SHEEP FARMING PRACTICE IN COLONIAL CANTERBURY
1843 TO 1882

The origin and diffusion of ideas, skills, techniques and technology in the creation of the pastoral system

A thesis
submitted in partial fulfilment
of the requirements for the Degree
of
Master of Arts in History
in the
University of Canterbury
by
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University of Canterbury
2002
ABSTRACT

The question of the origins of the pastoral system of farming in Canterbury has been debated since the early 1850s. Some have proposed that Canterbury's pastoralists followed British practices, and others have been more specific and promoted the influence of the Scots in the creation of the system. However, the consensus of most writers on the subject has been that pastoralism in New Zealand was simply an extension of the Australian industry.

This thesis demonstrates that most of the methods practised by the early Canterbury pastoralists had their origin in the hill districts of the British Isles. However, they also adopted Australian methods for handling large mobs of sheep. The influx of Scottish shepherds in the early 1860s helped to refine the system that was already in place.

Pastoralism in Canterbury was not unique. It was part of an international economic system. Ideas, techniques, technology and the sheep were imported from elsewhere. Nevertheless, the local system was created on the ground in the region. Some elements of the system were imported, some imported methods were reshaped to suit local needs, and local innovation played a part in fashioning a local variant of a widely practised pastoral system.

The interplay among three key factors was critical in the development of pastoralism in Canterbury. Victorian middle-class values of self-improvement, wealth creation and hard work, fashioned the entrepreneurial ethos of the early pastoralists. They came to Canterbury because they saw an opportunity to make money and to improve their lot. This attitude made the pastoralists responsive to the marketplace; they were quick to alter their production to meet changes in demand. Thirdly, Canterbury's environment created opportunities and provided constraints on what pastoralists could produce and how they could produce it.
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ACKNOWLEDGEMENTS

Thank you to my supervisor Mr. Graeme Dunstall and to my co-supervisor Dr. Garth Cant for their guidance through the course of researching and writing this thesis. Their support and direction have been invaluable.

I would like to acknowledge the staff of the Macmillian Brown Library, University of Canterbury for their assistance in providing most of the resources that I needed to research the thesis. Thanks also to the staff at the Hocken Library.

A special thank you to my partner Susan. Without her unflagging support and enthusiasm this thesis would have remained an unfulfilled dream.
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3. Cheviot Hills – William Robinson
4. Glenmark – G.H. Moore
5. Double Corner – Charles Hunter Brown
6. Rockwood – Henry Phillips
7. Malvern Hills – H.J. Tancred
8. The Terrace (Rakaia Terrace) – John Hall
10. Lake Coleridge – Frank Mathias, stockman
11. Rakaia Forks (Mt. Algidus) – William Rolleston
13. Springfield – Duncan Cameron
14. Longbeach – John Grigg
15. Mesopotamia – Samuel Butler
16. Mt. Peel – John Barton Acland
17. Orari Gorge – Charles Tripp
18. The Levels – Rhodes Brothers
19. Holme Station – Edward Elworthy
20. Waimate – Studholme Brothers
21. Waikakahi – Allan McLean
22. Grampian Hills – Henry Ford, manager
23. Black Forest – John Fraser
24. Mt. Cook – Andrew Burnett

INTRODUCTION

The expansion of extensive pastoralism in the middle years of the nineteenth century was an international phenomenon. Entrepreneurs, mostly from the British Isles, utilised cheap land in ‘new’ and ‘empty’ regions of the world - South America, South Africa, Australia and New Zealand - to grow raw wool to meet the demand of the expanding textile industries of Britain and continental Europe. The influence of this international wool trade was fundamental in shaping the development of Canterbury.¹

Despite the ideals of the Canterbury Association, which intended to transplant the best features of English agrarian society into the landscape of Canterbury, pastoralism was quickly seen as the natural system of production and wealth creation from the region’s native grasslands. The Canterbury Pilgrims soon got over their initial suspicion that pastoralism would lead to social chaos and those with capital joined squatters from Australia in taking up leasehold runs and importing sheep across the Tasman Sea to stock them.²

The desire for profit drove the rapid expansion of pastoralism. Yet without the skills and knowledge of how to run large flocks of sheep on open country the pastoral enterprises would never have succeeded. Pastoral farming was a relatively simple system but its success was dependent on managing numerous critical tasks and problems in a new environment. Balancing stocking rates with available feed, animal health issues, wintering strategies, wool preparation, and deciding on the optimum times for lambing and shearing were just some of the immediate problems that had to be solved. Many of the practices adopted by pastoralists in the colonial

¹ The land area of Canterbury has changed considerably over the years. Initially the Canterbury Block included all the land between the Waipara and Ashburton rivers. The region was then extended to the Hurunui River in the north to the Waikari River in the south and later the Ahuriri district, as far north as the Conway River, was added. The thesis uses the latter boundaries of Canterbury to define the region; this avoids any confusion and essentially, pastoral practice developed in a similar fashion across the whole area.

² Pilgrim was the term used by the settlers for those who came to the region under the auspices of the Canterbury Association. The early Australian squatters were called ‘Prophets’ after one of their number, Mark Pringle Stoddart, forecast the destruction of settler society based on small farming. Outsiders who came from Australia and other provinces were called ‘Shagroons’.
period are still common farm practice today while other techniques, such as washing sheep before shearing them, fell out of favour and disappeared.

This raises the question of how the pastoral farming system was created in Canterbury out of a ‘wild’ landscape between the years of 1843 and 1882. Where did the ideas, techniques and skills practised by the early pastoralists originate? How quickly did the settlers adapt the practices they brought with them to the rhythms of their new environment? This thesis sets out to answer these questions.

The year 1843 was chosen as a starting time because that was when the Deans brothers moved on to the Canterbury plains and began to plant crops and gardens, and to run sheep imported from Australia. The decision to end the study at 1882 is more arbitrary, since major changes had taken place in pastoral farming before that date and the system continued long after it. However, 1882 was the year of the first successful shipment of frozen meat from New Zealand to Britain and marked the beginning of a new agricultural system. The techniques and skills learned in farming sheep in the early pastoral era, and in fact the breed of sheep developed in Canterbury in that period, enabled Canterbury sheep farmers to take advantage of the new technology of refrigerated transportation. The system of production changed from running Merino sheep producing fine wool for the markets of Europe, to running Corriedales producing both meat for the population of Britain’s industrial cities and medium wool for Bradford’s wool processors.

Other farming systems operated in Canterbury throughout the pastoral era. Dairying, fattening and cropping were carried out on the better soils in the early years and large scale cropping became an important industry on the stations of the plains from the early 1870s. Although the line between farming and pastoralism can be considered an artificial one, since some of the techniques that proved to be successful in one system could be applied to the other, the aim of this thesis is to concentrate on sheep farming practice as it began and then developed on the pastoral runs of the region. The examination of the development of small farming and the ‘wheat bonanza’ will be left to others.
1843 TO 1882: YEARS OF CONTINUOUS CHANGE

Between 1843 and 1882 pastoral farming evolved in a series of distinct but overlapping processes. The first stage saw the rapid expansion of the industry. By 1855 most of the plains were taken up for sheep runs. Between 1854, when Acland and Tripp applied for the first high country lease, and 1864 the whole of the region was taken up, right back to the flanks of the main divide.

The aim of the pastoralists in this period was to take up their land, establish a working station, no matter how rough; and to build up their sheep numbers as quickly as possible. The daily lives of the pioneer runholders, their families and workers were hard. Station diaries from the earliest period tell the same repetitive story: building, carting firewood, fencing, gardening, cattle in the garden, looking for the stock.

In May 1856 Acland, Tripp and their employees arrived at the site they had chosen for the homestead at Mount Peel. They built a house for the married couple, using cabbage trees; the rest of the party spent the winter sleeping in tents. At nearby Shepherd’s Bush Station, owned by Dr. Moorhouse, the first house was a tent with a fireplace and chimney at one end. Mrs. Moorhouse came to the station walking beside the bullock dray, carrying her baby and driving a milk cow.

In these early years the pioneers were dependent on their gardens as their only source of vegetables and fruit. Consequently, gardening took up a considerable part of the working week. The Hall brothers at the Rakaia Terrace Station grew large quantities of potatoes and sold the surplus in Christchurch. Most stations grew small areas of cereal crops: wheat for flour, oats for stock feed and barley for brewing beer. A few enterprising Scots are reported to have made their own whisky. Without fencing, a lot of time was spent looking for missing stock. In their first year, the Halls seem to have followed the Australian system of folding their sheep in

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3 G.W. Harte, Mount Peel Is A Hundred. The Story of the first high-country sheep station in Canterbury (Timaru, Timaru Herald, 1858) p.20
4 ibid., p.21
5 Rakaia Terrace Station Journal 30 June 1853 – 14 June 1854, Canterbury Museum Documentary Research Centre, 10 – 19 May 1854
makeshift yards at night and employing boys to follow them through the day. This system was rare in Canterbury, where most runholders had shepherds to check stock on a daily basis when possible. However, if other work intervened, it often took days to track the stock down.

The next major process in the system of pastoral farming was to consolidate the holding. The income from wool enabled the runholders to embark on major capital improvements. The first wool sheds had been built to protect wool bales from the weather; the sheep were shorn outside on tarpaulins. The wool was simply rolled up and tramped into woolpacks. The poor presentation of the wool downgraded its price. This encouraged runholders to improve their shearing facilities and by the early 1860s woolsheds were much as we know them today. In 1857 the woolshed on St. Leonard’s Station had slatted grating, allowing sheep to be kept overnight without staining their wool. By keeping sheep undercover shearing was less prone to delays caused by the weather.

Permanent sheep yards were built to replace the old system of hurdles that were carted around the run to be put up where required. Proper washing and dipping facilities were constructed. In this period new homesteads began to replace the makeshift housing that had been knocked up in the establishment phase. John Barton Acland began the construction of the grand Mount Peel homestead in 1864.

The most important capital expenditure, in terms of the management of pastoral runs, was the introduction of wire fencing. It enabled runholders to fence their boundaries and so protect their stock from the threat of the contagious disease scab. Sheep could be kept off snow-prone country in winter, reducing the need for permanent boundary keepers. Internal fencing gave operators the ability to improve their management. At Orari Gorge Station Charles Tripp put up 60 miles of wire fencing, enabling him to double his sheep numbers and double his wool production.6

The third major process in the evolution of pastoralism saw the take off of technological and technical development. A series of factors combined to encourage

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runholders into this high investment, high-risk expansion. The environment that the earliest settlers encountered was quickly modified to meet the needs of sheep grazing, this system of management led to further changes in the vegetation of the region. Burning and grazing when badly managed led to a rapid decline in the carrying capacity of the land. Even when these techniques were well managed, palatable species were soon grazed out and plants less favoured by sheep replaced them. Declining stocking rates put economic pressure on pastoralists to adopt expensive new technology and replace the native grasses with new species adapted to sheep grazing. Another force that pushed runholders down the same path was the region's land tenure system.

Land tenure in colonial Canterbury was complicated from the outset by the contradiction between the ideals of Wakefield's theory of colonisation held by the Canterbury Association, and the economic reality faced by the new settlement, which needed an income from exporting to survive. The philosophy of the Association was that high priced land would help establish an ordered agricultural society; the economic reality was that a pastoral system based on cheap land and producing wool for Britain and Europe was the obvious way of generating wealth, at least in the short term. This issue has been well covered in the first two volumes of A History of Canterbury and need not be repeated here.\(^7\)

However, the land tenure system did have an impact on the way pastoralism developed in the region. In February 1852 John Robert Godley, the Association’s Resident Agent in Canterbury, issued regulations that created three classes of pasturage licences, all of which were to remain open for selection as freehold. Class 111 runs provided for the creation of cheap land and ultimately the expansion of the pastoral system in the Province. These runs were held by seven-year licences, without pre-emptive right of purchase, for any quantity of land between 5,000 and 20,000 acres.\(^8\) Thus, although leasehold land was let at a relatively low cost, it could be bought at any time by anyone prepared to pay the price of two pounds per acre to

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freehold it. Two famous instances where leaseholders lost their runs to freeholders were the purchases of Glenmark by Moore and Kermode, and Cheviot Hills by William ‘Ready Money’ Robinson.

Freeholding became an increasing concern for runholders as wealth increased in the community. People who were able to accumulate some capital could freehold as much leasehold land as they could afford. To counter this runholders resorted to the infamous practices of spotting and gridironing to keep them out. Freeholding had two important consequences for the development of farm practice. Firstly, the cost of freeholding parts of a run tied up capital in essentially unproductive expenditure. Moreover, after going to this expense, pastoralists needed to achieve a higher return on their investment than extensive pastoral production could produce, especially with declining wool prices. Noel Crawford provided an excellent description of problem created by this development in The Station Years: ‘The annual rental for 1,000 acres of leasehold in 1873 was six pounds and five shillings, but when it was freeholded, interest at five per cent on the money needed to buy the same land (2,000 pounds) was 100 pounds a year’.

Consequently, runholders found themselves having to develop their properties in order to survive economically. There are many examples of large-scale developments, which required large capital inputs. At Springfield Station Duncan Cameron put in 40 miles of water races by 1880. In 1872 Michael Studholme broke up 20,000 acres of tussock at Te Waimate. John Grigg began draining 30,000 acres at Longbeach in 1867, and later built his own factory to supply the tiles for the job.

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9 Gridironing was a term used when a runholder bought 20 acre sections along formed or paper roads, leaving 19 acre strips in between. Sections under 20 acres had to be auctioned, which gave the advantage to the runholder, who had the capital to outbid challengers. Spotting involved buying key sections on the run, such as access to valleys. This tied up large areas of a run for a minimal outlay by the leaseholder.

10 Joel Crawford, The Station Years. A history of the Levels, Cunniongton, and Holme Station, with special attention to the upper regions of the Pareora river, where they joined (Tinamar, Noel Crawford, 1981) p.62

These developments created a new environment on the plains and downlands, which did not suit Merino sheep. They were prone to footrot, did not fatten quickly and did not produce a heavy enough carcase for the boiling down process, which had become almost the only outlet for surplus sheep in the 1870s. The practice of breeding a half-bred sheep, by using British longwool rams over Merino ewes to overcome these problems, became widespread. The attempts to stabilise this cross into an established breed took place in this period and led to the development of the Corriedale.

So, by 1880 the experiments and changes that had taken place in the pastoral industry had led to the development of a raft of new technologies, techniques and skills which enabled Canterbury farmers to take advantage of the new technology of refrigeration. In time this would eventually create an intensive sheep farming system on the plains and downlands of the region that concentrated on the production of meat and medium wool.

HISTORIOGRAPHY

The pastoral era, and in fact the pastoral industry down to the present day, has developed a mystique that has continued to interest rural and city people alike. Hundreds of books have been written about the business from historical texts to local and family histories. Historians have written about the industry in terms of its economic importance. The economic and political power of the runholders has been assessed. Runholder society and its place in the wider settler society has been analysed and debated. Less has been written on rural workers, but they have not been forgotten in the literature. Local and family histories have examined the

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pastoral era at the level of individuals and their trials, successes and failures on the ground. Station histories have described the landscapes, stock numbers and notable characters. The impact of pastoral farming on the land itself has also been studied. The development of farming practice in Canterbury in the pastoral era has been less well covered, particularly in terms of where ideas, techniques and technologies originated and how they have been put into practice or adapted to meet local needs. However, in local and family histories information about farm practice is often woven in to the stories of the more dramatic events that took place. Scab, snow and mustering are usually part of these stories, as are the prodigious feats of fencing the hills and draining the swamps. The story of the Studholme family in *Te Waimate* and that of Charles Tripp in *High Country* are excellent examples of this kind of history, as is Gardner’s local history of the Amuri district.\(^{13}\)

In general texts farm practice is often accounted for in a few lines. In volume one of *A History of Canterbury* L. C. Webb had little to say about pastoral farming practice, except that, ‘the technique could be learned in a few months’.\(^{14}\) W. H. Scotter, in the second volume of *A History of Canterbury*, amended Webb’s negligence with an excellent overview of the pastoral age in which he avoided the trap of dismissing the pastoral practice in Canterbury as a carbon copy of the Australian industry.\(^ {15}\) In a more recent work, *Aotearoa and New Zealand*, historical geographer Alan H. Grey gave little space to pastoral farming practice. He mentioned the problem of scab and the environmental impact of burning, but concluded that pastoralism in New Zealand followed the ‘well-proven Australian pattern of sheep ranching’.\(^ {16}\)

This raises the debate that began in the in the very earliest days of the settlement of Canterbury. When historians have looked at the question of how pastoralism developed, most have viewed the industry as being either Australian or British in origin. In 1851, in his pamphlet *Hints to Intending Sheep-Farmers in New Zealand*,


explorer and runholder Frederick Weld, wrote that 'the general management of sheep in New Zealand approaches nearest to that pursued in the hill districts of Great Britain, and is very different from that of New South Wales.'¹⁷ Two years later, in 1853, a commentator for the *Canterbury Almanac* wrote that 'many arrivals from the neighbouring Australian colonies, especially Melbourne' had introduced 'great quantities of sheep, cattle and horses into the country [and that] their example and advice proved of great service to the English colonists, most of whom were quite unused to the management of sheep or cattle on wild pasturage.'¹⁸

Since then many academic historians and historical geographers have sided with the writer from the almanac. Two historical geographers whose forthright views have been influential in the debate are Andrew Hill Clark and R P Hargreaves. In *The Invasion of New Zealand By People, Plants and Animals*, Clark described farm practice in Canterbury and concluded that Scottish methods of management were not applicable to South Island conditions. He wrote: 'It is, thus, to the Australian colonies that the roots of South Island's dominant productive industry must be traced.'¹⁹ Ray Hargreaves agreed with Clark in his thesis 'Speed the Plough', writing 'with the arrival of the squatters [from Australia] a new driving force entered the New Zealand farming scene. For the methods they used and in the early days for the livestock itself, they looked to Australia, as no similar type of large-scale extensive farming was practised in the British Isles'.²⁰

Clark claimed that capital equipment of the Scottish system - hedges, fences, buildings - and the established communication routes and markets, made it irrelevant to the New Zealand situation. However, he failed to describe the features of the Australian system and to the extent to which they were transferred to the Canterbury environment. Similarly, Hargreaves neglected to explain what the Australian methods were, why they were so different from those of Britain and why

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¹⁷ Frederick Weld, *Hints for Intending Sheep-Farmers* (London, Trelawny Saunders, 1851) p.10
¹⁸ *The Canterbury Almanac* (Lyttelton, Lyttelton Times, 1853) p.25
¹⁹ Andrew Hill Clark, *The Invasion of New Zealand by People, Plants and Animals* (New Brunswick, Rutgers University Press, 1949) p.181
they were so easily transposed into Canterbury. Instead, he made the questionable claim that large-scale extensive stock farming was not practised in Britain.

**BRITISH PRACTICE**

Both of these writers have taken a simplistic view of British farming practice. The idea that there was, in the British Isles, some monolithic agricultural system based on stone fences, hedgerows and wintering barns is wide of the mark. The reality was completely the opposite. There were a variety of systems of production to be found not only between regions, but also within regions.²¹

Pastoralism was widespread in Britain, particularly on upland pastures of the west and north, the very regions that provided the highest proportion of Canterbury's early runholders. Stocking rates were low, more than three acres to a sheep was common, although it has been suggested that some areas would have been overstocked at that density.²² In the eighteenth century, sheep from these regions had been kept for wool production, but the emphasis later changed to producing stock for fattening on lowland pasture. When discussing hill farming, B. A. Holderness noted that 'feeding sheep and cattle on grass was a specialist art.'²³ Different wintering systems were practised in different areas and in some parts stock remained on the hill through the winters without hand feeding.

Holderness also described grazing as being a gentlemanly occupation in nineteenth-century Britain. Perhaps this explains why so many young middle and upper-middle class men from Britain were prepared to chance their hand at runholding. Not only was it seen as a profitable venture, but it was also seen as socially acceptable, despite the rough lifestyle of the early years. It might also help to explain why the pastoralists who became successful set themselves up in such grand style. Even Allan McLean, a man from a humble background, built an imposing mansion at

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²² ibid., p.42
Waikakahi. Were they simply aping the country gentry from the pastoral districts of Home?

AUSTRALIAN PRACTICE

If Clark and Hargreaves misread British pastoral farming practice, what did they have to say about Australian methods? Unfortunately, neither writer attempted to describe the Australian system in any way. Perhaps it was deliberate; for if pastoral farming practices found in Canterbury were simply Australian practices relocated in their entirety, then to describe one was to describe the other.

