'S NURSERY LOTION for cleansing the hair of parasites and their nits. It is effective and not dangerous. It is easily applied. 1s per Bottle

As a Family Medicine there is no better than our **DANDELION PILLS**, 1s a Box

We keep a Large Stock of all kinds of Medicine, Herbs, Roots, Barks, etc, Pure Drugs, Chemicals, Medical Belts, Trusses, and Druggist Sundries

ONLY THE BEST QUALITY STOCKED

Neil's Botanic Dispensary,
DEE STREET,
INVERCARGILL,
And at Dunedin, Auckland, Napier, Timaru.

Neil's New Zealand Almanac, with Medical Notes, including proper feeding of children, post free on application.

Source: *Southland Times*, 9 May 1903, p. 3; *Timaru Herald*, 3 July 1889, p. 4

Thomson had established a tradition of incorporating and adapting local lay and indigenous knowledge, basing many of his treatments on Native American plants and treatments.¹²⁷ Neil's use of indigenous medical knowledge befits Thomson's system by adhering to notions of tradition and rejecting the need for scientific analysis. Yet, as noted, Thomson effectively stripped any cultural context from the plants by claiming their discovery for himself. Thomson claimed to have

¹²⁷ Neil includes one hundred and thirty-four plants in his manual. Thirty-one are described as either native to or growing abundantly in America.

‘discovered’ lobelia, the most important drug in his armorial, despite Native Americans using the plant for centuries. Steam treatments, and around fifty other plants used by American shamans, were also claimed by Thomson and his advocates.¹²⁸

American plants – that is, those described by Neil as native to, or growing abundantly in various parts of America – remained important within the Thomsonian system. Indeed, of the one hundred and thirty-four plants in Neil’s book, thirty-one are associated with America geographically or culturally. An American-trained herbalist based in Napier in the 1880s, Professor James relied heavily on American plants and maintained that New Zealand’s climate was most suitable to their cultivation.¹²⁹ Unlike Neil, he ignored the presence or potential of native New Zealand medicinal plants. Most significantly, Neil dabbled in traditional Māori medicine and described medicinal and commercial uses for nineteen native New Zealand plants. Table 4:2, is a summary of his section on New Zealand flora. Like Thomson, or contemporary botanists and doctors, Neil gives little acknowledgement to Māori, praising instead Mr King, Neil’s manager in Auckland, for gathering and collating the information. By doing so, Neil contributed to the translation of indigenous medical knowledge into western frameworks and understandings, a process described in more detail in Chapter Six.

¹²⁸ Indeed, there was little of Thomson’s system that was novel or new – the plants he recommended were well known and his regime of purging and then strengthening the body was a common practice that adhered to a humoral theory of disease. Rothstein, p. 43; Vivian Nutton, ‘Humoralism’, in *Companion Encyclopedia of the History of Medicine*, Vol. I, ed. By W. F. Bynum and Roy Porter (London: Routledge, 1993), pp. 281-292.

¹²⁹ *Daily Telegraph (DT)*, November 30, 1881.

Table 4:2: A list of native New Zealand plants as described in Neil's herbal

Botanical Name	Common Name (as written by Neil)	Medicinal Uses
<i>Phormium tenax</i>	Flax, harakeke	Anthelmintic, haemostatic, demulcent, carminative, poultice for burns, scalds, abscesses or inflammation
<i>Rhipogonum parviflorum</i>	Kare-Ao, supple jack	Decoction of the roots good for rheumatism, bowel complaints, fever, general debility and skin complaints
<i>Macropiper excelsum</i>	Kawakawa, pepper tree	Aromatic, diuretic. The leaves are chewed for toothache or facial swelling. An infusion of the leaves is good for pains in the stomach
<i>Veronica</i>	Koro-Miko	Astringent, good for dysentery, ulcers and venereal disease
<i>Dysoxylum spectabile</i>	Kohe-kohe	Stops the secretion of milk
<i>Passiflora tetrandra</i>	Ko-Hia	An oil made from the seeds of the fruit used for sore breasts and old wounds
<i>Plantain</i>	Kopa-Kopa	Boiled leaves applied to ulcers
<i>Leptospermum scoparium</i>	Manuka	Allays fever, given to costive infants and coughs in adults
<i>Metrosiderus robusta</i>	Rata bark	Anthelmintic and use to treat venereal disease
<i>Atherosperma N. Zealandiae</i>	Puka-Tea	Applied to obstinate sores and scrofula, venereal diseases
<i>Drimys axillaris</i>	Horopito	Stimulating tonic with anti-scorbutic and alterative qualities
<i>Metrosiderus tomentosa</i>	Pohutu Kawa	Used to treat dysentery, high in tannins
<i>Phyllocladus trichomanoides</i>	Tarekaha	Used to treat dysentery, high in tannins. Also used in tanneries
<i>Coriaria ruscifolia</i>	Tu Pakihi Tutu, toot	Extremely poisonous but the juice of the berry used as a laxative

Source: Neil, pp. 492-495

By the turn of the twentieth century, herbalists in New Zealand were becoming increasingly concerned with the status of their profession. Exclusion from medical registration meant herbalists had no legal right to claim compensation.¹³⁰ Their practice and trade relied solely on the good faith of their patients, while their

¹³⁰ *Statutes of New Zealand, 1867, No. 30, Medical Practitioners' Act.*
http://www.nzlii.org/nz/legis/hist_act/mpa186731v1867n30335/, [accessed June 8 2014].

reputations suffered considerably during campaigns against unregistered practitioners.¹³¹ As governing medical bodies such as the New Zealand British Medical Association sought to control and suppress unregistered practices, herbalists rallied and presented an alternative form of registration that would provide the same assurances and safeguards as the national medical register.

In 1906, Neil formed a New Zealand Association of Medical Herbalists, establishing main branches in Wellington and Christchurch.¹³² The Association was registered under the Unclassified Societies Act and by 1907 had twenty to thirty members, some of whom were also members of the British Association of Medical Herbalists. A major aim of the Association was to form an organised appeal for inclusion on the national medical register and raise the status of herbal practice. It adopted similar rules and regulations as the national register, including an expectation that members would to pass an exam set by their president, Neil, and co-president, John Hepworth. Members had to have at least four years' practicing experience and were banned from advertising anything in relation to sexual remedies or diseases of the urinary organs.¹³³

Despite their desire to be included in the national register, Association members rallied for autonomy and the right to control its own practitioners. During an enquiry related to the Quackery Prevention Bill, herbalist Richard Ayres approved of the Bill's proposal to register herbalists who had sat an exam or had been in practice for an appropriate period of time. Yet Ayres was determined that the 'examination [be] on the lines which the rules of our Association provide'.¹³⁴ Fellow herbalist Benjamin Gardiner was also questioned and voiced his concern over the ambiguity of what constituted a registered herbalist. A registered

¹³¹ Porter, 'Before the Fringe', pp. 1- 27; Bivins, 'Histories of Heterodoxy', pp. 578-97. Articles in New Zealand newspapers warned the public not to consult unregistered medical practitioners, mimicking the debate against quackery taking place in America and Britain. For example, 'The Campaign Against Quacks: Twentieth Thousand in New York', *Evening Post (EP)*, 13 October 1904, p. 5; 'Too Many Quacks', *EP*, 27 November 1931, p. 9.

¹³² *EP*, 3 April 1907, p. 8.

¹³³ Quackery Prevention Bill Committee, 'Quackery Prevention Bill Committee', *AJHR* (1907), I -14, p. 5.

¹³⁴ Quackery Prevention Bill Committee, *AJHR*, (1907), I -14, pp. 5-6.

herbalist, stated Gardiner, should be one registered and affiliated with the New Zealand Association of Medical Herbalists.¹³⁵

Chief Health Officer from the Department of Health (established 1900), James Mason, rejected this idea, determined that no man who is unqualified in accordance with the national register, should practice medicine or give medical advice.¹³⁶ This opinion persisted and New Zealand herbalists were consistently denied entry to the national medical register throughout the twentieth century.¹³⁷ Despite this, herbalists held positions on health boards, including the New Zealand Pharmacy Board, in local politics and on Hospital and Charitable Aid Boards.¹³⁸ Mr Peter Mitchell Mackay, for example, who was proprietor of Neil's Herbal Dispensary in Auckland, was elected onto the New Zealand Pharmacy Board in 1917. He was also Justice of the Peace and resided over the oral and practical pharmacy subjects at the Boards' examination. Mackay was also a member of the Auckland City Council, local fire board, Auckland Hospital and Charitable Aid Board, and trustee of the Auckland Savings Bank.¹³⁹ The positions Mackay and other herbalists held suggest that they received public support despite men such as Mason denigrating their authority.

The numbers of herbalists in New Zealand peaked at the turn of the century, but according to the national census, declined dramatically during the 1920s.¹⁴⁰ Popular historical scholarship blames members of the regular medical faculty for this decline, suggesting that campaigns against quackery and the exclusion of herbalists from registers and associations damaged the reputation of herbalists beyond repair.¹⁴¹ However, this alone does not account for the decline in numbers and popularity of New Zealand herbalists. During their heyday, herbalists were

¹³⁵ Quackery Prevention Bill Committee, *AJHR* (1907), I -14, p. 7.

¹³⁶ Quackery Prevention Bill Committee, *AJHR* (1907), I -14, pp. 14-15.

¹³⁷ Not until 2007, did Minister of Health, Hon. Pete Hodgson, approve Western herbal medicine for regulation under the Health Practitioners Competence Assurance Bill. <http://nzamh.org.nz/questions.html>, [accessed November 8 2013].

¹³⁸ *Chemist and Druggist of Australasia (CDA)*, 32, 9 (1917), p. 312.

¹³⁹ *CDA*, 32, 9 (1917), p. 312.

¹⁴⁰ Belgrave, p. 307.

¹⁴¹ David Coburn and Evan Willis, 'The Medical Profession: Knowledge. Power and Autonomy', in *The Handbook of Social Studies in Health and Medicine*, ed. by Gary Albrecht, Ray Fitzpatrick and Susan Scrimshaw (London: Sage, 2000), 377-393.

excluded from associations and registrations and accused of quackery – the reasons for their decline, therefore, reflected broader public opinions and trends.

In New Zealand, increased state support for regular medical care and a focus on preventative health services possibly stole the focus away from herbalism during the early twentieth century. Although governing medical bodies such as the New Zealand British Medical Association were often at loggerheads with the New Zealand Government, by 1920s New Zealand's Department of Health had significantly increased its services and influence over matters of health.¹⁴² A reorganised Department introduced major administrative changes to the provision of maternity care, increased medical care and surveillance in schools and, by 1924, initiated pensions for war veterans and the blind. The Nurses and Midwives Registration Act and the Child Welfare Act passed in 1925 further supported health initiatives, and people became increasingly dependent on the state for medical care.¹⁴³ The state advocated and supported the services provided only by regular physicians and consequently herbalists struggled to make a living.

By the 1920s, preventative health became a focus for the Department of Health and the wider community, further diminishing the appeal of systems like Samuel Thomson's.¹⁴⁴ Herbal medicine, despite its modern day focus, did not provide a preventative approach to health and wellness. While it encouraged domestic medical care in the nineteenth and early twentieth centuries, it was curative in its application, a prescriptive system that relied on a diagnosis and an appropriate remedy. As people turned to lifestyle and nutrition in order to prevent disease and illness, and subsidised health care schemes privileged registered physicians, the herbal system became largely redundant. Although plant-based drugs remained the core of western medical practices up until the introduction of sulphur drugs and antibiotics in the 1930s, herbal practitioners were side-lined.¹⁴⁵ It would be

¹⁴² Derek Dow, *Safeguarding the Public Health: A History of the New Zealand Department of Health* (Wellington: Victoria University Press, 1995), pp. 92-121.

¹⁴³ Dow, p. 126, *Statutes of New Zealand*, 1925, No. 22, Child Welfare Act http://www.nzlii.org/nz/legis/hist_act/cwa192516gv1925n22187/, [accessed May 21 2014].

¹⁴⁴ Dow, p. 95.

¹⁴⁵ Enrique Ravina and Hugo Kubinyi (eds), *The Evolution of Drug Discovery: From Traditional Medicines to Modern Drugs* (Weinheim: WILEY-VCH verlag GmbH, 2011), pp. 15-16.

decades before another period of social and political unrest, such as that which supported the practice in the nineteenth century, arose to reinvigorate the practice and its practitioners.

Conclusion

From the sixteenth century, the creation of medical guilds and associations encouraged the organisation of medicine and supported the definition and separation of medical occupations in Britain. In the process, lines were drawn between physicians, apothecaries and lay healers as their duties were defined and enforced. Despite this, herbal medicine crossed boundaries and remained an important element of western medical practice, accessible to, and applied by all. An era of discovery, exploration and colonisation encouraged official investigations into medicinal plants, while the relative safety and availability of medicinal plants made them popular with lay healers. Various physicians, attuned to the popularity of herbal medicine, gathered lay medico-botanical information, incorporating it into their practices and medical literature. While various *materia medica* and pharmacopeia guided practitioners, the information contained in these books was effectively a combination of lay knowledge, scholarly investigations and discoveries made during the course of exploration, trade and colonisation.

In Britain, the fight for medical control, coupled with animosity between various medical sectors during the seventeenth century, extended the boundaries between distinct medical systems and stimulated public support for alternative forms of healing. The apothecary Nicholas Culpeper objected to the elitism of London's College of Physicians and became an advocate for domestic healers, translating text and encouraging the use of medicinal plants. His most influential work, *Culpeper's Herbal*, formed strong associations between herbal medicine and domestic practices and supported the creation of a distinct system of herbal medicine. His focus on medicinal plants, rejection of inorganic medicines, inclusion of lay knowledge and resistance to the medical establishment became defining features of herbalism. Culpeper contributed to the creation of an alternative organised space for significant numbers of health practitioners who,

through choice or necessity, pursued a path different to that of the regular medical faculty.

According to P. S. Brown the nineteenth-century herbalist tradition sprang from the same roots as the therapeutics of regular medical practitioners.¹⁴⁶ More accurately, many herbal practitioners retained elements of medical practice dismissed by regular physicians. They incorporated these seemingly outdated ideas with indigenous medical traditions and supported the participation of domestic healers. Devised by American herbalist Samuel Thomson, the Thomsonian system of herbalism was arguably the most popular herbal system of the nineteenth century. Thomson's system combined medical theories and remedies considered outdated by regular physicians and rejected popular inorganic remedies. He used plants familiar to his fellow Americans, combining introduced European species with local indigenous knowledge and Native American plants, an approach mimicked by Neil in New Zealand.

In New Zealand, Thomson's herbal system was popularised by James Neil. Already established in Australia, Thomson's system was well-suited to the colonial environment. It appealed to colonists' innovative nature and promoted self-help, an essential skill for many of New Zealand and Australian early emigrants. The use of informal language and explicit religious sentiment, combined with advice and advocacy from physicians, effectively bridged the gap between regular practitioners and domestic and herbal healers. Neil enjoyed relative success in the late nineteenth century, establishing a chain of dispensaries throughout New Zealand. By the 1920s, however, the numbers of New Zealand herbalists dropped dramatically as the state increased its support for regular medical services, and an emphasis on preventative health diminished the popularity of herbal systems such as Thomson's. Meanwhile, registered physicians – the subjects of the following chapter – fought their own battle against popular opinion and state intervention, and used plants in accordance with progressive and 'modern' scientific ideals.

¹⁴⁶ Brown, 'The Vicissitudes of Herbalism', pp. 405.

Chapter Five

‘Colonial clinical trials’: New Zealand Doctors and their use of Medicinal Plants, 1850s -1920s

This chapter examines the study and use of medicinal plants by doctors who registered on New Zealand’s national medical register in the late nineteenth and early twentieth centuries.¹ It explores the influence of the British medical curriculum, particularly the Edinburgh syllabus which focused strongly on the use of medicinal plants, and was a template for New Zealand’s first university medical prospectus. This chapter describes investigations into native medicinal plants by medical men and argues that after an initial period of informal ‘colonial clinical trials’, conducted in often isolated conditions, experiments became increasingly scientific.

This chapter investigates the development of botanical and pharmaceutical subjects within British and European universities and briefly considers how the study of medicinal plants confuses definitions of theological and scientific medical theories. This confusion, I argue, further blurs lines between seemingly rigid and distinct medical philosophies and practices. Section One includes an analysis of *British Pharmacopeia*, texts that guided colonial doctors and promoted the growing authority of science and scientific analysis. Although a number of New Zealand doctors wrote memoirs, few made direct reference to their use of plants.² *Pharmacopeia*, therefore, provide some clue as to the plants they used and the most popular preparations. This section also examines early investigations into

¹ The advent and implications of medical registration in New Zealand is discussed in Chapter One: Medical Culture in New Zealand, 1850s-1920s.

² During the twentieth century, a significant number of medical histories and memoirs were written by retired New Zealand doctors but few of these mention the practical elements of medical care such as the use of medicinal plants. For example; Doris Gordon, *Backblocks Baby-Doctor: An Autobiography* (London: Faber & Faber, 1955); R. Burns Watson, *The Doctor Must Get Through: 50 Years a General Practitioner Surgeon* (Wellington: Reed, 1971); Robert Valpy Fulton, *Medical Practice in Otago and Southland in the Early Days: A Description of the Manner of Life*,

native New Zealand medicinal plants by doctors. Translating indigenous medical knowledge into western scientific and pharmaceutical terms, I argue, helped distinguish doctors' use of plants from other practitioners and traditional healers.

Section Two of this chapter explores the progression of botany and *materia medica* into increasingly specialised subjects and the development of medico-botanical subjects at the University of New Zealand. It argues that a strong Scottish influence at the Otago Medical School (established 1875) perpetuated the study of plants as botanical subjects as well as pharmaceutical constituents. This section discusses the effects of consumer demand on doctors' use and promotion of plant-based drugs.

By 1880, in the face of increasing pressure and competition from the patent and proprietary medicine industry, and as a way of bolstering and defining their discipline as different from others, doctors renewed their focus on science and the scientific preparation of plants. Section Three explains how doctors justified investigations into traditional Māori medical knowledge in the face of legislation designed to suppress both Māori healers and patent medicines. It discusses the notion and use of translation in justifying the claims to authority made by medical men, and provides a platform for further discussion of the processes and networks involved in the following chapter. Finally, this chapter reveals that while many nineteenth-century doctors emphasised and promoted the scientific translation of medicinal plants, events, such as World War One, prompted many to also advocate seemingly traditional and non-scientific practices. By combining these approaches, doctors adhered to professional standards while they used every resource available to mitigate disease.

Trials, and Difficulties of some of the Pioneer Doctors, of the Places in which, and of the People among whom they Laboured (Dunedin: Otago Daily Times and Witness Newspapers, 1922).

*Materia Medica in British universities and the development of the
British Pharmacopeia, 1800 -1870*

I have used it [New Zealand flax] in a hundred cases, including lacerations and amputations of every descriptions, and I have no hesitation in saying that there is nothing known in the Old country that can equal it in producing healthy granulations. I use a strong decoction [of flax] – the stronger the better – made from the roots and the butts of the leaves, boiled for twelve hours.³

In the late 1850s, in the isolated areas of Southland and the West Coast of New Zealand, an English-trained doctor, Dr Francis Alexander Monckton, was conducting experiments and ‘colonial clinical trials’ with native New Zealand medicinal plants. He had a particular interest, as the extract above illustrates, in New Zealand flax, which, he maintained, had a number of medicinal applications. Indeed, flax (*Phormium tenax*) had received a great deal of attention from the late eighteenth century from men of science, such as Joseph Banks, who had observed Māori using the fibres of the plant and appealed for experiments into its commercial potential.⁴ Both Monckton and Banks held medical degrees, interpreting their observations and basing their experiments and conclusions on an education that emphasised and perpetuated the importance of medicinal plants and ‘new discoveries’. Banks’ interest in medicinal plants was explored in Chapter One, and Monckton’s, I return to later in this chapter. First, it is important to explore the foundations and the development of the medical education that governed the way in which so many of New Zealand’s doctors viewed and used medicinal plants.

³ *Evening Post (EP)*, 7 February 1885, p. 2.

⁴ Indeed experiments into flax as a commercial fiber led to an extensive industry that extended into the early twentieth century. Allan Clarke, *The Great Sacred Forest of Tāne, Te Wao Tapu Nui a Tāne: A Natural Pre-history of Aotearoa New Zealand* (Auckland: Reed Publishing, 2007), p. 158, 201-2, 299; Arthur Herbert Church and M. A., Oxon, ‘Further Report on the Chemistry of *Phormium tenax*’, *Transactions and Proceedings of the New Zealand Institute (TPNZI)*, 6 (1873), pp. 260-271; Charles Heaphy, ‘On the New Zealand Flax, (*Phormium tenax*)’, *TPNZI*, 2 (1869), pp. 116-7; W. T. L. Travers, ‘On the Utilization of the *Phormium tenax*’, *TPNZI*, 1 (1868), pp. 168-173; B. D. Cross, ‘Investigations on *Phormium*’, *TPNZI*, 47 (1914), pp. 61-66.

By the mid-nineteenth century, plant-based drugs were an integral part of medical practice. Indeed, according to Dr Moxon, lecturer at Guy's Hospital in London in 1874, '[it is] an ultimate fact in human nature that, if you do not give drugs you will not be trusted to give other advice'.⁵ Patients expected doctors to understand, prescribe, and (at times) supply a growing number of drugs, the majority of which were based on, or contained, medicinal plants. Medical curricula explored in this chapter were attuned to this demand and taught doctors to prepare and understand drug action and design. The British syllabus guided many of New Zealand's earliest doctors in their practices and related occupations. The Scottish medical syllabus, I argue, was particularly influential.

Botany and the natural sciences formed an important part of the British medical prospectus, effectively linking older theological understandings of medicine with newer interpretations, and 'modern' botanical and medical developments. This remained true for the medical curriculum taught in late nineteenth-century New Zealand which was based on British models.⁶ The history of medicinal plants and associated knowledge, I argue, complicates simple analyses relating to the relationship between religion and medicine. The use of medicinal plants was conducive to both religious and scientific models, appropriately provided by God but modified by man and science. Indeed, encouraged first by the Greek's rational philosophy, and later by Enlightenment intellectuals, an empirical or scientific approach to disease was gradually combined, to varying degrees, with religious or supernatural views of health and wellness.⁷ The medical legacy of Galen the

⁵ Dr Moxon's inaugural address to *materia medica* and therapeutics students at Guy's Hospital in London in 1874. W. Moxon, 'Introductory Lecture to the Course on *Materia Medica* and Therapeutics, Delivered at Guy's Hospital', *British Medical Journal (BMJ)*, 1, 698 (1874), pp. 635-640.

⁶ Dorothy Page, *Anatomy of a Medical School: A History of Medicine at the University of Otago, 1875-2000* (Dunedin: Otago University Press, 2008), pp. 27-33.

⁷ Significant developments and theories emerged during the Enlightenment that supported mechanistic views of anatomy and physiology that many believed undermined religious understandings. Anatomist, doctor and artist, Andreas Vesalius (1514-64) was among the first to challenge the 'theological conceptions of the sanctity and dignity of the body' through his systematic and detailed anatomical drawings. René Descartes (1597-1650) maintained the mind, including the soul was separate from the body and subject to natural laws determined largely by mechanical structure and the behaviour of matter. Mechanistic frameworks encouraged experimentation and observation and discoveries such as William Harvey's (1578-1657) elucidation of the circulatory system, seemingly provided further proof that the workings of the body could be calculated and measured mathematically. Colin Samson, *Biomedicine and the Body in Health Studies: A Cross-Cultural Reader* (Oxford: Blackwell, 1999), p. 5; Wendy Stainton Rogers,

Greek came to the west via Islamic states and consequently amalgamated with Judeo-Christian beliefs. Centuries later, as stated by medical anthropologist Bryan Turner, there was ‘an important convergence in values and practice between the religious Reformation and the scientific Renaissance’.⁸

By the eighteenth century, although most physicians had abandoned Aristotelian views, the decree that ‘God had provided man with all he needs to heal’, persisted. Popular Christian physicians such as John Wesley perpetuated this perspective. In his well-known and widely distributed book, *Primitive Physick* (1747), Wesley describes medicinal plants discovered by ‘what is vulgarly termed accident’ as provided by the author of nature.⁹ Indeed, many doctors retained religious values and sentiment as, by the nineteenth century, they gloried in being ‘modern’ experimentalists. John Harvey Kellogg gained his medical degree at New York University Medical College in 1875.¹⁰ He wrote profusely on aspects of diet and lifestyle and produced a *Ladies’ Guide* in 1895 in which he expresses both a mechanistic and spiritual interpretation of the body:

Even the atheist, who recognizes no Omnipotent Hand as the Creator of all the marvels which greet the investigating scientist at every turn, is loth [*sic*] to believe himself to be a creature of chance, and is prone to erect an altar dedicated to the worship of Nature, even if he fails to recognize the God of Nature. That wonderful machine which we call the body is the masterpiece of the Infinite Artist.¹¹

As discussed in Chapter One, lay ideas of health and disease were often incorporated into doctors’ practices. Many sick, suspicious of new practices, retained religious or supernatural views of health and wellness which encouraged

Explaining Health and Illness: An Exploration of Diversity (New York: Harvester Wheatsheaf, 1991), pp. 208-235.

⁸ Bryan S. Turner, ‘The History of the Changing Concepts of Health and Illness: Outline of a General Model of Illness category’, in *The Handbook of Social Studies in Health and Medicine*, ed. by Gary Albrecht, Ray Fitzpatrick and Susan Scrimshaw (London: Sage, 2000), p. 15.

⁹ John Benjamin Wesley, *Primitive Physick or an Easy and Natural Method of Curing Most Diseases*, 9th edn (London: W. Strahan, 1747), p. vii.

¹⁰ Author Unknown, ‘December 16th 1943, On this Day, J. H. Kellogg Dies’, Special to the *New York Times*, <http://www.nytimes.com/learning/general/onthisday/bday/0226.html>, [accessed April 21 2014].

¹¹ J.H Kellogg, *Ladies’ Guide in Health and Disease* (London: International Tract Society, Limited, 1895), p. 3.

the dynamic relationship and fluidity of science and religion.¹² In nineteenth-century New Zealand, medical men similarly maintained explicitly religious values while they practiced and applied increasingly scientific techniques and understandings of the body and disease.¹³ James Beattie and John Stenhouse maintain that prominent nineteenth-century colonial scientists such as Thomas Kirk often framed scientific research with religious sentiment, making scientific enquiries into subjects provided by the ‘Creator’.¹⁴ Similarly, many colonial doctors regularly attended church and were members of religious beneficent and charitable organisations.¹⁵ William Purdie, introduced in Chapter Two, was known for his ‘Christian character’. According to Fulton, Purdie was drawn to the idea of ‘planting a Colony of Christian settlers’ in Otago by the prospect of preaching the gospel in a quiet way, ‘by lip and life to the aborigines’.¹⁶

At the same time, while doctors’ maintained religious believes, they rejected theories of supernatural causation and applied an increasingly prescriptive approach to medical care supported by the production of pharmacopeia.¹⁷ The production of pharmacopeia, as discussed previously in Chapter Two, was important to the development of western medicine. These texts promoted the standardisation of medical knowledge and, as I argue in Section Three of this chapter, legitimised the use of indigenous medical knowledge by scientific

¹² Roy Porter, *The Greatest Benefit to Mankind: A Medical History of Humanity from Antiquity to the Present* (London: Harper Collins Publisher, 1999), p. 282.