Historians of Australian pastoralism, from S. H. Roberts (in 1935) to J.C. Garran and L. White, and Charles Massey in more recent times, have noted that the early squatting system was characterised by cheap land and free convict labour. This system collapsed during the depression and drought of the late 1840s and the gold rush of the early fifties. After this Roberts observed: 'Everything had changed, and the painful readjustments after the 1860s left few of the features of the original runs.'

In the squatting age it is hardly an overstatement to say that squatters had barely begun to create an Australian system. Until the late fifties pastoralists of English and Scottish origin squatted along waterways and used methods similar to those used at Home; they folded their sheep (which were essentially of German origin), and washed and shorn them as they always had. As Charles Massey noted: 'Australia’s early stud-breeders did not evolve their knowledge in a vacuum, but instead transposed it from their earlier homes.' It is certainly not an overstatement to say that a locally developed Australian system of pastoralism did not begin until the 1860s. The practices that characterise Australian pastoralism began at this time: dryland farming based on the use of bores for water, the development of the Australian Merino, growing combing wool, the creation of management practices.

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25 Roberts, p. 358
26 Massey, p. 89
using a minimum of labour, fencing to keep sheep in and pests and predators out, and the integration of sheep and cropping in the sheep-wheat zone.\textsuperscript{27}

By examining farming practices, such as sheep breeding, grazing management, land management, animal management, and wool preparation this thesis will assess the influences of British and Australian sheep farming practices on the shaping of the pastoral industry in Canterbury. The thesis will also explore the local factors that played a part in this shaping process including economic, social and environmental influences.

\textbf{CANTERBURY AND ITS PLACE IN THE WORLD}

Technological developments that took place in the nineteenth century brought improvements to industry and agriculture, shipping and communications. Newspapers and journals became cheaper and more readily available allowing the spread of information and ideas. European commercial interests began to create a world economic system using European capital and technology, and cheap land and material resources from Asia, Africa, South America and the Australian colonies. So despite its physical isolation from Britain and Europe, Canterbury was, from its very beginnings, inextricably tied into the international system of trade and the international network of scientific ideas.

The establishment of organised settlement in Canterbury, in the 1850s, coincided with a period of unusually high wool prices. By the end of the 1840s prices began lifting after a disastrous collapse earlier in the decade that had precipitated a serious depression in the Australian colonies. Wool prices improved steadily through the 1850s and were kept high during the years of the American Civil War when supplies of cotton were cut off. Prices slowly declined after 1865, although the Franco-Prussian War stimulated demand briefly in the early 1870s. In 1858 wool sold for nearly sixteen pence per pound and reached a similar mark in 1872. However, prices did not approach these levels again until World War I.

\textsuperscript{27} Alan Barnard, \textit{The Australian Wool Market 1840-1900} (Melbourne, Melbourne University Press, 1958) pp.11-18
TABLE O.I Canterbury Wool Values 1854 - 1960

<table>
<thead>
<tr>
<th>YEAR</th>
<th>VALUE pence./lb.</th>
<th>YEAR</th>
<th>VALUE pence./lb.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1855</td>
<td>12.04</td>
<td>1919</td>
<td>15.78*</td>
</tr>
<tr>
<td>1858</td>
<td>15.99</td>
<td>1929</td>
<td>08.59</td>
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<td>1861</td>
<td>15.88</td>
<td>1933</td>
<td>06.39</td>
</tr>
<tr>
<td>1864</td>
<td>15.50</td>
<td>1940</td>
<td>12.59</td>
</tr>
<tr>
<td>1871</td>
<td>09.3</td>
<td>1947</td>
<td>20.68</td>
</tr>
<tr>
<td>1878</td>
<td>13.75</td>
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<td>44.69</td>
</tr>
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<td>10.39*</td>
<td>1951</td>
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<td>05.52*</td>
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<td>44.00</td>
</tr>
<tr>
<td>1915</td>
<td>11.68*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The table above shows the trend in wool prices in Canterbury over a hundred years. It demonstrates that the consistently high prices found in the early years of the mid-nineteenth century were historically unusual, particularly when the difference in purchasing power of the pound between 1855 and 1960 is taken in to account. These high wool prices in the middle of the nineteenth century made pastoralism an attractive business to entrepreneurs from Britain and Australia who, with a little bit of luck, were able to turn their limited capital into a fortune. It was the wealth derived from wool that drove the early development of Canterbury and gave pastoralists economic and political power out of all proportion to their numbers.

Canterbury farmers were not only tied into the world economic system, they were also part of an international network of scientific agricultural knowledge that had its origins in the 1840s. According to E. J. T. Collins the great turning points in agricultural science – the publication of Liebig’s Chemistry, the commencement of the systematic field experiments at Rothamstead, and the founding of the Royal Agricultural Society (motto: ‘Practice with Science’) – all occurred between 1838

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* Denotes prices averaged for all New Zealand, as there are no statistics for Canterbury only in these years. Canterbury prices are slightly higher than the national average because the wool is finer and therefore of higher value.

and 1843.\textsuperscript{29} The result was that, in the second half of the century, the impact of
science and technology on farming increased dramatically. Agricultural clubs and
associations and the agricultural press were active in disseminating agricultural
knowledge and were imbued with great optimism about the potential of science in
promoting agricultural progress.\textsuperscript{30}

Runholders and farmers in Canterbury were part of this exchange of ideas and later
created their own agricultural associations and agricultural press. Information from
the marketplace, in terms of advice and wool prices, made pastoralists improve their
wool preparation and later their wool type to meet changes in demand. Farming
practices developed in response to new technology and ideas from abroad and from
within the region. Fencing, drainage, water races and cultivation changed the
landscape of the plains and introduced new methods of production.

It should be noted that these technological innovations are not dealt with in any
detail in this thesis. Firstly, they have been well covered in the historiography,\textsuperscript{31} but
more importantly, this thesis is more concerned with the impact of this technology.
Fencing, cultivation and drainage increased the productivity of the land and changed
the way the land was managed. These improvements changed sheep farming
practice in Canterbury, which is the focus of the thesis.

\textbf{THESIS PROPOSITION AND STRUCTURE}

The thesis sets out to examine the development of the pastoral farming system in
Canterbury in the years between 1843 and 1882. It will show that pastoral farming
practice in Canterbury was shaped by a multitude of influences. Settlers from
Britain and the Australian colonies brought sheep farming practices with them, and
ideas and techniques were introduced from Europe and the USA. Yet within fifty

\textsuperscript{29} E.J.T. Collins, ed., ‘Introduction’, \textit{The Agrarian History of England and Wales, Volume 7 1850-
\textsuperscript{30} Paul Brasseley, ‘Agricultural Science and Education’, in \textit{The Agrarian History of England and
Wales}, Vol.7, p.686
\textsuperscript{31} Sheila S. Crawford; R.P.Hargreaves, ‘Speed the Plough’; Andrew Hill Clark; John Brown,
\textit{Ashburton, New Zealand, Its Pioneers and Its History, 1855-1939} (Wellington, Reed, 1940); P.G.W.
and Gilmour Blee, \textit{Miles of Tiles}. \textsuperscript{29}
years of sheep being introduced on to the plains Canterbury sheep farmers had developed a breed of sheep and a farming system that was their own.

It has already been noted that many writers have concluded, or assumed, that the techniques of running sheep on the open grasslands of the Canterbury region had their origin in Australia. It is the contention of this thesis that ideas, techniques and technology found in pastoral practice in Canterbury came from a variety of sources, but the origin of most of the farming practices adopted by the early pastoralists can be traced to the British Isles.

There is no doubt that many of these practices came through the Australian colonies. After all, in the colonial period, New Zealand was closely linked to the colonies of Australia. New South Wales, Tasmania, Western Australia and Victoria were all settled earlier than Canterbury, and some of the earliest runholders in Canterbury came with experience of farming sheep in those regions. However, the techniques used in Australia, in the early period, were largely of British origin, and changes that were made to adapt those techniques to Australian conditions did not necessarily suit Canterbury conditions.

There were fundamental environmental, economic and social differences between the Australian colonies and Canterbury that led pastoralists in each region to develop their own farming systems. From the very beginning of settlement there were differences in resources that forced pastoralists in Canterbury to adopt different farming practices to those found in Australia. The convict system made labour cheap and readily available in Australia until the early 1850s. In early Canterbury labour was always in short supply, so consequently pastoralists had to adapt their management practices to allow for this. A pattern of parallel development took place in farming practices on each side of the Tasman, particularly after 1860, as pastoralists responded to changes in markets and to the influences of their local environments. The thesis will show that pastoralism was not simply imported from Australia. It was created on the ground in Canterbury.

This proposition will be tested by examining the people who established and developed the pastoral industry. Answers to questions about who they were, why
they came and what farming knowledge they had can provide an insight into how they farmed. The sheep they brought are usually described as 'Australian'. The thesis will show that this is an inadequate description. They were European sheep that came through Australia and, until the 1860s, little effort had been made to adapt them to Australian conditions. In Canterbury these sheep were soon bred to suit local conditions and to meet changes in demand from the marketplace. Grazing management, animal health issues, land management practices, and wool production techniques will also be explored. The thesis will examine these in terms of their origins and compare how they were practised in Canterbury and Australia. Finally the thesis will look at the dissemination of information within the farming community, since the exchange of ideas is essential in the creation of a farming system, and an idea or technique does not become part of a system until it is widely adopted.

The primary sources used for this thesis embraced every year between 1851 and 1882, using a number of Canterbury newspapers and journals. Every issue of the following newspapers was covered: the Lyttelton Times, 11 January 1851 to 26 July 1864; the Timaru Herald, 11 June 1864 to 28 December 1874; and The Press, 24 April 1866 to 25 November 1875. In addition two years of the Weekly Press, 1865 and 1866, were studied. The Country Journal was used as a source of material from its first publication in January 1877 through to January 1883. Farm diaries have also been an important source of information. The journals of runholders Henry Phillips, John Barton Acland, and the Hall brothers, farm manager Henry Ford, and stockman Frank Mathias have been used to try to gain different perspectives on day-to-day farm management practices. These sources make it possible to address the significant issues of this thesis.

The thesis begins with a brief study of the people who created pastoralism in Canterbury. It is argued here that it was the interaction of their beliefs, motivation, knowledge and experience, within the Canterbury environment, that helped shape the pastoral farming system in the region.
CHAPTER ONE
THE PEOPLE WHO CREATED PASTORALISM IN CANTERBURY

The pastoral farming system in Canterbury was not simply borrowed from elsewhere. It was created and shaped by the attributes and skills of the runholders and those who worked for them. These people came directly from the British Isles, the Australian colonies, and regions of New Zealand that had been settled prior to the colonisation of Canterbury. The aim of this chapter is to establish the backgrounds of these people, why they came and what knowledge, skills and experience they brought. These are key issues and to understand them is to gain an insight into how and why the pastoral industry developed as it did in the early colonial period.

The issues of the social and economic status of the early runholders and what motivated them to risk their capital in raising sheep in colonial Canterbury have been the subjects of debate. The essence of the opposing viewpoints is summed in the conclusions drawn by Stevan Eldred-Grigg and Jim McAlloon. Eldred-Grigg claimed that the early runholders were ‘almost completely upper class and upper-middle-class’, with ambitions of creating landed dynasties.¹ McAlloon has argued that the pioneering pastoralists were largely middle-class entrepreneurs intent on turning their limited capital into great wealth.²

An analysis of the occupations and social status of the fathers of the runholders who took up land in Canterbury before 1865, and the analysis of the prior occupations of those runholders, support McAlloon’s thesis. The overwhelming majority of runholders were middle-class and their motivation was to make money. D. B. Waterson drew a strikingly similar conclusion about the motivation of the early squatters on the Darling Downs in Australia. In Victorian Britain wealth was equated to respectability. He wrote that ‘the chief idol’ of the early squatters was

¹ Stevan Eldred-Grigg, p.75
financial success and that 'rested on one foundation, hard physical labour'.

The combination of these values created the entrepreneurial spirit of the society from which the pastoralists were drawn.

Another critical issue in the development of pastoralism in Canterbury was the source of farming knowledge. This study shows that only a minority of runholders had any practical experience at farming sheep and that raises the question: where did the knowledge and expertise required to run large flocks of sheep in open country come from? This, too, has been the subject of debate, with the advocates falling basically into two camps: those who support the view that this expertise came from pastoralists who had prior experience in Australia and those who stress the importance of the Highland Scots in shaping pastoralism in Canterbury.

The thesis will show that the influence of the Australian connection in the establishment of farming practice in Canterbury has been over emphasised and the system here showed more similarity with hill farming in the British Isles. The thesis does not deny that some leading figures in pastoralism came to Canterbury through the Australian colonies. However, the origin of most of the pastoral farming practices used in Canterbury can be traced to British origins.

**RUNHOLDER DATABASE**

The thesis uses a database of 245 individuals to analyse the backgrounds and prior occupations of those who held pastoral land in Canterbury between 1843 and 1865 (see Appendix). The database is not exhaustive, but is a guide to the social and economic backgrounds of those people who took up runs in Canterbury in this period. The cut-off point of 1865 has been chosen for several reasons. In several ways 1865 marked the end of the first phase of pastoralism. That was the year in

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4 The information for this database has been drawn largely from:
which last block of unclaimed pastoral land was taken up in Canterbury. Moreover, the years between 1843 and late 1864 can be seen as the foundation period when many of the problems associated with the establishment of a new farming system in a new land were solved. By the mid 1860s, fundamental developments were taking place, in land management and sheep breeding in response to the adoption of light wire fencing and new cultivation and harvesting technology, that eventually helped to change the shape of pastoralism in the region.

The individuals in the database are representative of the people who took up the first leases in Canterbury. It includes some who never came out, such as Joseph Denman and the Reverend J. Owen, but who had leases taken out in their names. Some, like Charles R. Blakiston, who held The Springs for a year, did not last long in the business, while others, notably William Gerard, George Gould and George Rutherford, have descendants who continue to be active in the industry today. Also represented are those who started out as employees and rose to become runholders. William Gerard began his farming life working on stations in the Australian colonies and came to Canterbury in 1858 to manage Cheviot Hills for William Robinson. He purchased Snowden in 1866 and later held the leases of Double Hill and Manuka Point as well.

The database (Appendix) was created to gain an understanding of the social and economic backgrounds of the early runholders, and to gauge how much experience they had in farming. The information from this database has been used to create Tables 1.1 and 1.2 below. Of the 245 individuals listed, 99 (40%) were sets of brothers who came from forty families. Where this high number of brothers would distort the analysis of the data, they have been grouped together in their families. Thus, Table 1.1 examines the family backgrounds of 146 individuals who were not brothers and those from the forty families, making up a total of 186 individuals and/or families.

The data shows that an overwhelming number of the runholders were born in England. Of the 186 in the group, 132 (70%) were English, with men from the West Country making up the largest single regional grouping followed by those from Yorkshire. Interestingly, these were the regions in England where a system of
extensive pastoralism was still commonly practised. Sheep and cattle were grazed on the upland pastures of Dartmoor and Exmoor in the West Country, and on the Pennines from Derbyshire to Northumberland. Here stocking rates were low, often a sheep to three acres or more.⁵

The thirty-three Scots in the database made up the second largest national group and accounted for seventeen per cent of the total. Only three were born in the Australian colonies, including half-brothers Alfred Cox and John Gammack. This raises an important issue; by far the majority of the ‘Australian’ pastoralists in Canterbury were Englishmen and Scotsmen, who came after having spent time squatting in the Australian colonies. Regardless of their Australian experience, their values and motivation remained the same as those who came to Canterbury directly from the British Isles.

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Church</td>
<td>23</td>
</tr>
<tr>
<td>Farmer</td>
<td>21</td>
</tr>
<tr>
<td>Business and Banking</td>
<td>17</td>
</tr>
<tr>
<td>Landowner</td>
<td>16</td>
</tr>
<tr>
<td>Army</td>
<td>10</td>
</tr>
<tr>
<td>Baronet</td>
<td>7</td>
</tr>
<tr>
<td>Doctor</td>
<td>4</td>
</tr>
<tr>
<td>Civil Service</td>
<td>5</td>
</tr>
<tr>
<td>Chair at University</td>
<td>1</td>
</tr>
<tr>
<td>Navy – RN and Merchant</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total out of 186</strong></td>
<td><strong>106</strong></td>
</tr>
</tbody>
</table>

This table conveys some idea of the social and economic status of the fathers of the men who took up runs in Canterbury. Within each occupation there was a

⁶ There is information only on 106 of the fathers of the runholders listed in the database.
considerable range of incomes and status. For example, most of the churchmen listed were rural parsons and vicars, while a few were higher up the social ladder; John Thomas Brown’s father was Canon of Norwich Cathedral, and Frank Guinness’s father the Rector of St. Patrick’s, Dublin. Similarly, ‘Farming’ covers a range from prosperous tenant farmers, such as the father of the Rhodes brothers, to the McLean brothers who were the sons of a struggling small farmer and fisherman.

The conclusion that can be taken from this Table is that Canterbury’s runholders were drawn from a middle-class background. The evidence does not support Eldred-Grigg’s argument that the early landholders were from England’s landed gentry. In fact, the sons of baronets who did try their luck in Canterbury were either younger sons - J. B. A. Acland, C. R. Blakiston, G. D. Lockhart, Captain R. Westenra - who were not in line to take over the family estate, or from families that had fallen on hard times, such as Sir William Congreve, Edmund Gibson, and Sir Thomas and Henry Tancred.

Table 1.1 also shows that only twenty per cent of the fathers of runholders were involved in the business of farming. However, there was a strong country influence among those for whom we have information. Farmers, landowners, baronets and country churchmen together make up sixty-three percent of the group. While the members of these families may not necessarily have had knowledge of farming practice, they would have been aware of issues that were important to farmers and were likely to have empathy with rural affairs. This closeness to the rural scene may help to explain why the sons from these families took up the challenge of pastoral farming in Canterbury. Moreover, because of their intimacy with the countryside, taking up a career in farming might not have been seen as a daunting undertaking despite a lack of practical experience.

Another factor that may have encouraged these middle-class young men to take up pastoral farming was that in Britain it was seen as a gentlemanly occupation. So, although the early years of pastoralism in Canterbury proved to be a poor copy of the lifestyle found on the country estates of home, the business was at least socially

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acceptable. Furthermore, as soon as they became established, many colonial runholders set out to emulate the lifestyle of the English country gentleman.

An issue arising from both Table 1.I and Table 1.2 (over) concerns the wealth of the runholders and their families, and in particular the amount of capital they had to invest in the business of sheep farming. This was often a critical factor as to whether a runholder was successful or not. Despite Eldred-Grigg’s claim that most of the large landowners ‘were from the gentry and upper-middle-classes of England’, the evidence from these tables and the database suggests that many of the early runholders came with limited capital.

Getting established on a pastoral run took money. Weld wrote that to ‘make a good beginning in sheep-farming’ capital of 1000 to 1,500 pounds was required. There are plenty of examples to show that some who had the capital to get started did not have anything left to get them through troublesome times. The Perceval brothers, Dugald Macfarlane, and George Mason were among the first to take up land in Canterbury, but scab ruined them in the late fifties. The 1867 snow broke Frederick Broome, but his partner Henry Hill had the capital to rebuild his flock and continued to farm the run until 1873.

There are also examples of men who came out with little capital but worked their way into land ownership. John Hayhurst started in Canterbury as a shepherd at Malvern Hills for Henry Tancred and then managed the run. He later rented Ashburton Station, before taking up several runs in South Canterbury. William Gerard, and the Scots Andrew Burnett, George MacRae and George MacMillan were others who followed a similar path to station ownership.

Clearly, Eldred-Grigg’s proposition that the large landowners were wealthy men from the gentry and upper-middle-classes does not hold up. Instead many of them were men with limited capital who were determined to improve their lot. Through hard work and a little luck some became very wealthy, for others a serious reversal

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8 Eldred-Grigg, p.77
9 Lyttelton Times, 14 February 1852, p.9
10 L.G.D. Acland, p.231
11 ibid., p.91
in the form of scab or snow was enough to break them financially. The important point is that the majority of runholders were middle-class men imbued with the Victorian ethos of self-improvement through hard work and the determination to do well.

**TABLE 1.2 Prior occupations of runholders who took up land before 1865**

<table>
<thead>
<tr>
<th>Business and Banking</th>
<th>13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Army</td>
<td>13</td>
</tr>
<tr>
<td>Navy</td>
<td>5</td>
</tr>
<tr>
<td>Medicine</td>
<td>6</td>
</tr>
<tr>
<td>Engineering</td>
<td>7</td>
</tr>
<tr>
<td>Church</td>
<td>5</td>
</tr>
<tr>
<td>Law</td>
<td>5</td>
</tr>
<tr>
<td>Surveyor</td>
<td>2</td>
</tr>
<tr>
<td>Trade</td>
<td>2</td>
</tr>
<tr>
<td>Civil Service</td>
<td>3</td>
</tr>
<tr>
<td>Architect</td>
<td>1</td>
</tr>
<tr>
<td>Farming - Britain</td>
<td>28</td>
</tr>
<tr>
<td>Farming - Australia</td>
<td>25</td>
</tr>
<tr>
<td>Farming - Both</td>
<td>19</td>
</tr>
<tr>
<td>Farming - Total</td>
<td>72</td>
</tr>
<tr>
<td>Total out of 245</td>
<td>133</td>
</tr>
</tbody>
</table>

This Table analyses the occupations of runholders before they took up the business of pastoral farming. The interesting statistic here is that seventy-two of the 133 individuals are listed as having had some prior farming experience. However, it should be noted that the category ‘Farming’ has been given a very generous interpretation. The category has been deliberately kept wide to include all those with

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12 In this table the brothers are listed individually, since they did not necessarily follow the same career path before embarking on the runholding business. This table has data on 133 of the 244 (54.5 %) individuals listed in the database.
any prior farming experience, no matter how little, since it may have shaped the way they farmed in Canterbury and thereby helped shape the development of farming practice in the region.

W. B. Rhodes, for example, has been included as farming in both Britain and Australia. He was the son of a tenant farmer but went to sea. He later became successful in shipping and had other business interests and pastoral properties in the Australian colonies and New Zealand. Rhodes was not directly involved as a ‘hands on’ farmer but he was influential in the early development of the business in Canterbury. Similarly, Charles Tripp has been included as a farmer, although he practised law, because he had studied agricultural subjects at the University of Edinburgh and worked on a farm for a year. Nonetheless, it is debateable how much influence this background had in Tripp’s success as a pastoralist, since he relied heavily on managers for most of his time at Orari Gorge.

Such a wide interpretation of ‘farming’ does not provide a complete picture in the effort to gain an understanding of the experience of those who engaged in runholding. For example, men like the Tooth brothers, who owned pastoral runs in Australia and New Zealand were investors, not farmers. The reality was that only a minority of runholders had earlier practical experience in the business. Although the data suggests it was a more substantial minority than has previously been considered.

This raises an important question: was prior experience in farming a guide to success in pastoral farming? Clearly it was not. In A History of Canterbury Volume 1, L.C. Webb used the examples of James Fitzgerald and Samuel Butler, who made money from pastoral farming, to argue that success in the business was not related to experience.¹³ There are also examples of others who had experience, but who failed. George Mason had farmed in England and Dugald Macfarlane was the son of a sheep farmer. Both, as has already been noted, were put off their runs by the scourge of scab.

Although prior experience was not a prerequisite for an individual to succeed in runholding, it was an essential precondition for the creation of a successful farming system. The techniques that Butler practised to make money out of sheep farming he learned from others. People with experience brought the knowledge of how to run sheep, keep them on their blocks, wash them, shear them, select rams and do the many other tasks that were critical to successful management of a pastoral run. This is a central argument of this thesis. There is no doubt that a good deal of farm practice in Canterbury was developed by trial and error, but initially, the farming practices used in Canterbury were adopted from elsewhere and over time were adapted to suit local conditions.

WHY THEY CAME

An important aspect in the development of pastoral farming practice is the reasons why people became involved in the business. Those who came to make a fast profit and then get out were likely to manage their land differently to those who intended to hand their properties on to the next generation. W. J. Gardner provided an excellent comparison of the two different approaches in The Amuri: A County History. George Rutherford at Leslie Hills aimed to set up an estate for himself and his descendants and so everything he did was with a sense of purpose and thoroughness. George Duppa, however, built up his run to be sold at the highest possible profit, so that the property was run in a makeshift fashion and spending was kept to a minimum.\(^\text{14}\) He later leased St. Leonards to Robert Rhodes and Robert Wilkin, and returned to England in 1864.

Although we cannot know the reasons why all the pastoralists came to Canterbury to take up land, we can compare some different cases to gain some understanding of their motives. The overriding conclusion that can be drawn is that they came out to build up their wealth - to make money. Edgar Jones summed up this attitude when he wrote: ‘I emigrated to get on in the world.’\(^\text{15}\) Jones, the son of a felt manufacturer, came to Canterbury at sixteen years of age with a 1,000 pound

\(^{14}\) W J Gardner, The Amuri, p.164

\(^{15}\) Edgar Jones, Autobiography of an Early Settler in New Zealand (reprinted Christchurch, Kiwi, 1996) p.33
inheritance. He began farming as a cadet with Grigg at Longbeach and went on to be a successful runholder and died in New Zealand.

As with Edgar Jones, Mark P. Stoddart came to Canterbury was to build his fortune. He wrote to a friend in Victoria in April 1851 of his intention to set up in Canterbury, ‘My wish is to breed up as fast as I can, and sell out to return to the old shop’.16 Stoddart held the Rakaia Terrace for under two years before he sold it to John Hall. He was later a partner in Glenmark until was it freeholded from under them by G. H. Moore. Stoddart then farmed at Governor’s Bay until he died.

Similarly, George Mason came out to build his fortune. He was from a landed family whose wealth had declined. With his elder brother in line to inherit the family property, Horsley Court, George came to Canterbury. His intention was to make money at sheep farming, then to return to England with the profits and replenish the family coffers. Scab bankrupted him in 1859, although he continued to farm on a small scale in the Harwarden district until he died.17 Mason and Stoddart are examples of men who came out to make their fortune and then return home. Interestingly, both remained in Canterbury until they died. Some, like Duppa and Samuel Butler did make money and returned to England; however, seventy per cent of the individuals listed in the database died in New Zealand.

Associated with the determination to increase their wealth the early pastoralists shared a belief in the value of hard work. Peter Bowler has noted that the conviction that individual effort as the driving force of progress was a Victorian value, and it was evident time and again in colonial Canterbury.18 Alfred Cox wrote that John Cracroft Wilson’s ambition in coming to Canterbury ‘was to put together a property worthy of being entailed on his eldest son. With this determination uppermost in his mind and dominating him, never abandoned in good times or bad times, he laboured incessantly with hands and head.’19 John Hall summed up this attitude to hard work

16 Lyttelton Times, 5 July 1851 p.6
19 Alfred Cox, Recollections. Australia, England, Ireland, Scotland, New Zealand (Christchurch, Whitcombe and Tombs, 1884) p.96
succinctly when he commented ‘a life which is not a life of labour is not worth living and is a wasted existence.’

THE ARCHETYPE?

The variety of people who took up runs in Canterbury makes it difficult to single out anyone as an archetypal runholder. However, John Hall’s background and career in pastoral farming included characteristics that were typical of many of the early runholders. John Hall was the youngest son of a successful, but not wealthy, sea captain and Hull businessman. He was intelligent and had been educated abroad in Switzerland, France and Germany. Hall began a career in the civil service but became frustrated with the system where promotion depended more on a person’s connections than on their ability.

Rather than accept the restrictions of the English social system Hall decided to emigrate and take his chances in a more open society. Hall looked at options in Australia and Argentina. However, strongly influenced by Weld’s *Hints To Intending Sheep farmers in New Zealand*, he chose New Zealand as the place to try his luck. Weld estimated that an investment of between 1,000 and 1,500 pounds was enough to get established in sheep farming and Hall was able to bring 2,200 pounds to get started.

Hall and his brothers George and Thomas, both former sea captains, bought the Rakaia Terrace Station from Stoddart in May 1853. None of them had any experience in farming and so, initially, they relied on neighbours for advice and assistance in running their station. Two local men, who had practical farming experience in Britain, John Bryan and McGregor Watt, were employed to help with some of the more technical jobs - they thatched the woolshed, repaired the wash-pen, and then washed and shore the sheep. Thomas Sanderson, who owned a neighbouring station in partnership with William Brayshaw, had spent ten years managing stations in Victoria before arriving in Canterbury. John Hall got rams off

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20 Jim McAlloon, p.43
22 ibid., pp.15-75
Sanderson, got him to check the stock and no doubt got a good deal of advice on farming practice from him.\(^{23}\)

The brothers’ partnership ceased in May 1854 and John continued to run the station on his own account. John Hall took an active interest in the running of the station, but the day-to-day management was left to managers, notably John Buller from 1863 to 1869, and then John Fountaine until he retired in 1889. Under Hall and Fountaine the Rakaia Terrace Station became a profitable and well-run property. By 1870 it was running 20,000 sheep, and won awards in New Zealand and overseas for its sheep and wool. Hall was also a pioneer in the planting of trees for shelter and experimented with a variety of species before deciding that Pinus Insignis was the most suitable for the area.\(^{24}\)

It can be seen, then, that John Hall was in many ways typical of the early Canterbury runholders. He came from a middle-class family that was comfortably off but not wealthy. He was well educated and ambitious, but was frustrated by the patronage system that limited his chances of advancement. He had enough capital to get a start in pastoral farming in Canterbury, but because of his lack of practical experience he had to rely on employees and neighbours to learn the business. Importantly, he was imbued with the Victorian value of achieving progress through hard work. Moreover, part of his success was due to his ability to choose skilled managers to run the station.

What made Hall less than typical as a pastoralist was his success. Some did as well as, and a few even better, but many more failed. Scab, snow, bad management, bad timing, and bad luck cleaned many out of the business through the years. W. J. Gardner listed four attributes of successful runholders: capital, initiative, experience, and luck.\(^{25}\) John Hall may have lacked experience, but he made up for this with his careful planning and attention to detail. By getting ‘in’ early he was able to build up capital to see him through the bad years and no doubt he had a little luck as well.

\(^{23}\) Jean Garner, pp.15-75
\(^{24}\) ibid., pp.15-75
\(^{25}\) W.J. Gardner, *The Amuri*, p.58
Clearly, the background of the early runholders was important in shaping the development of the pastoral industry in Canterbury. They were middle-class people whose values associated respectability with wealth. They came out to free themselves from the constraints that limited their chances of improving themselves in Britain. Central to their belief system was the value of hard work and the importance of progress. This gave them the energy and the mental frame-work to travel to a new world and to reshape it. They burned Canterbury from the coast to the mountains, felled the bush, drained swamps, and ploughed thousands of acres of tussock. When the breed of sheep they had did not meet their needs they bred a new type that did. In thirty years between 1850 and 1880 they changed the face of the Canterbury plains.

THE ROLE OF THE PROPHETS

The fact that a minority of runholders had experience must have had a significant impact on the shaping of pastoralism in Canterbury. R. P. Hargreaves, among others, has been highly critical of their trial and error practices. In ‘Speed The Plough’ Hargreaves stressed that because of their ignorance they committed ‘blunder after blunder’.26 It also meant that those with experience in farming were likely to have had a large influence in the development of farming practice. Runholders, like Butler, who had no experience in pastoral farming, are likely to have looked to those who had some knowledge of the business for guidance. It is here that the influence of the Australian squatters has been seen as crucial in the development of pastoralism in Canterbury.

The tables and database show that only a tiny proportion of Canterbury runholders were Australian born, but that forty-four had farmed in Australia, including nineteen who had farm experience in Britain before that. Moreover, twenty-eight of these men arrived in Canterbury before 1855, when the very foundations of pastoralism were being established. Sheila Crawford is one of several writers who have stressed the influence of the Australian squatters in this period. She claimed that Hawdon, Aitkin, Reed, Stoddart and the Macdonald brothers ‘occupy a place of honour in the

26 R.P. Hargreaves, ‘Speed The Plough’, p.457
history of sheep farming in Canterbury’. Crawford not only boosted the role of the Australians in the creation of pastoralism in Canterbury, but she also diminished the role of the Pilgrims, who she claimed ‘did not engage in this branch of farming’ through ‘lack of inclination, enterprise and capital’.27

There were two key reasons why the Pilgrims were slow to get into sheep farming and neither of them had anything to do with Crawford’s reasoning. The land question was a major stumbling block until Godley changed the regulations. As the Lyttelton Times noted in February 1851 ‘No one will buy sheep until something more is settled as to the pasturage runs.’28 The ‘Australians’ came from a system where land was free for the taking and so were less constrained by concerns about regulations. However, when Canterbury’s land regulations were changed at the end of February 1852, L. C. Webb wrote that ‘it released economic forces which … transformed the Canterbury Settlement’.29 Moreover the Australians had the advantage of ready access to stock. Once the land question was solved and a supply of sheep and cattle began to arrive in the colony, the Pilgrims were as active as the Prophets in driving the expansion of pastoralism in Canterbury.

The emphasis put on the influence of the Australian squatters ignores the input of British entrepreneurs in establishing pastoralism in Canterbury. It was the Deans brothers, who in 1843 first brought sheep onto the plains; it was the Greenwood brothers who in 1845 began to establish a run on the easy hills north of the plains; and it were Acland and Tripp who pioneered runholding on the region’s mountain lands.

Others who came directly from Britain were also proactive in establishing pastoralism. George Mason sailed from Plymouth on the Castle Eden in October 1850, with sixteen merino sheep he had personally selected in Saxony, fully intending to farm sheep in New Zealand.30 Clifford and Weld, who had established themselves in the Wairarapa in 1844, took up Flaxbourne in what is now

27 Sheila S. Crawford, Sheep and Sheepmen of Canterbury, p.22
28 Lyttelton Times, 8 February 1851, p.5
30 Alice B. Clayton, p.17
Marlborough in 1845, then applied for the lease of Stonyhurst, south of the Hurunui River, in December 1850.\textsuperscript{31} Other pastoralists from the Nelson region also began to look south to the Amuri country, which later became part of North Canterbury, as a region suited to sheep and cattle farming.

The assumption seems to have been made that because the ‘Australians’ had experience at running stock on open country, they were inherently better at the business than farmers who came directly from Britain. This is not necessarily the case. Moreover, if they were so successful in Australia, why did they move to Canterbury? There are two opposing views about this. Acland claimed they were forced out by drought ‘and came to New Zealand early in 1851 to try their luck again with what money and stock they had left’.\textsuperscript{32} Others viewed the Prophets as ‘men who had already made a fortune out of sheep; they were self made, often of Scottish descent, canny, hard-bitten, with an “eye for good country” and the practical knowledge to put it to use’.\textsuperscript{33} So it is likely that among them there were those who had failed and those who had made large profits as well as those who fell between.

It seems likely that at least some of the Prophets were speculators who saw the opening up of a new sheep frontier as a chance to make a quick profit in land and stock. They were well aware that, in the expansion of the pastoral frontier in Australia, it was those who got in early who did well; they got the pick of the best land and profited by selling stock to later arrivals. Australian historian Bruce Davidson has claimed that ‘high profits could only be made where the industry was expanding rapidly and surplus sheep could be sold at high prices’.\textsuperscript{34} A pioneering squatter in Victoria, Scots-born Niel Black, was fully aware of this in 1841 when he asked: ‘What shall become of us unless a new Port Phillip is found to carry our surplus stock?’\textsuperscript{35}

\textsuperscript{31} Jeanine Graham, \textit{Frederick Weld} (Christchurch, Auckland University Press, 1983) pp. 19-29
\textsuperscript{32} L.G.D. Acland, p.13
\textsuperscript{35} M.L. Kiddle, \textit{Men of Yesterday. A Social History of the Western District of Victoria 1834-1890} (Melbourne, Melbourne University Press, 1961) p.132
One of the first Australian squatters in Canterbury was Joseph Hawdon, who had made his ‘pile’ by getting ‘in’ early in Australia. He led the first overland party to Melbourne in 1836 and the following year led the first overland party to Adelaide. He took up 35,000 acres in Victoria in 1837, which he subdivided in 1843, keeping Tallarook and selling Sunday Creek. In 1853, by which time he had already taken up land in Canterbury, Hawdon subdivided Tallarook, keeping the Tallarook Sheep Run which he sold in 1856. As well as profiting from selling land, Hawdon, by being early, was likely to have had a ready market for his surplus stock, as newcomers took up land further out into the interior.

How good a farmer Hawdon was is difficult to know, but Acland related this anecdote: ‘I once asked his son, Arthur Hawdon, whether his knowledge of stock was as great as his experience would lead one to expect. His son said he had not much knowledge but plenty of prejudices. When he came to the yards he used to insist on all the “snipe-nosed” sheep being culled; by “snipe-nosed” he meant what we know call “clean-faced”.’ Any stockman worth his salt knows that woolly-faced sheep soon become wool-blind and in open country sheep that cannot see are accident prone and difficult to muster.

There is no doubt that some of the Prophets were good operators, but Joseph Hawdon is an example of a successful speculator whose farming skills may not have matched his foresight in getting ‘in’ early. Was having Australian experience necessarily an advantage over those who had farmed in Britain? I contend that a good stockman can judge how well his stock is doing regardless of the type of country they are in. The success of the Scots stockmen both in Australia and New Zealand backs that up. Moreover, in the first two sheep shows in Canterbury, Australian and British runholders shared the honours reasonably evenly, suggesting that their success depended on their ability with stock and not where they had farmed previously.

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36 R.V. Billis, and A.S. Kenyon, Pastoral Pioneers of Port Phillip (Melbourne, Stockland, 1974) pp.282-3
37 L.G.D. Acland, p.247
38 Lyttelton Times, 24 September 1859, Results of Sheep Show: four of the seven classes were won by runholders with no Australian experience, Lyttelton Times, 22 August 1860, p.3. Results of Sheep Show: most prizes won by Australian B. Dowling, but four prizes won by runholders with no Australian experience.
An important point that also needs to be taken into consideration is that the ‘Australian’ pastoralists who came to Canterbury were overwhelmingly Englishmen and Scotsmen who had squatted in the Australian colonies. This raises an important question in terms of the system of management that they practised in Canterbury. The environment that they found here was different to that of Britain, but it was much less alien than that of the Australian colonies. They no longer had to deal with Aborigines who disputed their right of access to the land, wild dogs were much less a threat to their sheep, the climate in Canterbury was wetter and milder, and the growing season different to that of the hot, dry inland plains. Did all of these factors encourage the ‘Australian’ pastoralists to move away from Australian management practices that did not fit the Canterbury environment?

There is evidence that they did not continue the practice of folding and shepherding their sheep once they came to Canterbury. At a sheep owners meeting, called in October 1853 to discuss the Scab Ordinance, Thomas Sanderson, who had managed runs in Victoria, opposed the compulsory folding of sheep that were infected with scab on the grounds that it spread the disease. The *Lyttelton Times* reported that ‘Mr. Rhodes reminded gentlemen from Australia that it was common practice there to yard sheep every night.’\(^{39}\) Clearly, Sanderson and the other ‘Australians’ had already changed their system of sheep management in Canterbury to meet the local conditions.

There is no doubt that there was a strong Australian presence in early Canterbury and the ‘Australian’ John Aitkin may have helped speed up the expansion of pastoralism in Canterbury by putting pressure on Godley to act over the high price of land.\(^{40}\) However, it is clear that the development of pastoralism was inevitable, with or without the arrival of the Australian squatters. In the light of the increasing demand for wool in the English market-place and with the associated increase in wool prices, sheep farming was always going to be the economic lifeblood of the settlement. This had been recognised by the Deans brothers before the arrival of the first Australian squatters. Once the price of pastoral land was reduced and sheep became available, pastoralism was bound to expand and the available evidence

\(^{39}\) *Lyttelton Times*, 8 October 1853, p.11

suggests that Englishmen without prior experience were as active in driving that expansion as ‘Australian’ squatters.

THE SCOTTISH SHEPHERDS

The previous discussion has stressed the lack of practical farming experience of the majority of Canterbury’s early runholders. Consequently, they had to rely on the advice and assistance of more experienced men to establish themselves and learn the business. As we have seen, John Hall relied on employees, neighbours and his managers to establish his station and to help make it a success; these included an Irishman, a Scot, an Australian and two Englishmen.