¹³ New Zealand settlers, as noted by historians James Beattie and John Stenhouse, combined religious traditions with scientific and utilitarian considerations. For example, the acclimatisation of plants and animals in New Zealand was scientifically justified according to theories such as Darwin’s natural selection, but also befit biblical visions of recreating the harmony and abundance of the Garden of Eden. James Beattie and John Stenhouse, ‘Empire, Environment and Religion: God and the Natural World in Nineteenth-Century New Zealand’, *Environment & History*, 13 (2007), pp. 413-446. See also, James Beattie, ‘Wilderness Found, Lost and Restored: The Sublime and Picturesque in New Zealand’, in *Wild Heart: The Possibility of Wilderness in Aotearoa New Zealand*, ed. by Mick Abbott and Richard Reeve (Dunedin: Otago University Press, 2011), pp. 89-104.

¹⁴ Beattie and Stenhouse, p. 425.

¹⁵ For example, Dr William Grigor of Invercargill was a staunch member of the Invercargill First Church in the late nineteenth and early twentieth centuries. In 1870, Dr Moran was appointed Roman Catholic Bishop of Dunedin and Dr Francis Stewart became one of the managers at St Andrews Presbyterian Church in Canterbury in 1876. Fulton, pp. 157, 178, 180.

¹⁶ Fulton, p. 35

¹⁷ Laurence J. Kirmayer, ‘Mind and Body as Metaphors: Hidden Values’, in *Biomedicine in Biomedicine Examined*, ed. by Margaret Lock and Deborah Gordon (Dordrecht, The Netherlands: Kluwer Academic Publishers, 1988), p. 59.

medical men. By the nineteenth century, pharmacopeia, with specific remedies for recognised diseases, formed the basis of botanical subjects within British universities.¹⁸ Although the advent of chemistry had popularised mineral and metallic drugs, by the 1820s authors of medical manuals appealed to their readers to pay greater attention to the plants they prescribed, and pharmacopeia contained an equal if not greater number of organic remedies as inorganic.¹⁹ As noted in Chapter One, the study of medicinal plants during this period was also encouraged by the acceptance of new classificatory systems, particularly the Linnaean system, as well as pharmacological discoveries and developments.²⁰

French and German chemists were instrumental in bringing about ‘systematic advances dignified by the name of pharmacology’. Their ideas influenced the direction of British medicine, demonstrating the flow of ideas throughout Europe during this period.²¹ Despite a degree of competition, prompted by an ever-growing commercial pharmaceutical industry, European scientists collaborated, prompting the emergence of pharmacology – the study of drug action and design. Pharmacology was typical of the ‘new science’ and of developing scientific and experimental methodologies.²² Opium was one of the first medicines to be subject to intense chemical analysis. Its active constituent, morphium, was identified and named in 1817 by German chemist Friedrich Wilhelm Sertürner. Professor of Anatomy at Collège de France, François Magendie, isolated the constituent strychnine, from the *Strychnos nux-vomica* tree and alongside fellow French chemist, Pierre Joseph Pelletier, performed experiments on popular emetics including ipecacuanha.²³

¹⁸ Porter, p. 309. Charles Newman, *The Evolution of Medical Education in the Nineteenth Century* (London: Oxford University Press, 1957).

¹⁹ Mineral drugs such as antimony-based powders, mercury and arsenic were popular and included in eighteenth-century editions of the *London Pharmacopeia*. Porter, pp. 268-9.

²⁰ For example in the preface of William Woodville’s, *Medical Botany Containing Systematic and General Descriptions With Plates with all the Medicinal Plants Comprehended in the Catalogues of the Materia Medica as Published by the Royal Colleges of Physicians of London, Edinburgh and Dublin Together with the Principle Medicinal Plants not Included in those Pharmacopeia*, 3rd edn (London: John Bohn, 1832).

²¹ Porter, p. 333.

²² Enrique Raviña and Hugo Kubinyi (eds), *The Evolution of Drug Discovery: From Traditional Medicines to Modern Drugs* (Weinham: Verlag GmbH, 2011).

²³ Porter, pp. 333-335.

In collaboration with Joseph Caventou, Pelletier went on to refine other constituents, and between 1818 and 1821 isolated caffeine, nicotine, cinchonine, quinine and atropine.²⁴ Large-scale commercial manufacture of drugs also began during this period. Pelletier and Caventou were among the first to produce significant amounts of pharmaceutical compounds, making 1800 kg of pure crystalline quinine sulphate (by processing 150 ton of cinchona bark) in 1826. German chemist Emmanuelle Merck followed their example and transformed his family apotheker into the highly successful international drug manufacturing business, E. Merck.²⁵

Meanwhile, in America, the United Society of Believers in Christ's Second Appearing, otherwise known as the Shakers, were establishing America's first large-scale medicinal plant industry. The Shakers' business grew quickly and was of significant commercial importance by the 1830s, peaking in the 1860s. Around 200 varieties of medicinal plants were gathered or grown, chopped, dried and pressed into bricks before being wrapped, labelled and sold to pharmacists and physicians nationally and internationally. The Shakers also produced tons of solid and fluid extracts.²⁶

The development of an international drug market, together with pharmaceutical discoveries, influenced the direction and content of the medical curriculum taught in certain British universities – the same curriculum taught to most of New Zealand's early colonial doctors. Most of New Zealand's earliest doctors, eighty-two out of 166 registered in 1867, gained their degrees at English universities

²⁴ Porter, p. 334.

²⁵ Raviña and Kubinyi, p. 11. According to historian Charles Newman, German scientists led the way in chemical research following the Franco-Prussian War (19 July 1870 – 10 May 1871) and fostered a different sort of science that involved the careful collection of facts, interpretation and team work. This approach was fostered through reforms to German Universities by Friedrich Wilhelm Christian Karl Ferdinand von Humboldt (1767 – 1835) who was responsible for founding the University of Berlin and, like his brother, Alexander von Humboldt produced influential work in the natural and medical sciences in the first half of the nineteenth century.

²⁶ George A. Bender, *Great Moments of Pharmacy* (Washington: Parke Davies and Company, 1965), <http://www.pharmacy.wsu.edu/history/A%20History%20of%20Pharmacy%20in%20Pictures.pdf>, [accessed September 10 2013].

while the majority of the remainder qualified at Scottish institutions.²⁷ The University of Edinburgh Medical School was particularly well regarded during this period and Scottish-trained doctors were instrumental throughout the British Empire, ‘staffing bureaucracies in medical sciences, engineering, surveying, botany and forest conservation’.²⁸

At the University of Edinburgh, the teaching of medicine began in the year 1738 when the first professor, Dr Alston, methodically discussed the natural history of medicines and their actions in health and disease. His successors – Dr John Hope, Dr Francis Home, Dr James Home, Dr Andrew Duncan and Sir Robert Christian – ‘assigned the same latitude’ to the subject and included the therapeutic effects of electricity, galvanism, and mineral waters. In 1761-62, Dr Cullen added lecturers on *materia medica*. Edinburgh’s curriculum maintained a strong focus on the natural sciences in the nineteenth century, requiring medical students to study botany for no less than three months during their four-year degree.²⁹

Botany and the study of medicinal plants was supported by the university’s close proximity and affiliation with the Royal Botanic Gardens of Edinburgh, as well as the experience of its professors. Dr Andrew Duncan held the role of Professor of *Materia Medica* at Edinburgh from 1821 to 1832. Dr (later Sir) Robert Christison succeeded him and taught the subject until 1877. Both men studied at European institutions and Christison spent time in Paris working alongside the French chemist, Magendie. Christison’s accomplishments, which include the elucidation of conine, from hemlock, reflect his training and passion for chemical analysis.³⁰ In 1842, Christison’s book, the *Dispensatory*, paved the way for a collaborative

²⁷ Michael Belgrave, “Medical Men” and “Lady Doctors” The Making of a New Zealand Profession, 1867-1941, Unpublished PhD Thesis, Victoria University of Wellington, 1985, p. 100.

²⁸ Thomas R. Fraser, ‘The Position of the Materia Medica in the Curriculum of Study’, *BMJ*, 2, 1665 (1892), pp. 1157-1159; Seventeen thousand medical students studied at Edinburgh’s medical school during the first century of its existence. Its appeal resided in the practical aspects of its curriculum, its relative cheapness, no religious restrictions and the lectures were in English. John D. Comrie, *History of Scottish Medicine to 1860* (London: Wellcome Historical Medical, 1927), p. 258; James Beattie, *Empire and Environmental Anxiety, 1800-1920: Health, Aesthetics and Conservation in South Asia and Australasia* (Basingstoke: Palgrave Macmillan, 2011), p. 101; W. F. Bynum, *Science and the Practice of Medicine in the Nineteenth Century* (Cambridge: Cambridge University Press, 1994), pp. 4-22.

²⁹ Beattie, ‘*Empire and Environmental Anxiety*’, p. 101.

³⁰ Comrie, pp. 257-8.

and comprehensive *British Pharmacopoeia (BP)* which soon became the standard text from which British doctors taught and prescribed.³¹

By eventually integrating medico-botanical information from around the British Empire, the *BP* supported the standardisation of British medical practice and the professionalisation of medicine by promoting scientific analysis above all else. Encouraged by travelling physicians aggravated by irregularities in English, Irish and Scottish pharmacopoeia, a major objective of the *BP* – like the underlying project of science on which it was based – was a desire to systematise medical knowledge. Sanction for Britain's first collaborative pharmacopoeia was given in Britain's 1858 Medical Act. A General Medical Council (GMC) was granted authority for the text and subsequently established a Therapeutics Committee, as well as three sub-committees in England, Ireland and Scotland.³² The first amalgamated *British Pharmacopoeia* was released in 1864.³³ Copies of the *BP* made their way around the British Empire, imported by booksellers, grocers, chemists, druggists and doctors.

America was ahead of Britain in terms of unifying medico-botanical information. In 1817, delegates from four defined districts of the United States met and under the agency of the Medical Society of the State of New York, took the first steps in creating a national pharmacopoeia. By 1820, the first American Pharmacopoeia, later named the *United States Pharmacopoeia (USP)* was published in both Latin and English. A second edition was printed in 1828. Like its British equivalent, the USP underwent regular revisions designed to incorporate new developments and

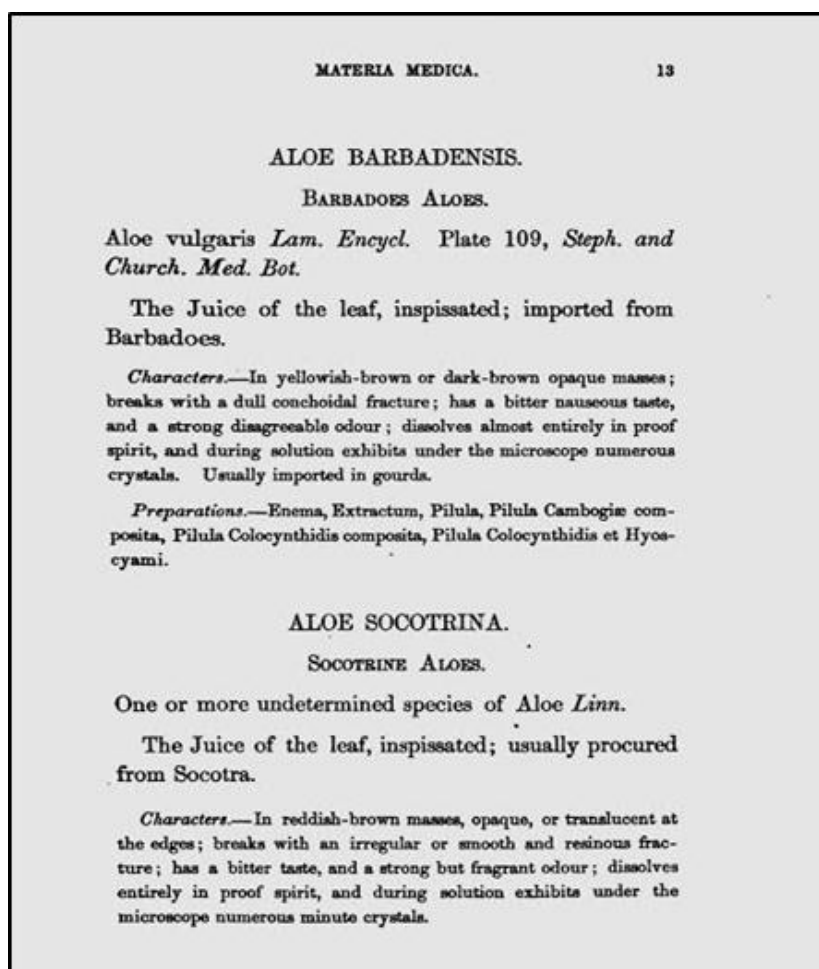
³¹ In England, the drive to document and standardise medico-botanical information began during the sixteenth century and the formation of the Royal College of Physicians. In 1540, Henry VIII appointed several physicians from the Royal College of Physicians to scrutinise, judge and destroy any defective medicine prescribed within a seven mile of London. A similar Act was passed in Edinburgh, Glasgow and Ireland. By 1618, the first London pharmacopoeia was published and dedicated to James I, proud patron of the Royal College of Physicians. The first Edinburgh pharmacopoeia was published in 1699 and Ireland first published a Dublin pharmacopoeia in 1807 and a revised edition in 1826. The French Codex included twice as many medicinal compounds, many of which were unfamiliar to the Brits. See D. M. Dunlop and T. C. Dunston, 'The History and Development of the "British Pharmacopoeia"', *BMJ*, 2, 5107 (1958), pp. 1250-1252.

³² They eventually amalgamated and formed the British Pharmacopoeia Commission in 1928.

³³ The first *British Pharmacopoeia* published in 1864, had many irregularities and mistakes and a second was issued soon after in 1867, a third in 1885, a fourth in 1898 and a fifth in 1914. Physicians were expected to pay 10s 6d for the 'large and handsome, 444 page long pharmacopoeia. Text books that adhered to the principles of the *BP* included *The Essentials of Materia Medica and Therapeutics* by Tirard and Gorrard, (1885); See Dunlop and Denston, pp. 1250-1252; Author Unknown, 'The British Pharmacopoeia', *BMJ*, 1, 160 (1864), pp. 98-99.

techniques including the process of percolation, included for the first time in 1842.³⁴ Both the *USP* and the *BP* became important references and guides for New Zealand doctors.

Figure 5:1: Page out of the *British Pharmacopeia*, 1867



Source: *British Pharmacopeia Published Under the Direction of the General Council of Medical Registration and Education of the United Kingdom Pursuant to the Medical Act, 1858* (London: Spottiswoode and Co, 1867)

Pharmacopeia typically included both inorganic and organic compounds. The relative numbers of plant-based preparations, therefore, indicate the importance of medicinal plants during the period of publication. Published in 1864, the first

³⁴ *The Pharmacopeia of the United States of America*, 9th edn (Philadelphia: P. Blakistons and Company, 1916), p. v-xviii. By 1873, the text was up to its fifth edition – a sixth was released in 1882.

English version of the *BP* contains around seventy inorganic compounds and one hundred and twenty-five medicinal plants gathered from, or cultivated in, countries around the world. For every plant, a significant amount of information is given, including the Latin and common names of the plant, the chemical symbol of any identifiable active constituent and reference to a botanical illustration of the plant from a list of approved sources that include both pharmaceutical and botanical journals. The identifying characteristics of each plant are included as well as chemical tests (such as reactions to acids or bases) to determine the strength and relative purity of any given medicine.³⁵

Directions for the preparation of drugs form a large part of the 1864 *BP*, suggesting that doctors continued this aspect of their practice despite the ubiquity of commercially-prepared medicines.³⁶ By this time in Europe, chemical manufacturers had largely replaced pharmaceutical chemists and druggists as the main manufacturers of drugs.³⁷ Despite this, doctors still learned elements of pharmacy in the course of their education, and texts such as the *BP* continued to include prescriptions and instructions for the preparation of raw ingredients. Prescriptions, such as the one below, give precise measurements and aim for consistency:

Tincture of Rhubarb *Tincture Rhei*:

Take of Rhubarb, bruised two ounces
Cardamom, bruised, a quarter of an ounce
Coriander, bruised, a quarter of an ounce
Saffron, a quarter of an ounce
Proof Spirit, one pint

Macerate the Rhubarb, Cardamom, Coriander and Saffron for forty-eight hours with fifteenth ounces of the spirit, in a close

³⁵ 'Dr Garrod's Lectures on the British Pharmacopeia', *BMJ*, 1, 162 (1864), pp. 154-157.

³⁶ Preparations in the 1867 *BP* included vinegars made by macerating plant material in acetic acid. Decoctions, made by boiling plant material in water, straining and adding distilled water. Extracts were concentrated water-based infusions and pills often included used binding ingredients such as a rose confection or hard soap beaten into the powdered herb. Syrups required a substantial addition of sugar and tinctures were made by extracting active constituents in alcohol.

³⁷ *British Pharmacopeia Published Under the Direction of the General Council of Medical Registration and Education of the United Kingdom Pursuant to the Medical Act, 1864 (BP, 1864)* (London: Spottiswoode and Co, 1864), p. xiii.

vessel, agitating occasionally, then transfer to a percolator, and when the fluid ceases to pass, pour into the percolator the remaining five ounces of spirit – As soon as the percolation is completed subject the contents of the percolator to pressure, filter the product, mix the two liquids and add sufficient proof spirit to make one pint.³⁸

Achieving uniformity was a major aim of the *BP*, realised in part by using botanical and pharmaceutical nomenclature and precise measurements. As increasing numbers of pharmaceutical companies produced more and more drugs, creating standards also became an imperative. Chemical tests to assess the strength and purity of medicines, through measures including solubility, volatilisation, colour, turbidity and specific gravity, are included in the *BP* so as to protect doctors from buying and prescribing adulterated drugs. Aconitium, the alkaloid in *Aconitum napellus* (monkshood), for example, was susceptible to adulteration as it fetched a high price on the international drug market.³⁹ Dosage remained a relatively ill-defined part of doctors' practices in the 1860s, but at their request, an average dose for each preparation is included in the second edition of the *BP* published in 1867. Intended as a guide only, the Committee appealed to physicians to use their discretion and skill to adjust doses according to the patient's age.⁴⁰

Better understandings of drug design and action encouraged the use of compound medicines, and the 1867 *BP* has over one hundred new preparations, many of which are novel uses for plants included in the earlier edition.⁴¹ Although it is difficult to determine the popularity of specific drugs without trade reports or receipts, we can assume that the versatility of some medicinal plant species made them an important part of the pharmacopeia. The following table lists plants that appear in in the 1867 *BP* in four or more forms – in preparations such as tinctures, infusions, syrups, vinegars and wines.

³⁸ *BP*, 1864, pp. 365-6.

³⁹ 'Dr Garrod's Lectures on the British Pharmacopeia', *BMJ*, 1, 162 (1864), pp. 154-157.

⁴⁰ *British Pharmacopeia Published Under the Direction of the General Council of Medical Registration and Education of the United Kingdom Pursuant to the Medical Act, 1867 (BP, 1867)* (London: Spottiswoode and Co, 1867), p. ix, <http://archive.org/stream/britishpharmacop00gene#page/n5/mode/2up>, [accessed September 5 2013].

⁴¹ *BP*, 1867, pp. xvii-xviii.

Table 5:1: The frequency of medicinal plants in the British Pharmacopeia (*BP*, 1867)

Medicinal Plants	Number of preparations in which they appear in the 1867 <i>British Pharmacopeia</i> .
<i>Papaver somniferum</i> (opium, laudanum)	14
<i>Aloes barbadoes, socotrine</i>	12
<i>Cinchona</i>	11
Colchium, Orange, Senega, Rhubarb.	8
Hemlock, Poppies (Red), <i>Belladonna</i>	7
Quinine, <i>Gentian, Digitalis, Catechu, Aconite, Ipecacuanha, Sassafras, Scamonium, Cinnamon</i>	6
Valerian, Camphor, Quinia, <i>Senna, Lemon, Ginger, Asafoetida</i>	5
Quassia, Colocynth, Calumba, <i>Sarsaparilla, Nutmeg, Stramonium, Bearberry, Dandelion, Jalap, Hysycomus, Hop</i>	4

Source: *BP*, 1867 (London: Spottiswoode and Co, 1867)

The country from which each plant is cultivated or gathered is listed in the 1867 *BP*, and presented in Table 5:2, demonstrating the scope of the pharmaceutical industry by his time. The expansion of the market for medicine increased considerably as a consequence of long-term increases in incomes that began in the eighteenth century. By the 1870s, however, wholesale drug prices began to fall, reflecting an increase in competition.⁴² While chemists and druggists extended their trade into increasingly exotic patent and proprietary medicines, doctors, many of whom rejected patent medicines, also sought novel compounds. The 1867 *BP* includes a wide and diverse range of plants gathered or collected from around the world. The global nature of the pharmaceutical industry encouraged international collaboration, as plants and associated medico-botanical knowledge circulated the globe.⁴³ Table 5:2, and the range of countries included, is an indication of the networks required to gather, convert and export medicines around the world.

⁴² Roy Church, 'The British Market for Medicine in the Late Nineteenth-Century: The Innovative Impact of S M Burroughs & Co', in *Medical History*, 49 (2005), pp. 281-298.

⁴³ International collaboration in the field of pharmaceutical research continued to grow as evidenced by international conferences such as the International Congress on Pharmacopoeial Unification in Brussels in 1902. Author Unknown, Untitled Article, *BMJ*, 2, 2384 (1906), p. 553.

Table 5:2: The source of a selection of medicinal plants included in the *British Pharmacopeia*, 1867

Medicinal Plants included in the 1867 <i>British Pharmacopeia</i> .	Country in which the plant is gathered (g) or cultivated (c).
<i>Aloes barbadoes</i>	Mogadore/Morroco (c)
Bitter almond	Malaga (c)
Dill	Central England, South Europe
Orange flower/root	France (c)
<i>Arnica</i>	Middle - Southern Europe (g)
<i>Asafoetida</i>	Afghanistan, Punjab (c) (g)
Balsam of Peru	Salvador
<i>Belladonna</i>	Central Britain (c), Germany (c)
<i>Buchu</i>	Cape of Good Hope
Camphor	China, Japan
Capsicum	Zanzibar
Cloves	Penang, Bencoolen, Amboyna
Cassia	West Indies
Pale catechu	Singapore
<i>Cinchona</i>	Bolivia
Cinnamon	Ceylon
Hemlock, <i>Digitalis</i> , <i>Hyosycamus</i> , Dandelion	Britain (g)
<i>Ipecacuanha</i>	Brazil
Jalap	Mexica
<i>Lobelia</i>	North America
Matico leaves	Peru
Calabar bean	West Africa
Quassia bark	Jamaica
<i>Santonica</i>	Russia

Source: *BP*, 1867.

As demonstrated by historian Markku Hokkanen, the commercial production and sale of medicinal plants during the nineteenth century relied on networks that

linked botanical, medical and pharmaceutical research with consumers.⁴⁴ In this way, in the late 1850s, Scottish-trained doctor John Kirk employed his Scottish medical and botanical training, combining this with observations of indigenous African healers to ‘discover’ a medicinal plant native to Malawi, *Strophanthus Kombe*. Following his discovery, a short-term of employment at Kew Gardens in the 1860s, collaboration with Scottish chemist Thomas Fraser and a fortuitous meeting with American businessman, Henry Wellcome, the commercial production of *Strophanthus* began. The plant, once used to poison arrows in Africa, was translated into a botanical specimen at Kew, converted into a western medicine in Scottish laboratories and, by the 1870s, gathered from Africa and then sent to America, before being exported around the world.⁴⁵

In New Zealand, reliance on the *BP* was a consequence of doctors’ educations, the legislative framework in which they operated, the introduction of familiar medicinal plants and British medical policy, and the availability of manufactured drugs. The British Medical Association held considerable sway in New Zealand throughout the nineteenth century and advocated legislation that promoted the authority of the *BP*. Coroners’ inquests used the pharmacopeia as a reference guide to poisoning cases and medical negligence. By the 1870s, the *BP* became the standard for recognising and determining the adulteration of food and drugs as set out in New Zealand’s Food and Drug Adulteration Act (1877).⁴⁶ New Zealand’s chemists and grocers referred to the *BP* to validate their wares.⁴⁷

Conversely, for some medical men and traders, advocating strict adherence to the *BP* limited experimentation with plants and remedies excluded from the text. ‘Medicus’, a correspondent who wrote regularly to the *New Zealand Herald*, voiced his concern over this matter and challenged the authority of the *BP*, lamenting the fact that it discouraged the use of alternative plants and overlooked

⁴⁴ Markku Hokkanen, ‘Imperial Networks, Colonial Bioprospecting and Burroughs Wellcome & Co.: The Case of *Strophanthus Kombe* from Malawi (1859–1915)’, *Social History of Medicine*, 25, 3 (2012), pp. 589–607, <http://shm.oxfordjournals.org/>, [accessed April 17 2014].

⁴⁵ Hokkanen, pp. 589–607.

⁴⁶ *Press*, 17 October 1883, p. 3.

⁴⁷ For examples see: *Lyttelton Times (LT)*, 4 September 1852, p. 3; *Wanganui Herald (WH)*, 7 January 1904, p. 4; *New Zealand Herald (NZH)*, 20 December 1869, p. 3; *Otago Daily Times (ODT)*, 11 February 1868; *Daily Southern Cross (DSC)*, 27 June 1864, p. 3; *New Zealand Herald (NZH)* 11 March 1881, p. 6; *Colonist*, 20 October 1877, p. 5.

the medicinal potential of many New Zealand native plants.⁴⁸ Resistance to blanket legislation that enforced strict adherence to the *BP* permitted experiments on alternative plants and medicines. These experiments began soon after Europeans arrived in New Zealand and many relied on observations of traditional Māori medical practices.

The advantages of procuring indigenous medical knowledge during the course of exploration and colonisation were two-fold. According to Londa Schiebinger, as Europeans turned their focus away from ancient medical knowledge, they placed faith in the ‘authority of native peoples encountered during global expansion’.⁴⁹ While colonists maintained their own health in unfamiliar environments, they also determined the economic potential of plant-based drugs.⁵⁰ Dr George Bennett of Sydney purportedly wrote the first account of native New Zealand plants in contemporary medical literature, publishing an article on tutu (*Coriaria arborea*) in the *London Medical Gazette* in 1831. The poisonous nature of this plant also attracted attention from Edinburgh physician William Lauder Lindsay while the Frenchman, M. Vincent, was the first to make a chemical analysis of *Phormium tenax*, New Zealand flax in 1848.⁵¹ Apart from these early analyses, medicinal

⁴⁸ *NZH*, 16 December 1868, p. 7.

⁴⁹ Londa Schiebinger, *Plants and Empire: Colonial Bioprospecting in the Atlantic World* (Cambridge: Harvard University Press, 2007), p. 76; Pratik Chakrabarti, *Materials and Medicines: Trade, Conquest and Therapeutics in the Eighteenth Century* (Manchester: Manchester University Press, 2010), pp. 171-205.