However, Scottish shepherds have been credited by some writers as being the most influential group in establishing good management practice in pastoral farming. T. D. Burnett of Mt. Cook Station was clearly of this view when he claimed that: ‘Scottish trained shepherds cleaned up the country of scab, knocked system into the management of flocks, regulated the lambing time to the only natural time - spring, began to do something to waken the conscience to the danger of overstocking, began to draw attention to the need for wintering the flock on the safest country, and started to grow more wool from the sheep.’41

Charles Tripp thought that no one but a Highlander could successfully manage sheep in mountain country. He wrote to the Premier, Julius Vogel, in 1873, urging him to facilitate the immigration of Highland shepherds with their dogs. If this was not done, he wrote, ‘the country will materially suffer, for it is by these men alone that the hills can be properly worked’.42 According to R. M. Burdon, Tripp was not a good judge of stock and was no expert in the management of sheep. He relied on the expertise of his managers. Two of the most successful were the brothers Andrew and William Grant, who arrived from Scotland in 1865 and began work immediately at Tripp’s Orari Gorge. Tripp later wrote: ‘I always tell people here that I am Grant’s servant, not Grant my servant; respecting the sheep I do as he bids me, and all the shepherds are under him. I dare not burn grass on the run myself, or

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41 Sheila S. Crawford, Sheep and Sheepmen of Canterbury 1850-1914, p.63
42 Burdon, p.104
give a shepherd an order. If I want anything done, I go to Grant and if he approves it is done, if not it is left undone. The consequence is I have one of the best flocks in Canterbury and the best burnt run.\textsuperscript{43}

Scottish shepherds were in such demand that their emigration to the region was deliberately encouraged by the Canterbury Provincial Government under Rolleston’s superintendency. Even in the early sixties, however, there had been an influx of Scottish shepherds into Canterbury. In 1863 Harry Ford had seven Scotsmen shepherding at the Grampian Hills in the Mackenzie Country.\textsuperscript{44} Two of them, George McRae and John McGregor went on to own their own runs.

W. J. Gardner has commented on the Scottish influence in the Amuri. Runs in the region were initially taken up by Englishmen in the 1850s, but from the early 1860s the district became increasingly Scottish in character. Gardner claimed that most of the runholders and its best shepherds were of Scottish origin and their skill ‘gave the Amuri its high reputation as a pastoral district’.\textsuperscript{45} It is important to note that some of these Scots came by way of Australia. George Rutherford and his family, in particular, brought both Scottish and Australian experience to the Amuri district.

Robert Mackay can be seen as an example of the Scots shepherds who came to Canterbury. Mackay was a shepherd from Sutherlandshire, a region that had suffered in the great clearances of the 1830s. Even in the 1860s the atmosphere in the region was still charged with the injustices of that experience. Mackay was attracted by New Zealand advertisements for Highland shepherds and left Scotland in July 1863, with his wife, bound for Canterbury.\textsuperscript{46}

Immediately on his arrival Mackay was offered the position of head shepherd on Redcliff in the Rakaia Gorge, which was the lower part of the massive Double Hill Station, owned by the banker Joseph Palmer. After five years as head shepherd,

\textsuperscript{43} Burdon, p.101
\textsuperscript{44} Henry Ford Diary, Typescript of Grampian Hills Station day book kept by Henry Ford until March 1866, the farm diaries of Pareora and Holme Stations, October 1862-December 1873, Canterbury Museum Documentary Research Centre, February to July 1863
\textsuperscript{45} W. J. Gardner, The Amuri, p.115.
\textsuperscript{46} Nellie F. H. MacLeod, A Voice On The Wind. The Story of Jessie Mackay (Wellington, Reed, 1955) pp.12-21
Robert Mackay became the manager of Double Hill and was credited by L. G. D. Acland with knocking the run into shape.47 When the station was sold to William Gerard in 1874 Mackay moved to a new position as manager of Raincliff, in the fork of the Opihi and Opua rivers in South Canterbury.48

Mackay’s experience provides some insights into the motivation of the Scots. The fall-out from the clearances encouraged them to leave Scotland, and advertising by New Zealand agents attracted them to a better life with more prospects in Canterbury. Their skills were sought after by runholders and they are widely credited with improving sheep farming practice. Mackay did not go on to station ownership himself, but many other Scots did. This achievement shows their drive, skill and determination to succeed, for these were men who came with little or no capital.

The Scottish influence was important in shaping pastoral practice in Canterbury, especially from the early 1860s. This influence was out of proportion to the numbers of Scots involved in pastoralism, but reflects their background in the management of sheep. R. P. Hargreaves and A. H. Clark have both claimed that the methods of management practised in Scotland had little in common with the pastoral practices found in New Zealand. 49 However, the fact that Scots were so popular with runholders and slotted so easily into the system practised in Canterbury, as well as their acknowledged success in the business, calls into question the logic of Hargreaves’ and Clark’s argument.

There is no doubt that the Scots were important in the early pastoral period and that their experience with stock improved the way sheep were managed, particularly in the high country. However, it must be recognised that the basic system was already

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47 L.G.D. Acland, p.315
48 Nellie MacLeod, pp.12-21
49 R.P. Hargreaves, ‘Speed The Plough’, p.458, ‘For the methods they used and in the early days for the livestock itself, they looked to Australia, as no similar type of large-scale extensive farming was practised in the British Isles.’

A. H. Clark, p.181, ‘Yet the methods of management [in Scotland] were not applicable to South Island conditions. All the capital equipment of hedges or fences, buildings, communication routes, and markets for meat and wool, accumulated over the centuries, were lacking; the very sheep themselves were of a breed little known or used at home. It is, thus, to the Australian colonies that the roots of South Island [sic] dominant productive industry must be traced’. 
in place by the early sixties when the main influx of Scottish shepherds took place. They were influential in refining the management of sheep, rather than introducing anything new to the system.

This chapter has examined the main groups of people - middle-class English entrepreneurs, Australian squatters and Scottish shepherds - involved in the creation of pastoralism in Canterbury. The majority of the early pastoralists were English entrepreneurs who came to make money out of farming sheep. They associated wealth with respectability, they believed that societies must progress or stagnate and they valued hard work. These Victorian mores gave them the self-belief and energy to travel to a new land and embark on a business in which they had little experience. With little or no experience they turned to those who did have sheep farming experience for guidance. Consequently, the Scots and Australians had an important influence in shaping farm practice in Canterbury. Just how influential they were will be explored throughout the course of this thesis. What can be concluded here is that the motivation and values of the early pastoralists enabled them to create a farming system that reshaped the landscape of the Canterbury plains in thirty years.

The next chapter begins to examine how that transformation took place. The drive to profit from sheep led to changes in the way the land was managed and these changes, in turn, led to the need for a new breed of sheep. These changes came out of the motivation and values that the early pastoralists brought to Canterbury.
CHAPTER TWO

SHEEP BREEDING IN CANTERBURY:
THE ORIGINS AND INFLUENCES

From the beginning of organised settlement Canterbury was part of an international Merino industry that produced fine wool for markets of Britain, Europe and the USA. This chapter examines the sheep that were the source of the pastoralists’ wealth. It looks at the breeds of sheep that were imported, where they came from and what influences encouraged pastoralists to change the type of sheep they bred.

Sheep farming in Canterbury was founded on the Merino breed. It was the breed on which the early pastoral industry was based and from which the halfbred and the Corriedale types were to be developed. Between 1843 - when the Deans brothers brought sheep onto the Plains - and the mid-1860s, Canterbury was a sheep-importing region. Australia was the source of most of those sheep, either by way of direct shipment, or indirectly through Nelson and the Wairarapa - areas that had imported sheep in the 1840s.¹

Historians seem to have assumed that because of the large number of sheep that crossed the Tasman from Australia, Canterbury’s pastoralists were simply receivers of Australian technology and techniques. Erik Olssen claimed: ‘New Zealand runholders had easy access to the finest Australian Merinos and a lot of sound advice on how to maintain the purity of their flocks’.² James Belich wrote in Making Peoples that ‘the role of Australian shepherds and sheep money in New Zealand pastoralism is disputed, but there is no doubt that many of the sheep themselves are of Australian descent’.³ In his thesis, Ian Horsfield contended that ‘there was no shortage of well-bred, low price sheep available for shipment across

¹ Merino sheep thrived in the Wairau and Awatere valleys of the old Nelson province.
the Tasman'. Andrew Hill Clark saw the Merino as ‘this great Australian gift of the earliest years’.

These claims raise several questions that will be examined in this chapter. Firstly, just how ‘Australian’ were the early importations of Merinos into Canterbury? The chapter will show that in the nineteenth century the Merino was an international breed and until the early 1860s, the centre of excellence in Merino breeding was to be found in Saxony. The Australian colonies and Canterbury were part of a global Merino industry, and in the 1850s and 1860s Australia, like Canterbury, was an importer of sheep and sheep breeding skills. Despite the claims made by historians, a study of Australian sheep breeding up to the early 1860s shows that most squatters were breeding a European-type Merino, and that between 1852 and 1860, during the gold rushes, sheep in Australia were neither cheap nor readily available.

The chapter will also demonstrate that New Zealand’s sheep breeders were not simply receivers of Australian sheep breeding skills. From the very foundation of sheep farming in Canterbury, local breeders set out to improve the sheep they imported. They went to the regions of Europe that were acknowledged as the world’s leading centres for Merino breeding for superior genetic material. Australian Merino breeders did the same. From the early sixties, changes in the market place and changes to the landscape of the plains, created a need for a different type of sheep to the fine woolled, small-framed Merino of the early period. In Australia similar changes forced sheep farmers to reassess the type of sheep they were breeding. In fact, the effort by pastoralists to upgrade and then adapt their sheep to local conditions can be seen as parallel developments in Australia and New Zealand.

**MERINO SHEEP: THE INTERNATIONAL BREED**

The popularity of Merino sheep was not unique to the Australian colonies. From the late eighteenth century, when the King of Spain gifted Merinos to Saxony, France

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5 Andrew Hill Clark, p.384
6 See Table 2.1 p.60 showing sheep importations to Australia and New Zealand before 1880.
and England, the fashion for them became a worldwide phenomenon. In the early nineteenth century the breed spread to many parts of the world including: Prussia, Silesia, Austria, Russia, Sweden, USA, and the Cape of Good Hope. American historian Edward Norris Wentworth described the enthusiasm that greeted the introduction of Spanish Merinos to the USA when he wrote, ‘Hundreds of men in public life who had previously displayed no interest in wool production became fanatic propagandists for, and promoters of the breed’.\(^7\)

The popularity of the breed was driven by the increasing demand for fine wool as the wool textile industries of England, continental Europe and the USA expanded in the nineteenth century. At the same time the production of fine wool declined in Britain when improvements in farming methods led to sheep being better fed, which coarsened their wool. Spain was the largest exporter of Merino wool to England at the beginning of the nineteenth century, but was supplanted by Saxony by 1830. In the 1820s the Australian colonies began exporting fine wool to the English markets in commercial quantities. By 1850 they had become the major supplier to that market.\(^8\)

Britain had experienced a Merino boom after George III established a flock of Merinos at Windsor in 1786\(^9\) and over 12,000 Merinos flooded into England as war booty after the Peninsular War.\(^10\) In 1811 a Merino Society was established to promote the breed.\(^11\) However, Merinos, being comparatively small and lightly built, did not become popular with English farmers who had become used to the meaty ‘new’ breeds developed in the eighteenth century. The Merino Society became defunct in 1821, but several enthusiasts continued to breed Merinos. Lord Weston produced what was known as the Anglo-Merino with the infusion of long wool blood into the breeding. This created a sheep that was not as fine, but was

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\(^8\) Barnard, *The Australian Wool Market 1840-1900*, p.218


\(^10\) Garran and White, p.17

\(^11\) ibid., p.17
bigger framed than the Spanish sheep. Thomas Sturgeon bred a line of Merinos descended from the King's Windsor flock. George Rhodes visited Sturgeon's flock at Grey's Hall when he went to Britain and Europe to purchase Merinos in 1861. Sheep from both of these English flocks were used to upgrade Merinos in Australia and New Zealand.

**MERINOS IN AUSTRALIA: UNRAVELLING THE MYTHS**

To understand what type of sheep were available for buyers who were looking to establish sheep flocks in Canterbury we need to understand the development of sheep breeding in Australia. Before the 1820s there were few Merinos in Australia. Until that time the focus was on food production to meet the needs of the convict settlements and the sheep were a mixture of breeds from the Cape, India and British breeds that were carried on ships to supply meat. They were introduced not because of their wool quality, but simply because they were accessible. These breeds made up the base flock that was mated with imported Merinos to establish the Australian wool producing industry.

The shift to from meat production to fine wool in New South Wales and Van Dieman's Land was associated with the beginning of free immigration in the 1820s. During this period pastoralists introduced Merino sheep from England and Saxony. By this time Saxony produced the finest Merino wool in the world and had replaced Spain as the leading exporter of fine wool into the English market. This Saxon genetic base had a significant influence on the type of Merino sheep bred in Australia and therefore on the type of Merino brought into Canterbury.

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12 M.M. Milburn, *The Sheep and Shepherdling. Embracing the History, Varieties, Rearing, Feeding and General Management of Sheep and Including Australian Sheep-Farming, the Spanish and Saxon Merinos, and c.* (London, Orr, 1853) p.31. English sheep breeds in the nineteenth century could be divided roughly into long and short woolled types. Long wools such as Leicesters, Lincolns and Romney Marsh tend to have coarser wool and clip a heavier fleece than short wools like the Southdown. Fineness of wool refers to the diameter of a wool fibre: the smaller the diameter of the fibre, the finer the wool. This affects the manufacturing potential of the wool. Fine wool can be made into fine cloth for the apparel trade, whereas coarse or strong wool is used for blankets and carpets.

13 *Lyttelton Times*, 12 October 1861 p.4

14 Garran and White stated that: 'about 30 Merinos landed in the colony up to 1820, many of these disappearing from sight very quickly.' p.43

15 Garran and White, pp.48-57; Massey, p.27
Merino woolgrowers in Saxony had focused on breeding for increasingly fine wool to the detriment of wool weight and the conformation, constitution and size of their sheep. This low producing, but fine, Merino type remained the ideal for many Australian stud breeders until well into the 1860s. The ‘Australian’ Merino, which the historians claim was so freely available to New Zealand buyers, was in reality a European sheep neither bred for, nor adapted to, its new environment. Breeders, such as the famous Macarthur family, repeated the mistakes made by the Saxon breeders in the 1820s and bred for fineness to the exclusion of other traits. H. B. Austin wrote, ‘For many years, fineness was an absolute fetish. So long as the wool produced was 80s or 90s nobody bothered much what the sheep cut’. As Austin noted these sheep were well enough suited to timbered country or to higher rainfall areas, but they were entirely unsuited to the hot, dry open plains.

The great land rush into Port Phillip, South Australia and southern Queensland after 1835 created a huge demand for stock. As sheep prices boomed, commercial breeders were more concerned with profiting from selling sheep than improving the quality of their breed. The gold rush in New South Wales and Victoria in late 1851 led to a rapid increase in the population and a demand for food. Farmers, especially in Victoria, used English breeds to develop sheep that were quicker to mature and fatten than the small-framed, fine Merinos. Massey argued that this shift in emphasis had long term benefits for the development of the Australian Merino, but in the short term he said, ‘woolgrowing, with all its attendant shepherding, shearing and washing and transport problems, was pushed into the background until the late 1860s’.

Thomas Shaw described the state of the Merino industry in a pamphlet titled *The Australian Merino*, published in 1849. Shaw, a Yorkshireman who had considerable

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10 Conformation is the term used to describe the shape of a sheep, particularly in relation to its productive capabilities. The size of the sheep, shape of its head and body, and thickness of bone are some of the criteria used when judging the conformation of a sheep. Constitution refers to the ability of the animal to thrive and be productive in the environment for which it is bred.

11 H.B. Austin, *The Merino. Past, Present and Probable* (Sydney, Grahame, 1947), *The Merino. Past, Present and Probable* (Sydney, Grahame, 1947) p.64. The term 80s and 90s refers to the old system of measuring the fineness of wool. Modern medium merino wool equates to 60s in the old system and fine was 70s and above.

12 Ibid., p.18

13 Massey, p.159
experience in the English wool industry, had been brought to Australia in 1843 by Robert Campbell, a leading merchant and woolgrower.\textsuperscript{20} Campbell had become concerned at the deterioration in the quality of Australian wools and looked for expertise, unavailable in Australia at that time, to remedy the problems. In his pamphlet Shaw criticised breeders who had concentrated on producing fine wool and what they termed the 'pure blood', while disregarding other critical factors such as constitution, size and wool weight, so that in the end, 'they had neither quantity, quality, nor constitution'.\textsuperscript{21} Shaw made it clear that too many breeders had tried to breed a Merino that was suited to the cool climates of central Europe but unsuited to the environment of much of Australia. His second criticism was that the indiscriminate use of European breeds to remedy these faults resulted in what he called 'a mongrel breed'.\textsuperscript{22} He stressed that Australia must develop its own type of Merino that suited the different environments found there.

Thus the received wisdom of historians that Canterbury's runholders had easy access to the finest Australian Merinos, and that there was no shortage of well-bred, low priced Merinos available to establish the pastoral industry does not hold up. What will become apparent is that, at the same time as Thomas Shaw began to develop what Charles Massey called a new professionalism in the Merino industry in Australia, Merino breeders in New Zealand began a similar process to upgrade their sheep. There continued to be a 'cross-pollination' of ideas and Merino genes across the Tasman Sea, but differences in their environments and markets led sheep breeding in the Australian colonies and Canterbury down different pathways.

**PASTORALISM IN CANTERBURY: THE FOUNDATION PERIOD**

The development of sheep breeding in Canterbury in the early colonial period has to be understood in the context of developments in sheep breeding taking place not only in the Australian colonies, but also in the greater western world. Erik Olssen's comment that New Zealand pastoralism was only 'an extension of the Australian

\textsuperscript{20} Massey, p.131
\textsuperscript{21} ibid., p.133
\textsuperscript{22} ibid., pp.131-4
industry’ is a blinkered view. Australian breeders had created serious problems in their sheep. When they looked to correct their mistakes, they found in Europe and later in America more productive sheep with a bigger frame and clipping more wool than they had in Australia. Canterbury breeders, in their effort to upgrade their sheep, also looked to these countries as sources of genetic material.

Canterbury imported sheep from Australia in two main bursts: in 1851 and early 1852, and then in 1861 and 1862 when over 55,000 sheep were shipped across the Tasman. Between these two major periods of importation the demand for meat from the goldfields made Australian sheep too expensive for Canterbury pastoralists, who had to rely on sheep from Nelson and, to a lesser extent, the Wairarapa and Otago to build their flocks.

The number of sheep imported into Canterbury from the Australian colonies is not known, but in 1851 the *Lyttelton Times* reported a brisk trade with ships bringing stock from Sydney, Port Phillip, and Launceston. At this time a serious drought in southeast Australia, that had begun in the late 1840s, had reduced the value of stock on the Australian markets. However, the condition of these animals was not always sound and there are reports of Charles Sidey, one of the first entrepreneurs to speculate in shipping stock across the Tasman to Canterbury, loading starving sheep in Sydney. Squatters from Australia, particularly Victoria, among them the MacLean and Macdonald brothers, Robert Chapman and Mark Pringle Stoddart, also came with sheep to establish the new pastoral industry.

After the discovery of gold in New South Wales and Victoria in 1851, the sheep trade with Canterbury slowed remarkably quickly and remained low for the rest of

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23 Olssen, p.40
24 Massey, Garran and White, and Austin all have commented on the improvement in German Merinos after the 1830s. Breeders from Saxony, Silesia and Prussia, particularly the leading studs-masters Steiger, Fischer and Gadegast improved the size and wool cut of their sheep. By 1854 Fischer’s ewes were cutting from 8 to 11 pounds of wool, compared to Macarthur’s ewes, which cut 1 to 2 pounds. Austin, p.36
The French Emperor’s flock was bred at Rambouillet from 1786. It was developed into a different type of sheep: big framed with longer, but stronger, wool than the German types. Massey has described the Rambouillet as: ‘the overwhelmingly significant genetic influence in the second half of the nineteenth-century on Australian sheep flocks’. Massey, p.309
Large imports of Spanish Merinos into the USA took place after 1809. By the 1850s ewes were cutting 6 to 7 pounds of washed wool. Massey, p.247
25 Alice G. Clayton, p.40
the decade. Reports in the *Lyttelton Times* reveal that the shortage of stock became a major issue in Australia through the 1850s. An address to the Australian Agricultural and Horticultural Society, in May 1857, expressed concern that the Australian colonies were struggling to meet the demand for meat and that Victoria, Tasmania and South Australia had to buy beef and mutton from New South Wales.\textsuperscript{26} Three months later, another report from New South Wales showed that in 1856 the sheep population of the region had declined by 1,233,997, while sheep numbers in Victoria had fallen by nearly three million in the previous two and a half years.\textsuperscript{27}

Large scale shipping of sheep from Australia resumed in 1861 when demand for stock waned in Australia. The *Lyttelton Times* reported a ‘superabundance’ of stock in Victoria\textsuperscript{28} and in 1862 drought in NSW and Queensland caused a drop in local stock prices. In 1861 the *Lyttelton Times* noted that in the overstocked colonies young ewes averaged from 10s to 15s.\textsuperscript{29} Since the demand for sheep remained strong in Canterbury agents took advantage of this price fall. In 1861 and the first four months of 1862 over 50,000 sheep were shipped to Canterbury from Australia.