⁵⁰ Schiebinger, p. 75. Most case-studies on colonial medicine focus on the introduction and role western medicine played in British colonisation, and the disruption to indigenous medical systems. Historian David Arnold, for example, adeptly explains how colonialism employed medicine and the body to express colonial authority, legitimacy and control. In line with Michel Foucault, Arnold maintains that during the nineteenth century, medicine was more than merely a scientific practice. Bodies were counted, categorized and dissected by ideological and administrative mechanisms employed to exert growing influence and monopolistic rights over the body. In India, this process was complex and dynamic as scientific medicine was not simply transferred from its metropolitan roots. See, David Arnold, *Colonizing the Body: State Medicine and Epidemic Disease in Nineteenth-Century India* (California: University of California Press), p. 9-11.

⁵¹ Additionally, by the 1860s, as New Zealand’s scientific community grew increasingly organised, analyses of several native plants were made by resident chemist William Skey – a member of James Hector’s Geological Survey team and colonial analyst from 1865 to 1900. Skey investigated the chemical characteristics of native plants, including rangiora, towai, karamu and flax endeavouring to uncover potentially profitable constituents. S. Brooker, R. Cambie and R. Cooper, *New Zealand Medicinal Plants: A Handbook for the Auckland War Memorial Museum* (Auckland: Unity Press, 1962), p. 5; James Beattie, ‘W.L. Lindsay, Scottish Environmentalism, and the ‘Improvement’ of Nineteenth-Century New Zealand’, in Tony Ballantyne and Judith A.

plants received relatively little attention from New Zealand's scientific community over the nineteenth century – their potential and properties examined more closely by doctors and missionaries, many of whom worked closely with Māori, observing, translating and sometimes adopting elements of traditional herbal knowledge.

Among the first to publish an account of traditional Māori healing practices was colonist and writer James Polack. Polack maintained that the 'materia medica of the nation [New Zealand] is very simple, but efficacious'.⁵² He notes the use of fern root in particular used in conjunction with European medicaments – presumably Epsom salts – for the treatment of dysentery. Reverend Richard Taylor and William Colenso also made notes on traditional Māori healing. Both men were fluent speakers of Māori and interested in the collection of ethnographical detail. Stationed in the Bay of Islands in the 1830s, Taylor formed close relationships with local Māori Chiefs. In 1848, he produced *A Leaf from the Natural History of New Zealand* – essentially a dictionary of Māori terms with aspects of Māori culture. In sections entitled 'Native Diseases' and 'Natural Pharmacopeia' he identifies over thirty plants used by Māori and the ailments they are indicated for.⁵³ Guided and encouraged by these early accounts were doctors like Francis Alexander Monckton whose use of flax was described at the beginning of this chapter, and who also advocated experimentation with and the use of native medicinal plants.

Doctors, I argue, used the process of translation to distinguish their practices from other practitioners such as herbalists, who placed less emphasis on scientific analysis. Furthermore, translating New Zealand's native medicinal plants into scientific and pharmaceutical nomenclature, made doctors' use and investigations into these plants appear distinctly different from their use by traditional Māori healers/tohunga. Tohunga were characterised in the nineteenth century in

Bennett, eds., *Landscape/Community: Perspectives from New Zealand History*, (Dunedin: University of Otago Press, 2005), pp. 43-56.

⁵² James Polack, *New Zealand Being a Narrative of Travels and Adventures During a Residence in that Country Between the Years 1831 and 1837*, Vol. II [Capper reprint, 1974], p. 277.

⁵³ Richard Taylor, *A Leaf from the Natural History of New Zealand* (Auckland: W. Atkin Printer, 1870).

European literature as the main providers of traditional Māori medicine.⁵⁴ These men were specialists in Māori lore, traditions, religion and ritual.⁵⁵ Most were taught by older tohunga in centres of learning called whare-wananga where they moved through various degrees of education. The fifth, according to Kai Tahu tohunga Samuel Timoti Robinson, was the tohunga-rongoa, or 'healing priest'.⁵⁶

Intrinsically linked to Māori religious beliefs, traditional Māori medicine worked to heal the spirit as well as the physical body and involves prayer, divination and ritual.⁵⁷ The cause of illness is often attributed to a malign spirit or breach of protocol. Herbal medicines were also employed, particularly cathartics, emetics and ointments believed to have the power to repel the spirit causing the affliction.⁵⁸ In stark contrast to nineteenth-century European plant-based medicines, Māori used plants for both their physical and metaphysical properties. A flax leaf and bracken root, for example, was placed on the skin of a sufferer as an avenue of escape for the demon causing sickness.⁵⁹ By ignoring the supernatural element of traditional Māori healing and describing plants in western scientific and pharmaceutical terms, European doctors effectively separated the plants they investigated from their indigenous frameworks while they applied to them to same ailments and injuries that tohunga used them for.

Combining his own understandings of chemistry and pharmacology with observations of traditional Māori healing, Monckton experimented at length with native medicinal plants. Monckton was the first resident physician in Invercargill and the first Superintendent at Riverton Hospital, Southland. After practicing for twenty years in Southland, Monckton moved to the West Coast, where he gained

⁵⁴ Simon Timoti Robinson, *Tohunga: The Revival Ancient Knowledge for the Modern Era* (Auckland: Reed Publishing, 2005). Tohunga were in fact much more than healers. They were experts in the spiritual, cultural and physical world of Māori.

⁵⁵ Robinson, p. 10.

⁵⁶ Simon Timoti Robinson is a modern day tohunga from the South Island tribe, Kai Tahu. He is the author of *The Revival Ancient Knowledge for the Modern Era*. Robinson, p. 214- 232.

⁵⁷ Tohunga-rongoa viewed the body as a universe in itself, divided into four distinct divisions working in harmony. Elsdon Best records these four parts as hamano (soul), Manawa (breath), ata (shadow) and kiko (body). Healing required attention to all elements while diagnosis was often determined through divination. Elsdon Best, 'Maori Magic: Notes upon Witchcraft, Magic Rites, and various Superstitions as practised or believed in by the Old-time Maori', *TPNZI*, 34 (1901), pp. 69-98; Robinson, pp. 214-232.

⁵⁸ Clarke, p. 266.

⁵⁹ Clarke, p. 277.

a reputation as an outstanding surgeon before moving to Fielding in the Manawatu.⁶⁰ In Fielding, he worked as Consulting Surgeon at the Palmerston North Hospital and served as District Coroner for several years. In addition, Monckton was a Justice of the Peace, and earlier, a member of the Southland Provincial Council. He was well-known for his outspoken and at times rather brusque manner, and wrote articles on a variety of subjects, both anecdotal and medical.⁶¹ In 1850 he produced the pamphlet, 'Hints for Bush Surgery', in which he describes his own use of several native species, including a native wood bine or *Convolvulus* 'the Māori's call Ti-aka-popohua'.⁶² Flax, Monckton maintained, had qualities that surpassed many of the drugs then in use.

In compound or severely lacerated wounds dress with the following but as it ferments readily you must take it fresh it day. Cut flax root into small pieces, cover it with water in a billy and boil till you have a black liquid. Its healing properties are powerful and disinfectant virtues so great that while the wound is kept wet with it, there will be no discharge or smell.⁶³

During this period, Monckton's experiments – and the research of others on native New Zealand plants – failed to attract any real attention from the New Zealand state or international pharmaceutical manufacturers. Indeed, despite the inclusion of plants from other colonial nations such as India, New Zealand native plants never made it into the nineteenth-century British Pharmacopeia. Not until the early twentieth century in fact, did the international medical faculty and pharmaceutical industry pay any real attention to New Zealand's native medicinal plants. Even then, as discussed in section three, this interest was limited and possibly reflects New Zealand's failure to develop an alternative industry cultivating medicinal plants.

⁶⁰ Monckton reputedly performed the first ovariectomy (removal of the ovaries) in New Zealand at Riverton Hospital in 1869. Fulton, p.65; *The Cyclopaedia of New Zealand*, (Wellington District), 1887, <http://www.nzetc.org/tm/scholarly/tei-Cyc01Cycl-t1-body-d4-d138-d10.html>. [accessed 26 April 2012].

⁶¹ In 'Spring Cleaning', Monckton relates the exploits of 'cooper', a broken down beach comber who produced beer and spirits for whaling crews in the area. On one occasion, cooper ordered a Māori woman to collect Kowhai flowers which he added to beer left for his adversaries. The 'spring cleaning' they experienced, writes Monckton, raises the question of whether or not the virtues of the Kowhai alkaloid have ever been explored. Fulton, p. 69.

⁶² In 1885, the *Australasian Medical Gazette* published an article submitted by Monckton on the virtues and properties of *Phormium tenax*. *EP*, 7 February 1885, p. 2.

⁶³ Murdoch Riley, *Māori Healing and Herbal: New Zealand Ethnobotanical Sourcebook* (Paraparaumu: Viking Sevenses, New Zealand, 1994), p. 129.

By the 1870s, in the face of increasing pressure and competition from patent medicines, medical universities – encouraged by governing bodies such as the British Medical Association (BMA) – stressed the importance of scientific processing and analysis. This further supported the translation of medico-botanical information. Techniques developed decades earlier, such as the process for isolating alkaloids – the active constituent in many plants and a term that appears for the first time in the 1867 *BP* – received renewed attention, as did the structure and definition of *materia medica* within medical institutions. New Zealand's first medical school, the Otago Medical School, established a curriculum that reflected and incorporated these developments. British texts and organisations, including the *BP* and the British Medical Association, helped shape the structure, curriculum and organisation of the school. Scottish links were particularly strong and these perpetuated the study of medicinal plants as botanical subjects, while the increasingly refined subject of pharmacology encouraged a view of plants as isolated pharmaceutical constituents. Growing competition from an ever-expanding patent and proprietary medicine industry and consumer demand also dictated how doctors prescribed, prepared and applied medicinal plants.

Pharmacology in New Zealand, 1870s -1890s

Between 1870 and 1920, as the subject of pharmacology became increasingly defined, doctors in New Zealand developed a medical curriculum that maintained strong ties with British, particularly Scottish institutions, while catering to a New Zealand market and consumers that had a particular penchant for patent and proprietary medicines. In England in 1874, Walter Moxon, Professor of Therapeutics and *Materia Medica* at Guy's Hospital in London, drew distinctions in his opening address among pharmacognosy (the origins, properties, varieties, quality and purity of medicines), pharmacy (collection, preparation and preservation of medicines) and pharmacodynamics (the biological and physiological effects of the drug).⁶⁴ At institutions such as this, botany was largely superseded as the chemical constituents of plants received greater attention than

⁶⁴ W. Moxon, 'Introductory Lecture to the Course', pp. 635-640.

their anatomy and by the late 1870s, *materia medica* encompassed aspects of drug design and preparation, action and analysis.⁶⁵ Accordingly, when the Otago Medical School opened in 1875, a curriculum that encompassed the latest pharmaceutical developments and techniques was proposed.

The Otago Medical School initially struggled to gain recognition and support from local and British medical and educational authorities.⁶⁶ Amidst financial and administrative difficulties, the School and its curriculum underwent various restructures, and only provided a full medical degree course in 1885. The organisation and education of New Zealand's doctors during this period, was still very much directed by British standards and governing bodies, particularly the BMA.⁶⁷ The dubious reputation of the colonial medical qualification did nothing to boost the reputation of doctors in New Zealand, while established medical journals such as the *Lancet* and the *British Medical Journal*, which were readily available in New Zealand, focused strongly on British initiatives and research.

Otago maintained a close relationship with Edinburgh University and its curriculum soon followed the recommendations of the general Medical Council of Great Britain.⁶⁸ Indeed, before 1885, Otago's curriculum provided instruction for only the first two years of a four-year degree course and medical students required to complete their degrees at Edinburgh. Furthermore, Edinburgh graduates held most of the early chairs in Otago's medical faculty.⁶⁹ In 1877, John Halliday Scott, a young Edinburgh graduate was appointed the first Professor of Anatomy and Physiology.

⁶⁵ Professor Fraser, 'An Address Delivered at the Opening of the Section of *Materia Medica* and Pharmacology', *BMJ*, 2, 1075 (1881), pp. 227-230.

⁶⁶ D. W. Carmalt Jones, *Annals of the University of Otago Medical School, 1875-1939* (Wellington: A. H. Reed & A. W. Reed, 1945), p. 58.

⁶⁷ Rex Wright-St Clair, *A History of the New Zealand Medical Association: The First Hundred Years* (Wellington: Butterworths of New Zealand, 1987), pp. 23-65.

⁶⁸ The School extended its curriculum to include pathology, midwifery, diseases of women and children, medical jurisprudence, public health, *materia medica* and dispensing. Sir Charles Hercus and Sir Gordon Bell, *The Otago Medical School under the First Three Deans* (Great Britain: E. & S. Livingstone, 1964), pp. 19, 24.

⁶⁹ Page, p. 25; Gordon Parry, *Otago Medical School: An Historical Sketch* (Dunedin: Medical School, University of Otago, 1975), p. 8.

While botany and *materia medica* were being largely replaced by their ‘modern’ equivalents, such as pharmacognosy and pharmacodynamics in English medical institutions, in New Zealand, Scott believed that botany and natural history should be continued, and requested that the preliminary examination for Otago Medical School include aspects of both. Scott also asked that part of Dunedin’s botanical garden be set aside for the private study of plants by students.⁷⁰ The study of medicinal plants as botanical specimens as well as pharmaceutical compounds reflected Scott’s Edinburgh education. Indeed, in 1883, Dr John Macdonald, another Edinburgh graduate, was appointed Professor of *Materia Medica* and taught the subject for seventeen years in what doctor-historians Charles Hercus and Gordon Bell describe as ‘the Edinburgh tradition’.⁷¹ Macdonald relied heavily on William Hale-White’s textbook, *Materia Medica, Pharmacology, Pharmacy and Therapeutics*, originally published in 1857. His ‘orthodox’ teaching of the subject involved visual recognition of plants, memorisation of lists of drugs, and the preparation of pills, ointments and potions in the Hospital dispensary, assisted by the Hospital Dispenser.⁷²

The third edition of Hale-White’s text, published in 1895, defined pharmacology as ‘the study of *materia medica* and therapeutics including the origins, history, properties and uses of drugs and medicines’. Pharmacy is ‘the art of preparing drugs in a form suitable for use as remedial agents, and of dispensing them’.⁷³ According to the book, doctors should never attempt pharmacy; they should, however, be familiar with chemical processes so they may judge intelligibly the services provided by chemists.⁷⁴ This pragmatic advice would have appealed to doctors in New Zealand, where boundaries between chemists and doctors were more fluid than those in Britain.⁷⁵

⁷⁰ Hercus and Bell, p. 20.

⁷¹ Hercus and Bell, p. 264; Page, p. 31.

⁷² Hercus and Bell, p. 278.

⁷³ William Hale-White, *Materia Medica, Pharmacology, Pharmacy and Therapeutics*, 3rd edn (Philadelphia: P. Blakiston's Son, 1895), p. 9.

⁷⁴ Hale-White, p. 11.

⁷⁵ Belgrave, p. 287.

Figure 5:2: The contents page from Hale-White's text book showing the relative proportion of inorganic compounds to organic

CONTENTS.		8	CONTENTS.	PAGE
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III. The Alkaline Earths,	155		PHARMACOPŒIAL ORGANIC ANIMAL MATERIA MEDICA—	
IV. Lead, Silver, Zinc, Copper, Bismuth, Aluminum,	165		[GROUP I. Drugs acting on the Nervous System,	679
V. Iron and Manganese,	188		II. Purgatives,	680
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Source: William Hale-White, *Materia medica, Pharmacy, Pharmacology and Therapeutics*, 3rd edn (Philadelphia: P. Blakiston's and Son, 1895), p. 9, <https://archive.org/details/materiamedicapha00haleiala>, [accessed May 28 2014]

A large number of inorganic compounds are included in Hale-White's textbook, such as, arsenic, mercury, copper and zinc.⁷⁶ Yet, the majority of medicinal compounds in Hale-White's text, as shown in *Figure 5:2*, are 'organic vegetable *materia medica*'. Two hundred and forty-three plants are described as pharmacopoeial vegetable drugs. For every plant, the textbook provides a brief botanical classification and description of the plant, lists the forms in which the drug is generally used and explains the actions and therapeutic qualities of the

⁷⁶ Arsenic was a powerful caustic used in dentistry, to treat dyspepsia to remove skin growths. Mercury was a powerful antiseptic, also used to relieve skin itching and inflammation of the joints. Copper treated diarrhea, laryngitis, bronchitis and tinea tarsi, while zinc was applied to remove external growths.

drug. Retaining botanical information, and Macdonald's expectation that all doctors visually recognise popular species, suggests that doctors continued to use plants in their natural or whole form, despite a growing tendency to isolate constituents and process plants beyond recognition.

As well as developments in pharmacology, by the 1880s, consumer demand was affecting the way doctors processed and applied plants. In Britain and to lesser degrees its colonies, a 'new consumer market of unprecedented size and buying power' existed.⁷⁷ The market for medicine both catered and to, and was directed by, growing colonial consumer demand. Indeed, certain preparations in Hale-White's text are an indication of consumer demand. Masses – pill masses intended for preservation in bulk until required – as well as cigarettes, cachets (capsules), gargles and draughts, are palatable familiar medicines that would have appealed to consumers accustomed to an increasing number of patent and proprietary medicines.

Despite this, many doctors in Britain and New Zealand responded to the popularity of patent and proprietary medicines by classifying them as quackery, labelling their manufacturers fraudulent and by promoting scientifically tested medicines as superior.⁷⁸ In New Zealand, the *BP* was used by doctors as a standard that distinguished the medicine of doctors from patent and propriety drugs. The Therapeutic Committee in charge of the *BP* made constant amendments, revisions and assessments to ensure that the information included was as up to date as possible.⁷⁹ However, it was widely recognised that this was not always possible. Prior to the release of the 1898 edition, British physicians reported on the frequency with which they used drugs listed in the current *BP*.⁸⁰

⁷⁷ W. F. Holloway, *Regulation of Drugs in Britain Before 1868 in Drugs and Narcotics in History*, ed. by Roy Porter and Mikuláš Teich (Cambridge: Cambridge University Press, 1995), p. 82.

⁷⁸ For example, the British Medical Association published *Secret Remedies What They Cost and What they Contain* in 1909 which provided a scientific analysis of many popular patent medicines, seemingly proving their uselessness and the fraudulent nature of their manufacturers.

⁷⁹ *British Pharmacopoeia Published Under the Direction of the General Council of Medical Registration and Education of the United Kingdom Pursuant to the Medical Act, 1885* (London: Spottiswoode and Co, 1885) (*BP*, 1885), pp. xxi-xxvi, <https://archive.org/details/britishpharmaco01britgoog>, [accessed September 5 2013].

⁸⁰ D.J. Leech, Donald MacAlister and J.B Bradbury, 'A discussion on the Requirements of the Profession with Reference to the Revision of the British Pharmacopoeia', *BMJ*, 2, 1824 (1895), p.

Conclusions led to the omission of several medicines and methods of preparation. Omission from the *BP*, according to the Therapeutic Committee, did not prevent practitioners from using certain drugs but it did eliminate a guarantee of purity.⁸¹ By the 1890s, New Zealand doctors continued to be strongly influenced by British trends and opinions. Scientific analyses were increasingly promoted as the ultimate criterion used to assess the quality and efficacy of drugs. Professor Nester Tirard, physician and Professor of *Materia Medica* at Kings College Hospital, London, and co-author of *The Essentials of Materia Medica and Therapeutics*, believed all drugs included in the *BP* should have their therapeutic actions qualified and scientifically proven.⁸² Complicating this aim was the desire to appeal to consumers by prescribing new and novel drugs, many of which were ‘discovered’ by doctors posted throughout the British Empire.

Experiments with Native Plants and Reactions to Patent and Proprietary Medicines, 1890s -1920s

In New Zealand, the popularity and consumption of patent and proprietary medicines was great. The threat this posed to doctors’ incomes arguably prompted experiments with native plants by medical men, who in their aim to distinguish their practice from patent medicines and ‘irregular’ practices, translated plants into terms deemed legitimate by the wider medical faculty. A number of articles on native New Zealand medicinal plants were published in official journals such as the *British Medical Journal* and the *Australian Medical Gazette*.⁸³ These articles also appeared in local newspapers as appealing to fellow colonists was also, I argue, a priority for doctors in New Zealand.

1482; The Therapeutic Committee of the British Medical Association, ‘The Approaching Revision of the British Pharmacopeia: Memorandum on the British Pharmacopeia’, *BMJ*, 1, 1797 (1895), pp. 1276-1278.

⁸¹ The Therapeutic Committee of the British Medical Association, ‘The Approaching Revision of the British Pharmacopeia’, pp. 1276-1278.

⁸² Alfred Barring Gorrard and Nester Tirard, *The Essentials of Materia Medica and Therapeutics* (London: Longmans, 1885).

⁸³ Mueller appeals for more scientific analyses of New Zealand plants in his article, Baron F. von Mueller, ‘The Medicinal Plants of Australia’, *BMJ*, 1, 751 (1878), pp. unknown; Author Unknown, ‘Special Correspondence’, *BMJ*, 1, 635 (1889); In 1885, (edition and number unknown) the *Australasian Medical Gazette* published an article submitted by Monckton on the virtues and properties of *Phormium tenax*.

Like previous investigations conducted by chemists such as Skey and Lauder Lindsay on potentially economically useful plants, early chemical analyses in New Zealand focused primarily on mineral resources. According to Professor of Chemistry at Victoria College, T. H. Easterfield, this was to the detriment of an alternative profitable industry. The lack of chemical investigation into native plants, wrote Easterfield in 1900, is regrettable in a country that attracts so much attention to the biological sciences.⁸⁴ While Easterfield and others lamented the oversight of the New Zealand government, evidence suggests that doctors continued to explore the potential of native plants, experiments encouraged by their observations and interactions with Māori.

In 1884, the Taranaki doctor P. J. O'Carroll wrote an article entitled 'Medical Botany of New Zealand', published in the *Taranaki Almanac*.⁸⁵ In this, O'Carroll included directions for the use of several native plants, as well as examples of European doctors incorporating native plants into their practices. Dr Peter Wilson of New Plymouth, for example, made a healing salve from porporo and O'Carroll testifies to the efficacy of kawakawa root for the relief of toothache. Rimu, O'Carroll maintains, stopped a severe attack of bleeding from the lungs.⁸⁶ In a similar fashion to Monckton's earlier attempts, O'Carroll included botanical and chemical notes, combining traditional Māori knowledge with western botanical and scientific understandings. He describes each plant using western technical terminology. For example, he classifies the white creeping rata as a styptic, a compound that inhibits the flow of blood, and notes that these plants are high in tannins. However, instructions for preparations include indigenous techniques such as the use of a paua shell as a measure and dispensing guide. O'Carroll published his work in newspapers, making his findings available to the public as well as his peers.⁸⁷

⁸⁴ T. H. Easterfield and B. C. Aston, 'Studies on the Chemistry of the New Zealand Flora', *TPNZI*, 33 (1901), pp. 495-497.

⁸⁵ O'Carroll's original article was reproduced in 1938 in W. H. Skinner, *Pioneer Medical Men of Taranaki, 1834 to 1880* (New Plymouth: Thomas Avery and Sons, 1933), pp. 95-98.

⁸⁶ Skinner, pp. 170-171.

⁸⁷ O'Carroll's original article appeared in the *Taranaki Almanac*, 1884.

In 1886, Auckland civil engineer and surveyor J. Baber produced a report on medicinal plants specifically for a scientific audience. This research was purportedly well-received by members of the New Zealand Institute, and subsequently published in the *Transactions and Proceedings of the New Zealand Institute* and the *Chemist and Druggist of Australasia*.⁸⁸ The information combined anecdotes gathered from old settlers and Māori, as well as Baber's personal observations. Baber did not believe 'that a drug of specific value will be obtained from our plants', but felt there was material for some useful preparations. Nonetheless, Baber's work was intended to stimulate further experimentation that may 'provide results that are more reliable'.⁸⁹ Accordingly, his paper was structured to appeal particularly to pharmacists. Plants are listed in chemical categories, for example, as cathartics (flax), astringents (hebe, rata, rimu), tonics (kohe-kohe) and stimulants (kawakawa).⁹⁰

This 'translation' of Māori medical knowledge into western scientific terms demonstrates Scheibinger's notion of 'stripping' – the process of removing the indigenous narrative or understanding from the plant.⁹¹ Omitting Māori and Māori understandings from research into native New Zealand medicinal plants was an important part of the translation process. In most colonial reports on native New Zealand plants, Māori hardly feature, and their roles as investigators and practitioners are typically downplayed.⁹² Indeed, some authors – including ethnologists Elsdon Best and William Herbert Goldie – mistakenly believed that Māori had no use for medicinal plants and only began applying these after following the European example.⁹³ As Best notes:

⁸⁸ J. Baber, 'The Medicinal Properties of some New Zealand Plants', *TPNZI*, 19 (1886), pp. 319-322; *Chemist and Druggist of Australasia (CDA)*, 1, 12 (1886), pp. 321-322.

⁸⁹ Baber, 'The Medicinal Properties', pp. 321-322.

⁹⁰ Baber, 'The Medicinal Properties', pp. 321-322.

⁹¹ Schiebinger, p. 194-225; See, Jodi Frawley, Making Mangoes Move in *Transforming Cultures eJournal*, 3, 1 (2008).

⁹² In traditional Māori society, tohunga were the men people consulted when they fell ill. According to belief, the knowledge tohunga acquired and applied came from three baskets of knowledge which Tane-i-te-wananga-a-rangi had brought down from the tenth or twelfth uppermost heaven. This knowledge was taught to certain young men at whare wananga (houses of learning) and by chief tohunga or tohunga pu taua. Medical practices included karakia (prayer), and rongoa (plant based remedies). Riley, pp. 7-14; Clarke, pp. 257- 265.

⁹³ W. H. Goldie, 'Māori Medical Lore: Notes on the Causes of Disease and Treatment of the Sick among the Māori People of New Zealand, as believed and practised in Former Times, together with some Account of Various Ancient Rites connected with the Same', *TPNZI*, 1, 37 (1904),

In regard to the following account of the various simple remedies used by the natives, I am by no means prepared to state that all such here given were used in olden times — i.e., before the arrival of Europeans. In fact, I believe most of them to be modern, being based on the European methods of treatment of the sick. The use of simples was not encouraged in the days of old, for that would have lessened the power of the priests, who relied principally upon their absurd rites and incantations. For no Hippocrates had appeared to separate medicine (!) [*sic*] from theology, and shamanism was rampant.⁹⁴

This translation allowed plants to be placed in seemingly appropriate forums such as official pharmacopeia, and created the standardisation necessary as the production of medicine became increasingly global. By the turn of the twentieth century, the validation of many indigenous medicines was established through their inclusion in the *BP*. In 1900, for example, in response to increasing numbers of indigenous medicines used by British doctors in British colonies, the *BP* affixed an Indian and Colonial Addendum.⁹⁵ The aim of the addendum was to assist doctors, promote further investigations into the properties of certain plants, and provide others with possible new and novel compounds. Many believed the addendum would pave the way for the ‘Utopian dream of a Universal Pharmacopeia’.⁹⁶

The addendum lists fifty-four drugs and sixty-five preparations acknowledged and accepted by the Therapeutic Committee, complete with English and Latin names, recognised preparations and doses, and places within the British Empire ‘in which they are intended to be used’. They include acacia bark used in India and Australia; arnica flowers from North American colonies, betel leaves and black catechu from India and Northern American colonies; datura seeds from Indian colonies;

http://rsnz.natlib.govt.nz/volume/rsnz_19/rsnz_19_00_005710.html, [accessed April 19 2012]; Elsdon Best, *The Māori As He Was: A Brief Account of Māori Life as it was in Pre-European Days* (Wellington: Dominion Museum, 1936), p. 126.