However, according to the *Lyttelton Times* Christchurch Stock and Station report in October 1861, ‘the losses sustained by those who took delivery of sheep from off shipboard … has given a decided preference for acclimatized ewes, even although their ages may not be so desirable as that of the generality of imported sheep’.\textsuperscript{30} This also suggests that the sheep coming from Australia may not have been seen as superior to the local flocks. Had the imported sheep been markedly better than those already in Canterbury it is likely that there would have been greater competition for them from pastoralists who were keen to upgrade their flocks. Instead, we read of Matson and Torlesse selling 6,000 young ewes from Victoria at 26s to 29s per head, when 2,600 acclimatised aged ewes sold from 29s to 30s each.\textsuperscript{31}

Clearly, between 1851 and 1861 the Australian colonies ceased to be a source of sheep for New Zealand pastoralists. Fortunately for the development of the pastoral

\textsuperscript{26} *Lyttelton Times*, 23 May 1857, p.5
\textsuperscript{27} ibid., 29 Aug 1857, p.2
\textsuperscript{28} ibid., 10 August 1861, p.3
\textsuperscript{29} ibid., 5 April 1861, p3
\textsuperscript{30} ibid., 11 October 1861, p.2
\textsuperscript{31} ibid., 25 March 1863, p.4
industry in Canterbury, in March 1852 Jollie and Lee drove 1,800 sheep through a mountain route from Nelson to Canterbury. This opened up a new source of stock and, although prices remained high, because of the great demand, at least stock were available. But were these sheep the well-bred animals that historians claim?

Beginning in 1843, Nelson was stocked with sheep and cattle from the Australian colonies. During the boom years of the 1830s there had been little culling since almost any sheep had been saleable. When sheep prices collapsed in the forties, due to the drought and depression, it gave pastoralists the opportunity to quit their poorer sheep to be boiled down and thereby to upgrade their flocks. For buyers from New Zealand it meant that stock were cheap, but also that there were many badly-bred animals on the market. Weld was particularly scathing about the quality of these Australian imports which he said were ‘nothing but drafts from inferior flocks, in which form, constitution, and, as a consequence, the weight of fleece, have been sacrificed, either by careless breeding, or by a blind indifference to everything but obtaining a small quantity of very fine wool’.

This demonstrates that a large proportion of the sheep that came in to Canterbury, from Australia or through Nelson, were low producing, small-framed, and badly bred. From the outset, this provided a challenge to Canterbury’s breeders to upgrade their flocks and increase their productivity.

THE PURE MERINOS

It is likely that during the first decade in Canterbury runholders were more interested in building up numbers than in upgrading their flocks. However, from the very beginning, some individuals set out to improve the quality of the founding stock. George Mason went to Saxony and purchased 12 Merino rams and 4 ewes which he brought with him in the Castle Eden from Plymouth in October 1850. Pure bred Saxon and French Merino rams were brought over from Australia in February 1851, and in the same year Mark Pringle Stoddart advertised rams by

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32 Weld, p.8
33 Clayton, p.17
34 Lyttelton Times, 8 February 1851, p.1
imported German sires out of picked Port Phillip ewes.\(^{35}\) In 1853 the Hall Brothers used German rams, borrowed from their neighbour Thomas Sanderson.\(^{36}\)

At this time the best Merino sheep in the world were in Europe, particularly Saxony, but also several other German states, especially Silesia and Prussia, as well as France. Saxon flock masters had corrected the errors they had made in the 1820s when they selected only for fineness and by the 1850s were producing sheep with a medium sized frame and clipping heavier wool weights than they had in the past. German breeders developed different types of Merino based on Spanish sheep. The Electoral Merino grew the finest wool but remained a small sheep, whereas the Negretti sheep were bigger animals, with more grease in their wool and more body wrinkle. A third type, developed in Silesia, blended the best of both of these main German strains. In France the Rambouillet Merino been developed into a distinctive type by the 1850s. It was altogether a bigger sheep than the German breeds and carried a long-stapled, medium fleece. These different types of Merino sheep all had a role in the development of the breed in Australia and New Zealand in the 1850s and 1860s.\(^{37}\)

In 1855 Robert Beauchamp of Wellington advertised ewes, rams and their progeny that he had imported from a Saxon Electoral flock owned by Carl August Gadegast, who was one of the leading breeders in the world.\(^{38}\) Beauchamp’s stud must have been highly regarded as sires bred from his flock continued to be used in Canterbury in the early 1860s, when imported sires form Europe and Australia became increasingly common.

The greatest of the early Merino improvers in New Zealand was George Rich, a Somerset sheepman who emigrated to Auckland in 1840. Rich established a stud at Mount Eden, part of which he shifted to Canterbury in 1861. His original flock came from the Mount Aitkin stud in Victoria, which was based on sheep imported from Prussia and Germany. Rich’s sheep established a reputation for size, fleece weight and length of staple. In 1858 he began exporting rams and ewes to Australia,

\(^{35}\) *Lyttelton Times*, 22 November 1851, p.4
\(^{36}\) Rakaia Terrace Station Journal, 11 October 1853
\(^{37}\) See note 23, page 45
\(^{38}\) *Lyttelton Times*, 2 June 1855, p.2
where they were sold at annual auctions in Melbourne and Sydney. A report from *The Argus*, describing the auction in Melbourne in 1861 was reprinted in the *Lyttelton Times*: ‘Many of the principal breeders, and some of the wealthiest settlers in the Australian colonies were present at the sale. The bidding was very spirited’.  

The top price achieved was 90 pounds, with other lots going at 80, 60 and 44 pounds. In 1863 F.D. Rich, Georges’s son, sold a ram bred from his father’s flock for 300 pounds, at that time a record price for a single sheep sold in Australia.  

Rich toured the best Merino flocks in Europe in 1858. The *Sydney Morning Herald* ran an article on this trip, which was reprinted in the *Lyttelton Times*. It reported that in Germany Rich found that ‘the flocks, though possessing very fine wool, exhibited feebleness of constitution’. However, in Prussia he found a flock with the attributes that he was looking for and he purchased ewes and rams for his New Zealand stud. Rich’s Merinos were so highly regarded that they were sought after by the master of the French Emperor’s flock at Rambouillet. This was a remarkable achievement for a breeder from the colonies. In January 1861 the *Lyttelton Times* reported that *The Mermaid* sailed with twenty-eight of Rich’s ewes and rams, ‘to improve the breed and condition of the best bred flocks in France’.  

On 28 October 1861 George Rich disposed of his stud due to his failing health. The dispersal sale attracted buyers from Canterbury, Otago and Australia. His French ewes were advertised as clipping on average ten pounds of washed wool per head and his Spanish ewes from seven to eleven pounds. Massey has asserted that these weights could have been matched by ‘few, if any, Australian flocks of the time’. Two rams purchased for the Peppin brothers of the Wanganella Stud, from the Riverina District of New South Wales, were used in the development of the famous medium woolled Merino type that later came to dominate the Australian sheep industry.
George Rich was an exceptional stockman and judge of sheep, but his approach was typical of that taken by other Canterbury breeders who wished to upgrade their flocks. They started with a foundation flock from Australia and then looked the best flocks of Europe to provide superior genetic material to add size and wool weight to their sheep. Importantly, pastoralists in Canterbury did not follow the Australian fashion for fineness alone. As early as 1851 Weld and Stoddart noted Merinos in New Zealand cut more wool than Australian sheep, on average four pounds as opposed to about two and a half.\(^{46}\) It became the accepted view that Canterbury’s advantage was in growing sheep that produced sound wool and high wool weights. A benefit of selecting for better wool weight was that the sheep did not lose size and vigour as happened in the Australian colonies when breeders had focussed on fineness alone.

The advertising pages of the *Lyttelton Times* in the late 1850s and early 1860s had numerous notices for Electoral, Negretti and Spanish sheep from Saxony, Prussia, Silesia, France, Russia, England and America. In 1862 Stoddart and Sprott advertised imported American Merino rams, which were claimed to cut from 18 to 30 pounds of wool.\(^{47}\) According to Austin, no American sheep were imported into the Australian colonies until 1865.\(^{48}\) This is further evidence that Canterbury breeders were not simply following Australian breeders but were actively seeking better genetic material to improve their sheep.

At the Canterbury Agricultural and Pastoral Association’s Exhibition in 1863, the leading place getters in the competition for the finest wool ram show the diversity of genetic material used by Canterbury Merino breeders. The first-placed ram was by a Saxon ram out of a ewe from Victoria; the second ram was out of imported American stock; the third had been imported directly from Saxony and the fourth-placed ram was from South Russia.\(^{49}\) The flock at Holme Station showed how these different types were often used on the one property. Between 1866 and 1872 Harry Ford, the station manager, used Rambouillet, American and Tasmanian bred rams in the stud flock. By 1872 he was also using Leicester and Lincoln rams, as footrot had

\(^{46}\) Weld, p.2; Stoddart in the *Lyttelton Times*, 5 July 1851, p.6
\(^{47}\) *Lyttelton Times*, 29 January 1862, p.2
\(^{48}\) Austin, p.48
\(^{49}\) *Lyttelton Times*, 22 October 1863, p.4
become a major problem on the run. This is an issue that will be dealt with later in the chapter.\footnote{Henry Ford Diary, 5 December 1866, 30 September 1872}

Clearly, Canterbury Merino breeders were part of the international merino industry and not just part of the Australian branch of it. There is no debate that the bulk of merinos came from the Australian colonies. However, Canterbury breeders were aware of the limitations of these animals; many were badly bred or had been selected for fineness alone. Moreover, Canterbury breeders never followed the Australian mania for fineness. Instead, they bred their sheep for wool-cut per head. From the earliest days leading stockmen set out to improve their sheep by importing better stock from the leading flocks of Europe and later America.

**CROSS BREEDING**

The efforts by leading Canterbury breeders to improve their Merino flocks, particularly in the early 1860s, were made in response to changes taking place in the markets for wool and meat. Later in the decade, changes in management systems taking place on the more established runs on the plains, as a result of the introduction of new technology, also had a significant influence on sheep breeding. George Rich showed breeders that they could improve the constitution, conformation and wool of their sheep by using pure Merino genetic material. But for many, this process was too slow and too expensive. To take advantage of the new opportunities many breeders, from the mid-1860s, turned to cross breeding to improve their sheep.

The invention of machinery designed to comb wool mechanically led to the major structural changes in the worsted method of processing wool in the 1850s. The worsted industry became specialised as different processors concentrated on different tasks in large-scale factories. This specialisation enabled processors to reduce their costs and so produce cheaper cloth. Moreover, a change in consumer
fashion from woollen to worsted fabrics led to an increase in demand for raw wool for the worsted industry from the 1860s.\textsuperscript{51}

Worsted processors wanted ‘combing’ wool. This had a long staple and good tensile strength that could withstand mechanical combing without breaking.\textsuperscript{52} Initially they used English wool, as it was long and strong. However, English wool growers were unable to meet the increasing demand and so the processors turned to the colonies for their fibre. Reports from the London wool sales in the \textit{Lyttelton Times} from early 1860 began to stress that the worsted-spinning districts demanded ‘sound, shafty’ combing wool.\textsuperscript{53} An article from the \textit{Mark Lane Express} reprinted in Christchurch in 1864, argued that ‘all the new sources of supply – Australia, Tasmania, South Africa, New Zealand – furnish fine, soft, useful, short-stapled wool [while] the demand for long-grown wool increases year by year, and any country which possesses facilities for the production of a wool endowed with qualities which are peculiar to wool of English growth seems far more likely to ensure a profitable market for its commodity than it can do by adhering to wool of a shorter and finer type’.\textsuperscript{54}

The supply of combing wool became such a problem that businessmen from Bradford and Halifax, the centres of the worsted trade, formed the Wool Supply Association to encourage woolgrowers to change to long-woolled breeds. The Association made submissions to governments and sent letters and pamphlets to newspapers and growers as part of its promotional campaign. In December 1863 the \textit{Lyttelton Times} published a letter from the Secretary of the Bradford Chamber of Commerce who saw New Zealand’s future as a supplier of ‘long-stapled fleeces, of a medium quality and length, between the fine Merinos of Australia and the long-grown Leicester of this country’.\textsuperscript{55} The letter continued that if New Zealand sheep-farmers used ‘the blood of some of the deep-stapled sheep of England’ instead of

\textsuperscript{51} Barnard, \textit{The Australian Wool Market 1840-1900}, pp.33-38
\textsuperscript{52} ibid, note 2, p.19. The short fine Merino wool was mostly used in the woollen process. Whereas the worsted process used long fibres that were combed, the woollen process used short wool that was carded. Each process, therefore, used different types of wool and the yarn they produced was used in different types of fabrics.
\textsuperscript{53} \textit{Lyttelton Times}, 29 February 1860, p.4.
\textsuperscript{54} ibid., 17 May 1864, p.4
\textsuperscript{55} \textit{Lyttelton Times}, 22 December, p.4
pure Merinos they would ‘produce a fleece better adapted to meet the growing wants of the manufacturers of this country’.

This pressure from English processors may have persuaded growers to change their breeding, but the real impetus for change came from the selling floor. Through the 1860s the reports from the London Wool sales continued to emphasise the demand for combing wools. London woolbrokers Thomas Southey and Son, in a report from the sale held on 24 November 1863, quoted ‘full stapled stout wool at an advance of 11/2 d. to 2d. [compared to clothing wool at 1/2d. to 1d.]. New Zealand abounds in these sales. Combing sorts are in much request, at improved prices; other qualities press on the market, and cannot be quoted higher’. An excellent example of the price advantage of combing wool over short merino wool can be found in the prices received by The Levels Station. In 1868 Leicester rams were used over Merino ewes; the wool from the crossbreds fetched sixteen pence per pound, whereas merino wool from the station fetched nine pence. Added to the price advantage of crossbred wool was the weight advantage it gave over wool from merinos. In 1872 the Holme Station crossbred hoggets shore nearly seven pounds of wool per head, whereas the merino ewes clipped five and a half pounds.

This demand for longer wool from the English marketplace was not the only reason that encouraged pastoralists to question the way they should breed their sheep. The gold rushes to Otago and later to Westland stimulated a sudden demand for food. As in Australia ten years earlier, the small framed slow maturing Merino proved unsuitable in meeting the demand for meat from the huge influx of diggers. The response from Canterbury runholders to the problem was the same as the response from Australian breeders had been - they turned to English breeds and cross breeding.

English breeds had arrived in New Zealand in small numbers in the 1840s. Charles Massey claims that George Rich brought Cotswold sheep to Auckland in 1840. In

50 Lyttelton Times, 4 February, 1864, p.4
57 Johannes C. Anderson, Jubilee History of South Canterbury (Auckland, Whitcombe and Tombs, 1916) p. 95
58 Henry Ford Diary, 22 September 1872, January 1873
59 Massey, p.221
areas where Merinos struggled to thrive - the Bay of Islands, Auckland, Taranaki and Nelson - settlers turned to English breeds better suited to those environments. Similarly, farmers around Christchurch, Kaiapoi and Ellesmere found Merinos poorly adapted for their heavier land. The Deans brothers had foot problems with their Merinos at Riccarton as early as 1844.\textsuperscript{60} To solve this problem some farmers from these districts began importing British breeds in the 1850s.

By the beginning of the 1860s farmers in Canterbury were experimenting with crossbreeding and used a variety of British breeds. In May 1861 six half-bred Cotswold rams and one Hampshire ram were advertised at a clearing sale to be held at Melcombe Farm, near Christchurch.\textsuperscript{61} In the following month the ship \textit{Glentanner} brought to Canterbury thirty-one Spanish sheep for George Rich and five Hampshire rams, for an unnamed buyer.\textsuperscript{62} The partnership of Stoddart and Sprott advertised Cotswold-Merino ram lambs late in 1861, claiming that in Australia this cross had been ‘found to improve the constitution, to increase and ripen the carcass, add greatly to the weight of wool and length and strength of staple.’\textsuperscript{63}

The immediate advantage of cross breeding was in meat production. This was shown clearly in the fat wether competition at the Pastoral and Agricultural Show held in Latimer Square in October 1862. Robert Chapman won the section where sheep were required to be fattened on native pasture, with four-year-old Merino wethers, the heaviest carcase weighing 80 pounds. Mrs. Deans won the section where the sheep were finished on enclosed ground with 80-pound Merino-Southdown half-bred wethers that were only ten months old.\textsuperscript{64}

In the early 1870s the market for surplus sheep disappeared. Runs were stocked up and as gold petered out the demand for meat declined. The only outlet for sheep was the boiling down process which rendered sheep into tallow. This change in the market was another encouragement for pastoralists to continue down the path of cross breeding. Merinos did not have the size or condition to make rendering down

\textsuperscript{60} John Deans, ed., \textit{Pioneers of Canterbury: Deans Family Letters, 1840-1854} (Dunedin, Reed, 1838) p.135
\textsuperscript{61} \textit{Lyttelton Times}, 25 May 1861, p.6
\textsuperscript{62} ibid., 12 June, 1861, p.4
\textsuperscript{63} ibid., 12 October 1861, p.6
\textsuperscript{64} ibid., 25 October, 1862, p.5
profitable. As early as 1870 the *Timaru Herald* reported that half bred sheep were being bred specifically for boiling down and for meat preservation.\(^65\) This was to remain the main market for surplus sheep until the introduction of refrigeration.

Changes in the market place were not the only forces that encouraged Canterbury pastoralists to move away from pure Merinos on the plains and downlands. Changes in technology, which began with the introduction of wire fencing in the early 1860s, led to major changes in the environment that did not suit the foundation breed. The subdivision of the runs brought sheep into closer contact with each other. Where in the past sheep had spread across large blocks and were restricted only by natural boundaries or a boundary keeper, fencing confined them on to smaller blocks. The old maxim that ‘a sheep’s worst enemy is another sheep’ became evident as footrot became an increasing problem. This was exacerbated in the 1870s as the natural grasslands of the plains were replaced by English pasture species and the stocking rates were lifted from a sheep to three acres to a sheep to the acre or better. Drainage opened up heavy soils for grazing. Although it increased pasture production these pastures were unsuitable for merinos.

Footrot is difficult to cure and time consuming to treat, requiring a lot of labour, and causes high losses in production as sheep lose condition. It became an increasingly serious problem that runholders had to deal with. In one winter at Te Waimate 16,000 sheep were isolated in a footrot mob that had to be treated regularly.\(^66\) For runs where footrot became endemic the only solution was to change the breed of sheep. The easiest and fastest way to do this was to cross breed with British sheep, which are less prone to footrot and, if they do contract the disease, are less debilitated by it than merinos.

These economic and environmental factors led to a marked swing away from Merino sheep on the Canterbury plains in the 1860s and 1870s. As early as 1866 there were more Leicesters, Cheviots and Romney Marsh sheep shown at the Canterbury Agricultural and Pastoral Association Exhibition than there were Merinos. In that year seven breeds were entered and, of the 152 individual sheep

\(^{65}\) *Timaru Herald*, 7 December 1870, p.2
\(^{66}\) E.C. Studholme, p.115
shown, only twenty-three were merinos. 67 An example of the speed with which Merinos were replaced by crossbreds on the Canterbury plains can be found at The Levels. In 1868 a number of Merino ewes were mated to Leicester rams as part of a cross breeding experiment. By 1879, of the 79,497 sheep shorn on the station, only 6,300 (all ewes) were pure Merinos. 68 Clearly, the days of the Merino on the plains were over.