⁹⁴ Elsdon Best, ‘Māori Medical Lore’, *The Journal of the Polynesian Society*, 14, 1 (1905), p. 9.

⁹⁵ In the 1885 *BP*, out of 175 plants, 40 per cent originated in Europe, 25 per cent came from America, 25 per cent from Asia, 9 per cent from Africa and 1 per cent from Australia. Stuart Anderson, *Pharmacy, Books and Empire: Spreading the Imperial Word 1864 to 1932*, www.histpharm.org/40ishpBerlin/L02P.pdf, [accessed January 25 2013].

⁹⁶ From 1867, additions from medical and pharmaceutical bodies in India and the colonies formed appendices and by 1898, this had grown enough to substantiate a complete addendum. Author Unknown, ‘Indian and Colonial Addendum to the British Pharmacopeia’, *BMJ*, 2, 2084 (1900), pp. 1677-1678.

eucalyptus from Australia; and Indian valerian from Indian and Eastern colonies.⁹⁷ No New Zealand plants appeared in the Colonial Addendum, and experiments in New Zealand continued largely unacknowledged by the British medical faculty. This is possibly due to the lack of any substantial and organised industry in the cultivation and processing of medicinal plants, despite the efforts of scientists such as Kirk discussed in Chapter One.

The translation of indigenous Māori medical knowledge remained important and became increasingly so by the early twentieth century in New Zealand, as governing bodies such as New Zealand's Department of Health amplified campaigns aimed at suppressing practices and medicines judged fraudulent. The translation of Māori knowledge was a process that arguably legitimised investigations into indigenous medicine during a period when traditional Māori healers were increasingly criticised and chastised through legislation and debate.⁹⁸

By 1900, crusades against quackery and quack medicines were justified by concerns for the seemingly unsuspecting public. Quackery, as discussed in the Introduction to this thesis, was a flexible term, used by a variety of practitioners, each claiming their practice as being more legitimate than the other.⁹⁹ Indeed, as middle-class doctors erected barriers around their profession through codes of ethics, educational standards, membership to organisations, and of course a scientific translation of plants, a socially constructed form of medical orthodoxy slowly emerged. This orthodox practice was as fluid a construct as the quackery against which it was compared. Typically, therefore, accusations of quackery expressed by medical associations such as the British New Zealand Medical Association were based on false advertising and fraudulent claims.¹⁰⁰

New Zealand's Tohunga Suppression Act (1907) sought to suppress traditional Māori healers, or tohunga, who supposedly made false claims and preyed on the

⁹⁷ Author Unknown, 'Indian and Colonial Addendum', pp. 1677-1678.

⁹⁸ Raeburn Lange, *May the People Live: A History of Māori Health Development 1900-1920* (Auckland: Auckland University Press, 1999); Derek Dow, *Māori Health and Government Policy, 1840-1940* (Wellington: Victoria University Press, 1999).

⁹⁹ See my discussion on quackery and its definition in the Introduction to this thesis, pp. 32-33.

¹⁰⁰ The New Zealand Medical Association amalgamated with the British Medical association in 1896 to become the British New Zealand Medical Association, Wright-St Clair, pp. 39-43.

superstition or credulity of others. The Quackery Prevention Act (1908) was designed to restrict the sale of medicines that failed to meet advertised claims. Both Acts attempted to define and condemn quacks and unscientific medical practices, and both were largely ineffective. Many colonists and some Māori contemporaries judged tohunga as primitive, ineffective and at worst harmful – their followers, ignorant and naïve.¹⁰¹

From the 1890s, tohunga could be charged under ordinances and Acts, including the Indictable Offences Summary Jurisdiction Act (1894), and the Criminal Code Act (1893), although few were. By 1900, The Māori Council Act aimed to suppress seemingly injurious Māori customs, through a clause used to challenge tohunga and traditional healing. Advocates of the Acts voiced their concern for Māori health, suggesting that traditional beliefs and practices were detrimental to Māori health and wellness. Maui Pomare, the first American-trained Māori medical graduate, maintained tohungaism was a barrier to modern medical science. He maintained the provision of properly qualified medical people would evoke a necessary change in Māori attitudes to health.¹⁰² Pomare, who was appointed Māori Health Officer in 1901, and Te Rangi Hīroa/Peter Buck, the first New Zealand-trained Māori medical graduate, described a ‘modern’ tohunga as resembling typical descriptions of white quack doctors.¹⁰³ They condemned white quacks, who they stated, preyed equally on Māori, by visiting pā and peddling their ineffective medicines. James Pope, in his influential booklet *Health For Māori: A Manual for Use in Native Schools* (1884), claimed that Māori who

¹⁰¹ Many historians including Raeburn Lange and Judith Binney maintain the suppression of tohunga was in part a reaction to the Māori prophet and tohunga Rua Kenana Hepetipa. Hepetipa claimed to be a descendant of nineteenth-century military leader and founder of Ringatu Church, Te Kooti Rikirangi, and established a religious community and gained a considerable following deemed potentially problematic by certain colonial officials. Derek Dow, ‘Pruned of its Dangers: The Tohunga Suppression Act 1907’, *Health and History*, 3, 1 (2001), pp. 41-64.

¹⁰² Dow, ‘Pruned of its Dangers’, pp. 41-64.

¹⁰³ Dr Pomare, trained by American born Dr Kellogg had worked as Māori Health Officer since 1896 and was supported by the first Māori New Zealand-trained medical graduate, Dr Peter Buck. In 1904, Pomare published a blueprint for Māori health reminiscent of James Pope’s *Health for the Māori: A Manual for Use in Native Schools* (the first of its kind published in 1882 in both English and Māori) that included such aims as training for Māori nurses, the appointment of non-Māori women to provide health care and education to Māori, better use of native officers, separate Māori tuberculosis hospitals and the prohibition of the practices of quacks and *tohunga*. Derek Dow, *Māori Health and Government Policy, 1840-1940* (Wellington: Victoria University Press, 1999).

adhered to tohunga were no better than Europeans who clung to quackery.¹⁰⁴ Meanwhile, opponents to the Tohunga Suppression Act raised concerns that suppressing tohunga would cause neglect in areas where Māori continued to rely on their care, and alternative medical assistance was limited.

The Quackery Prevention Act (1908) dealt mainly with controls on the sale of patent and propriety medicines. The Act stated that it was an offence to publish false information relating to the ingredients, composition and efficacy of any medicine or medical practice. It fed into rhetoric expressed in such publications as *Secret Remedies: What they Cost and What they Contain* (1909), issued by the British Medical Association, that advocated scientific analysis as a measure of efficacy. In response, manufacturers of patent and propriety medicines advertised their drugs as ‘scientific’, despite the absence of either standardised tests or controls. The adverts for Gatenby’s Blue Flag Liver Cure, (*Figure 5:3*) for example, describes it as scientific. However, proof of its reliability and efficacy appears to stem solely from ‘the experience of hundreds of men, women and children’.¹⁰⁵

The Quackery Prevention Act (1908) gained vehement support from advocates who claimed that quacks, and all others of the same class, do infinite harm. In contrast, opponents of the Act believed that it would give the medical profession an undue monopoly by limiting competition from practitioners whose practices failed to meet specified criteria. A primary objection to the Act concerned the disclosure of ingredients and formula. The matter of disclosure and the listing of ingredients on all medicines prepared, imported and sold in the colony was an on-going debate in New Zealand, prompted three years earlier by the Chief Health Officer, James Mason.¹⁰⁶

¹⁰⁴ Dow, ‘Pruned of its Dangers’, p. 50.

¹⁰⁵ *WH*, 7 February 1903, p. 4.

¹⁰⁶ *Marlborough Express (ME)*, 1 April 1909, p. 5. The Quackery Prevention Bill Committee interviewed Richard Ayres, a well-known Wellington herbalist, who voiced his objections relating to the Bill. Ayres objected only to the clause that insisted all formulae and samples of formulae be submitted to a Board. ‘It hardly seems fair’, stated Ayres, ‘after a man has spent a number of years in perfecting a formula, that he should have to part with it, even it be only to a Board. Quackery Prevention Bill Committee, *AJHR* (1907), 1-14, p. 5.

In 1904, under the direction of Mason, the newly created New Zealand Department of Health proposed that all formulae for medicines prescribed and sold in the colony should be disclosed and registered with a governing body.

Figure 5:3: Advertisement for Gatenby's Blue Flag Liver Cure



TAKE a sensible course in dealing with these distressing complaints. Take a well-proven, thoroughly reliable medicine. In plain words take

**Gatenby's
Blue
Flag
Liver
Cure.**

Here is a scientific compound proved reliable by the experience of hundreds of men, women, and children in the Wellington-Wanganui and surrounding districts. It clears the bowels of all obstruction, cleanses the system, purifies the blood, restores the appetite, and brings back good health and vigour.

Sold by all
Chemists and Storekeepers at
2/6 per bottle.

Post Free from
R. M. GATENBY,
Wanganui.

Source: *Wanganui Herald*, 7 February 1903, p. 4

This divided the opinions of politicians, chemists, manufacturers and practitioners and alienated some British patent manufacturers who, rather than disclose their secrets, chose instead to cut their ties with the colony. The release of formulae, they argued, would destroy their business, as any chemist would be able to make up and market an equivalent compound. New Zealand opponents to the idea

believed that the effects on the patent medicine trade would endanger colonists in isolated districts who relied heavily on patent and propriety medicines.¹⁰⁷

While many of New Zealand's doctors supported the BMA in their stance against patent and propriety medicines, when the Quackery Prevention Bill Committee proposed disclosure, New Zealand chemists petitioned against the Bill, claiming it would interfere with their 'legitimate practice'.¹⁰⁸ Due to mounting pressure and objections, revealing or registering formula was not made compulsory in the Act that followed. Despite this, New Zealand and British doctors continued to push for disclosure, believing that the popularity of patent medicines stemmed from mystery surrounding their properties and actions. Keeping formulae secret, they maintained, also allowed manufacturers to use outdated and useless ingredients.¹⁰⁹

In the absence of legislative action, in 1909, the BMA analysed and published the formulae for many popular patent medicines in *Secret Remedies: What they Cost and What They Contain*. This pamphlet was readily available in New Zealand, where similar analyses were made and published in Australasian journals, such as the *Australasian Chemist and Druggist*.¹¹⁰ With the assistance of a 'skilled analytical chemist', the BMA determined the ingredients and proportions in particular remedies and compared the actions of these with the claims made in associated advertisements or testimonials. The book focused largely on the associated claims of patent and propriety medicines. As expressed in the quotation below, it emphasises the gullibility of consumers and the fraudulent nature of manufacturers.

The quack takes advantage of this common foible [interest in mystery] of human nature to impress his customers. But secrecy has other uses in his trade; it enables him to make use of cheap new or old fashioned drugs and to proclaim that his product possess virtues beyond the ken of the mere doctors; his herbs have been culled in some remote prairie in America or among

¹⁰⁷ *WH*, 15 November 1904, p. 5.

¹⁰⁸ New Zealand chemists wrote to newspapers expressing their concerns. For example; *ME*, 24 August 1907, p. 2; *Oamaru Mail (OM)*, 30 November 1917, p. 2; *Poverty Bay Herald (PBH)* 31 July 1908, p. 5; *Dominion*, 3 May 1912, p. 5.

¹⁰⁹ British Medical Association, *Secret Remedies What They Cost and What they Contain: Based on an Analysis Made for the British Medical Association* (London: British Medical Association, 1909), p. 11.

¹¹⁰ *CDA*, Author Unknown, 'Patent and Proprietary Medicines', edn unknown (1881), p. 84-93.

the mountains of central Africa; the secret of their virtues having been confided to him by some venerable chief.¹¹¹

In the section on medicines for coughs and catarrh, the authors stated that customers familiar with commonly-used drugs for this condition – quinine, camphor, cascara and ipecacuanha – would willingly purchase a medicine that claims to include these. Under analysis, however, some of the leading cough and cold medicines included only minute amounts of the drug, making the claims redundant and at worst, misleading. Many contained large amounts of inert inorganic ingredients such as salt, giving physicians fuel to disparage them and promote their own expertise.

The book and its conclusions reflected on-going concerns among British and colonial doctors about the patent medicine industry and also reveal greater understandings of drug dosage, design and action, as well as awareness of inconsistencies in the way drugs acted in the body. For many, a way to mitigate these inconsistencies was to use isolated constituents that worked in predictable ways, a conclusion that further supported a scientific approach to medicine design and preparation. Crude drugs, or drugs that used plants in their whole form, were increasingly considered unreliable by advocates who supported scientific processing and extraction:

We know the actions of the alkaloids, we can tell their rate of absorption and gauge the exact dosage; but this is not so with the crude drugs, for, even if they are standardised, the percentage of each constituent is not determined, but only total alkaloid, or the percentage of one alkaloid.¹¹²

Ironically, by the twentieth century, as many doctors campaigned against the medicines that supported domestic medical care and self-help, they supported an increasingly preventative and personal behaviour approach to medicine. Preventative health care was becoming a strong focus for the Department of Health, as it recognised the financial implications of people becoming

¹¹¹ British Medical Association, p. v.

¹¹² W.E Dixon, 'Drug Fallacies', *BMJ*, edn unknown (1906), p. 1459.

increasingly dependent on doctors and the state.¹¹³ Some members of the New Zealand British Medical Association resented the state's influence over health matters but supported preventative health initiatives, viewing these as an alternative to the inevitable social dependence they anticipated would be the result of a national health insurance scheme.¹¹⁴ With their support, the Department established campaigns to raise public awareness over issues such as cancer prevention, children's health, food and drug standards, oral health and tuberculosis.¹¹⁵ Meanwhile, the use of patent and propriety medicines in New Zealand continued unabated, arguably encouraged by the preventative health movement supporting self-care and the flu pandemic that followed World War One.

As a Dominion of the British Empire, when Britain declared war against the central powers in Europe (Austria-Hungary, Germany) in 1914, New Zealand was automatically in a state of conflict.¹¹⁶ During World War One New Zealand provided a high level of reinforcements in Europe sending, by the end of the war, no less than 100,444 men, nearly ten per cent of its entire population. By 1918, one-fifth of New Zealand's registered doctors were posted overseas, some serving with the New Zealand Army Corps and others assigned to the British Army. Five hundred nurses had volunteered for service on military ships and in military

¹¹³ The 1920 Public Health Act created seven distinct departments; public hygiene, hospitals, nursing, school hygiene, dental hygiene, child welfare and Māori hygiene. Preventative health received a renewed focus under this amended Act and was one point that the NZBMA and the Department agreed upon. Health camps epitomised these ideals and were established by a number of voluntary organisations working together with the Department of Health. Hundreds of children spent time at these camps originally established to combat the malnutrition associated with tuberculosis. Throughout these campaigns, doctors in the NZBMA contributed reports and observations to the department who in turn conveyed these to the public. Derek Dow, *Safeguarding the Public Health. A History of the New Zealand Department of Health*. (Wellington: Victoria University Press, 1995).

¹¹⁴ Douglas Robb, *Health reform in New Zealand* (Christchurch: Whitcombe and Tombs, 1947).

¹¹⁵ Dow, 1995; Frances Sydney Maclean, *Challenge for Health: A History of Public Health in New Zealand* (Wellington: Government Printer, 1964).

¹¹⁶ Phillipa Mein Smith, *A Concise History of New Zealand* (Cambridge: Cambridge University Press, 2005), pp. 123-150. The signing of the Treaty of Versailles by the then Prime Minister William Massey gave New Zealand a degree of independence, making it a founding member of the League of Nations and giving New Zealand mandated responsibility for Western Samoa. Michael King, *The Penguin History of New Zealand* (Auckland: Penguin, 2003), pp. 294-315.

hospitals in England and France. This brought New Zealand's medical resources to an unusually low ebb when the Spanish influenza reached its shores in 1918.¹¹⁷

The Spanish Flu is the worst influenza pandemic recorded, killing more than twice as many as the estimated ten million who died during World War One.¹¹⁸

The virus paralysed communities, halted economic activity and traumatised families. Morbidity rates in towns rose to as high as 80 per cent and the death rate for Māori was seven times that for European.¹¹⁹ It would be another ten years before antibiotics were routinely used. The fight against flu, therefore, relied predominantly on community initiative and voluntary effort which was already well organised, though exhausted due to the war effort. Many cities and some larger towns divided into blocks each, with reporting depots and, later, fumigation stalls.

Fumigation stalls were set up by the state as the primary preventative treatment, while doctors and medical officers – such as Dr William Fyffe, Sanitary Officer for Wellington – recommended measures including a reasonable amount of alcohol and smoking.¹²⁰ Sulphur was used liberally to dispel flu germs and in some smaller towns, sheep dip was used as an antiseptic and sprayed on the streets. Patent medicines, such as Bonnington's or Baxter's Lung Preservers were in heavy demand.¹²¹ Additionally, people treated their loved ones with domestic remedies including camphor bags, garlic, onion, brandy and whiskey.¹²² The horror of the flu and the context in which it struck, I argue, encouraged doctors to combine and advocate remedies, including plant-based patent medicines that they would have previously dismissed.

Throughout the 1920s, the medicine and medical care provided by educated doctors in New Zealand remained diverse. While many embraced the discovery of new synthetic constituents, others maintained that a preventative approach to

¹¹⁷ Wright-St Clair, pp. 155-158.

¹¹⁸ Geoffrey Rice, *Black November: The 1918 Influenza Pandemic in New Zealand*, 2nd edn (Christchurch: Canterbury University Press, 2005), pp. 221-240, 284.

¹¹⁹ Maclean, pp. 237-398.

¹²⁰ Dow, 'Safeguarding the Public Health', pp. 85-91.

¹²¹ Rice, p. 84.

¹²² Rice, pp. 96, 108, 116, 152.

health discouraged the use of complicated compound drugs and led doctors back down a path to simpler, plant-based medicines. In 1922, *The Chemist and Druggist of Australasia* noted that some of the highest esteemed medical men were returning to simple remedies.¹²³ In an article entitled ‘Change in the Habits of Prescribers, the Biggest Men the Simplest’, the author argues that many doctors work from a very limited part of the *BP* and that doctors are returning to simple single plant-based drugs. According to the author:

Botanical drugs are rapidly pushing to the front again, and the old school which taught that there is a plan in Nature geared for every human ill, is re-establishing its grip on the physician’s mind’.¹²⁴

Additionally, before the all-important Social Security Act introduced by New Zealand’s first Labour Government in 1938, there was no Government subsidy on medicines in New Zealand.¹²⁵ With no financial incentive, patients were effectively discerning customers, capable of exerting consumer demand. In New Zealand, until the 1930s, although numerically dominant, doctors continued to work hard to distinguish themselves from other practitioners.

Conclusion

Throughout the nineteenth and early twentieth centuries, practitioners of all types used medicines made from a similar selection of medicinal plants. How they prepared and applied these varied slightly. Yet how they promoted and advocated these in a competitive medical market revealed much about claims to knowledge among rival groups contending to present themselves as the legitimate providers of medical care. Practitioners, drug manufacturers, chemists and druggists looked for ways to make their goods distinct and appealing. This chapter examined New Zealand doctors and their preparation and application of medicinal plants in the nineteenth and early twentieth centuries. It argued that doctors distinguished their

¹²³ Author Unknown, ‘Change in the Habits of Prescribers, the Biggest Men the Simplest’, *CDA*, 37, 1, (1922).

¹²⁴ Author Unknown, ‘Amalkite’, *The Australian Journal of Pharmacy*, June 21, (1926), p. 473.

¹²⁵ Astrid Baker, ‘Setting the Rules: Pharmaceutical Benefits and the Welfare State’, in *For Health or For Profit? Medicine, the Pharmaceutical Industry and the State in New Zealand*, ed. by Peter Davies (Oxford: Oxford University Press, 1992), pp. 18-33.

use of plants from other practitioners through an ever-increasing emphasis on scientific analysis and preparation.

Although the clinical use of plants remained largely unchanged, doctors employed their knowledge of scientific technique, taught to them during the course of their medical education, to promote their practices and their medicines and distinguish their activities from those of others. They maintained a hand in the preparation of drugs, incorporating pharmaceutical developments in response to increased competition from patent and propriety medicines. Botany occupied an important place in British and European medical curricula. It linked ancient systems of medicine with modern developments and kept doctors attuned to developments beyond the walls of their institutions. The development of official pharmacopeia supported an increasingly ‘prescriptive’ approach to medical care, the reification of disease, and met consumer demand for medicine that was more palatable than the heroic and often painful medicinal treatments previously employed. In keeping with the introduction of British medical policy, the *British Pharmacopeia* was particularly influential in New Zealand, which was colonised around the same time that the first edition was proposed. The number of plants included in the 1867 *BP* collected or gathered from outside of Britain, highlights the British Empire’s role as an arena for trade and consumption, and demonstrates the scope of the pharmaceutical industry by the mid-nineteenth century.¹²⁶

Official pharmacopeia guided doctors in New Zealand and encouraged the standardisation and professionalisation of medicine. However, pressure from drug manufacturers, chemists and druggists prevented legislation that enforced strict adherence to pharmacopeia and consequently experiments with alternative plants continued. New Zealand doctors performed, what I call, ‘colonial clinical trials’, observing Māori and their use of plants and combining these observations with existing skills and knowledge. Early experiments failed to attract much attention from the British medical faculty. However, by the late 1800s, doctors aiming to meet consumer demand made renewed attempts to extend their botanical

¹²⁶ Felipe Fernández-Armesto and Benjamin Sacks, ‘The Global Exchange of Food and Drugs’, in *The Oxford Handbook of the History of Consumption*, ed. by Frank Trentmann (Oxford: Oxford University Press, 2012), p. 128.

repertoire. 'Translating' indigenous knowledge into scientific terms, New Zealand doctors published further investigations into native medical plants, seeking recognition from their peers and striving to meet consumer demand for exotic and novel compounds. Investigation into native medicinal plants continued, while legislation aimed at suppressing traditional Māori medical knowledge and so-called unscientific medicines came about. This legislation, such as The Tohunga Suppression Act (1907) and the Quackery Prevention Act (1908), was largely ineffective but perpetuated and encouraged a growing rift between doctors and other practitioners such as herbalists.

The translation of plants and associated knowledge, exemplified by the doctors just described, is an important and dominant theme that runs throughout this thesis. The following chapter expands on this theme and explores further the translation of indigenous Māori medical knowledge in colonial New Zealand. It examines how domestic healers, herbalists and doctors constructed and 'reconciled' different interpretations of the same plants.

Chapter Six

Translation: Same plant, different interpretations

This final substantive chapter expands on important themes that run throughout this thesis, the exchange and translation of medico-botanical knowledge. In the context of this thesis, translation refers to the modification, adaption, or variation of certain understandings and applications of medicinal plants. According to Jodi Frawley the use, importance and role of particular plants changes over time and space according to developing ideas, policies and practices.¹ Various translations reflected the context in which they are ‘read’. Herbarium records, for example, revealed the ecosystem from which the plant came, and for many nineteenth-century collections, demonstrated a colonial presence in that environment. In New Zealand’s colonial medical culture, domestic healers, herbalists and doctors translated plants in ways that would reflect and support their own ambitions and goals. Through case-studies of two plants – thyme and aconite – this chapter supports earlier discussions by demonstrating how different groups reconciled seemingly disparate translations and interpretations and in the process, reinforced their claims to knowledge.

Section One supports Ballantyne’s concept of an imperial web by exploring the multi-directional flow of medico-botanical knowledge through a case study on the medicinal plant thyme (*Thymus vulgaris*). It explores the conversion of thyme into an isolated medicinal ingredient, thymol in the late nineteenth century, and places the production and commercialisation of this into an imperial context. The production of thymol was encouraged by the popularity of germ theory and brought together colonial administration and mechanisms in British colonies, including New Zealand and India. This section examines the impetus and experiments that led to this change, briefly exploring the complexity and influence of the Indian pharmacopeia.

¹ Jodi Frawley, ‘Making Mangoes Move’, *Transforming Cultures eJournal*, 3, 1 (2008).

Section Two examines the medicinal, but highly poisonous plant, monkshood (*Aconitum napellus*), an attractive plant that has been cultivated for centuries and admired for its bright and attractive blue flowers. Throughout history, monkshood has been employed to poison and punish, but by the nineteenth century it was also considered an important and effective medicine, particularly for the treatment of rheumatism and neuralgia. This section determines the processes and frameworks employed to translate monkshood into a popular western medicine. It argues that confidence in the plant stemmed not only from greater scientific understanding, but also from the adoption and acceptance by healers and patients of an alternative medical system, namely homeopathy.

As the following case studies reveal, the scientific translation of medicinal plants was widely accepted by all forms of healers during the late nineteenth century. However, the development of plant-based drugs is not simply a lineal progression from humble applications to more sophisticated scientific preparations. Indeed, as evidenced in the following section, long before the advent of chemical analysis, specific plants were processed and applied in ways that are not unlike those in use today.² Various understandings and translations of plants co-existed and were reflected in their multiple uses and roles in medicine and culture.

Thyme over Time: The changing role of Thymus vulgaris

Thyme's various roles in European and colonial folk, medical and botanical culture reflected the plant's multiple meanings and translations. These translations or interpretations can be 'read' through material objects such as herbal manuals, botanical specimens, and patent and proprietary medicines, and rely, to varying

² For example, early civilisations including the Babylonians developed refined methods such as distillation to prepare and extract active constituents. Roy Porter, *The Greatest Benefit to Mankind: A Medical History of Humanity from Antiquity to the Present* (London: Harper Collins Publisher, 1999), p. 46; Carol Fisher and Gillian Painter, *Materia Medica of Western Herbs for the Southern Hemisphere* (Privately Published in New Zealand, 1996); Maude Grieve, *A Modern Herbal: The Medicinal, Culinary, Cosmetic and Economic Properties, Cultivation and Folklore of Herbs, Grasses, Fungi, Shrubs and Trees with all their Modern Scientific Uses*, 3rd edn (First Published 1931) (London: Tiger Books, 1992).

degrees, on each other for corroboration and construction.³ The use of thyme as an expectorant by domestic healers, for example, relies on the correct identification of the plant, made possible by botanists converting thyme into a botanical specimen and placing it in an accepted classificatory system. By the nineteenth century, thyme was converted it into an isolated active constituent, thymol, prompting a lucrative industry in the production of a popular and internationally exported antiseptic compound. Star's concept of a boundary object is useful to consider in relation to this translation. According to Star, boundary objects, such as medicinal plants may be, and commonly are, interpreted differently, a process she describes as 'interpretive flexibility'.⁴ As boundary objects, medicinal plants could be tailored to local use, making them more relevant to a particular group. As this chapter reveals, the conversion of thyme into thymol was accepted and supported by domestic healers as well as doctors.

Boundary objects are objects which are both plastic enough to adapt to local needs and the constraints of the several parties employing them, yet robust enough to maintain a common identity across sites....They have different meanings in different social worlds but their structure is common enough to more than one world to make them recognisable, a means of translation.⁵

Thyme is a common and popular herb, better known today for its culinary value than its medicinal application.⁶ Its properties lend themselves to a variety of medicinal uses, making the plant multipurpose and consequently used and approved, and indeed translated, by a number of healers and users.⁷ The Ancient Greeks were among the first to record the medicinal properties of thyme after

³ Susan Leigh Star, 'This is not a Boundary Object: Reflections on the Origin of the Concept', *Science, Technology and Human Values*, 35, 5 (2010), pp. 601-617; Susan Leigh Star and James R. Griesemer, 'Institutional Ecology, 'Translations and Boundary Objects: Amateurs and professionals in Berkley's Museum of Vertebrate Zoology, 1907-39', *Social Studies of Science*, 19 (1989), pp. 387-420.

⁴ Star and Griesemer, p. 393; Star, pp. 602-605.

⁵ Star and Griesemer, p. 393.

⁶ Antoine Al-Achi, *An Introduction to Botanical Medicines: History, Science, Uses and Dangers* (Connecticut: Praeger Publishers, 2008), pp. 121,124; Steven Foster, Varro E. Tyler, *Tyler's Honest Herbal: A Sensible Guide to the Use of Herbs and Related Remedies* (New York: Haworth Herbal Press, 2000), pp. 2-4, 123.

⁷ The active constituents in thyme include volatile oils, tannins, flavonoids and saponins which give the plant antiseptic, expectorant, anti-tussive, carminative, spasmolytic, astringent and anthelmintic properties. Fisher and Painter, p. 149.

recognising its antiseptic qualities.⁸ Centuries later, herbalist John Gerard recommended it for ‘the bitings of any venomous beast’, and suggested that the plant will cure sciatica, pains in the head, leprosy and the falling sickness (epilepsy).⁹ According to modern herbalists Carole Fisher and Gillian Painter, thyme was used historically to aid labour and menstruation, treat leprosy, epilepsy, warts, sciatica, dull sight and a hard spleen.¹⁰ Linnaeus translated wild thyme into *Thymus serpyllum*, for its habit of creeping, and true to its name the plant can be found growing wild throughout Europe.

Figure 6:1: Illustration of thyme from Maude Grieve’s *Modern Herbal*.



Source: Maude Grieve, *A Modern Herbal: The Medicinal, Culinary, Cosmetic and Economic Properties, Cultivation and Folklore of Herbs, Grasses, Fungi, Shrubs and Trees with all their Modern Scientific Uses*, 3rd ed., (London: Tiger Books, 1992)

⁸ Pliny believed it to ‘give flight to all venomous creatures’. Grieve, p. 811; Deni Brown, *The Royal Horticultural Society Encyclopedia of Herbs and their Uses: The Definitive A-Z guide to Herbs* (London: Dorling Kindersley Limited, 2002), pp. 387-389.

⁹ Marcus Woodward, *Gerard’s Herbal: The Essence Thereof Distilled by Marcus Woodward from the Edition of T. H. Johnson, 1636* (London: Spring Books, 1964), p. 129.

¹⁰ Fisher and painter, p. 150.

A familiar and popular plant, thyme featured in folk songs and literature and was attributed with a number of qualities, including the ability to harbour the souls of the dead, reveal true love and cure the inebriated.¹¹ It was a favourite plant of Frances Bacon who, in describing the perfect garden, suggested that walkways be planted with thyme, so that ‘you may pleasure when you walk or tread’.¹² In the South of France, thyme was a sign of extreme Republicanism, and cuttings of thyme accompanied summons to Republican meetings.¹³

Garden thyme, or common thyme (*Thymus vulgaris*) is considered the most medicinal of all varieties and, by the mid nineteenth century, was among the cultivars most commonly found in European and New Zealand gardens.¹⁴ Thyme was often moved by travellers or colonists, and although it is difficult to pinpoint its exact date of introduction into New Zealand, advertisements for the sale of thyme seeds appeared in colonial newspapers as early as 1841.¹⁵ As evidenced in their early catalogues, nurserymen imported thyme either as seeds or live plants.¹⁶ Garden manuals suggested thyme be planted in December, advising ‘sage and thyme slips [to be] put in a shady place’.¹⁷

By the 1850s, explorers were noting patches of wild thyme growing throughout the colony and by the 1860s, thyme was sold at markets alongside vegetables and fruit.¹⁸ Murphy’s popular gardening guides – a series of manuals the first of which

¹¹ In Ancient Greece, it was an emblem of courage and remained a sign of chivalry for centuries - women embroidering the herb on scarves they presented to Knights before battle. Brown, pp. 387-389; Grieve, pp. 807-810; Fisher and Painter, p. 149.

¹² Grieve, p. 814.

¹³ Grieve, p. 809.

¹⁴ Foster and Tyler, p. 123.

¹⁵ *New Zealand Gazette and Wellington Spectator (NZGWS)*, 6 October 1841, p. 3. *Tegg’s Handbook for Emigrants* recommended colonists take essence of thyme when they emigrated. Thomas Tegg, *Tegg’s Handbook for Emigrants: Containing Useful Information and Practical Directions on Domestic, Mechanical, Surgical, Medical and other Subjects Calculated to Increase the Comforts and add to the Conveniences of the Colonist* (London: Thomas Tegg, 1873), p. 9.

¹⁶ Alexander Turnbull Library, Wellington, Eph-A-HORTICULTURE-1899-01, ‘Hay, D & Son, Nurserymen: Descriptive Catalogue 1899-1900, With Novelty list. Montpellier Nursery near Parnell, Auckland, New Zealand, 1899’; Alexander Turnbull Library, Wellington, Eph-A-HORTICULTURE-1870/1899, ‘Ephemera and Horticulture Sales Catalogues issued by New Zealand Plant Nurseries, 1870-1899.

¹⁷ *The Taranaki Almanac and Directory, 1869 - Farm and Garden* (New Plymouth: Seffren, 1869), p. 61.

¹⁸ *New Zealand Spectator and Cook’s Strait Guardian (NZSCG)*, April 4 1850, p. 3; *Lyttelton Times (LT)*, 8 March 1851, p. 3. Leonard Cockayne recorded wild thyme (species unknown) in central

dates from 1885 – recommends increasing the number of thyme plants by ‘taking up an old plant and tearing it into pieces’. Thyme, writes Murphy, grows best on rather poor soil.¹⁹

Newspaper articles described multiple uses for thyme, including culinary and cosmetic applications such as scenting linen, making soap and cleaning teeth.²⁰ As expressed in the quotation below, thyme was one of plants that settlers grew in order to evoke a sense of optimism for the future and express a civilised way of life.²¹ Daughters of late nineteenth century Canterbury settler Alfred Saunders evoked images of home comfort through their description of their father’s garden, complete with the smell of thyme.

Alfred himself drove to the station to meet those who came by train, ushering them into the house with a beaming smile. It was glorious summer weather, and Christmas lilies and Canterbury bells were making a great show in the garden, where the air was sweet with the perfume of lavender, thyme, and scented verberna.²²

Conversely, associations between thyme and death were also expressed in New Zealand. As historian Lyndon Fraser explains, Victorian Briton’s expressions of grief and mourning came with colonists to the colony and took many forms. Indeed, ‘multiple cultures of death [existed] shaped by class, gender and age’.²³ Thyme had been used historically to assure the dead of a safe passage into the afterlife, a ritual adopted by the British mutual aid organisation, The Oddfellows.

Otago in 1928, where, ‘in places, it occupies large areas’. H. H. Allan, ‘Additions to the Alien Flora of New Zealand’, *Transactions and Proceedings of the New Zealand Institute (TPNZI)*, 65 (1936), p. 65.

¹⁹ Michael Murphy, *Handbook of Gardening for New Zealand, With Chapters on Poultry and Bee-Keeping*, 3rd edn (Christchurch: Whitcombe & Tombs, 1888), p. 47.

²⁰ *Otago Witness (OW)*, 11 October 1862; *Daily Southern Cross (DSC)*, 20 May 1863, p. 4; *Nelson Examiner and New Zealand Chronicle (NENZC)*, 2 April 1868, p. 4; *Otago Daily Times (ODT)*, 5 December 1864, p. 4; (NENZC), 10 June 1843, p. 264; (NZSCG) 28 February 1846, p. 3.

²¹ Katharine Raine and John Adam, ‘The Settlers Gardens’, ‘Victorian Gardens’, in *A History of the Garden in New Zealand*, ed. by Matthew Bradbury (Auckland: Godwit, 2010), pp. 66.

²² Alfred Saunders, *Tales of a Pioneer: Episodes in the Life of Alfred Saunders, Selected and Arranged by his Two Youngest Daughters* (Christchurch: L. M. Isitt, 1927), p. 203.

²³ Lyndon Fraser, ‘Memory, Mourning and melancholy’, in *Far From Home: The English in New Zealand*, ed. by Lyndon Fraser and Angela McCarthy (Dunedin: Otago University Press, 2012), pp. 99-123, quote from p. 100.

In New Zealand, sprigs of thyme were thrown onto the coffins at funerals for Oddfellows, the organisation brought to New Zealand by early settlers.²⁴

Thyme was a popular plant in common use in domestic medical practices. Herbalists and domestic medical advice emphasised the safety of thyme. *Culpeper's Herbal* maintained there is no better cure for whooping cough, that thyme purges the body of phlegm, is a cure for inebriation and is a remedy for shortness of breath. The herb, writes Culpeper, is so harmless you need not fear the use of it.²⁵ Culpeper's advice persisted and until the 1870s, many of the medicinal uses for thyme published in newspapers and medical manuals were based on his earlier recommendations. In 1876, for example, the *American Journal of Pharmacy* recommended thyme as a cure for drunkenness. Given the association between herbalism and domestic medicine, ladies' columns in New Zealand newspapers referred to remedies with thyme as 'old wives' medicine.²⁶ By the 1880s, however, the conversion of thyme into an isolated active ingredient, thymol, became its dominant application by domestic healers, herbalists and doctors alike. Imperial networks supported the flow and exchange of information relating to thymol, and drug manufacturers relied on its popularity and acceptance which enabled them target both the medical faculty and everyday consumers.

Thymol was first identified by apothecary-to-the-Court-at-Berlin, Casper Neumann and in 1853, French chemist A. Lallemand named the constituent and determined its empirical formula.²⁷ Like the whole plant, thymol was used mainly as an antiseptic, and as the popularity of germ theory increased, so too did

²⁴ Instances of sprigs of thyme being dropped onto the coffins at funerals in New Zealand include the funeral of Mr James Muir, a Scottish journalist who settled in Wellington. *Wellington Independent (WI)*, 12 December 1865, p. 7. Also in 1869 at the funeral of James Burrows in Timaru. *Timaru Herald (TH)*, 21 April 1869, p. 2. Both men were members of the Order of Oddfellows, a mutual aid organisation transferred from Britain and established in New Zealand's settler society. Independent Order of Oddfellows of New Zealand, *Constitution of the Independent Order of Oddfellows of New Zealand* (Dunedin: The Order, 1927).

²⁵ Nicholas Culpeper, *Culpeper's Complete Herbal: Consisting of a Comprehensive Description of Nearly all herbs with their Medicinal properties and Directions for Compounding the Medicines Extracted from Them* (London: W. Foulsham, 1970 reprint), p. 371.

²⁶ *Bruce Herald (BH)*, 10 November 1876, p. 7; *BH*, 31 July 1872, p. 3; *Waikato Times (WT)*, 25 September 1873, p. 2.

²⁷ Dr Lewin, 'The History of Thymol', *The British Medical Journal (BMJ)*, 1, 646 (1878), p. 651.

investigations into thyme.²⁸ In 1878, Dr Lewin, writing for the *British Medical Journal*, believed that the use of a crude form of thymol was first mentioned in the French publication, *Bulletin General de Therapeutique* in 1868.²⁹ With the advice and support of Professor Liebreich, in the Pharmacological Institute of the University of Berlin, Lewin was purportedly the first to conduct investigations on the substance, the results of which were published in the *Centralblatt für die medicinischen Wissenschaften* in May 1875. ‘From this research’ writes Lewin, ‘there arose at once the modern extended practical application of thymol’.³⁰

This ‘modern practical application’ of thymol literally and figuratively reduced the plant to an isolated element, stripping it of any cultural historical context and making its worth dependant solely upon a chemical concentration. According to a correspondent for the *Australian Journal of Pharmacy*, by 1884, a significant number of major alkaloids had been discovered, replacing many of the ‘crude’ drugs from which they had been derived.³¹ The isolation of these alkaloids and other active constituents, in the words of historian Roy Porter, ‘set the stage for a pharmacological transformation’.³² The 1885 *British Pharmacopiea*, the text that guided New Zealand doctors and chemists in their use and preparation of medicinal plants, reflects this trend and although *Thymus vulgaris* is omitted, it describes thymol in detail.³³

Isolating constituents afforded the opportunity to provide standardised and accurate dosage as well as a specific therapeutic effect. This appealed to both the medical profession striving to exhibit their scientific acumen, and a pharmaceutical industry conscious to increase profit margins. Thymol, although

²⁸ Previously, phenol, extracted from coal tar and converted to carbolic acid was the most popular antiseptic. This was first prepared commercially in 1846. Iodoform, another popular antiseptic appeared in general use in 1868. *Australian Journal of Pharmacy (AJP)* edn unknown, June (1927), page unknown.

²⁹ The *Bulletin General de Therapeutique* was French publication that from 1896-1932 presented the proceedings of Société de Thérapeutique. Limited editions are available online at <https://archive.org/details/bulletingnralde51thgoog>, [accessed February 21 2014].

³⁰ Lewin, p. 651.

³¹ *AJP*, edn unknown, June 20th (1927), page unknown.

³² Porter, p. 334.

³³ *British Pharmacopiea Published Under the Direction of the General Council of Medical Registration and Education of the United Kingdom Pursuant to the Medical Act, 1858 (BP, 1885)*(London: Spottiswoode and Co, 1885).

not an alkaloid, offered the same advantages, and as the medical profession relied increasingly on the extract, the whole plant from which it was extracted was disregarded, transformed or ‘translated’ into ‘large prismatic crystals having the odour of thyme and a pungent aromatic flavour’.³⁴

During the 1880s, experiments revealed plants that yielded higher concentrations of thymol than *Thymus vulgaris*. The oil from the seeds of *Carum copticum* – otherwise known as *Trachyspermum ammi* and named Ajowan in Hindi – was found to contain 40-50 per cent thymol compared to 20-30 per cent from *Thymus vulgaris*.³⁵ Thymol was also found to occur naturally in *Monarda punctata* and by the early twentieth century was also manufactured from Piperitone, a constituent found in considerable quantities in the essential oil of the Australian broad-leaved peppermint (*Mentha piperita*).³⁶ These discoveries were supported and made possible by existing botanical and medical understandings, available technologies and colonial administrations and mechanisms. It involved actors from different social worlds who, in Star’s words, established a mutual *modus operandi*.³⁷ Botanists, medical practitioners, pharmacologists, Indian healers and colonial healers were all involved in the translation of plants into thymol.

Classificatory systems, such as that provided by Linnaeus, paved the way for the chemical potential of certain plants to be explored on the basis of their botanical relationships – evidence pharmacologists used to support further investigations. Additionally, growing understandings of plant anatomy and physiology provided appropriate evidence and grounds for experimentation. Recognising and translating unfamiliar medical practices and understandings also formed the basis for further research. *Trachyspermum ammi* or ajowan, is an important plant in the Indian pharmacopeia used to treat similar ailments as thyme. Observations of

³⁴ *BP*, 1885, p. 407. As early as 1882, thymol was synthesized (first by the Swedish chemist Oskar Widman) although it difficult to determine if the synthesis of the plant was more commercially viable than the extraction. Certainly, the import of thymol from India to Britain and British colonies continued into the twentieth century. Grieve, pp. 808-813.

³⁵ Lewin, p. 651; Grieve, p. 812.

³⁶ Ram Chopra, *Indigenous Drugs of India*, 2nd edn (Calcutta: U. N. Dhur and Sons, 1958), p. 94.

³⁷ Star and Greisemer, p. 388.

local Indian healers, made possible by a significant British presence in India, may well have stimulated research into these alternative sources of thymol.³⁸

High mortality rates in military troops and colonial settlements during the nineteenth century often prompted investigations into local medicines in countries such as India.³⁹ A number of New Zealand's early doctors had established and maintained links in India. For example, Dr Robert Stewart, who arrived in New Zealand from India in 1849, practiced medicine in Dunedin but maintained business connections in India and China.⁴⁰ Although it is unclear whether or not Stewart introduced Indian plants to New Zealand for medicinal purposes, his experiences in India undoubtedly influenced his medical practices and his view of medicinal plants. The British Pharmacopeia (*BP*), which – as noted in Chapter Five – held considerable sway in New Zealand included Indian medicinal plants from 1900. Additionally, patent medicines developed in India, as shown in *Figure 6:1*, were advertised in the colony. The presence and influence of Indian plants in New Zealand, therefore, makes an investigation into India's medical culture relevant to the study of medicinal plants in New Zealand.

Medicines, medical practices and observations in British colonies, such as India and New Zealand, raised and prompted investigations into such subjects as the effect of climate and environment on health. They also extended and contributed to the European pharmacopeia.⁴¹ By the mid-nineteenth century, an increasing number of Asian medical practices and therapies had entered the western market, where they were regarded with the same degree of scepticism and faith that was given to western medicine – they were popular subjects for lively medical debates

³⁸ Chopra, pp. 94-97.

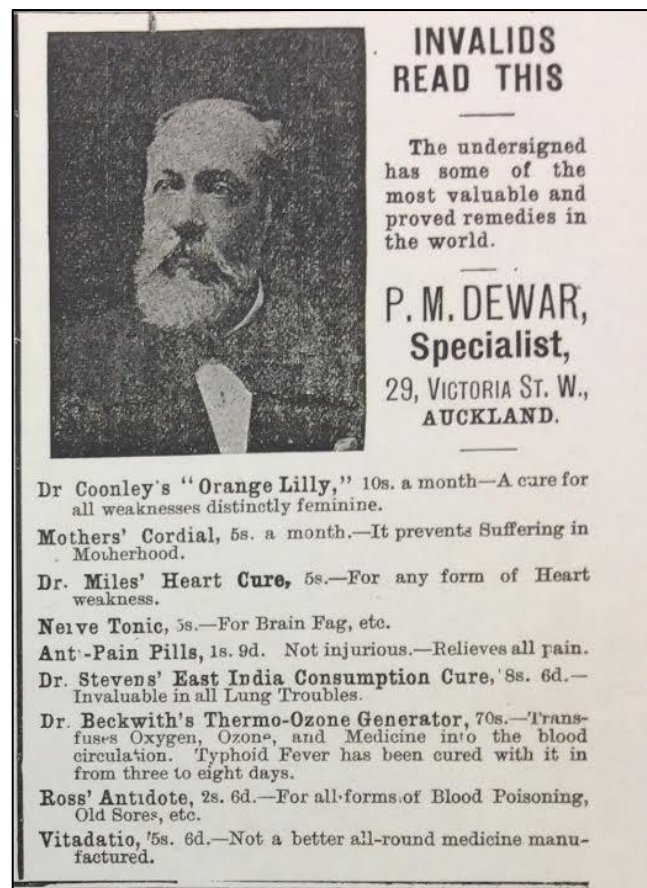
³⁹ Hans Pols, 'European Physicians and Botanists, Indigenous Herbal Medicine in the Dutch East Indies, and Colonial networks of Mediation', *East Asia Science, Technology and Society: An International Journal*, 3, 2-3 (2009), pp. 173-208, DOI 10.1007/s12280-009-9085-6, [accessed March 12 2014]; Pratik Chakrabarti, *Materials and Medicines: Trade, Conquest and Therapeutics in the Eighteenth Century* (Manchester: Manchester University Press, 2010), pp. 171-205.

⁴⁰ Robert Valpy Fulton, *Medical Practice in Otago and Southland in the Early Days: A Description of the Manner of Life, Trials, and Difficulties of some of the Pioneer Doctors, of the Places in which, and of the People among whom they Laboured* (Dunedin: Otago Daily Times and Witness Newspapers, 1922), pp. 24-5.

⁴¹ Ram Chopra, author of *Indigenous Drugs of India* confirms that the experiences of Indian healers, kavirajes, hakims and others were used as a starting point for western investigations. Chopra, p. 21.

and bases for emerging medical theories.⁴² They fed consumers desire for the exotic and unusual and did not seem wholly out of place in a pluralistic western medical marketplace.

Figure 6:2: Advertisement for patent medicines including Dr Stevens East India Consumption Cure



**INVALIDS
READ THIS**

The undersigned has some of the most valuable and proved remedies in the world.

**P. M. DEWAR,
Specialist,
29, VICTORIA ST. W.,
AUCKLAND.**

Dr Coonley's "Orange Lilly," 10s. a month—A cure for all weaknesses distinctly feminine.

Mothers' Cordial, 5s. a month.—It prevents Suffering in Motherhood.

Dr. Miles' Heart Cure, 5s.—For any form of Heart weakness.

Nerve Tonic, 5s.—For Brain Fag, etc.

Ant-Pain Pills, 1s. 9d. Not injurious.—Relieves all pain.

Dr. Stevens' East India Consumption Cure, '8s. 6d.—Invaluable in all Lung Troubles.

Dr. Beckwith's Thermo-Ozone Generator, 70s.—Transfuses Oxygen, Ozone, and Medicine into the blood circulation. Typhoid Fever has been cured with it in from three to eight days.

Ross' Antidote, 2s. 6d.—For all forms of Blood Poisoning, Old Sores, etc.

Vitadatio, '5s. 6d.—Not a better all-round medicine manufactured.

Source: *The New Zealand Illustrated Magazine*, July (1901), p. xiii

Indian medicine during the nineteenth century was equally pluralistic, its organisation, diversity and nature influenced by factors such as religion, locality, ethnicity, caste and colonisation.⁴³ According to Projit Mukharji, the so-called indigenous Indian healers were a varied group of practitioners who differed in

⁴² Roberta Bivins, *Alternative Medicine: A History?* (Oxford: Oxford University Press, 2007), p. 43.

⁴³ Projit Bihari Mukharji, 'Structuring Plurality: Locality, Caste, Class and Ethnicity in Nineteenth-Century Bengali Dispensaries', *Health and History*, 9, 1 (2007), pp. 80-105. Historian David Arnold suggests western medicine in India was a type of 'colonial science', a grafting of ideas and medical practices. David Arnold, *Colonizing the Body: State Medicine and Epidemic Disease in Nineteenth-Century India* (California: University of California Press, 1993), pp. 15-19.

ethnicity, religion, caste and levels of education, and who expressed disparate definitions of science and medicine. ‘The colonial medical bureaucracy was a multi-layered and hierarchic institution ... a mixture of practices, practitioners and medicines that confuse the simple definition of indigenous and western medicine.’⁴⁴ Within this, various translations of boundary objects, such as medicinal plants, existed.⁴⁵ Among these was the translation of Indian medicines and plants into the European pharmacopeia.

An Indian pharmacopeia was published by European chemists as early as 1868 and an Indigenous Drugs Commission was appointed by the Indian Government in 1895.⁴⁶ By 1900, an *Indian and Colonial Addendum* to the *British Pharmacopeia* was produced, with the aim of creating a standardised guide for members of the medical profession stationed throughout the British Empire.⁴⁷ *Trachyspermum ammi* was used by some Indian healers in the form of ajowan oil (sold in India as ajowan-ka-phul –flowers of ajowan) to treat nasal catarrh, skin diseases and as an antiseptic, anthelmintic and carminative.⁴⁸ The *British Pharmacopeia* converted the oil, translating ajowan into a ‘stearoptene obtained from the volatile oils of the *Thymus vulgaris* Linn., *Monarda punctata* Linn. and *Carum ajowan* Benth. and Hook.’ Despite the translation, European doctors also used the constituent as an antiseptic and anthelmintic.⁴⁹

The assimilation of India’s medicinal plants into the *British Pharmacopeia*, and the production of western medicine in India assisted British colonisation and the development of economic botany. *Trachyspermum ammi* was cultivated for local use in India, where growers produced surplus supplies to convert into thymol and

⁴⁴ Mukharji, p. 81-83.

⁴⁵ Indeed, diverse opinions on the value of local medicines were expressed by practitioners stationed at the various dispensaries established throughout India during the nineteenth century Mukharji, p. 92.

⁴⁶ According to a *Chemist and Druggist of Australasia* correspondent, medical volunteering in India during the mid to late nineteenth century was about as universal as the conscription to Germany and *Trachyspermum ammi* was but one of many native Indian plants investigated by western doctors and pharmacists. *Chemist and Druggist of Australasia (CDA)*, 25 (1896), page unknown.

⁴⁷ Donald MacAlister, ‘Presidents Introductory Remarks: An Imperial Pharmacopeia’, *BMJ*, 2, 2384 (1906), pp. 552-554.

⁴⁸ Chopra, p. 94.

⁴⁹ *BP*, 1885, p. 406

export around the world, particularly to Germany and the United States.⁵⁰ The production of western medicines such as thymol demanded the organisation of, and control over, local resources and labour, disrupting local industry and presumably supporting colonial authority.

... western medicine in India was always involved in a dialectical relationship, caught between the thrust of metropolitan science on the one hand and the gravitational pull of India's perceived needs, constraints, and potentialities on the other.⁵¹

The influence of Indian medicines came to New Zealand in the pages of British medical textbooks and discourse, creating a network of imperial knowledge. In New Zealand, thymol gained popularity through its promotion of a modern scientific medicine and the result of imperial ingenuity. Indeed, by the late 1890s, articles in New Zealand newspapers and the *British Medical Journal* described the thymol industry in India under headings such as 'Developing Empire'.⁵²

By the late nineteenth century, New Zealand doctors translated medico-botanical knowledge into scientific terms. New Zealand's medical profession, following the guidance of British medical manuals and research, adopted the translation of thyme as thymol, an effective antiseptic and an anthelmintic.⁵³ In 1878, gauze and soaps impregnated with thymol were recommended in the *British Medical Journal* (*BMJ*), as the compound proved less irritating and malodorous than carbolic gauze.⁵⁴ The textbook prescribed for medical students at Otago Medical School recommended thymol as an antiseptic and for the treatment of tinea, neuralgia and for the relief of toothache.⁵⁵ By the 1890s, reports of thymol as a treatment for whooping cough first appeared in the *BMJ* by German physician Fischer, who

⁵⁰ By 1916, however, the synthetic production of thymol reduced demand for Indian thymol and Germany dominated the international market. Chopra, p. 95-97.

⁵¹ Arnold, p. 18.