THE CORRIEDALE: AN IN-BRED HALF BRED

Pastoralists and farmers on the plains and downlands of Canterbury adopted crossbreeding from the middle of the 1860s. However, the swing to the use of British rams was far from universal. Many enthusiasts for the pure Merino predicted disaster for the future of the sheep industry if crossbreeding became widely practised. A writer in the Lyttelton Times warned: ‘The high price of butcher’s meat at present is an inducement to speculate in [crossing], and the home demand for a longer stapled wool is also a stimulant to experiments. The sheep farmer should pause before embarking in such an experiment, as the practice is not sustained in theory. The first cross of the Merinos with South Down may yield a sheep well adapted for the purpose, but breeding from such would entail degeneracy and a mongrel race’. 69

Overseas experts in sheep breeding supported these sentiments. In 1862 The Spectator questioned the wisdom of New Zealand sheep breeders shifting the focus of their production from fine, short wool to long, strong wool. It also raised the issue of ‘whether it is not possible to obtain a breed of sheep by crossing ... two breeds [to] combine the merits of both: There can be one answer to this question: such a breed cannot be obtained’. 70 The article went on to quote a paper by Mr. Spooner that had been published in The Economist where he emphasised: ‘Cross-breeding is merely a plan of producing meat, for cross bred animals are only suitable for the butcher. They cannot be perpetuated.’

67 Lyttelton Times, 10 November 1866
68 Noel Crawford, p.36
69 Lyttelton Times, 13 May 1863, p.3
70 ibid., 11 June 1862, p.3
When Mr. Spooner observed that ‘crossing for the purposes of the butcher may be practised with impunity, and even with advantage’,\textsuperscript{71} he clearly recognised the principle that is now known as heterosis or hybrid vigour, where the progeny of a cross has superior qualities to the parents. However, he stressed that no one should cross to establish a new breed ‘unless he has clear and well defined views of the subject he seeks to accomplish, and has duly studied the principles on which it can be carried out, and is determined to bestow for the space of half a lifetime his constant and unremitting attention to the discovery and removal of defects’. The article emphasised another objection to crossing, the lack of uniformity in the character of the wool. It stressed the maxim ‘like produces like’ and that crossing produces ‘innumerable varieties, and not infrequently on the same sheep’.\textsuperscript{72}

In 1863 The Lyttelton Times reprinted a paper by Professor Ran that had been published in the Hohenheim weekly paper. He was noted as an authority on the subject of weight of fleece and carcase of sheep and had three main objections to crossbreeding. Firstly, that it was difficult to obtain a large carcase and an abundance of wool together. Secondly he claimed that wool growth occurred at the expense of carcase growth. Thirdly, he concluded that farmers who were concerned about wool production should breed Merino sheep with a small to averaged sized carcase, while those who wished to grow sheep with a large carcase ‘must, as a natural consequence, expect a less quantity of wool’.\textsuperscript{73}

These articles demonstrated the dilemma faced by pastoralists. The marketplace and the new environment being created on the plains encouraged them to change their type of sheep. But the practicalities of doing so seemed insuperable. Using British rams over their merino ewes gave them wethers that grew quickly and produced a heavy carcase. But what were they to do with the ewes from the cross? Mating them back to either a merino or a long-wool breed resulted in increased variability in the wool of the progeny. Also it did not solve the real problem, which was to change the breeding flock itself to one that was less susceptible to footrot.

\textsuperscript{71} Lyttelton Times, 11 June 1862, p.3
\textsuperscript{72} ibid., 11 June 1862, p.3
\textsuperscript{73} ibid., 20 May 1863, p.5
It has been well documented that two breeders – James Little and William Soltau Davidson – managed to overcome the problems of breeding an in-bred half bred and so established a new breed of sheep, the Corriedale, which was adapted for downlands and plains of the eastern region of the South Island. James Little, a Scot who managed the Corriedale station in North Otago began his experiment in breeding using Romney Marsh sires in 1866. 74 Davidson, who was also a Scot and a station manager, started his development programme at The Levels with Lincoln rams in the autumn of 1873. 75

The Corriedale met the requirements of the new economic and physical environments. It produced a heavy medium-fine, long stapled fleece ideal for the worsted processing industry. It had a higher lambing percentage than Merinos on the same country and the lambs matured earlier and with a meatier carcase than Merinos. Corriedales are also less susceptible to footrot than Merinos. Although they are not resistant to the disease, they seem less debilitated by it than are Merinos.

In less than fifty years after the introduction of sheep on to the Canterbury plains, by the Deans brothers in 1843, the sheep industry developed at a remarkable pace. In the first twenty years pastoralists spread their sheep from the plains to the Southern Alps. Historians claim, correctly, that many of the sheep came from Australia. Yet they were hardly ‘Australian’. They were a European Merino that had come through Australia. The reality was that New Zealand and Australian breeders were part of an international Merino industry. Changes in the market place, with the demand for meat and longer stronger wool, and changes to the landscape of the plains, due to the adoption of new technology, created a need for a different type of sheep to the fine woolling, small-framed Merino. Canterbury breeders met that challenge and when refrigeration became established, after the first successful shipment of meat to Britain in 1882, they had a breed that met the demands of the meat trade and the Bradford wool trade. The Corriedale became the favoured sheep on the plains and

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74 G. H. Scholefield, ed., *A Dictionary of New Zealand Biography*, p.499. Little moved to his own farm in North Canterbury in 1878 and continued with his sheep breeding programme.  
75 Noel Crawford, pp.65
downlands of Canterbury for the next hundred years, while the Merino was pushed back to the hard hill and high country.

This examination of sheep breeding shows that Canterbury pastoralism was not simply imported from Australia. Sheep came to the region from a variety of sources and were adapted to meet the requirements of the marketplace, within the constraints of the local environment. This process of adaptation distinguishes the early colonial period. Chapter One established that the motivation of the pastoralists was to make money. To do so they imported sheep and then in a process of trial and error turned them into more productive animals that were better suited to the climate and land type of the region. A process of adaptation also took place in the way the sheep were managed.
TABLE 2.1 FLOW OF SHEEP TO THE AUSTRALIAN COLONIES AND NEW ZEALAND BEFORE 1880

<table>
<thead>
<tr>
<th>Year</th>
<th>Origin</th>
<th>Destination</th>
</tr>
</thead>
<tbody>
<tr>
<td>1820</td>
<td>South Africa: local breeds, Merinos</td>
<td>Australia</td>
</tr>
<tr>
<td></td>
<td>India: local breeds</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Britain: local breeds, Merinos</td>
<td></td>
</tr>
<tr>
<td>1820s</td>
<td>Britain: Merinos, Saxony: Merinos</td>
<td>Australia</td>
</tr>
<tr>
<td>1840s</td>
<td>Britain: local breeds, English Merino (a cross breed)</td>
<td>Australia - New Zealand</td>
</tr>
<tr>
<td>1850s</td>
<td>Saxony Merinos, Silesia, Prussia, France, Britain: local breeds, English Merino</td>
<td>Australia - New Zealand</td>
</tr>
<tr>
<td>1860s</td>
<td>Saxony Merinos, Prussia, Silesia, France, Russia, U.S, Britain: local breeds</td>
<td>Australia - New Zealand</td>
</tr>
<tr>
<td>1870s</td>
<td>U.S. Merinos, Britain: local breeds</td>
<td>Australia - New Zealand</td>
</tr>
</tbody>
</table>

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76 Table created by the writer from Massey, *The Australian Merino*; Garran and White, *Merinos, Myths and Macarthur's*; Austin, *The Merino. Past, Present and Probable*; Lyttelton Times
CHAPTER THREE
GRAZING MANAGEMENT

It is in the management of sheep that we find the beginning of the debate as to whether pastoralism in Canterbury had its origins in Britain or the Australian colonies. As the *Canterbury Almanac* of 1853 claimed, the English colonists were ‘quite unused to the management of sheep or cattle on wild pasturage’.¹ In fact, as shown in Chapter One, most of the English colonists were unused to the management of sheep and cattle on any sort of pasturage.

In 1851, Frederick Weld, a sheep owner in both the North and South Islands, observed: ‘The general management of sheep in New Zealand approaches nearest that pursued in the hill districts of Great Britain, and is very different from that of New South Wales. In New Zealand, the golden rule is to harass the flock as little as possible. Accustom them as much as you can to respect certain boundaries; but within those limits do not needlessly disturb them. The result of this system is superior condition, and less liability to disease, whilst it also enables you to lessen the expense of herding by enlarging the numbers of a flock’.²

Here then lies the essence of the two points of view. On one hand, the claim is made that Australian pastoralists showed the English colonists in Canterbury how to run sheep on open country. On the other hand, there is the claim that in New Zealand pastoralists left their sheep to graze undisturbed, whereas, in New South Wales this was not the case. This chapter will examine the sheep management practices of Britain and Australia, and the way the management of sheep developed in Canterbury. It will demonstrate that the grazing system used by early pastoralists had its origins in the upland areas of Britain and that these management practices were adapted to meet the conditions found in the Canterbury environment.

An important tool in the daily management of sheep was the use of working dogs. Dogs were used to both herd sheep and to protect them from predators. In the open

¹ *The Canterbury Almanac*, 1853, p.27
² Weld, p.10
grazing system found in the hill districts of the British Isles and later in Canterbury, working dogs were vital to gather semi-wild sheep that were spread over large tracts of land. In fact without these dogs that system of management was not possible. In the closely shepherded flocks of Australia, where sheep were frequently handled, they were much more tame. Consequently, dogs were used to drive sheep rather than gather them. Clearly, both systems relied on working dogs, but the different methods used required different types of working dogs. This will be explored later in this chapter.

**THE AUSTRALIAN SYSTEM**

Sheep farming in Australia began in the penal colony of New South Wales. The conditions encouraged the development of a system involving the close shepherding of the sheep flocks throughout the day and folding them at night. The early flocks were small and critical to the survival of the colony. The country was wooded so that sheep could easily wander and be lost if left unattended. The sheep also needed to be protected from Aborigines, who objected to the invasion of their lands by the pastoralists, and from wild dogs, which were a threat to unattended flocks. Moreover, in the early years there was a plentiful supply of cheap convict labour. In time it became standard practice that flocks were limited to 520 sheep per shepherd. Edward Curr claimed that police magistrates in New South Wales decided this was the maximum number of sheep that a shepherd could manage and that they could not be held responsible for any sheep lost from a flock that exceeded that number.3

When pastoralism spread on to the open plains, this system of close shepherding and nightly folding of sheep continued. Each flock had a shepherd who drove it to the daily feeding ground. In the evening the flock was driven back to the fold and watched over at night by a hut-keeper from the shelter of a small watch-hut. The fold was constructed of hurdles made from brush or wattle and was shifted daily to fresh ground by the hut-keeper. The watch-hut, which was mounted on wheels, was shifted with the fold. John French Burke, in his 1848 treatise on British farming, described the use of similar huts at lambing time in parts of England when he wrote:

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3 Edward M. Curr, *Recollections Of Squatting In Victoria Then Called The Port Phillip District (From 1841 To 1851)* (Melbourne, George Robertson, facsimile edn., 1968) p.37
Some careful breeders, situated upon extensive downs, have the precaution of employing small huts mounted upon four wheels, which may be thus drawn to the flock for the use of the shepherd, wherever the sheep may be.\textsuperscript{4}

Squatting expanded so rapidly in the Port Phillip district in the late thirties and early forties that there was an acute shortage of labour. The shepherding and folding of sheep flocks continued, although the numbers of sheep per shepherd increased to 1,500 and more. The gold rushes of the early 1850s put pressure on the labour supply throughout the Australian colonies, but this system of managing sheep continued. Squatters in the Darling Downs brought out German migrants under contract to shepherd their flocks.\textsuperscript{5} Elsewhere, Chinese workers were used to provide cheap labour on the pastoral runs.\textsuperscript{6} With the increase in the size of flocks and the shortage of labour it became impractical to fold the sheep in small temporary yards made of wattle hurdles. Permanent yards were built and sheep had to be driven further each day to get to fresh grazing.

This system of management was developed and continued to protect sheep from losses by straying or the depredation of dingos. Yet it was detrimental to the health and production of the sheep. This was exacerbated as the size of flocks increased and yards for folding became permanent. Contagious diseases, particularly scab, footrot and catarrh, were spread by the sheep being folded at night. Intestinal worms, that caused general ill-thrift in the sheep, were spread by the flocks being driven over ground that they had previously fouled. Moreover, Merino sheep imported from Saxony, where the management system was to house for six months of the year, had been bred for decades without the challenge of these diseases and were particularly susceptible to infection.

The management system of close shepherding and folding had a negative effect on the sheep production. Weld was very aware of this when he wrote in his pamphlet

\textsuperscript{4} John French Burke, \textit{British Husbandry, Exhibiting The Farming Practice In Various Parts of the United Kingdom. Published under the Superintendence of The Society for the Diffusion of Useful Knowledge; with a Supplement Comprising Modern Agricultural Improvements by Cuthbert Wm. Johnson, Esq, F.R.S., Volume 1}, (London, Baldwin and Cradock, 1848), p.458

\textsuperscript{5} D.B. Waterson, p.126

\textsuperscript{6} \textit{Lyttleton Times}, 20 August 1853, p.8. This was also proposed in Canterbury in 1853, but met overwhelming opposition.
Hints to Intending Sheep-Farmers: 'In New South Wales, 2 ½ lbs. of wool is a high average yield for sheep. In New Zealand [where sheep were not closely shepherded or folded at night] a well-bred Merino flock on a good run will fully average 4 lbs'.

Not only did the sheep grow less wool under the Australian system, but dust and dirt from the yards contaminated the wool which then needed to be thoroughly washed before shearing.

The move away from folding sheep at night began on the open plains of the Western District of Victoria in the late 1840s. It was associated with the widespread use of strychnine to poison the dingos and with the introduction of fencing. This shift to 'camping out' has been described as 'a significant step in the evolution of Australian sheep management'. However, the speed at which this new system was adopted varied. Throughout the 1850s most areas in New South Wales continued with the old methods. In 1861 on the Dennihiquin run in the Riverina District 100,000 sheep were close-shepherded and folded at night. An article in The Australasian in March 1865 promoted the use of fencing and implied that the old system of shepherding was still widely practiced.

Folding was a system of husbandry that had been used in many areas of Britain for hundreds of years and from there was transferred to the Australian colonies. The British system, described by Burke, could have equally described the system used in Australia. The fold was formed by wooden or iron hurdles, but more commonly hurdles were formed of wattles, 'about seven and a half feet long by three feet high and daily removed by the shepherd when the flock is turned out.' In Britain however, folding was practiced to fertilise the land, not to protect the sheep, as in the Australian colonies.

There was a good deal of debate about the benefits of the practice of folding. Farmers and commentators on agricultural matters were aware that folding sheep was harmful to their well-being. William Youatt wrote in the Mountain Shepherd's

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7 Weld, p.2
8 Garran and White, p.205
9 Massey, p.166
10 Lyttelton Times, March 25 1865, p.6
11 Burke, British Husbandry, Vol.2, p.464
Manual, first published in 1837, that 'Close confinement injures the health of all animals; and is hurtful in an especial manner to sheep, which, by their nature, are of a roving disposition and exceedingly fond of liberty'. Burke concluded that, 'Although advantageous to the land, the practice of folding is prejudicial to the animal'. He saw that there were several disadvantages to the practice: the quality of the wool suffered from dirt, driving the stock to and from the fold used energy, and the sheep ate more [and therefore did better] if left quiet. He also noted that Robert Bakewell, Britain's leading sheep breeder in the late eighteenth century, was a great enemy of folding and saw it as 'robbing Peter to pay Paul'.

Sheep folding was not universally practiced throughout Britain. It was a means of fertilising ground before it was to be cropped, and again after it had been cropped. The importance of manuring by sheep was demonstrated by the situation where, in some regions, farmers paid flockmasters to fold their sheep on fields that required additional fertility. Agricultural historian R.J. Moore-Colyer claimed that the practice went out of favour by the middle of the nineteenth century when guano and artificial fertilisers became available, and with the acceptance that the benefits of folding were not offset by the reduction in the growth rates of sheep caused by the animals being continually disturbed.

So while folding was common practice on the lowlands and particularly on the lighter soils of the British Isles, it was not practiced on the open pastures of upland regions. In fact, in most extensive mountain regions sheep were not folded and were often not close-shepherded. Burke wrote that even at lambing time in 'large flocks kept upon downs and mountainous pastures ... ewes are most commonly left to lamb in the open field, without any other care than the occasional attention of the shepherd, to assist any one that may need it'. Robert Trow-Smith has described how the management of the uplands of Britain varied according to a range of factors, from altitude to local tradition. In the Cheviot Hills it was common to divide

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12 William Youatt, Sheep, their Breeds, Management, and Diseases To Which is Added The Mountain Shepherd's Manual (London, Simpkin, Marshall and Co., 1866) p.27
15 ibid., p.333
16 Burke, British Husbandry, Vol. 2, p.458
the flock into mobs, ewes, wethers and lambs, that were grazed on different parts of the hill according to their feed requirements. The management system practiced in the Scottish Highlands was to summer the flock on the hills and winter in the glens. The rams were kept in grassed enclosures around the croft.\textsuperscript{17}

**GRAZING MANAGEMENT IN NEW ZEALAND**

In New Zealand, sheep management did not follow the Australian system in the early pastoral regions of the Wairarapa and Nelson where Weld had gained his experience. A letter to the *Lyttelton Times* in 1852 supported this view. The correspondent, who signed himself as ‘A Sheep Owner’, wrote that ‘it must be borne in mind that New Zealand sheep are much more difficult to keep together than Australian sheep, which have always been followed by day and yarded by night’.\textsuperscript{18} Laurence Kennaway, an early runholder who drove sheep from Nelson to Canterbury in 1853, described them as ‘half wild, unmanageable animals, accustomed to roam over great tracts of open country, allowing no one to approach them within half a mile, but stretching away at full gallop, and trying the mettle of good dogs to head them’.\textsuperscript{19}

Canterbury runholders then, had two models of sheep management that they could follow as they set up their stations in the early 1850s: the high cost, labour intensive system of Australia, which was detrimental to the health and productivity of the sheep, or the low cost, open management system of the mountains and downs of Britain, that had already been adopted elsewhere in New Zealand. On Canterbury’s open plains sheep could wander, but after the initial burning that was carried out as the land was taken up, there was little scrub where they could disappear and go wild. Nonetheless, there were many wild dogs roaming the region and early pastoralists often referred to them as a problem.\textsuperscript{20} In their station journals, the Hall brothers

\textsuperscript{17} Robert Trow-Smith, pp.205-207
\textsuperscript{18} *Lyttelton Times*, 16 October 1852, p.6
\textsuperscript{19} Laurence J. Kennaway, *Crusts. A Settler’s Forelue South* (London, Sampson Low, Marston, Low, and Searle, 1874) p.45
\textsuperscript{20} Charles Torlesse, in his *Report on the Canterbury Block*, noted that wild dogs were too numerous for sheep farmers, but that hunting them provided good sport. *Lyttelton Times*, 15 July 1851, p.7
seemed almost obsessed about potential dog attacks on their sheep and noted reports of dogs seen miles from their station.  

Writers who described early Canterbury rarely said much about the daily management of runs. Even when they did, folding was not mentioned. Charles Hunter Brown, who had Double Corner, from 1850 to 1859, wrote a short article on ‘starting a station’ which was included in Robert Bateman Paul’s book *Letters From Canterbury*. He advised that the woolshed and homestead should be sited in a central part of the run so that two flocks could be shepherded from the one place. He did not imply, however, that these two flocks should be folded at night.  

L.D.G. Acland’s description of the system of management in Canterbury in the early period showed that it had more in common with parts of Britain than Australia. ‘The sheep were kept on their ground by a shepherd who went around the boundary, and saw them camp for the night. ... The sheep got so used to their country that a whistle would send them to camp.’  

The Rockwood Station diaries, from 1855 to 1857, provide an example of a run where sheep were not folded. In fact, the sheep were not shepherded but checked regularly. They often went missing and at times became boxed with neighbours’ sheep. Henry Phillips, who took up the run in 1852, came to Canterbury with six sons, two daughters and a nephew. He also had a cadet, so there was no shortage of labour had he chosen to follow the Australian system of sheep management. Instead the diaries show otherwise. In November and December 1855, Harry, the oldest of the sons, went to check the sheep on only ten days in each month. In September 1856 they spent approximately thirteen days looking for missing sheep.  