⁵² *Dominion*, 27 August 1917, p. 8; Author Unknown, 'India and the Colonies', *BMJ*, 2, 752 (1895).

⁵³ John Mildred Creed, *The Australasian Medical Gazette: The Accredited Organ of the Principle Medical Societies in Australia and New Zealand*, Vol VI. (Sydney: L. Bruck Medical Publisher, 1885), pp. 28, 101, 103; A. Garrod, *The Essentials of Materia Medica and Therapeutics* (London: Bradbury, Agnew, 1885), pp. 387.

⁵⁴ Author Unknown, 'Reports and Analyses and Descriptions of New Inventions in Medicine, Surgery, Dietetics, and the Allied Sciences' in *BMJ*, 2, 659 (1879), p. 336.

⁵⁵ William Hale-White, *Materia medica, Pharmacy, Pharmacology and Therapeutics* 5th ed. (Philadelphia: P. Balkistons and Son, 1911), pp. 50-1, 651, 518.

treated five of his own children with a thymol extract prepared in Berlin and made into a preparation named ‘pertussin’.⁵⁶ Domestic healers followed his example, using thymol in the form of patent and proprietary medicines.

The production of thymol required specific scientific equipment and skills, and by the early twentieth century was essentially limited to large drug manufacturers particularly in Germany, who exported to wholesalers and retailers around the world – New Zealand’s chemists and grocers included.⁵⁷ Despite this, domestic healers accepted and adopted the translation of thyme as thymol. However, unlike other medicinal plants they could identify and prepare, thymol was an isolated ingredient and did not feature strongly in domestic medical manuals available in New Zealand. Instead, domestic healers regularly used thymol in patent and proprietary medicines for coughs and colds, toothaches and skin conditions, accepting the conversion and translation of the once-familiar plant.⁵⁸ Newspaper articles provided recipes for antiseptic solutions, including thyme, and chemists advertised patent medicines that contained it.⁵⁹ As evidenced in the advertisements presented below, many manufacturers advertised the fact that thymol was included in their remedies, an indication of the popularity and favourability of the compound.

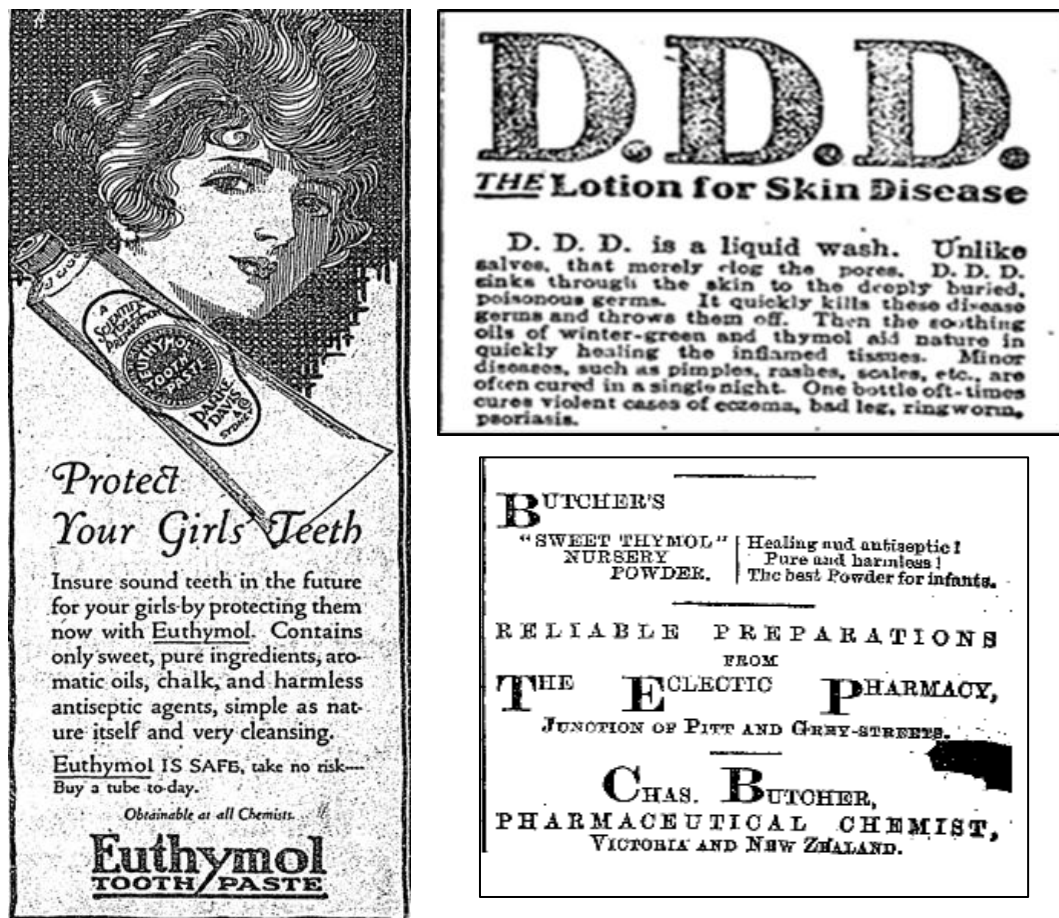
⁵⁶ Dr Fischer, ‘An Epitome of Current Medical Literature’, *BMJ*, 2, 341 (1898), page unknown.

⁵⁷ In 1914, as trade routes were closed due to the outbreak of World War One, the export of ajowan seeds from India to Germany dropped dramatically, prompting the Imperial Institute to explore and develop manufacturing plants in both Britain and India. Grieve, p. 812 By 1921, the State Chemical Works in the Dhar State in India had the capacity to produce five hundred pounds of thymol a year. This was posted around the world in paper-lined tin cases for sixteen rupees a pound. This business, writes a correspondent from the *Chemist and Druggist of Australasia*, was an industry arising directly from the War. Thymol from India’, *CDA*, edn unknown (1921), p. 118

⁵⁸ British Medical Association, *Secret Remedies What They Cost and What they Contain: Based on an Analysis Made for the British Medical Association* (London: British Medical Association, 1909), p. 19; *Waitemata and Kaipara Gazette (WKG)*, 24 May 1911; *Auckland Star (AS)*, 29 September 1881, p. 2.

⁵⁹ *ODT*, 26 September 1903, p. 14; *New Zealand Herald, (NZH)* 4 October 1879, p. 1; *Observer*, 12 May 1883, p.118; *Evening Post (EP)*, 22 March 1893, p. 3.

Figure 6.3: Advertisements for patent medicines containing thymol.



Source: *Free Lance*, 7 July 1920, p. 33; *Kai Tiaki: The Journal of the Nurses of New Zealand*, April 1926, p. 90; *ODT*, 15 June 1920, p. 6

Herbalists appeared to be the only healers that continued to advocate the use of *Thymus vulgaris* as a whole plant and resisted the translation of the plant into an isolated constituent. James Neil maintained, 'The warm infusion [of thyme] will bring out perspiration'.⁶⁰ It is also an agreeable and excellent remedy for children, wrote Neil, useful in treating coughs, asthma, bronchitis, whooping cough and gout. Neil also recommended the essential oil for toothache.⁶¹ Like other plants in their repertoire, herbalists maintained the interpretation of thyme as a safe and effective remedy.

⁶⁰ James Neil, *The New Zealand Family Herb Doctor: A Guide to Recipes and Herbal Remedies* (First published in 1891) (Twickenham: Tiger Books International, 1998), p. 83

⁶¹ Neil, p. 83.

Given its attributed value as a remedy for coughs and pulmonary conditions, the promotion of thyme increased during the 1918 influenza epidemic. In 1918, an article in the *Colonist* recommended thyme as an excellent gargle for sore throats, one that will ‘greatly reduce the risk of infection by any influenza’.⁶² Inhalants that contained thymol were sold at chemists, and by 1931 the New Zealand Department of Health were recommending a solution of thymol and glycerine to contain influenza.⁶³ By the late 1930s, however, with the advent of antibiotics and synthetic drugs such as sulphur derivatives, the use of thymol as an ingredient in patent medicines declined considerably. During the 1920s, hundreds of advertisements for patent remedies that included thymol appeared in New Zealand newspapers. In contrast, between 1930 and 1940, in the eighty-four newspapers digitised by Papers Past, only two published advertisements for remedies with thymol, these ads appearing only twice.⁶⁴

Meanwhile, thyme continued to be mentioned in gardening guides and recipes.⁶⁵ Indeed, by the 1930s, the botanical and culinary interpretations of thyme became the dominant translations, and the plant that had prompted the industry of one of the nineteenth century’s most popular antiseptics became largely relegated to gardens and kitchens. Modern herbalists have resurrected thyme as an effective herbal remedy for coughs and colds, and many maintain that thyme is a safe herb, a claim highly contested in relation to the next plant, *Aconitum napellus*.⁶⁶

⁶² *Colonist*, 18 November 1918, p. 2; *Akaroa Mail and Banks Peninsula Advertiser (AMBP)*, 11 September 1931, p. 2.

⁶³ *Thames Star (TS)*, 30 October 1918, p. 2.

⁶⁴ For examples see; *AS*, 1 September 1931, p. 18; *EP*, 20 July 1938, p. 3; *King Country Chronicle (KCC)* 13 January 1920, p. 2; *Observer*, 24 January 1920, p. 29; *NZH*, 9 February 1920, p. 7; *AS*, 11 July 1925, p. 24.

⁶⁵ *AS*, 3 January 1920, p. 16.

⁶⁶ Fisher and Painter, p. 149.

Poison or Medicine?: Monkshood, Aconitum napellus

The symptoms that follow those that doe eat of these deadly Herbs are these; their lipps and tongue swell forthwith, their eyes hang out, their thighs are stiffe, and their wits are taken from them ... [sic].⁶⁷

Unlike thyme or thymol, which came with few warnings relating to its use, monkshood (*Aconitum napellus*) was a plant that had always been prescribed with caution and prompted contrary reviews relating to its use as a medicine and danger as a poison. The warnings above, written by sixteenth-century herbalist John Gerard, indicate the severe toxicity of the plant, which by the time of Gerard's herbal, was a popular and widely planted garden variety.⁶⁸ The only virtues Gerard ascribes to the plant include its effectiveness as a poison, the antidote to which purportedly includes flies and mice who have previously consumed the plant.⁶⁹

Nearly a century later, Nicholas Culpeper was equally cautious, stating that the plant is not well regarded although the shoot is 'serviceable against vegetable poisons' and the root makes an excellent wash with which to treat bites by venomous creatures.⁷⁰ *Aconitum*, according to modern medical botanists Walter Lewis and Memory Elvin-Lewis, was once fed to prisoners as a fatal punishment.⁷¹ By the nineteenth century, the plant, while still considered highly poisonous, was used by physicians, herbalists, homeopaths and domestic healers, practitioners who employed the plant with relative aplomb, relying on scientific understandings that reflected greater control over nature and her potentially poisonous properties.

According to George Mantell, writing for the *Association Medical Journal* in 1856, Dr Stoerck was the first to administer *Aconitum* internally as a medicine in

⁶⁷ Woodward, p. 231.

⁶⁸ Indeed, one common name for monkshood is 'wolfsbane', a term derived from the idea that arrows tipped in an extract of the plant were used to kill wolves. Grieve, p. 7.

⁶⁹ Woodward, p. 232.

⁷⁰ Culpeper, p. 13.

⁷¹ Walter Lewis and Memory Elvin-Lewis, *Medical Botany: Plants Effecting Man's Health* (New York: John Wiley and Sons, 1977), p. 30.

1762.⁷² Around the same time, German chemist and pharmacist Phillip Lorenz Geiger was exploring the isolation of the alkaloid aconitine.⁷³ Unlike thymol, the use of aconitine never replaced the use of the whole plant and in 1867, the alkaloid appeared in the *British Pharmacopeia (BP)* alongside preparations for both the leaves and root.⁷⁴ By this time, the main collecting sites for aconite for European drug manufacturers included the Swiss Alps, Salzburg, North Tyrol and Vorarlberg.⁷⁵ Germany was also an important supplier, as were Spain and Japan. Given the variations and extreme toxicity of the plant, the 1867 *BP* specified that only aconite grown in Britain should be included in its preparations. Instructions stress that the root be collected in autumn from dried full-grown ‘daughter’ roots.⁷⁶

By this time, the alkaloid aconitine, was under close scrutiny by the medical profession in Britain. In 1864 Dr Garrod, lecturer at the Royal College of Physicians in London, maintained that the plant was not appropriate for internal use but was unsurpassed as an external remedy for neuralgia.⁷⁷ It is an intense poison, stressed Garrod, and one-fifth of a grain is enough to destroy a large dog. When taken internally, the nervous system is attacked first and then by paralysis of sensation, the heart starts to slow down. Dissolving eight grains of aconitia – the name given to aconitine in 1867 – in half fluid drachm (one eighth of a fluid ounce) of rectified spirit and mixing it with an ounce of lard is, according to Garrod, an elegant, safe and clean preparation.

Meanwhile, aconite, like thyme, was also in use in other medical cultures. Indian and Chinese doctors most commonly sold and used it to treat fever, rheumatism,

⁷² Author Unknown, ‘Internal Uses of Aconite’, *Association Medical Journal (Assoc Med J)* 4, 162 (1856), pp. 113–114

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2439442/?tool=pmcentrez&report=abstract> [accessed February 27 2014]. In fact, aconitum has been used as an internal medicine for centuries by Chinese and Indian healers. Chopra, pp. 52-61.

⁷³ Porter, p. 334.

⁷⁴ Indeed, by 1911, the British Pharmaceutical Codex regarded the medical uses and toxicity of aconite root or leaves to be virtually identical to that of purified acinitine. Author Unknown, ‘British Pharmaceutical Codex’, *BMJ*, 30, 2 (1954), p. 1044.

⁷⁵ Grieve, p. 7.

⁷⁶ *British Pharmacopeia Published Under the Direction of the General Council of Medical Registration and Education of the United Kingdom Pursuant to the Medical Act, 1867* (London: Spottiswoode and Co, 1867), p. 24-5.

⁷⁷ ‘Dr Garrod’s Lectures on the British Pharmacopoeia’, *BMJ*, 1, 162 (1864), pp. 154-157.

coughs, asthma and snakebites.⁷⁸ In India, aconite sold at the local market went through a process of detoxification or mitigation, which consisted of soaking the plant's roots in cow's urine for three days or prolonged boiling for forty-eight hours. The commercial production of aconite for western markets omitted this process. Instead, processing the plant involved chemical assay, which produced variations and inconsistencies due to the pharmacological action of various species varying markedly.⁷⁹

Not surprisingly, determining a correct and safe dosage for aconite fuelled constant debate and revision in western medical literature. Different pharmacopeia listed different dosages and concentrations, and clinical experiments appeared to yield inconsistent results.⁸⁰ For example, Garrod compared aconite tinctures from the *BP* and the *London Pharmacopeia*; the latter he considers too strong for internal use and too weak for external application.⁸¹ Boldly, the 1864 *BP* included an external preparation called Liniment of Aconite, which has eight times the strength of the London tincture. Further complicating the use of aconitine was variability in strength and purity in commercial productions. In 1882, William Murrell, writing for the *British Medical Journal (BMJ)* relayed a study by Professor Pliige of Gröningen, who assayed seven types of commercial aconite, all of which differed in strength.⁸² Murrell acknowledges a general impression that aconite is rarely prescribed for internal use by European doctors but includes results from favourable trials and notes that demand for the compound appears steady.

Through the late nineteenth century the use of aconite increased as did its concentrations. Aconite preparations in the 1914 *BP* were double the strength of those in the 1898 edition and, as experiments and trials continued, confidence in the plant's applications increased.⁸³ This confidence grew with greater understandings of physiology and more refined techniques in pharmacology.

⁷⁸ Chopra, pp. 52-61.

⁷⁹ Chopra, pp. 58-9.

⁸⁰ William Murrell, 'Aconite and Aconitia', *BMJ*, 1, 111 (1882), pp. 555-556; Author Unknown, 'Poisoning by aconitum napellus', *BMJ*, 1, 14 (1861), pp. 360-361.

⁸¹ Garrod, pp. 154-157.

⁸² Murrell, pp. 555-556.

⁸³ Grieve, p. 9

Testing the plant on animals proved to be the most reliable and consistent method used to determine toxicity.⁸⁴ However, frequent and regular reports of poisonings fuelled debate and demanded another form of assessment for which to determine safe use. As a consequence, regular practitioners supplemented scientific evidence with relatively informal anecdotal information.

Instances of aconite poisoning were common and frequently appeared in medical journals and newspapers in New Zealand.⁸⁵ During the second half of the nineteenth century, few regulations surrounded the prescribing of addictive or poisonous substances. In New Zealand, the Sale of Poisons Act (1866), which exempted the medical profession, controlled the sale and transport of poisons, including aconite. The Act made it illegal for anyone under seventeen to buy certain poisons, ensured that poisons were labelled appropriately, and required sellers to create a register and keep track of those who bought and sold arsenic, strychnine or aconite.⁸⁶ Further acts controlled the adulteration of food and drugs.⁸⁷ However, the manufacture, standardisation and quality control of drugs in New Zealand remained largely unregulated throughout the nineteenth century.

In New Zealand, aconite was used as an anodyne, diuretic and diaphoretic. It was also recommended as a veterinary medicine.⁸⁸ In 1880, Thomas Kirk included aconite in a list of medicinal plants to be cultivated in New Zealand, stating that as aconite was only used in small amounts, the cultivation of the plant was best suited to cottage gardens.⁸⁹ Samuel Walker, surgeon and Medical Attendant to Natives, found that aconite successfully treated skin conditions and in 1885, New

⁸⁴ Grieve, p. 8; Chopra, p. 59.

⁸⁵ Examples include; 'Death from Aconite: Inquest', *Provincial Medical Surgical Journal*, 9, 34 (1845), pp. 535–536.
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2558880/?tool=pmcentrez&report=abstract> [accessed March 4 2014]; *Manawatu Standard (MS)* 2 July 1901, p. 2; *NZH*, 18 June 1897, p. 5; *TS*, 12 December 1913, p. 5; *WH*, 17 January 1902, p. 3; *Marlborough Express (ME)* 13 April 1889, p. 2.

⁸⁶ 'An Act to Regulate the Sale and Keeping of Certain Poisons', *Supplement to the New Zealand Gazette* (1866); *NENZC*, 6 January 1872, p. 7.

⁸⁷ *Statutes of New Zealand*, 1866, No. 55, An Act to Prevent the Adulteration of Articles of Food or Drink,
http://www.nzlii.org/nz/legis/hist_act/aofa186630v1866n55324/ [accessed February 28 2014].

⁸⁸ *DSC*, 26 July 1870, p. 4; *Akaroa Mail and Banks Peninsula Advertiser (AMBPA)*, 21 September 1923, p. 2.

⁸⁹ Colonial Industries Commission, 'Evidence of Mr Thomas Kirk: Economic Plants', *AJHR* (1880), H-22, p. 44.

Zealand chemist Graves Aicken included aconite in his *Aicken's Annual: A Domestic Guide to the Employment of Familiar Remedies with Hints upon Hygiene and Sanitation*.⁹⁰ In Hale-White's text for New Zealand medical students, aconite is mentioned often, its actions on the circulatory system and respiratory system well defined, and its applications in cases of children's ailments included.⁹¹ Midwives in New Zealand employed aconite as a painkiller and it was commonly used in homeopathic form, particularly for children's ailments.⁹² Indeed, the homeopathic preparation of aconite appeared to be the most popular form in which aconite was recommended in the colony.

Figure 6:4: Advertisements for patent remedies containing aconite

<p style="text-align: center;">Medical.</p> <p>H. SEELENMEYER HOMŒOPATHIC CHEMIST AND MEDICAL BOOKSELLER, 110 SWANSTON STREET, MELBOURNE.</p> <p>Homœopathic Tinctures, Pilules, Triturations, Globules—Wholesale and Retail.</p> <p>Liberal Allowances to those who use Largely. Terms on Application.</p> <p>ORDERS BY POST PROMPTLY ATTENDED TO.</p> <p>Medicine Chests, in variety from 11s. Prescriptions Accurately Dispensed.</p> <p>The following list of the remedies most commonly required in the colonies, with their uses, will be found helpful to those about to adopt the Homœopathic Treatment:—</p> <p>Aconite.—Feverishness, inflammation, cold (invasive stage), rheumatism, lumbago, neuralgia.</p> <p>Antimonium Tart.—Bronchitis, croup, cough with much wheezing and difficult expulsion of mucous.</p> <p>Arnica. M.—injuries from fall or blows, concussions, physical fatigue, muscular rheumatism.</p>	<p>“NORRIS' INDIGESTION SYRUP” gives immediate relief in Indigestion. The testimonials show there is nothing of the kind to equal it—2s 6d per bottle. Aconite and Bryonia should be in every house for Inflammations, Colds, Pleurisy, Rheumatism; also, Belladonna for Headaches, Neuralgia, Erysipelas, and Chamomilla for Children Teething. NORRIS' HOMŒOPATHIC DISPENSARY, 29 Thames street. dr22</p>
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Source: NZH, 4 February 1881, p. 6 ; ODT, 10 November 1874, p. 3

Converting aconite into a homeopathic remedy involved the use of only minute amounts of plant material, making it seem safer than the tincture form prescribed by regular physicians. *Brett's Colonist's Guide* recommends homeopathic aconite

⁹⁰ Graves Aicken, *Aicken's Annual: A Domestic Guide to the Employment of Familiar Remedies with Hints upon Hygiene and Sanitation and Various Statistical Information more Especially upon the Colony of New Zealand and Australia* (Auckland: Published at Pharmacy Street, 1885), pp. 27-99; Samuel Walker, 'Sanitary Report on Natives of Taupo District', *AJHR* (1878), 1, G-08, pp. 1-2.

⁹¹ Hale-White, pp. 62, 65, 76, 100, 101, 420, 439, 440.

⁹² NZH, 4 February 1881, p. 6 ; ODT, 10 November 1874, p. 3.

for chicken pox, measles and croup, and advertisements for homeopathic aconite, such as those shown in *Figure 6:4*, appeared in newspapers throughout New Zealand.⁹³ Herbalists, in contrast, largely rejected aconite as a medicine, classifying it as a heroic treatment provided by regular physicians. As discussed in Chapter Four, herbalists promoted their remedies as safe, as a means of distinguishing their use of plants from that of other practitioners. This involved rejecting inorganic drugs and the so-called heroic remedies such as aconite. Indeed, James Neil describes aconite as a powerful poison; nevertheless he recommends it in moderate doses for rheumatic neuralgia.⁹⁴ He includes the plant in a section on medicines used by regular physicians, a list designed to inform readers of the drugs they are commonly prescribed. Australian herbalist John Broadbent includes aconite in his product list but omits it from any prescriptions in his manual.⁹⁵

Domestic healers, in keeping with their strategies of combining different approaches and applications, appeared to use the homeopathic preparation as well as the tincture form. Articles in New Zealand newspapers, including the *Daily Southern Cross*, the *Colonist* and the *New Zealand Herald*, published home treatments that contained aconite tincture for a number of ailments, including delirium tremens, croup, colds, biliousness and chilblains.⁹⁶ Tincture of aconite also appeared in toothpaste as well as various patent and proprietary medicines.⁹⁷

Given its ubiquity and toxicity, it is perhaps not surprising that between 1880 and 1920, the majority of aconite-related articles published in New Zealand newspapers described poisoning cases, including descriptions of murders and suicides involving the drug.⁹⁸ Despite this and continued concern over

⁹³ Thomas Leys (ed.), *Brett's Colonists' Guide and Cyclopaedia of Useful Knowledge: Being a Compendium of information by Practical Colonists upon ...* (Auckland: H. Brett, 1897), pp. 469, 472; *EP*, 8 June 1878, p. 4; *North Otago Times (NOT)*, 27 January 1897, p. 4.

⁹⁴ Neil, p. 155.

⁹⁵ John Broadbent, *The Australian Botanic Guide, Being a Family Handbook of Botanic Treatment* 2nd ed. (Melbourne: Centennial Printing and Publishing, c. 1880), p. 190.

⁹⁶ *DSC*, 19 April 1876, p. 1; *NZH*, 9 August 1876, p. 3; *EP*, 10 April 1886, p. 2; *BH*, 19 March 1897, p. 4. *NZH*, 29 January 1910, p. 8.

⁹⁷ Author Unknown, 'Tincture of Aconite in Toothache', *Provincial Medical Surgical Journal (PMSJ)*, 10, 23 (1846), p. 272.

⁹⁸ *MS*, 2 July 1901; *WH*, 24 January 1902; *TS*, 12 December 1913, p. 5; *ME*, 3 July 1901, p. 2; *West Coast Times (WCT)*, 8 June 1901; *MS*, 8 June 1901, p. 3.

inconsistencies in preparations and concentrations, the medicinal use of aconite continued. In 1911, Hale-White's textbook reminds readers that Fleming's tincture of aconite, available in New Zealand shops, is twice as strong as 'official' (presumably *BP*-recommended) forms.⁹⁹ Indeed, although the medicinal use of the plant increased, it remained in a clinical space between remedy and poison. This largely reflected the fact that the testing of drugs and other medicinal compounds in New Zealand remained haphazard and unlegislated until the 1930s.¹⁰⁰

In Britain and Europe during this period, testing medicinal compounds involved experiments on animals, a practice that sparked debate and controversy. In 1914, tests on frogs, rabbits and guinea pigs were included in the *BP*, a practice that did not occur without protest. According to academic Keith Williams, one of the reasons Germany dominated the market in drug manufacturing during the nineteenth and early twentieth centuries was England's strong anti-vivisection movement and existing laws.¹⁰¹ By 1927, a correspondent for the *Australian Journal of Pharmacy* suggested that anyone in Australia or New Zealand with a vested interest in pharmacy should be aware of the pharmacological testing that is being undertaken at the request of the British Parliament.¹⁰² While Britain's plans to pass a law to regulate vaccines, antitoxin and other bacteriological agents like insulin, had yet to come into effect, preliminary testing was being undertaken by pharmacological laboratories.

In New Zealand, in the corresponding period and until the 1930s, no laws existed to prevent the sale of unstandardised medicines, and appeals were made to the Legislative Council to enforce some form of regulation around the sale of patent

⁹⁹ Hale-White, p. 437.

¹⁰⁰ By the 1930s, herbalist Maude Grieve wrote that aconite ranks as one of 'our most useful drugs'. Grieve, p. 9. As a consequence poisoning cases continued. *Hawera & Normanby Star (HNS)*, 15 March 1923, p. 7; *EP*, 19 February 1921, p. 9; *AS*, 19 February 1921, p. 12.

¹⁰¹ Keith John Williams, *British Pharmaceutical Industry, Synthetic Drug Manufacture and the Clinical Testing of Novel Drugs, 1895-1939*, unpublished PhD Thesis, (University of Manchester, 2005).

¹⁰² Author Unknown, 'Title Unknown', *Australian Journal of Pharmacy*, March 21 (1927), page unknown.

and proprietary medicines.¹⁰³ While analysts were employed during inquest enquiries, patients and consumers were largely unprotected when it came to potentially poisonous compounds such as aconite. Indeed, western physicians are still exploring ways of detoxifying the plant, a science mastered by eastern physicians centuries earlier.¹⁰⁴

Despite its reputation as a poison, aconite was considered a useful and effective pain killer, an important application that arguably justified its continued use in the face of obvious challenges. Doctors aimed to mitigate the risk associated with aconite by elucidating and describing its pharmaceutical properties in relation to physiological processes and making concerted efforts to determine dosage and standardisation. Herbalists acknowledged the medicinal properties of aconite, but chose not to use the plant while domestic healers made the use of aconite suitable to their practices by using only minute amounts in homeopathic tinctures. In their own ways, doctors and domestic healers translated the plant into an effective medicine, conveniently overlooking the numerous cases of poisonings and creating a place for it in colonial medical culture.

Conclusion

In the late nineteenth century, the translation of certain medicinal plants into isolated pharmaceutical constituents relied on both technical developments and the support and promotion by different healers. This 'scientific translation' existed alongside other interpretations and meanings. This chapter has considered the influence, acceptance or rejection of this translation, and has explored the avenues through which healers shared and exchanged information that corroborated or resisted the scientific analysis and application of medicinal plants. It identified

¹⁰³ Author Unknown, 'Quack Medicine Control', *The Pharmaceutical Journal of New Zealand*, Sep, 1, (1939), pp. 29-30.

¹⁰⁴ T. Y. Chan, 'Aconite Poisoning', *Clinical Toxicology*, 47, 4 (2009), pp. 279-85, doi: 10.1080/15563650902904407, [accessed April 23 2014]; American Association for Clinical Chemistry, 'Monkshood', <https://www.aacc.org/members/divisions/tdm/library/Pages/feb09-toxin.aspx#>, [accessed April 23 2014].

broad developments in pharmaceutical science and medical theory that promoted the conversion of plants into isolated pharmaceutical constituents.

Pharmacists and biochemists assisted in the process of reducing plants to isolated active constituents, seemingly specific to particular ailments. For *Thymus vulgaris*, the isolation of its active constituent, thymol, largely signalled the end of its role in western medical culture. The biochemical analysis of thyme translated the indigenous Indian use of the plant into western scientific terms. It led drug manufacturers to abandon *Thymus vulgaris* as the primary source of thymol, and made thymol, as opposed to thyme, the focus.

The conversion of thyme into thymol was supported by domestic healers, who used the constituent as an ingredient in patent remedies. Manufacturers of patent and proprietary medicines marketed the constituent as a domestic remedy. Doctors equally supported this translation. Encouraged by the popularity of germ theory and the use of thymol as an antiseptic, they created ways of using the constituent in ways that would support and distinguish their practices from others. Journals such as the *BMJ* advertised products with thymol targeted at doctors and articles compared it favourably to the popular but seemingly out-dated carbolic acid.

In the case of *Aconitum napellus*, the isolation of its alkaloid, aconite, did little to help the challenge presented by the plant's extreme toxicity. While chemists worked hard to isolate and understand the constituents of aconite, the variability of the plant proved difficult to manage.¹⁰⁵ Indian healers had found ways of mitigating the plant's toxicity, but their use of bovine urine to detoxify the plant presumably did not appeal to western physicians. Instead, western doctors relied on inconsistent trials with humans and animals, often with fatal consequences, and took note of reported cases of poisoning, combining informal knowledge with

¹⁰⁵ Grieve, p. 9. Indeed, although the isolation and investigation of plant alkaloids and organic products was well under way by the late nineteenth century, particularly in European laboratories, it was not until the 1930s, that these developments resulted in better health care and mitigation and treatment of disease. Enrique Ravina and Hugo Kubinyi (eds), *The Evolution of Drug Discovery: From Traditional Medicines to Modern Drugs* (Weinheim: WILEY-VCH verlag GmBH, 2011), pp. 15-16.

formal investigations. The use of homeopathic aconite afforded one way to safely use the plant and was recommended to domestic healers in newspapers, and to intending emigrants in colonist's guides. Few physicians rejected this use, despite the growing resentment of homeopaths and so-called alternative practitioners. Prior to this, the absence of regulations, standardisation and controls meant that the plant often proved as dangerous as it was beneficial.

Conclusion

In 1786, British botanist Joseph Banks prepared a collection of plants to accompany the First Fleet to Australia.¹ The collection included rhubarb, a common and popular plant used by European healers for the treatment of biliousness and constipation.² By 1828, rhubarb was cultivated in the Botanic Garden at Sydney.³ In 1839, *Tegg's Handbook for Emigrants*, a popular guide with New Zealand colonists, provided instructions for the preparation and application of rhubarb and recommended emigrants include it in their travelling medical chests. By 1867, rhubarb appeared in the *British Pharmacopeia* eight times – New Zealand doctors reading this were advised to macerate and percolate the plant before applying.⁴ Around the same time, Elizabeth Jane brought medical receipts from England to New Zealand that included rhubarb, while on the Canterbury plains, Frances Caverhill used the popular patent medicine, Gregory's Mixture, made from rhubarb, magnesium and ginger.⁵ By the 1880s, the New Zealand Government supported trials in Dunedin's Botanic Gardens of medicinal rhubarb.⁶ Meanwhile New Zealand herbalist, James Neil, advised carrying a small piece of the plant, 'which is the same domestic garden plant that everyone knows', in a pocket for a safe and quick remedy for constipation.⁷

¹ Alan Frost, *Sir Joseph Banks and the transfer of plants to and from the Pacific, 1786-1798* (Melbourne: The Colony Press, 1993), p. 32.

² Maude Grieve, *A Modern Herbal: The Medicinal, Culinary, Cosmetic and Economic Properties, Cultivation and Folklore of Herbs, Grasses, Fungi, Shrubs and Trees with all their Modern Scientific Uses*, 3rd ed. (First Published 1931) (London: Tiger Books, 1992), pp. 665-667.

³ Royal Botanic Gardens Sydney Special Collection, Series B1, Fraser, Charles, 'List of Esculent Vegetables and Pott Herbs Cultivated in the Botanic Gardens, Sydney, 1827'.

⁴ Thomas Tegg, *Tegg's Handbook for Emigrants: Containing Useful Information and Practical Directions on Domestic, Mechanical, Surgical, Medical and other Subjects Calculated to Increase the Comforts and add to the Conveniences of the Colonist* (London: Thomas Tegg, 1873); *British Pharmacopeia Published Under the Direction of the General Council of Medical Registration and Education of the United Kingdom Pursuant to the Medical Act, 1858* (London: Spottiswoode and Co, 1864) (*BP*, 1864), pp. 365- 366.

⁵ Frances Caverhill, *A Year at Hawkswood: The Diary of Frances Caverhill for 1865*, Volumes I and II (Christchurch: Nag's Head Press, 1981), pp. 47, 60, 69.

⁶ Eric Dunlop, *The Story of the Dunedin Botanic Garden: New Zealand's First* (Dunedin: Friends of the Dunedin Botanic Garden in association with Longacre Press, 2002), p. 148.

⁷ James Neil, *The New Zealand Family Herb Doctor: A Guide to Recipes and Herbal Remedies (First published in 1891)* (Twickenham: Tiger Books International, 1998), p. 55.

The medicinal properties of rhubarb remained the same throughout this period. Yet, as the plant moved through formal and informal networks created through imperialism and colonisation, it was subjected to changing theories, opinions, ideas and different political and economic agendas that produced several various ‘translations’. Individuals with different backgrounds and motivations attributed varying degrees of importance and significance to rhubarb in terms of their own medical practices. They placed different emphasis on particular qualities and properties. Early botanists such as Banks, for example, viewed the plant as a botanical specimen, potentially useful to intending emigrants, while New Zealand doctors saw rhubarb as a collection of pharmaceutical preparations. Domestic healers such Elizabeth Jane and Frances Caverhill considered rhubarb a ‘tried and true’ familiar remedy, a perspective shared by herbalist James Neil.

When we compare the use of specific plants as expressed in ancient texts such as *De Materia Medica* (c.AD50-70) to early twentieth-century medical guides such as the *British Pharmacopeia*, it is apparent that the identified medicinal properties of many plant species do not change significantly over time.⁸ The evolutionary processes, often helped along since the seventeenth century by selective breeding and cultivation, have done little to change the chemical makeup that renders certain plants valuable as medicines. Despite this, their value, role and classification has changed over time in accordance with broader social and cultural factors. This thesis has explored the various translations of plants by individuals, as well as the factors that shaped these interpretations. It has argued that domestic healers, herbalists and doctors in colonial New Zealand all relied on a similar body of botanical and medical knowledge, but negotiated and translated this into familiar terms and accepted frameworks.

⁸ Robert T. Gunther (ed.), *Pedanius Dioscorides: The Greek herbal of Dioscorides...illustrated by a Byzantine, A.D. 512: Englished by John Goodyer, A.D. 1655* (New York: Hafner Publishing, 1959); *British Pharmacopeia Published Under the Direction of the General Council of Medical Registration and Education of the United Kingdom Pursuant to the Medical Act, 1858* (London: Spottiswoode and Co, 1867) (BP 1867); *British Pharmacopeia Published Under the Direction of the General Council of Medical Registration and Education of the United Kingdom Pursuant to the Medical Act, 1858* (London: Spottiswoode and Co, 1885) (BP 1885); Grieve, 1992.

The origins of western medical practice – from the teachings of the Greeks to the practices subsequently defined as ‘quackery’ – initiated a dependence on plant-based medicines that has persisted for centuries. As western medicine expanded and changed in response to social, economic, political and technical developments, the role of medicinal plants in society changed accordingly. Chapter One identified the origins of western medico-botanical knowledge and its introduction and adaptation of this in New Zealand by examining the networks, individuals and institutions which participated in this process. Engaging specifically with environmental historical scholarship, this chapter explored the role of imperialism in the construction of botanical networks, pursuits and knowledge. While the search for ‘economic plants’, including medicinal plants, continued to be a major motivation for international botanical enquiry, physic gardens and botanic gardens assisted the colonisation process.⁹ Colonisation, in turn, supported medical development as the introduction of western medical practices into colonies required greater organisation, and colonial investigations fed back to metropolitan centres, influencing the scope and direction of medical enquiries.¹⁰ As western medical education became increasingly organised, medical botany emerged as a discipline within a set curriculum. By the late nineteenth century, pharmacopeia had replaced herbals in this context, demonstrating a commitment to a version and standardisation of science promoted by scientists, botanists and medical practitioners.

Contributions to Britain’s botanical enquiries made by New Zealand scientists, botanists and physicians relied on establishing a medical and botanical culture – that during the early period of colonial settlement – mimicked that of Britain. For example, the formation of botanical, horticultural societies and agricultural shows created a forum for gardeners to meet and share ideas and reflected the popularity

⁹ Lucile Brockway, *Science and Colonial Expansion: The Role of the British Royal Botanical Gardens* (New Haven: Yale University Press, 2002); Richard Drayton, *Natures Government: Science, Imperial Britain and the ‘Improvement’ of the World* (New Haven: Yale University Press, 2000); Tony Ballantyne, *Webs Of Empire: Locating New Zealand’s Past* (Wellington: Bridget Williams, 2012); Agnes Arber, *Herbals: Their Origin and Evolution*, 2nd edn (Cambridge: Cambridge University Press, 1938).

¹⁰ Roberta Bivins, *Alternative Medicine: A History?* (Oxford: Oxford University Press, 2007); Londa Schiebinger, *Plants and Empire: Colonial Bioprospecting in the Atlantic World* (Cambridge: Harvard University Press, 2007).

of botany and botanising in Europe. These organisations showcased settler ingenuity and supported an often precarious sense of ownership through the transformation of the land and the discourse of productivity. As pointed out by garden historians such as Matthew Bradbury, it also helped to create a sense of familiarity and provided links back to settlers' homelands through the exchange of plants, seeds, and gardening and agricultural advice.¹¹ During the period between 1840 and 1870, as an informal gardening culture was established, a second wave of formal exploration, surveying and mapping, built upon earlier observations and paved the way for a more organised and concerted effort at resource exploitation and procurement.

The 1880s and 1890s brought significant changes to New Zealand's social and political environment.¹² Premier Vogel paved the way for economic progress with the construction of infrastructure, while his successors – including Harry Atkinson and George Grey – managed an economic recession in part precipitated by Vogel's policies. Seven ministries held office through the 1880s but were eventually defeated in 1891 by John Ballance's Liberal Party. The Liberals, who held office for the next twenty-one years, sought labour and industrial reforms. They locked in place legislation that allowed them to purchase around 3.1 million acres of Māori land, and reinvigorated efforts to explore the economic potential of natural resources.¹³ Investigations into industries as part of the expansion of agriculture included the possible propagation and supply of medicinal plants to an ever-growing international pharmaceutical industry. Chapter One tracked the ambitions and goals of colonial botanist Thomas Kirk and his attempts to create an alternative agricultural industry. Constrained by bureaucracy, financial limitations and an overriding focus on pastoral development, Kirk's efforts to commercially cultivate medicinal plants in New Zealand were never realised. In focusing on attempts to create an alternative agricultural industry – a path

¹¹ Matthew Bradbury (ed.), *A History of The Garden in New Zealand* (Auckland: Penguin Books, 1995).

¹² Tom Brooking, 'Bursting-Up the Greatest Estate of All: Liberal Māori Land Policy, 1891-1911', in *The Shaping of History: Essays from The New Zealand Journal of History*, ed. by Judith Binney (Wellington: Bridget Williams Books, 2001), pp. 167-185; Phillipa Mein Smith, *A Concise History of New Zealand* (Cambridge: Cambridge University Press, 2005), pp. 95-123.

¹³ Brooking, pp. 167-185.

eventually not taken – this thesis has contributed to existing research on other possible agricultural endeavours.¹⁴

Despite failed attempts to establish a medicinal plant industry in New Zealand, nurserymen continued to stock medicinal plants well into the twentieth century. These plants were presumably bought and grown by those with knowledge of how to cultivate, prepare and apply them, and is evidence that imperial authorities were not the only ones interested in medicinal plants during this period. Indeed, endeavours in Australia, in particular, greatly influenced private growers in New Zealand. Trans-Tasman trade routes and connections were firmly in place by the early nineteenth century and botanical knowledge as well as plant material flowed freely between the Australasian colonies.¹⁵ The pervasive and persistent use of opium in the nineteenth century attracted entrepreneurs who grew poppies and supplied an ever-increasing medical market. New Zealand growers remained aware of American and Australian attempts and followed their examples, relying on networks of exchange initiated decades earlier.

The movement, cultivation and commodification of plants contributed to peoples' knowledge, accessibility and use of medicinal plants. Just as important were understandings of human anatomy and physiology, and notions of health and wellness. Medicinal plants are a botanically diverse group, classified as medicinal after centuries of experimentation and incorporation into various medical systems. Chapter Two provided an overview of colonial medical culture in New Zealand, and providing important context for an investigation into medicinal plants. It described the inheritance of ideas, theories and practices as well as the adaptation of these by colonists in response to the colonial environment. Although British ideas and practices dictated early medical policy in New Zealand, the influence of

¹⁴ In *Seeds of Empire*, Paul Star and Tom Brooking explore investigations made by scientists, such as Minister of Agriculture, Thomas MacKenzie, into plants other than pastoral, but explain the reasons why pastoral research dominated. These included a ready market in Britain and the desire to secure an even larger lucrative international market. See, Paul Star and Tom Brooking, 'The Farmer, Science and the State in New Zealand', in *Seeds of Empire: The Environmental Transformation of New Zealand*, ed. by Tom Brooking and Eric Pawson (London: I.B. Taurus, 2011), p. 159-178.

¹⁵ Roy MacLeod, 'From Imperial to National Science', in *The Commonwealth of Science: ANZAAS and the Scientific Enterprise in Australasia, 1888-1988*, ed. by Roy MacLeod, (Oxford: Oxford University Press, 1988).

French pharmacological research and American herbalism can also be detected in the culture of colonial medicine.

Colonial propaganda aimed at encouraging intending British emigrants maintained that New Zealand was a country well-suited to European constitutions. Between 1840 and 1870, *laissez-faire* medical policy and initiatives reflected this belief. As a consequence, an eclectic group of healers provided medical care and relied and applied similarly diverse medical theories and practices. According to historian Patrick Wallis, medical practitioners are portrayed by many historians as autonomous, solitary individuals, working in an atomised medical market and loyal to their modalities and beliefs.¹⁶ This image, states Wallis, has obscured the varieties and levels of co-operation, interdependence and networks that existed. Chapter Two highlights these connections and co-operations between healers in colonial New Zealand.

New Zealand chemists and pharmacists connected doctors with domestic healers through the sale of prescription medicines. Herbalists also facilitated this relationship, promoting and advocating domestic medicine while they sought approval from the medical faculty. While in this period most doctors were men, women played an important role as nurses, midwives, philanthropists and domestic healers, fulfilling the need for medical care while they met Victorian gender-defined divisions of labour. This chapter revealed the importance of domestic and colonial medical manuals and pharmacopeia, a discussion picked up in subsequent chapters.

Chapters Three, Four and Five focused on the use of plants by domestic healers, herbalists and doctors respectively. Until recently, historians have largely overlooked domestic healers in New Zealand, presumably due to the scattered and fragmented nature of source material and the difficulty in bringing this together. While many academics recognise the value and importance of their role in the colony, few have ventured beyond brief references to their contributions. Chapter

¹⁶ Patrick Wallis, *Competition and Cooperation in the Early Modern Medical Economy in Medicine and the Market in England and Its Colonies, c. 1450-c. 1850* (Houndmills: Palgrave Macmillan, 2007), pp. 47-69.

Three proposed a theoretical ‘domestic medical curriculum’ that highlighted the influences and construction of domestic medical care in colonial New Zealand. It acknowledged the wide range of material referred to by domestic healers and the changes to women’s lives that made the boundaries and scope of domestic health expand.

New Zealand’s early herbalists are another group of practitioners under-recognised in historical scholarship. The most prominent herbal system in nineteenth-century New Zealand was Thomsonianism, created by American herbalist Samuel Thomson. The movement and popularity of this system in parts of Britain and New Zealand highlighted the influence of American settler medicine. Meanwhile, New Zealand doctors also used plants investigated and prepared by European drug manufacturers while they experimented with native medicinal plants, translating these into familiar western scientific frameworks.

While these chapters define and distinguish three types of healers, they clearly demonstrate knowledge and practices common to all. These commonalities are evidence of the movement, exchange and translation of medico-botanical knowledge, common themes that run throughout this thesis. As discussed in the Introduction, the transfer and exchange of ideas and practices occurred through numerous pathways and involved networks beyond New Zealand and the British Empire. Between 1840 and 1880, the use of plants by domestic healers and the construction of the ‘domestic medical curriculum’ relied heavily on colonial handbooks as well as personal collections of medical receipts. We may also presume that a significant amount of knowledge passed orally between healers during this period, as settlers adjusted and adapted their skills in response to the colonial environment. Indeed, when discussing my research with others, I am often told of ‘Grandmother’s remedies’, but unfortunately, given the challenges associated with referencing and dating this material, collecting and analysing this information is beyond the scope of this research.

Early published sources of medical information available in the New Zealand, such as domestic medical manuals and handbooks, were typically written overseas and largely reflective of expectations of colonial life rather than its reality. The

portrayal of New Zealand as a healthy country free from disease and poverty, for example, successfully encouraged emigrants to the colony but, as noted by the author, ‘Hopeful’ below, soon proved incorrect.¹⁷

Yes, indeed, I must own to having been one of those misguided and foolish people so amusingly described in an article on Colonial life, in the “Daily News”, of October 30th, 1886, to which article I allude elsewhere. Like the lady mentioned in that paper, I also firmly believed in “the sunny south as the land of promise, the land of plenty, and the land of hope;” but how different were the real facts!¹⁸

Private unpublished collections of medical receipts were also brought to New Zealand. These were soon adapted to include experiences in the colony. They are a valuable source of information, often providing recipes and details, and revealing a system of assessment that reflected notions of class and legitimacy. Many colonial collections include references to the source of the information. Doctors are frequently cited and many receipts and recipes are collected and exchanged between middle-to-upper-class women.

By the 1880s, a number of women’s charitable organisations became increasingly visible, creating a number of forums through which medical care was exchanged, constructed and provided. A proliferation of British and American domestic medical manuals were also published during this period, many of which were written by male doctors who recommended treatments and medicine not unlike those they provided themselves. In the last decades of the nineteenth century, the activities of women’s organisations, years of experience in colony and a wide body of published medical material, constituted a ‘domestic curriculum’, that, I argue, defied any definition of formal, informal, scientific or folk. The eclectic nature of this knowledge and the acceptance by domestic healers of a wide range of medical theories and practices, distinguished their care from herbalists and

¹⁷ G. B Earp, *Handbook for Intending Emigrants to the South Settlements of New Zealand*, facsimile ed., (Christchurch: Kiwi Publishers, 1998); John Hill Burton, *The Emigrants Manual, New Zealand, Cape of Good Hope and Port Natal*, (1851); Author Unknown, *All About New Zealand: Being a Complete Record of Colonial Life*, Facsimile ed., (Christchurch: Kiwi Publishers, 1996).

¹⁸ Hopeful, *Taken In* (Reprint ed.), (Christchurch: Capper Press, 1974), p. ix.

doctors, who were comparably more restrained in their approach to medicine and medical care.

While domestic healers used plants based on a wide range of both local experience and international research, New Zealand herbalists remained relatively loyal to one primary source and mentor. Evidence suggests that Thomsonianism was the most popular system of herbal medicine in nineteenth-century New Zealand. The influence of Samuel Thomson is arguably best explained as a reaction to the increased organisation and specialisation of medicine. In New Zealand, herbalism was at its height of popularity in the 1880s, a period described by James Belich as one in which a set of social and moral standards were enforced through so-called ‘moral evangelising’.¹⁹ The acceptance of herbalism is indicative of a medical culture still diverse in practice and organisation, and a society that was establishing new standards of class and status and in the process challenging the role of doctors.

Chapter Four explored the process with which herbal medicine was defined a distinct body of knowledge and medical practice. From the sixteenth century, a number of western physicians defined themselves as herbalists as opposed to doctors or physicians, choosing to focus on one aspect of medical care – the use of medicinal plants. This practice became increasingly popular due to the commodification of medicine, the cost of which put it beyond the pockets of most. Prominent herbalists such as Nicholas Culpeper rejected the growing elitism of Britain’s medical faculty, ultimately placing herbalism in opposition to medical guilds and organisations.²⁰ Centuries later, American herbalist Samuel Thomson promoted and presented a seemingly novel system of herbalism, in the process resurrecting the political bandwagon advocated by Culpeper.²¹ Assisting

¹⁹ James Belich, *Paradise Reforged, A History of the New Zealanders from the 1880s to the Year 2000* (Auckland: The Penguin Press, 2001), pp. 121-146.

²⁰ Benjamin Woolley, *The Herbalist: Nicholas Culpeper and the Fight for Medical Freedom* (London: Harper Collins Publishers, 2004); Benjamin Woolley, *Heal Thyself: Nicholas Culpeper and the Seventeenth-Century Struggle to Bring Medicine to the People* (London: Harper Collins, 2004).

²¹ Samuel Thomson, ‘New Guide to Health; Or Botanic Family Physician. Containing a Complete System of Practice on a Plan Entirely New: With a Description of the Vegetables Made Use of and Directions for Preparing and Administering them to Cure Diseases to Which is Prefixed, A Narrative of the Life and Medical Discoveries of the Author’, originally published by J. Q. Adams Printer, Boston, 1835’, *Bulletin of the Lloyd Library of Botany, Pharmacy and Materia Medica*, 11,

Thomson's ambitions and the spread of his system were well established trade routes, newly developed colonies such New Zealand where demand for his approach existed, and a sense of social and political unrest in both America and Britain. Thomsonians also successfully used networks established by radical activists from the British labouring class to move plants, practices and associated propaganda.

Meanwhile, New Zealand doctors relied on comparatively more organised networks to transfer and exchange medico-botanical knowledge. By the nineteenth century, various western pharmacopeia provided the accepted standards for doctors and chemists on the species, preparation and application of medicinal plants.²² The development of pharmacopeia relied on co-operation among scientists, pharmacists, doctors, botanists and governing bodies, such as the British Medical Council, and reflected a common goal to define and promote science as the epitome of authority. As such, an emphasis was placed on the translation of seemingly non-scientific work into scientific work. Doctors relied predominantly on sanctioned texts such as pharmacopeia and authorised medical journals, which became the dominant forums for the publication of their research. This effectively guarded their work and helped to create a boundary around their profession, one also supported by codes of ethics and memberships to associations. While New Zealand doctors performed their own sorts of 'colonial clinical trails' with plants, much of this research was presented to the medical faculty only, through formal publications such as the *London Medical Gazette*.²³

7 (1909), pp. 3-64; *The Thomsonian Botanical Watchman*, 1, 1 (1834), p. 1, <http://archive.org/stream/thomsonianbotani00alba#page/4/mode/2up>, [accessed October 8 2013].

²² *British Pharmacopeia Published Under the Direction of the General Council of Medical Registration and Education of the United Kingdom Pursuant to the Medical Act, 1858* (London: Spottiswoode and Co, 1864); *British Pharmacopeia Published Under the Direction of the General Council of Medical Registration and Education of the United Kingdom Pursuant to the Medical Act, 1858* (London: Spottiswoode and Co, 1867); *British Pharmacopeia Published Under the Direction of the General Council of Medical Registration and Education of the United Kingdom Pursuant to the Medical Act, 1858* (London: Spottiswoode and Co, 1885).

²³ For example Dr George Bennett of Sydney purportedly wrote the first account of native New Zealand plants in contemporary medical literature, publishing an article on tutu (*Coriaria arborea*) in the *London Medical Gazette* in 1831. In 1885, the *Australasian Medical Gazette* published an article submitted by Monckton on the virtues and properties of Phormium tenax. S. Brooker, R. Cambie and R. Cooper, *New Zealand Medicinal Plants: A Handbook of the Auckland War Memorial Museum* (Auckland: Unity Press, 1962), p.5; *Evening Post*, 7 February, 1885, p. 2.

As well as investigating the routes and networks through which plants and information were exchanged, this thesis has explored the notion of translation.²⁴ Exploring translation does not dispute the fact that nineteenth- and early-twentieth-century domestic healers, herbalists and doctors used similar plants in similar ways. Rather, it suggests that each group interpreted plants through different lenses, assigning greater or lesser importance to the broader developments and trends that directed the cultivation, access, processing and application of medicinal plants. These different interpretations or translations contributed to the notion of a clearly demarcated medical culture. However, as this thesis reveals, different translations co-existed and often supported and legitimised the other.

Domestic healers, doctors, herbalists and botanists recognised familiar introduced medicinal species in the colonial environment and each interpreted the presence of such plants differently. Domestic healers ascertained their usefulness and chose their species according to need. For example, the frequency of skin complaints made plantain and marshmallow popular species.²⁵ Used to maintain and promote health, rhubarb remained a stock standard in domestic medical chests, as livelihoods and indeed life depended on keeping well.²⁶ Domestic healers appreciated naturalised medicinal species, using them to supplement imported or unavailable medicines, while herbalists such as James Neil viewed wild medicinal

²⁴ Exploring the notion of translation does not dispute the fact that nineteenth and early twentieth century domestic healers, herbalists and doctors used plants in much the same way. Rather it suggests each group interpreted their relationship with medicinal plants in different ways. This interpretation or translation, I argue, contributed to the notion of an atomised and clearly demarcated medical culture often portrayed by medical and social historians.