However, there is evidence from early station diaries that some runholders did adopt the Australian practice. The Hall brothers purchased their run from the Australian ‘Prophet’ Mark Pringle Stoddart in 1853 and became neighbours of the Phillips family. The Halls employed boys to follow their sheep through the day and folded them at night. It is possible that, because they were new to the business, they

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21 Rakaia Terrace Station Journal, 14 July 1853  
23 L.G.D. Acland, p.28
followed Stoddart's advice; or perhaps they adopted this system on the advice of their neighbour Thomas Sanderson, who had spent 14 years managing stations in Victoria. Acland claims that the Halls folded their sheep because scab had appeared in the district and that, without fencing, this was a measure to protect their stock. 24

At The Levels Station in 1855, George Rhodes employed two Maori as shepherds at the western edge of the property. Noel Crawford described their work in *The Station Years*: ‘The Taiko flat was a wide basin surrounded by steep hills, situated seven miles west of the station homestead. Two Maori lads, Taiko Torepe and Seventeen, tended a large mob of sheep there by day, and at night folded them into a sod-walled yard on the flat’. 25 These sheep went missing from the fold in late February 1855 and were later found in the possession of James McKenzie. According to A E Woodhouse, George Rhodes had the sheep shepherded and folded because of wild dogs and pigs, but later found the practice to be unnecessary. 26

Despite these local examples of the Australian management practice, the system was not widely found in Canterbury. Frank Mathias was employed as a shepherd on Lake Coleridge Station in 1860. He described a system very similar to that followed at Rockwood. The stock were checked regularly but were not constantly shepherded. Consequently, considerable time was spent looking for wandering cattle and sheep. Robert Pinney claimed that when Harry Ford took over the management of the Grampian Hills run, in the Mackenzie Country, he tried ‘maintaining the Australian system of flock management: a shepherd grazing his mob of sheep thro’ the day and yarding them every night’. 27 This was clearly unusual practice for it to be commented on by neighbours. Ford soon gave up this system and adopted the common practice of using boundary keepers to keep each station’s sheep separate.

The system that became standard practice in Canterbury was similar to the system found in the Cheviot Hills, on the Scottish Border country, as described by Trow-

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24 L.G.D. Acland, p.95
25 Noel Crawford, p.11
26 A.E. Woodhouse, *George Rhodes of the Levels and his Brothers: Early Settlers of New Zealand. Particularly the founding of the Levels, the first sheep station in South Canterbury* (Auckland, Whitcombe and Tombs, 1937) p.97
27 Robert Pinney, p.100
Smith. The flock was divided into mobs - ewes, wethers and lambs - each of which was run on its own country and looked over by a boundary keeper. Rams were often run with the wethers, or on paddocks close to the station buildings. In the mountains, the Scottish Highland practice was followed; the sheep were run on the high country in summer and brought down to the valleys and sunny slopes to winter. Otherwise the sheep were left unmolested. This system remained common Canterbury practice until fencing slowly began to replace boundary keepers from the mid-1860s.

Clearly, the different systems of grazing management found in the Australian colonies and in Canterbury originated in Britain. In Australia pastoralists, who came from Britain, brought with them the intensive system of close-shepherding and folding that was common on the lowland regions where stock and crop farming were practiced. Pastoralists in Canterbury adopted the management system found in upland areas of the British Isles, where the stock were kept on their grazing grounds by a shepherd but otherwise were left unattended.

There were several reasons why the different systems were adopted in Canterbury and Australia. Labour in Canterbury was always more expensive and less readily available than it was in Australia, until the end of convict transportation. Runholders in Canterbury had the advantage that they did not have to contest the right to their land; they leased land bought from Maori by the Crown. In Australia, Aborigines challenged the right of squatters to take their land without treaty or payment and as a result considered the squatters’ stock to be fair game for the taking. Wild dogs were a threat to sheep flocks in both regions, although in Canterbury there were fewer than in Australia, and the high cost of shepherding in Canterbury encouraged pastoralists to accept the risk. Moreover, Canterbury’s sheepmen were aware of the economic advantages of not close-shepherding: it was a cheaper system to run and the sheep did better.

28 Robert Trow-Smith, pp.205-207
29 The seasonal movement of stock in the Henry Ford Diary is an example of this style of management. Also see L.G.D. Acland, p. 28
In both Australia and Canterbury the introduction of wire fencing changed the management of the runs. In Canterbury the boundary keepers were replaced by fences, and in Australia it were the hut keepers and shepherds who became redundant. The introduction of fencing and the advantages that were derived from it are covered in the next chapter, but it should be noted here that fencing was more than just a labour saving technology. It gave pastoralists better control of their stock; it lifted stocking rates and stock performance; and, by ensuring mobs were kept separate, it enabled breeders to improve their sheep by selective breeding. All of these factors were critically important in the development of a more intensive system of farming in Canterbury.

WORKING DOGS

Grazing management is about confining stock to specific areas of feed on a farm in order to match their nutritional requirements with the amount of feed available. As this chapter has shown, in the early colonial period sheep were kept on blocks by boundary keepers and later by fencing. In both systems sheep had to be shifted for a multitude of reasons. They might need to be moved on to fresh feed, brought down to lower country for winter or mustered in for shearing. In the modern pastoral farming all of these jobs are done with the assistance of working dogs, yet the literature of the colonial period is strangely silent on this subject.

Dogs have been used in many parts of the world for centuries to assist in working stock. Burke described the work of dogs in the sheep-walks of Spain, where they were used largely to protect the flock from predators.30 In situations of apparent danger the sheep gathered around the dogs for protection. Dogs were used for driving sheep in Prussia and, according to Burke, pushed recalcitrant sheep along using their muzzles.31 In the British Isles, dogs were used both for the security and management of sheep flocks.

Several different types of sheep dog were used in England, Wales and Scotland. In England there were smooth and rough coated breeds. An article from the Field

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30 Burke, British Husbandry, Vol. 2, p.479
31 ibid., p.479
noted that the rough dog had an iron constitution. It went on: ‘In those districts where large numbers of sheep are kept great attention is paid to their education, and a good sheep dog is considered as indispensable to the well-doing of a flock as a good shepherd.’ In Scotland both smooth and rough collie types were found and both were noted for their intelligence and ability with sheep.

The dogs were used for a variety of tasks when working. When driving sheep they were taught to bite the hocks of sheep without injuring them to get them moving. They were also trained to bark on command to move sheep along. The Field described how a shepherd could get his dog to ‘sweep round a large flock, perhaps of thousands, a mile away, and having collected them, to bring them as steady and patiently ... to his master.’ In addition to driving, heading and pulling, dogs were trained to back. When sheep were blocked up in a bunch the dog would run along the backs of the sheep and move the leaders along.

There has been little written about working dogs during squatting era in Australia. It seems that few dogs were used in at first, especially when convict labour was plentiful. However, as sheep numbers increased and labour became more difficult to find, dogs became essential in the working of the stations. In 1840 Niel Black brought out Highland shepherds to his run in Victorian and it was very likely that they brought dogs. In the days when the sheep were close-shepherded dogs were used to drive sheep to the grazing grounds and back to the fold. This would have been undemanding work and it is likely that dogs were as important for their use in protecting the flock from predators. Alfred Joyce reported using the station dogs to kill dingoes in Victoria in the early forties, but had nothing to say about their work with sheep. Joyce also gave an account of kangaroo dogs that were bred and trained especially to kill wild dogs.
A kangaroo dog was advertised for sale in the *Lyttelton Times* in 1851.\(^{38}\) It was no doubt brought from Australia to help control the wild dogs found in the Canterbury district. A kangaroo bitch with pups was also entered in the working dog class at the A. and P. Show in Christchurch as late as 1874.\(^{39}\) Unfortunately, the use of trained dogs to control wild dogs was not always successful. John Hall used a dog, named Emperor, to attack a wild dog that had been savaging his sheep. However, the wild dog proved to be a bitch on heat and both dogs disappeared over the terraces together.\(^ {40}\) Emperor turned up the next day, but without the bitch. She was later killed by poison after attacking lambs on the river flat.\(^ {41}\)

As in Australia, there was little written about working dogs in early pastoralism in Canterbury. The early pamphlets that gave would-be runholders advice on getting started – such as those by Hunter Brown, Weld and J.B. Acland\(^ {42}\) - made no mention of working dogs. A. E. Woodhouse claimed that in the early years at The Levels shepherds ‘worked on foot, and dogs were little used until the advent of Scots shepherds at a later date’.\(^ {43}\) A few dogs and pups were advertised in the *Lyttelton Times* in 1851, but after that advertisements for them were remarkably infrequent.\(^ {44}\)

Despite the paucity of information about dogs in the early writing there is enough to suggest that dogs were used from the earliest days of the pastoral era in Canterbury. In his *Reminiscences*, Edward Jollie recounted the journey he made with Edward Lee to bring the first mob of sheep through the mountains from Nelson to Canterbury in 1852. Jollie reported that they left Nelson with 1,800 sheep, and were accompanied by John Berry, a shepherd named Simpson, three dogs, three horses

\(^{38}\) *Lyttelton Times*, 12 July 1851, p.1

\(^{39}\) *The Press*, 13 November 1874

\(^{40}\) Rakaia Terrace Station Journal, 21 December 1853

\(^{41}\) ibid., p.19 April 1854


\(^{43}\) Woodhouse, p.97

\(^{44}\) *Lyttelton Times*, 15 March 1851, p.1 advertised four-month-old dogs ‘from the purest blood from the north of Scotland’. 26 April 1851, p.8 six sheep and rat dog whelps advertised. 17 December 1864, p.5 sheep dog for sale, from north Yorkshire.
and a foal. Laurence Kennaway, in 1853, drove sheep from Nelson to stock his Canterbury station. He wrote that to drive a mob of sheep any distance required at least four hands, ‘with three horses saddled, and one packed with provisions and baggage.’ He went on to list necessary equipment and provisions but made no mention of dogs. However, his sketches of the trip did show dogs being used and when it came to forcing the sheep across rivers he noted that the mob was only ‘held together by frantic efforts of shouting men, and perpetual galloping of sheep-dogs’.

Kennaway’s reminiscences are typical of other writers and diarists of the time in that few noted the work of sheep dogs. The Rakaia Terrace Station Journal and the Rockwood Station Diary had little to say about sheep dogs. Frank Mathias mentioned building dog kennels at the Rakaia Forks run and killing a pig for the dogs, but made no mention of their work in his journal.

There is evidence that working dogs were brought to Canterbury by shepherds coming from the British Isles. Burdon related how Tripp came to employ William and Andrew Grant at Orari Gorge Station. He was at Lyttelton when an immigrant ship arrived and noticed a sheep dog among the passengers as they came ashore. He immediately offered employment to the owner of the dog, ‘on the principle that only good men kept good dogs’. The owner was one of the Grants, who was willing to accept the offer if his brother could go too. Both brothers were later successful managers of the station.

It has already been noted in this chapter that few sheep dogs were advertised for sale through the newspaper. However, Harry Ford’s diary demonstrated that there was a good deal of trading in dogs. Bitches were taken to neighbouring stations to be mated to dogs that must have been recognised for their superior working abilities.

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46 Kennaway, p.45
47 ibid., p.55
48 Frank Mathias Journal, 1 October 1859 to 30 September 1861, Hocken Library, 13 April 1860; April 1861
49 Burdon, p.101
50 Henry Ford Diaries, 17 July 1865
Ford paid one pound for a bitch in 1866, but other dogs taken on trial or inspected did not always measure up. This trade in, and breeding from, the best performing workers remains the pattern of sheep dog breeding on farms today.

In the early colonial period there were two main types of sheep dogs, the heading dog and the handy type. Their style of work was much as described in the article from the Field. The heading dog worked silently. Its job, put simply, was to get to the head of a mob and pull it back to the shepherd. The handy also headed, but worked with noise when commanded, which was useful when driving large mobs. Two other types of sheep dogs, both specialised heading dogs, were used in the early era and are not found today. The leader was a dog that worked in the front of the sheep and regulated the pace of the mob as it was driven. The job of the stopping dog was to get to the head of a mob and hold it from moving on. The modern huntaway type was not developed until much later, as the half-wild sheep of the colonial period were so free moving that the problem for the musterer was to catch them, not to force them along.

The first recorded dog trial in New Zealand took place at Black Forest Station in the Mackenzie Country on 20 January 1869. Ten dogs were entered in the trial, which was organised by John Fraser, the owner of the station. However, dog trials did not become immediately popular. There were classes for dogs in the Canterbury A. and P. Show, but the dogs were judged on their appearance and not on their work. A writer for The Press was particularly scathing about this when he commented, 'we are unaware upon what principle the judges proceed. If it is for practical work, which we take as the proper test then, the dogs ought to work a flock.'

Despite their absence from much of the literature of the time, sheep dogs were essential in the management of the pastoral runs, although they may not have been numerous in the early years. Even in 1864 it is reported that six men with only two dogs mustered 18,000 sheep on a twenty-mile-long run. Clearly, the working dogs

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51 Henry Ford Diaries, 10 December 1866; 17 December 1866; 24 December 1866
52 Martin, pp.62-3
53 Timaru Herald, 10 February 1869, p.4
54 The Press, 13 November 1874
55 Martin, p.59
of Canterbury had their origin in the British Isles and there was a particularly strong
Highland collie influence in their breeding. The work of the sheep dogs in
Canterbury remained much the same as the work they were trained for in the hill
districts of Britain. They were essentially gathering dogs that were bred to muster
sheep that were spread over a large area. It was not until the introduction of fences
and heavier breeds of sheep that a new breed of working dog, the huntaway was
developed in New Zealand.

This chapter has considered the origins of grazing practices found in colonial
Canterbury. The weight of evidence supports Weld’s assertion that the ‘management
of sheep in New Zealand approaches nearest to that pursued in the hill districts of
Great Britain.’ Clearly, the different farming conditions found in Canterbury
couraged pastoralists coming from the Australian colonies to reassess their
grazing management techniques. In Canterbury pastoralists ran their sheep
unshepherded on open country. Without working dogs the task of mustering the
sheep would have been nearly impossible. The popularity of the Highland shepherds
amongst Canterbury runholders is evidence that the skills they learned in Scotland
fitted neatly with the system of management practiced in the Canterbury region. The
Australian system of close shepherding owed more to the more intensive farming
districts of the British Isles, although in Australia it was practiced to protect the
flock from straying or from predators. Since the sheep did not run free and
unattended a gathering dog was not necessary and working dogs were used more for
driving and for security. In both Australia and Canterbury pastoralists adopted
grazing systems that originated in Britain. However, they were different systems
that were adopted to meet different needs.

In the 1860s, in the Australian colonies and on the plains of Canterbury, the
introduction of light wire fencing brought dramatic changes to the way runs were
managed. The impact of these changes on sheep breeding has already been dealt
with in Chapter Two, but it will be explored more thoroughly in the next chapter on
land management.
CHAPTER FOUR
LAND MANAGEMENT

Land management and grazing management are so closely inter-related that they can be considered as different sides of the same coin. The management of one has a direct impact on the other. If too many sheep are carried on a block it will result in over-grazing, which reduces the carrying potential of that block. If too few sheep are carried the feed may become rank and unpalatable, and then it might need to be burned in order to produce productive feed for sheep. The balance of matching stock numbers to the carrying capacity of the land is a fine one and requires the skill of a good stockman. Over-stocking leads to land degradation, while under-stocking reduces the profitability of the property.

In the colonial period the pastoralists had two main tools to manage their land, apart from stock: fencing and burning. This chapter will show that both of these were widely used in Britain. However, the introduction of wire fencing from the 1850s onwards had a dramatic influence on land and stock management in Canterbury. The technology of fencing, extruded galvanised wire and iron standards, came from Britain, but the application of this technology led to the development of a system of agriculture that was created within the Canterbury environment. The intensification of farming, breed improvement, the development of the Corriedale, the production system specialising in sheepmeat and medium wool, resulted from the adaptation of this imported technology.

T. A. Coghlan, writing in New South Wales in 1900, described the advantages derived from fencing: “The country will carry one-third more sheep, the wool will be longer and sounder, and the fleece as a whole one-third better; the feed will be cleaner and less liable to grass seed; the sheep will increase in size; they will live longer and continue longer profitable; they will be freer from footrot and other diseases; the expenses of working the station will be less than one-quarter of what it would be if the sheep were shepherded; and finally, the owner will be able to devote
the principal part of his time to improving his sheep instead of spending it in attempting to manage a number of shepherds and hut-keepers’.  

In the earlier chapters it has been argued that the open grazing system practised in Canterbury resulted in better stock health and higher per animal productivity than the close-shepherding system of the Australian colonies. Consequently the benefits in sheep production derived from fencing were not as dramatic in Canterbury as those listed by Coghlan for New South Wales. Nevertheless, fencing did revolutionise pastoral farming practice in Canterbury.

**FENCING**

Before the introduction of wire fencing a lot of time was spent looking for wandering stock. The diary of Frank Mathias showed that in the first three months that he worked at Lake Coleridge Station most of his time was spent looking for stock. When other work intervened and stock were not checked daily, it often took days to track them down. In 1866, at the Grampian Hills Station in the Mackenzie Country, a man named Robinson let the woolly sheep go in the middle of shearing. It took two days to find them and another day to get them back for shearing. The entry in the diary for the day after the mistake was made stated simply: ‘Robinson left in the morning’.

Diaries from the early stations are dotted with entries about missing stock and sheep getting boxed with those from neighbouring properties. Even the Hall brothers, with their intensive shepherding system, did not manage to avoid these problems. A typical episode is found in the Rockwood Diary. On 9 October 1855, William Thomas Norris, who leased the run next to the Phillips family, let them know that some Rockwood sheep had got boxed with his. Weeks later they mustered the sheep down to the Rockwood yards and drafted them. Norris’s man took his sheep home and Harry Phillips took his mob back up the hill. The whole process took place.

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1 Barnard, *The Australian Wool Market 1840-1900*, p.14
2 Frank Mathias Journal, 13 November 1859 to 19 January 1860
3 Henry Ford Diary, 12 Jan 1866
4 Rockwood Station Diary 1855-1857, Transcript. Photocopy, 63p., Canterbury Museum Documentary Research Centre, 9 October 1855 to 22 November 1856
without any sign of recrimination and was simply accepted as part of the business of running sheep.

Simple tasks, such as holding mobs at yards for drafting or shearing, were made more complicated by the lack of fenced holding areas. Mobs had to be taken away by shepherds during the day and brought back again in the evening while they waited their turn to be drafted, shorn or branded. The term for this was ‘tailing’ and Harry Ford’s diaries regularly refer to different mobs being tailed at times through the year. Just one example of this problem occurred in January 1866 at the Grampian Hills, when the rams went missing at the end of shearing. They were gathered up in different parts of the run over the next five days. Ford then had to hire a man to tail them until they were sorted up and sold on 10 February.\(^5\)

The inability of runholders to protect their boundaries and control the movements of their stock had serious implications. Stock health, in particular, became a problem as scab spread through the province. In September 1853 Tom and John Hall went to see Henry Phillips, after they had heard that he had purchased sheep, ‘which are in a most loathsome state of disease’, from Mr. Fordham.\(^6\) They took with them letters from other neighbours protesting about Phillips bringing scabby sheep into the district. The runholders were well aware that, with open boundaries, they had little hope of keeping their own flocks clean once diseased sheep arrived in the vicinity.

Canterbury’s colonists brought British fencing techniques to the region. Stonewalls were in use in many parts of England and Scotland, and were almost universal in Ireland; however, according to John French Burke, most ordinary fencing was ‘by hedge-planting and ditching’.\(^7\) This method of fencing was also the most commonly used system in the Australian colonies and in Canterbury until the introduction of wire.

In March 1851 the *Lyttelton Times* observed that fencing would be important in the new colony to protect gardens and fields from stock and concluded that ditch and

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\(^5\) Henry Ford Diary, 20 January 1866 to 10 February 1866

\(^6\) Rakaia Terrace Station Journal, 25 September, 1853

\(^7\) Burke, *British Husbandry. Vol. 2*, 1848, p.535
bank, and hedge-rows were the most suitable methods.⁸ A contractor advertising for fencing work in the *Lyttelton Times* in 1851 described a typical ditch and bank fence of the time. The ditch was three feet deep, five feet wide at the top and narrowed to a foot wide at the bottom. The bank formed from the spoil was three feet high, making the fence six feet in height. Usually a hedge of gorse, sweet briar or hawthorns was planted on top of the bank.⁹ There were variations on this method of fencing, Sometimes a ditch was dug on each side of the bank, and it was also common for the bank to be made of sod rather than heaped spoil. These were all methods found in Britain.