²⁵ Frances Caverhill, *A Year at Hawkswood: The Diary of Frances Caverhill for 1865*, Volumes I and II (Christchurch: Nag's Head Press, 1981), pp. 47, 60, 69; Hocken Library, Dunedin, AG-561-04, 1739-40; AG-561-06; AG-561-07, AG-561-08, Dorothy Harvey Book of Receipts; Maude Grieve, *A Modern Herbal: The Medicinal, Culinary, Cosmetic and Economic Properties, Cultivation and Folklore of Herbs, Grasses, Fungi, Shrubs and Trees with all their Modern Scientific Uses*, 3rd ed. (First Published 1931) (London: Tiger Books, 1992).

²⁶ Thomas Tegg, *Tegg's Handbook for Emigrants: Containing Useful Information and Practical Directions on Domestic, Mechanical, Surgical, Medical and other Subjects Calculated to Increase the Comforts and add to the Conveniences of the Colonist* (London: Thomas Tegg, 1873).

plants as virtuous gifts from God.²⁷ Botanists recognised the economic potential of the plants and noted their easy growing habits and viability.²⁸

Each interpretation or translation affected the way each group related to, and assessed, medicinal plants. Domestic healers viewed plants as multipurpose medicines, accessible, safe and effective. They often used the same plant for various complaints. For example, mustard plasters were used to alleviate and mitigate colds and flus, to bring on perspiration and to treat pulmonary conditions.²⁹ Women were undeniably assigned to the domestic sphere during the eighteenth and nineteenth centuries, as evidenced by domestic manuals and popular notions of etiquette, such as that prescribed by Isabella Beeton.³⁰ However, the use of plants by domestic healers during this period was not perceived as a gendered occupation. William Buchan's *Domestic Medicine* (1790) was written to educate and inform men. Indeed, Buchan, writes historian Roy Porter, 'deplored old wives' tales and folk myth'.³¹ For Buchan, domestic medicine was not a feminine practice. Rather, he acknowledges class distinctions that govern the use of plants, stating that many peasants know the use of plants better than some physicians.³²

From the point at which domestic medicine was defined, domestic healers interpreted plants as safe alternatives to the inorganic and often painful administrations of doctors. John Wesley's *Primitive Physic* (1747), a popular domestic medical manual during the eighteenth century, advocates the use of cheap, safe and easy-to-find medicinal plants, many of which appeared in early Greek texts and later European herbals. Groundsell, yarrow and chamomile are

²⁷ James Neil, *The New Zealand Family Herb Doctor: A Guide to Recipes and Herbal Remedies* (First published in 1891) (Twickenham: Tiger Books International, 1998).

²⁸ Colonial Industries Commission, 'Evidence of Mr Thomas Kirk: Economic Plants', *Appendices to the Journals of House of Representatives (AJHR)* (1880), H-22, p. 32.

²⁹ Hocken Library, Dunedin, Dorothy Harvey Book of Receipts, AG-561-04, 1739-40; AG-561-06; AG-561-07, AG-561-08; Laurie Gluckman, *Tangiwai: Medical History of New Zealand Prior to 1860* (Auckland: Dr L.K. Gluckman, 1976), p. 118.

³⁰ Isabella Beeton, *Beetons's Book of Household Management: A first Edition Facsimile* (First Published 1861) (London: Lowe and Brydone, 1968), p. 1015.

³¹ Roy Porter, *The Greatest Benefit to Mankind: A Medical History of Humanity from Antiquity to the Present* (London: Harper Collins Publisher, 1999), p. 283.

³² William Buchan, *The Special Edition of Domestic Medicine or the Family Physician* (Edinburgh: R. Aitken, 1774), p. xiv.

recommended for ague. Nettles and plantain are suggested cures for spitting blood. ‘Herculean medicines’, writes Wesley, including opium, steel, various preparation of quicksilver and ‘the bark’ (presumably quinine), are unsafe and ‘far too strong for men to grapple with’.³³ Domestic healers in colonial New Zealand, encouraged by this belief, experimented freely with native medicinal plants.

Domestic healers retained broad criteria for the assessment of medicinal plants and associated information. Not restricted by a governing body enforcing and defining a medical protocol, or limited by the possibility of rejection from an association, they accepted indigenous and so-called ‘alternative’ knowledge, while many also embraced a scientific translation provided by the medical faculty. Sister Mother Mary Aubert, for example, combined scientific analysis with an explicitly indigenous translation of the plants with which she worked. Through her affiliation with the pharmaceutical company, Kempthorn and Prosser, she adopted and employed the scientific testing necessary to market her medicines as safe and natural to a public who were growing increasingly suspicious of inorganic medicines and potentially addictive substances.³⁴

During the late nineteenth century, as domestic healers became increasingly enamoured of scientific technique, patent and proprietary medicines made plants appropriately ‘scientific’. By the turn of the twentieth century, the popularity of the American Health Movement was encouraging a return to simple unadulterated medicines.³⁵ Manufacturers of patent medicines also appealed to this market by resurrecting the perception of safety. The combined approach and various translations adopted by domestic healers reflect the wide range of reference material available to them during this period and their relative freedom from

³³ John Benjamin Wesley, *Primitive Physick or an Easy and Natural Method of Curing Most Diseases*, 9th Ed. (London: W. Strahan, date unknown), pp. 30, 41, xxvi.

³⁴ Jessie Munro, *The Story of Suzanne Aubert* (Auckland: Auckland University Press with Bridget Williams Books, 1996); Jessie Munro (ed.), *Letters on the Go: The Correspondence of Suzanne Aubert* (Wellington: Bridget Williams, 2009).

³⁵ For example Lydia Pinkham’s Pills. Lydia E. Pinkham Medicine Company Records, *Home Nursing*, Summer (1931), Series II, Advertising records, 1873-1968; Pinkham pamphlets, Schlesinger Library, Radcliffe Institute, Harvard University, MC 181, <http://pds.lib.harvard.edu/pds/view/4089243?n=569&imagesize=1200&jp2Res=.25&printThumbnails=no>, [accessed July 31 2013].

governing bodies, who recommended relatively limited views or perceptions of medicine.

Herbalists focused on the use of medicinal plants, placing far more emphasis on their value and worth than other practitioners. When Nicholas Culpeper translated the *London Dispensary* in 1649, he was one of the first herbalists to make a literal translation of medico-botanical knowledge from that prescribed by doctors into that applied by lay healers and herbalists.³⁶ His most influential work, *Culpeper's Herbal*, formed strong associations between herbal medicine and domestic practices by providing instruction for domestic healers and supporting and advocating their use of medicinal plants.³⁷ Culpeper's political actions and his rejection of medical institutions and organisation was rhetoric adopted by later herbalists to define and distinguish their use of medicinal plants and herbal medicine. Nineteenth-century herbalists emphasised arbitrary differences in the way they and doctors viewed medicinal plants, a translation underlined by a political subtext employed to place them in opposition to a regular medical faculty.

Samuel Thomson's system, in particular, was politically charged. Indeed, his guide to herbal practitioners contained more political conjecture than it did medical advice.³⁸ Many of the plants herbalists used were the same as those prescribed by regular physicians, but while Thomson considered doctors' use of them as unsafe and irresponsible, his translation deemed them safe and divine. In reality, one of Thomson's main herbs, *Lobelia inflata*, was a powerful emetic, as strong as any equivalent prescribed by the medical fraternity yet the rhetoric around it did not indicate as such.³⁹ In New Zealand, James Neil's interpretation of medicinal plants encapsulated his belief that plants were simple gifts from a

³⁶ Nicholas Culpeper, translator, *Pharmacopeia Londinensis or the London Dispensatory, Further Adorned by the Studies and Collections of the Fellows now Living of the Said College*, <https://archive.org/stream/2548018R.nlm.nih.gov/2548018R#page/n3/mode/2up>, [accessed May 11 2014].

³⁷ Nicholas Culpeper, *Culpeper's Complete Herbal: Consisting of a Comprehensive Description of Nearly all herbs with their Medicinal properties and Directions for Compounding the Medicines Extracted from Them* (London: W. Foulsham, 1970 reprint).

³⁸ Thomson, pp. 3-64; *The Thomsonian Botanical Watchman*, 1, 1 (1834), <http://archive.org/stream/thomsonianbotani00alba#page/24/mode/2up>, [accessed October 7 2013].

³⁹ *The Thomsonian Botanic Watchman*, 1, 1 (1834), p. 10.

divine benefactor, a view that supported his perception of plants as accessible and safe. His business was a success in New Zealand arguably because his translation mirrored those made by domestic healers and appealed to self-prescribers and certain religious members of society.

While the constant rejection of herbalists from medical associations and registration in New Zealand created tension between doctors and their perceived rivals, intellectual communication between the two occurred and was maintained. As suggested by Susan Star and James Griesemer, communication, negotiation and debate are required for various translations of objects to be reconciled and legitimised.⁴⁰ Herbalists translated plants into a scientific framework, one that few doctors could dispute and one that inadvertently supported doctors and their use of plants.⁴¹ However, few herbalists reduced the plants to their isolated constituents, a trend most definitely associated with regular doctors. Instead, herbalists choose to advocate the synergistic effects of the whole plant, maintaining and preserving the concept of the plant as a botanical specimen, once alive and part of nature. This stance supported a distinction between herbalists and doctors, marking a boundary between the two.

Doctors' translations of plants relied predominantly on scientific analysis and evaluation, particularly by the late nineteenth century. This translation supported doctors' claims to be progressive and modern. It encouraged the establishment of clear boundaries around the medical profession, through the use of language and terminology that must be learned. The creation of pharmacopeia assisted this translation, as did developments in the field of pharmacology and chemistry. Co-operation between chemists and doctors and an international exchange of

⁴⁰ Susan Leigh Star and James R. Griesemer, 'Institutional Ecology, 'Translations and Boundary Objects: Amateurs and professionals in Berkley's Museum of Vertebrate Zoology, 1907-39', *Social Studies of Science*, 19, (1989), pp. 387-420; Susan Leigh Star 'This is not a Boundary Object: Reflections on the Origin of the Concept', *Science, Technology and Human Values*, 35, 5 (2010), pp. 601- 617.

⁴¹ Take for example the following excerpt from the Naturopathic College of New Zealand. 'Naturopathy is not a therapy but a philosophy of health, combining vitalistic principles with biological sciences. All civilisations have used natural means to assist the body's natural healing processes. Naturopathic medicine today draws on these ancient understandings and integrates it with modern day scientific knowledge'. <http://www.ncnz.co.nz/naturopathydiploma.html>, [accessed January 12 2012].

scientific medical and botanical information supported the increased standardisation of knowledge required.

Chapter Six explored the dominant translation of medicinal plants through scientific analysis. Through case studies on two plants – *thymus vulgaris* and *aconitum napellus* – it revealed how domestic healers, herbalists and doctors supported or rejected this scientific translation in different ways and for different reasons. The conversion of thyme into its isolated constituent, thymol, required scientific techniques and analysis, and the acceptance of this conversion also implied an acceptance of a scientific approach to health and wellness and the use of medicinal plants. Domestic healers accepted this approach and used thymol in patent and proprietary medicines. Doctors strongly advocated the scientific analysis of plants, employing the rhetoric of progress associated with science to boost the status of their trade. The *British Medical Journal* gave doctors directions on how to include thymol in the prescriptions they prepared and prescribed.⁴²

For doctors, the scientific analysis of aconite – the active constituent in aconitum – helped to justify the continued use of the plant despite its high degree of toxicity.⁴³ Domestic healers, on the other hand, mitigated the risks involved in using aconite by using minute amounts of the plant in homeopathic tinctures. Herbalists acknowledged the efficacy of the drug, but chose not to use it, and in the process defined their practices as different from those of both domestic healers and doctors.⁴⁴

By exploring the medicines vital to nineteenth-century medical systems and the ways in which different healers understood and promoted these, this thesis has paved the way for further research into European medicaments. It has suggested the need for greater examination of the use of Māori practices among Europeans

⁴² Author Unknown, 'Reports and Analyses and Descriptions of New Inventions in Medicine, Surgery, Dietetics, and the Allied Sciences', *BMJ*, 2, 659 (1879), p. 336.

⁴³ William Murrell, 'Aconite and Aconitia', *BMJ*, 1, 111 (1882), pp. 555-556; 'Poisoning by aconitum napellus', *BMJ*, 1, 14 (1861), pp.360-361.

⁴⁴ Neil, p. 155; John Broadbent, *The Australian Botanic Guide, Being a Family Handbook of Botanic Treatment* 2nd ed. (Melbourne: Centennial Printing and Publishing, date unknown), p. 190.

in New Zealand's colonial society and has encouraged a line of enquiry into seemingly disparate medical cultures that came together in colonial contexts.⁴⁵ Like the medicinal uses of rhubarb described in the beginning of this chapter, the plants examined in this thesis were important components of a colonial medical culture that was constantly shifting in response to factors such as changes in government, economics, and the influence of overseas developments and industry. Accordingly, the role of medicinal plants was varied, changing over time and given different emphasis and attention by healers with disparate ideas on health and wellness. This thesis has explored the different fascinating and changing role plants played in colonial medical culture and has shown the value in exploring, not only the organisation of colonial medicine, but also the practical elements of medical care. In the process it has contributed new perspectives to the fields of environmental history, medical history and scientific professionalism.

⁴⁵ A good starting point would be an examination of missionary records from New Zealand as well as Māori sources. Evidence suggests missionaries played a role in the introduction and distribution of several medicinal plant species in New Zealand. For example, Herbert Guthrie-Smith, recognised a relationship between the distribution of potherbs in New Zealand and mission stations, suggesting missionaries also used and cultivated introduced medicinal plants. For example, thorn apple (*Datura stramonium*), writes Guthrie-Smith, was commonly called "Priest's Weed" in the Colony, and was distributed throughout pa (Māori villages) in the Hawke's Bay (west central region of New Zealand's North Island) by the Reverend Father Regnier of the Meanee Mission Station. This plant was used regularly during the nineteenth century, most commonly in the form of the drug stramonium which had antispasmodic, anodyne and narcotic properties. The drug was also included in therapeutic smoking compounds in the early twentieth century. Herbert Guthrie-Smith, *Tutira: A Story of a new Zealand Sheep Station*, 1926, pp. 269-271; Mark Jackson, 'Devine Stramonium: The Rise and Fall of Smoking for Asthma' in *Medical History*, 54, 2 (2010), pp. 171-194. See also, Laurie Gluckman, *Tangiwai: Medical History of New Zealand prior to 1860* (Auckland: Dr L.K. Gluckman, 1976).

⁴⁵ Brooking and Pawson, 2011; Katharine Raine, 'Domesticating the Land' in *Fragments: New Zealand Social and Cultural History*, ed. by Bronwyn Dalley and Bronwyn Labrum (Auckland: Auckland University Press, 2000), pp. 76-97. Derek Dow, *Māori Health and Government Policy, 1840-1940* (Wellington: Victoria University Press, 1999); Raeburn Lange, *May the People Live: A History of Māori Health Development 1900-1920* (Auckland: Auckland University Press, 1999).

Glossary

Botanical name	Common name	Medicinal uses
<i>Aconite napellus</i> L.	monkshood	Anodyne (pain killer), diuretic (increase urine output) and diaphoretic (promotes perspiration)
<i>Allium sativum</i> L.	garlic	Antimicrobial, anthelmintic (expels worms), expectorant, anti-inflammatory, cholagogue (stimulates the release of bile), diaphoretic
<i>Althea officinalis</i> L.	marsh mallow	Demulcent (soothes irritated tissues), emollient (soothes protects skin) diuretic
<i>Anethum graveolen</i> L.	dill	Stimulant, aromatic, carminative (reduces flatulence), stomachic (relieves stomach pain)
<i>Artemesia absinthum</i> L.	wormwood	Bitter tonic, stomachic anthelmintic, choleric (stimulates the release of bile)
<i>Arctium lappa</i> L.	burdock	Depurative (promotes natural elimination), diuretic, antibiotic
<i>Armoracia rustica</i> Schur.	horseradish	General debility, arthritis, gout, sciatica, respiratory and urinary infections
<i>Arnica Montana</i> L.	arnica	Short-term treatment of heart failure, externally in liniments and creams for dislocations, sprains, bruises and chilblains
<i>Austroderia fulvida</i> (Buchanan) N. P. Barker et H. P. Linder.	toe toe	Used to treat goitre
<i>Atropa Belladonna</i> L.	datura	Asthma, kidney stones and gall stones. Externally in liniments for rheumatism, muscular pain, infections and inflammation
<i>Bryonia</i> L.	bryony	Hydragogue (promotes the release of fluid from the bowel), cathartic
<i>Cannabis indica</i> Lam.	cannabis	Nausea, vomiting, reduces pressure associated with glaucoma
<i>Capsicum annum</i> L.	capsicum	Debility, poor circulation, asthma, digestive problems
<i>Carum carvi</i> L.	caraway	Carminative (reduces flatulence and improves digestion), emmenagogue (promotes menstruation), expectorant, antispasmodic, astringent
<i>Cichorium intybus</i> L.	chicory	Bitter tonic, laxative, diuretic

Botanical name	Common name	Medicinal uses
<i>Cimicifuga racemosa</i> L. (Syn. <i>Actaea racemosa</i>)	black cohosh	Sedative, antitussive (reduces coughing), antirheumatic, emmenagogue
<i>Cinchona</i> L.	peruvian bark	Malaria, fever, muscle cramps, cardiac fibrillation, colds and coughs
<i>Cinnamomum camphora</i> L. J. Presl	camphor plant	In liniments for muscle and joint pain, chilblains, chapped lips and an inhalant for nasal and bronchial conditions
<i>Conium maculatum</i> L.	hemlock	Epilepsy, mania, cholera and cramps
<i>Convolvulus arvensis</i> L.	native wood bine	Laxative, cholagogue, diuretic, purgative
<i>Convolvulus scammonia</i> L.	scamonium	Cathartic
<i>Coriaria ruscifolia</i> L.	tu pakihi, tutu, toot	Used to treat poisoning by depressants of the nervous system
<i>Coriandrum sativum</i> L.	corrinader	Internally for minor digestive problems
<i>Curcuma angustifolia</i> Oxb.	arrowroot	Demulcent, convalescent food
<i>Dacrydium cupressinum</i> Sol. ex Lamb.	rimu	Taken internally to prevent bleeding from stomach and lungs
<i>Datura stramonium</i> L.	thorn apple	Febrifuge (promotes fever), diaphoretic
<i>Digitalis officianalis</i> L.	foxglove	Cardiac herb, anti-haemorrhagic (staunches bleeding), antidote for aconite poisoning
<i>Dysoxylum spectabile</i> Hook. f.	kohe-kohe	Throat infections and diarrhoea
<i>Elaeocarpus hinau</i> A. Cunn.	hinau	Externally for severe skin complaints
<i>Eucalyptus globulus</i> Labill.	blue gum	Stimulant, antiseptic, aromatic
<i>Ferula assafoetida</i> L.	assafoetida	Digestive aid, asthma and bronchitis, contraceptive, abortifacient
<i>Foeniculum vulgare</i> Mill.	fennel	Carminative, diuretic, anti-inflammatory, galactagogue (promotes the secretion of milk)
<i>Fumaria officinalis</i> L.	fumitory	Diaphoretic, diuretic
<i>Gallium aparine</i> L.	cleavers	Diuretic, astringent, lymphatic alterative (promotes lymphatic health)
<i>Gentiana spp.</i> L.	gentian	Bitter tonic, gastric stimulant, cholagogue
<i>Ginkgo biloba</i> L.	ginkgo biloba	Vasodilator, antifungal, antispasmodic, insecticidal, anti-inflammatory

Botanical name	Common name	Medicinal uses
<i>Glycyrrhiza glabra</i> L.	liquorish root	Expectorant, demulcent, spasmolytic, anti-inflammatory, mild laxative, adrenocorticotropic (supports kidney function)
<i>Hebe salicifolia</i> (G. Forst) Pennell.	koromiko	Young leaves a remedy for diarrhoea
<i>Humulus lupulus</i> L.	hops	Sedative, soporific (promotes sleep), spasmolytic, diuretic, bitter, antibacterial
<i>Hydrastis Canadensis</i> L.	goldenseal	Anti-haemorrhagic, choleric, antimicrobial, astringent, laxative
<i>Hyssopus officinalis</i> L.	hyssop	Spasmolytic, anticatarrhal, expectorant, sedative, diaphoretic
<i>Hypericum perforatum</i> L.	St. John's wort	Anti-inflammatory, antiviral, antidepressant, astringent, relaxant
<i>Ipomoea purga</i> L.	jalap	Constipation, colic, internal parasites
<i>Laurelia novae-zelandiae</i> A.Cunn.	pukatea	Analgesic
<i>Leonurus cardiac</i> L.	motherwort	Sedative, cardiac tonic, hypotensive, antispasmodic
<i>Leptospermum scoparium</i> Forster et Forster.	manuka	Anthelmintic, reduces fever
<i>Macropiper excelsum</i> (G.Forst.) Miq.	kawakawa, pepper tree	Analgesic, chewed to reduce tooth ache
<i>Mandragora officinarum</i> L.	mandrake	Ulcerative, anodyne, anti-rheumatic, soporific, emetic, purgative
<i>Matricaria recutita</i> L.	chamomile	Relaxant, carminative, antispasmodic, anti-inflammatory, anti-allergic, vulnerary (speeds the healing of wounds)
<i>Marrubium vulgare</i> L.	horehound	Expectorant, bitter, spasmolytic, vulnerary
<i>Melissa officianalis</i> L.	lemon balm	Carminative, relaxant, antispasmodic, diaphoretic
<i>Mentha pulegium</i> L.	pennyroyal	Purifies water, expectorant, spasmolytic.
<i>Menthe x piperita</i> L.	Peppermint	Carminative, spasmolytic, choleric, hepatic (liver restorative), uterine relaxant, diaphoretic, anti-emetic
<i>Metrosiderus robusta</i> A. Cunn.	Rata bark	Inner bark for diarrhoea and dysentery
<i>Monarda punctata</i> L.	Bergamot	Antiseptic, fungicide
<i>Myoporum laetum</i> G. Forst.	ngaio	Insecticide

Botanical name	Common name	Medicinal uses
<i>Myroxylon toluiferum</i> J. R. Forst. & G. Forst.	balsam of Peru	Used in cough mixtures and pastilles
<i>Papaver somniferum</i> L.	opium poppy	Pain relive, coughs, diarrhoea, shock, apathy, alcohol poisoning and breathing difficulties
<i>Passiflora tetrandra</i> Banks ex DC.	ko-hia	Externally for skin conditions
<i>Phormuim tenax</i> J. R. Forst. & G. Forst.	flax, harakeke	The roots as a laxative and externally for burns and wounds
<i>Physostigma venenosum</i> Balf.	calabar bean	Used for diseases of the eye, vasodilator, antispasmodic
<i>Phytolacca decandra</i> L.	poke root	Alterative, anti-inflammatory, anticatarrhal, lymphatic stimulant, immunostimulant
<i>Pimpinella anisum</i> L.	anise	Expectorant, spasmolytic, carminative, parasiticide
<i>Plantago major</i> L.	plantain	Anti-inflammatory, diuretic, anti-haemorrhagic
<i>Polygonatum</i> Mill.	Solomon's seal	
<i>Pseudowintera axillaris</i> (J. R. Forst. & G. Forst.) Dandy.	horopito	Remedy for skin conditions
<i>Rhamnus purshana</i> DC.	casacara segrada	Laxative, cholagogue, antiparasitic
<i>Rheum palmatum</i> L.	Rhubarb	Purgative, astringent, stomachic
<i>Rhipogonum parviflorum</i> R. Br.	kare-ao, supple jack	Used to treat the secondary symptoms of syphilis, arbotifacient
<i>Ricinus communis</i> , L.	castor oil plant	Laxative
<i>Rosemarinus officinalis</i> L.	rosemary	Carminative, tonic, antimicrobial, mild analgesic, spasmolytic, stimulant, rubefacient
<i>Ruta graveolens</i> L.	rue	Spasmolytic, emmenagogue, antitussive
<i>Saponaria officinalis</i> L.	soapwort	Demulcent, diaphoretic, alterative
<i>Sassafras officinale</i> (Nutt.) Nees.	sassafras	Aromatic, stimulant, diaphoretic, alterative

Botanical name	Common name	Medicinal uses
<i>Sinapsis alba</i> L. and <i>Sinapsis nigra</i> L.	mustard	Externally in poultices for respiratory infections, arthritis, skin eruptions, bronchial congestion
<i>Smilax regelii</i> Hook. f.	sarsaparilla	Antirheumatic, antipruritic (relieves itching), antiseptic, anti-inflammatory, diuretic
<i>Solanum aviculare</i> G. Forst.	porporo	Poultice for scabies, the 'itch', and in recipes for bruises
<i>Sophora tetraptera</i> J. F. Mill.	kowhai	Scabies, skin conditions
<i>Stellaria medica</i> (L.) Cirillo.	chickweed	Antirheumatic, antipruritic, vulnerary, emollient
<i>Symphytum officinale</i> L.	comfrey	Vulnerary, astringent, demulcent, anti-inflammatory
<i>Tanacetum vulgare</i> L.	tansy	Anthelmintic, carminative, emmenagogue, spasmolytic
<i>Taraxacum officianalis</i> F. I. Wiggs.	dandelion	Hepatic tonic, laxative, antirheumatic, choleric, diuretic, antilithic (prevents the formation of gravel un the urinary system)
<i>Thymus vulgaris</i> L.	thyme	Anti-bacterial, expectorant, antitussive, carminative, spasmolytic, bitter tonic, astringent, anthelmintic
<i>Trachyspermum ammi</i> Sprague.	Bishop's weed, ajwain	Anti-septic, digestive aid, source of thymol
<i>Valeriana officinalis</i> L.	valerian	Tranquilliser, spasmolytic, sedative, hypotensive
<i>Verbascum Thapsus</i> L.	mullein	Expectorant, emollient, demulcent, vulnerary, diuretic
<i>Verbena officinalis</i> L.	vervain	Nervine, diaphoretic, antispasmodic, bitter, sedative, galactogogue
<i>Zingiber officinale</i> L.	ginger	Carminative, anti-emetic, spasmolytic, peripheral circulatory stimulant, anti-inflammatory

Sources: Maude Grieve, *A Modern Herbal: The Medicinal, Culinary, Cosmetic and Economic Properties, Cultivation and Folklore of Herbs, Grasses, Fungi, Shrubs and Trees with all their Modern Scientific Uses*, 3rd ed., (London: Tiger Books, 1992); Carol Fisher and Gillian Painter, *Materia Medica of Western Herbs for the Southern Hemisphere* (Privately Published in New Zealand, 1996); *BP*, 1864; *BP*, 1867; *BP*, 1885; Allan Clarke, *The Great Sacred Forest of Tāne, Te Wao Tapu Nui a Tāne: A Natural Pre-history of Aotearoa New Zealand*

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