Ditch and bank fences continued to be built in Canterbury, even after light-weight wire fencing was introduced in the mid-1860s. In May 1863, St. Leonards Station advertised for men, who were accustomed to the work, to erect several miles of wire fencing.¹⁰ Four months later an advertisement called for tenders to construct sod fencing, which involved 180 chains of six foot ditch and bank.¹¹ The following year another advertisement required good men to erect between one and three miles of sod wall at Arowhenua.¹² In 1867 Harry Ford had two groups of contractors on Holme Station erecting wire fencing and sod fencing concurrently and in July 1872 he hired three Irishmen to construct sod fences on the run.¹³

The next most popular type of fencing in the early days was by post and rail, a system that was common in the heavily timbered eastern states of North America and one that was also widely used where timber was plentiful in New South Wales. Posts and rails were advertised regularly in the *Lyttelton Times* from 1851 and, as with ditch and bank fencing, this type of fence continued to be erected after the introduction of wire fencing.¹⁴ Posts with two rails were sometimes used on the top of a bank to add height to a fence, but often they were built as stand alone fences, especially where a runholder had access to bush. This type of fence was used to keep stock out of gardens and paddocks with English grasses in the early days.

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⁸ *Lyttelton Times*, 15 March 1851, p. 4
⁹ ibid., 26 July 1851, p.1
¹⁰ ibid., 26 May 1863, p.6
¹¹ ibid., 26 September 1863, p.2
¹² ibid., 7 July 1864, p.4
¹³ Henry Ford Diary, April to 8 October 1867; 31 July 1872
¹⁴ *Lyttelton Times*, 6 September 1851, p.1, advertisement for 1000 post and rails for fencing.
was also used to construct stockyards.\textsuperscript{15} However, post and rail fencing was too laborious to erect and too expensive to be used for anything more than creating yards or paddocks at the house.

Live fences were a cheaper and easier alternative to both ditch and bank, and post and rail fences. A variety of plants were used including gorse, broom, wattlé, and hawthorn. An American plant, Osage orange, was promoted both in New Zealand and the Australian colonies but was not widely used. The limitations of live fences were that they were slow to grow and needed regular maintenance to remain stockproof. However, live fences had the advantages of being cheap, as well as providing shelter from the wind so they continued to be planted even in the late 1870s.\textsuperscript{16}

The solution to the problem of fencing on a large scale was overcome with the introduction of wire fencing. However, there was some initial scepticism about its effectiveness; the Cattle Trespass Ordinance of 1860 required that a wire fence must be four feet high and be kept a white colour so that it was visible.\textsuperscript{17}

The first references to wire fencing in Canterbury can be found in 1851 in an advertisement for wrought iron standards and wire fencing to enclose a fifty-acre section.\textsuperscript{18} In 1854 two firms each advertised a mile of sheep netting and in 1856 galvanised iron fencing wire was advertised in the \textit{Lyttelton Times}.\textsuperscript{19} This early wire was of a heavy gauge and came in short runs, so it was difficult to erect and keep strained. Lighter gauge wire became available in the mid-1860s; its relative cheapness and its ease of transportation and erection encouraged its widespread use.\textsuperscript{20}

From 1864 advertisements for large quantities of wire and iron standards became commonplace in the \textit{Lyttelton Times}. In March 1864 Mt. Possession Station was

\textsuperscript{15} Rakai Terrace Station Journal, 30 June 1853; Frank Mathias Journal, March 1860
\textsuperscript{16} \textit{New Zealand Country Journal: A Record of Information connected with Agricultural, Pastoral and Horticultural Pursuits and Rural Sports in New Zealand} (Christchurch, Canterbury Agricultural and Pastoral Association, vol.1 1877) Vol., 3, No.4, 1 July 1879, p.242
\textsuperscript{17} \textit{Canterbury Provincial Council Cattle Trespass Ordinance 1860}
\textsuperscript{18} \textit{Lyttelton Times}, 6 September 1851, p.1
\textsuperscript{19} ibid., 4 February 1854, p.4; 11 March 1854, p.4; 9 July 1856, p.1
\textsuperscript{20} R. P. Hargreaves, 'Farm Fences in Pioneer New Zealand', \textit{New Zealand Geographer}, Vol.21, 1965, No.2, October, p150
advertised for sale with one and a half miles of fencing. This fenced in one boundary and created an enclosure of 3,000 acres.\textsuperscript{21} In 1863 Harry Ford put in a small amount of wire fencing at the Grampian Hills, but early in 1865 he began a much bigger project and marked out six and a half miles to be fenced with wire.\textsuperscript{22} Every dray that went down to Timaru with the station's wool came back loaded with wire and standards, and posts were cut from the small pockets of bush in local gullies.

Fencing enabled runholders to control their stock and the advantages were manifold. They were able to protect their boundaries from wandering stock - this reduced the spread of diseases, especially scab and footrot. Sheep could be kept off snow-prone country in winter, cutting losses and the amount of time spent on the laborious job of snow-raking trapped stock. The best feed could be saved for the classes of sheep that needed it most - lambing ewes, and growing young stock - while wethers and dry ewes could be restricted to harder country. Another important benefit of fencing was in stock improvement. It enabled breeders to keep different mobs separate and that allowed selective breeding to take place. Runholders were able to keep rams away from ewes and so restrict lambing to spring.

The whole system of management was changed by the use of fencing. The number of permanent station staff was reduced, as boundary keepers were no longer needed. Instead, stations employed mustering gangs on a seasonal basis or to undertake specific tasks such as tailing, dipping and mustering for shearing, while maintaining only a few permanent hands. For example, in the 1870s, only three permanent hands were employed to manage 80,000 sheep that ranged over 100,000 acres on the St. Leonard's run in the Amuri district.\textsuperscript{23}

Fencing also allowed better management of pastures. Under the old system sheep were able to spread over extended areas, grazing only the most favoured plants while the rest of the feed went rank. The rank feed became unpalatable and provided little nutritional value so had to be burned to freshen it up. When the country was

\textsuperscript{21} Lyttelton Times, 31 March 1864, p.7
\textsuperscript{22} Henry Ford Diary, 16 October 1863; 18 February 1865
\textsuperscript{23} John Martin, p.59
fenced into blocks, stock could be contained and made to eat a wider variety of the available feed so that it did not become so rank. It also allowed other areas to be spelled from grazing, which gave plants time to recover. This improved grazing regime enabled a better utilisation of feed, which resulted in an increase in production on many runs.

Harry Ford shifted to Pareora Station (later renamed Holme Station) in March 1866 and immediately began the task of transporting and laying out fencing material for the station fencers. A major fencing programme was soon under way to subdivide the run into blocks of 8,000 to 10,000 acres using wire and gorse fencing.  

24 Fencing did not result in a significant increase in sheep on the run, but it made possible improved grazing control that increased the station’s wool production. In 1871 the station’s 42,000 sheep clipped 501 bales of wool; in 1873 sheep numbers had risen by only 2,000 but the wool clip had increased to 613 bales.  

25 At The Levels Station the Rhodes brothers called for tenders for the erection of five miles of boundary fence in October 1864. The fence was to be of five wires, with iron standards nine feet apart and ten strainer posts per mile.  

26 By March 1866 there were eighteen miles of fencing on The Levels, and in the next four years fencing went on at a rapid rate as most of the property was subdivided into blocks of about 10,000 acres. Despite this increase in fencing stock numbers on the station did not increase. In 1865, the year that the ownership of the property was transferred from the Rhodes brothers to the Canterbury and Otago Association, 100,000 sheep were run. This increased to 102,000 by 1868 and remained at this number in 1870 despite the high capital input of fencing.  

27 It may well have been that The Levels was suffering from overstocking in earlier years, and that the benefits that arose from fencing, evident on other properties, were less obvious on the station.

The Timaru Herald noted the development occurring on the South Canterbury plains in an article on the 1872-3 wool season. It reported on the thousands of acres of tussock giving way to cultivated grasses. ‘First-class land in its native state is

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24 Noel Crawford, p.183
25 ibid., p.185
26 Timaru Herald, 15 October 1864, p.5
27 Noel Crawford, pp.19-35
reckoned to carry a sheep to the acre ... That same land covered with English verdure would feed comfortably three sheep to every acre.' The writer went on to say that the runholder 'turns paddock-farmer on a large scale, and lays down English grasses by the hundreds of acres; but should he not break up the virgin soil, he works it by judicious subdivision – by the useful wire fence – to carry more stock than it does when left open for stock to range over at will; and besides taking more care of his land and making it yield to its utmost, our stock owners are far more careful than formerly of the quality of their stock'.

Charles Tripp described the benefits that came from the new system: 'The man who had the run before me warned me not to keep more than 20,000 sheep. He said if I did I should lose half in the snow. The flock when I came here only gave me 3 ½ lbs. of wool [per sheep]. I altered the system, erected 60 miles of wire fencing, made 24 miles of pack roads, and left the sheep to look take care of themselves. The consequence is I keep double the number of sheep and get double the weight of wool'.

Tripp put up thirty miles of wire fencing by 1871 and sixty miles three years later. However, like other runholders he had to learn where to place fence lines. When fence lines were put across a face heavy snow, or land movement, pushed them over. They soon learned that fences should ideally follow ridges where they were less exposed to snow and slumping.

Wire fencing revolutionised pastoral farming. The old fencing systems that were introduced from Britain and North America - ditch and bank, hedges, and post and rail - were too laborious and expensive to subdivide run country. The Bessemer process of steel production, invented in Britain in the 1850s, produced cheap steel of sufficient strength and quality to enable large-scale fencing to become a reality. The benefits of the new fencing technology initiated fundamental changes to the way runs were managed. Stock performance was lifted, sheep breeding was

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28 *Timaru Herald*, 2 July 1873, p.2
29 Burdon, p.105
30 ibid., p.94
better managed, less labour was needed and running costs were reduced. Fencing was one of the critical inputs that enabled an intensive sheep and crop farming system to develop on the plains of Canterbury out of the old extensive pastoralism system of the early colonial era.

**TABLE 4.1 Sheep numbers, acres fenced and acres under crop in Canterbury, 1855 - 1881**

<table>
<thead>
<tr>
<th></th>
<th>SHEEP</th>
<th>ACRES FENCED</th>
<th>UNDER CROP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1855</td>
<td>220,788</td>
<td>12,261</td>
<td>6,462</td>
</tr>
<tr>
<td>1861</td>
<td>877,369</td>
<td>72,937</td>
<td>32,807</td>
</tr>
<tr>
<td>1864</td>
<td>1,500,000</td>
<td>217,000</td>
<td>50,000</td>
</tr>
<tr>
<td>1867</td>
<td>2,496,949</td>
<td>1,013,576</td>
<td>n.a.</td>
</tr>
<tr>
<td>1874</td>
<td>3,325,630</td>
<td>n.a.</td>
<td>470,306</td>
</tr>
<tr>
<td>1881</td>
<td>3,519,404</td>
<td>4,150,644</td>
<td>1,300,000</td>
</tr>
</tbody>
</table>

Table 4.1 shows the rapid expansion of fencing after the introduction of light wire fencing technology in the mid 1860s. The area fenced in the six years between 1861 and 1867 increased by nearly 1,400 per cent. This shows the enthusiasm with which Canterbury runholders adopted the new technology. In the thirteen years between 1867 and 1881 the increase was a more modest 400 per cent, although a greater area was fenced.

The decline in the rate of increase in sheep numbers in the 1870s was due to a combination of factors including the swing to cropping on the plains as wool prices dropped and the market for surplus sheep disappeared. The decline in the productivity of the native grassland on some properties due to overgrazing and burning also influenced the stagnation of sheep numbers in this period.

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The uptake of this new fencing technology took place in the Australian colonies and in North America at the same time as it occurred in Canterbury. The benefits of fencing in Australia were clearly spelled out by T. A. Coghlan earlier in this chapter. In both Canterbury and Australia fencing technology was imported and then adapted to suit local conditions. There is no doubt that ideas criss-crossed the Tasman Sea, but the utilisation of the technology in the two regions can be seen as parallel developments.

BURNING

From where we stand, at the beginning of the twenty-first century, the abandon with which the early pastoralists burned the vegetation of Canterbury is viewed as environmental vandalism. Few historians and geographers writing about the subject can refrain from expressing their dismay and regret at what they see as the wanton destruction of the native vegetation from the coastal plain to the flanks of the main divide. Yet, aside from a few isolated voices, burning was almost universally accepted as the main tool of pasture management by those closely associated with pastoralism in the colonial period.

Stephen J. Pyne, in his book *Vestal Fire*, has argued that mankind’s use of fire as a tool in landscape modification is ancient, and that burning, often in association with stock grazing, has created the existing landscapes in many parts of the world, especially in parts of Europe. The ancient landscape of Britain has been completely changed by forest felling, burning, grazing and tillage.

At the time that pastoralism was being established in Canterbury seasonal burning was still an accepted management tool in the Scottish Highlands and the moorlands of England and Wales. The landscape of these areas was created and maintained by fire. R.N. Millman described muir [moor] burning in the Highlands in spring as

33 Another new type of fencing, barbed wire, which was an American invention, arrived in Canterbury and Australia in the late 1870s, soon after it became available in the American West. Barbed wire was less significant in the sheep farming region of Canterbury than it was in cattle raising areas. Burdon, p.95; Rodman W. Paul, *The Far West and The Great Plains in Transition, 1859-1900* (New York, Harper, 1988) p.204

being more or less systematic; while, David Turnock suggested that this spring burning was made necessary because sheep are such selective grazers that shepherds had to remove what they did not require.\textsuperscript{35} The English moors were burned on a regular rotation by sheepmen to promote grass and to help control weeds.\textsuperscript{36}

British settlers took their farming practices with them to the colonies of Australia and New Zealand and burning continued to be a feature of their land management. Edward Curr, who squatted in the Port Phillip district from 1841 to 1851, described the seasonal burning that was practised by local sheepmen. Every year a portion of the run was burned; ‘it being well known that the feed which springs up after a fire is particularly wholesome and fattening’.\textsuperscript{37} Burning took place in March or April in the hope that it would be followed by rain; this provided for excellent results. However, if rain did not arrive the benefit of the burn was lost and the burned country was very slow to recover. Curr described how the country was set alight along a line of one to five miles, ‘and then left to chance’. Sometimes it got away completely.\textsuperscript{38}

In Canterbury settlers burned for two reasons: firstly to open the country up and then as a management tool. The first pioneers found that the grasslands of the region, particularly on the heavier soils and the wetter hill and mountain lands were a tangle of tussock, flax, toe toe, giant snowgrass, Spaniard, fern, bush lawyer and matagouri that made travel difficult. Consequently, people exploring new run country often burned as they went. When Acland and Tripp explored the Mount Peel country in 1855 they set alight about 50,000 acres in three days.\textsuperscript{39} In 1857 Joseph Hawdon sent his manager Joseph Pearson to explore the upper Waimakariri basin; he burned the country as he went and the smoke could be seen from the plains.\textsuperscript{40}

\textsuperscript{36} Pyne, \textit{Vestal Fire}, p.363
\textsuperscript{37} Curr, p.355
\textsuperscript{38} ibid, p.356
\textsuperscript{39} Harte, p.15
\textsuperscript{40} L.G.D. Acland, p.223
The tangle of vegetation made it especially difficult for drovers to push sheep through the inland passes until the country was burned. Lee and Jollie burned Barefell Pass and Jollie’s Pass on their epic drive that brought the first sheep overland from Nelson to Canterbury. The fire that they lit to clear Jollie’s Pass blazed for several days and forced the party to sit tight until it burned itself out. Laurence Kennaway described a similar situation that met his brother and their partner F.W. Delamain when they drove sheep to their new run at Burke’s Pass. They reached an area so overgrown that they could not push the horses through, let alone the sheep. They held the sheep in a riverbed and set fire to the hill, which burned through the night. The next day they followed the country opened up by the fire, which burned on ahead of them.

These burns opened the country to provide grazing for sheep. Follow-up burning was used as a means of pasture management. Samuel Butler was emphatic when he wrote, ‘Burn you … must’. Butler claimed that burning made for contented and well-conditioned sheep; it also meant that no neighbour’s burn could get out of control on your property and burn your stock. However, Butler saw the time when burning would no longer be needed – when the run was fully stocked and the sheep would keep on top of the growth. He saw burning as wasteful, in that the grass could be turned into wool instead of going up in smoke. Despite Butler’s insight, the techniques for bringing this type of management to fruition in the hill and high country took nearly the next hundred years to develop.

John Barton Acland described burning as ‘the only way in which a sheep-walk, or “run”, is cultivated’. After fire, he went on, ‘the grass comes up young and tender, and the sheep delight to feed on it; but after some months it becomes rank, and the sheep will almost starve than feed on it’. Acland claimed that in the year following a burn there were some young and tender grasses between the tufts of grass for the sheep and that in the third year the grass would burn again.

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41 E. Jollie, ‘From Nelson to Canterbury’, Alone in a Mountain World, p.25
42 Kennaway, pp.130-132
43 Samuel Butler, A First year in the Canterbury Settlement (reprinted Christchurch, Kiwi, 1995) pp.152-3
44 J.B. Acland, p.9
R.P. Hargreaves used this comment from Acland to suggest that it was common for a third of a run to be burned each year.\textsuperscript{45} This is unlikely. It may have been Acland's view that this was the ideal practice; however, it was simply not practical and I can find no evidence from station diaries that support this claim. To have a successful burn the country must be shut up to prevent stock grazing it for at least a full growing season and preferably longer, so that there is enough material to carry a fire. It is unlikely that runholders could afford to take a third of their run out of production each year. Moreover, it would have been difficult on many properties to physically keep stock off so much country until there was enough fencing to control the sheep adequately. It is more likely that burning was carried out much less systematically than this and that burning was carried out on specific areas as the need arose.

The Levels Station was taken up by the Rhodes brothers in 1851. When they sold the run in 1865, 60,000 of the 153,000 acres (39\%) remained unburned and only lightly stocked, probably because sheep would not push into it. William Davidson, working for the new owners, the Canterbury and Otago Association\textsuperscript{46}, burned this area carefully over three years; firebreaks were burned first to control the course of the main fire. By 1870 only 7,000 acres remained untouched by the lucifer match.\textsuperscript{47}

Harry Ford left no record of burning at the Grampian Hills, although it is probable that earlier owners had burnt the property in 1858 and 1859 when it was taken up. However, he did burn at Holme Station. In the spring of 1866 the downs at the head of the run and some of the hill country were fired. Unfortunately, the fire got away and burned an area of bush and eighty-five cords of firewood that had been cut and stacked to dry. The only other references to burning found in Ford's diary were in the spring of 1867 when he had a man burning on the wether run and in the same month he burned the ram paddock.\textsuperscript{48} This occasional burning suggests that Ford fired specific parts of the run, and only when he felt the country needed it.

\textsuperscript{45} R.P., Hargreaves, 'Speed The Plough', p.185  
\textsuperscript{46} L.G.D. Acland, p.184. The Canterbury and Otago Association, after a merger, became the New Zealand and Australia Land Company.  
\textsuperscript{47} Noel Crawford, pp.38-9  
\textsuperscript{48} Henry Ford Diary, 7-8 September 1866; September 1867
The only burn mentioned in the Rockwood Station diaries, between 1855 and 1857, was lit by a neighbour, Leach, on Snowdon Station. That fire got out of control, as so many seemed to do, and threatened the Rockwood outstation. All the hands were called out to prevent the fire doing any harm. So it seems that burning was not carried out as frequently and as thoughtlessly as some writers have suggested. Careful managers used it as a tool to open country up and to clear off rank growth in specific areas as required. Of course, there were also those who did not manage burning so judiciously.

Turnock noted that in the Highlands of Scotland the interaction of burning and grazing reduced the association of plants to a few dominant species. It had the same result in Canterbury. Young plants and shoots that regenerate after a fire are susceptible to animal grazing; they are succulent and rich in nutrients, but have no protective mechanisms. Consequently this preferential grazing creates bare areas that fill up with plants that are less desirable to stock. To control these weeds the farmer burns the country and repeats the cycle, and over time the palatable species are eaten out, while the soil is opened up to erosion from water and wind.

Edgar Jones described how the native pastures of the early years maintained the stock in good condition: ‘There was a lot of anise and many annual grasses, and with herbs that were very fattening which have died out now with the heavy stocking and burning’. Acland also described the rich variety of native plants that have been lost by burning and grazing, among them: wild parsnip, wild carrot, aniseed and blue grass. He illustrated the high quality of this native feed in this way: ‘Old hands used to say that horses living in it [blue grass] could work as hard and keep in as good condition as horses fed on oats’.

49 Rockwood Station Diary, 2 September 1856
50 Turnock, p.75
52 Edgar Jones, p.44
53 L.G.D. Acland, p.225
Burning, coupled with overgrazing had a role in the decline in the rate of increase in sheep numbers in Canterbury during the late 1870s. Nonetheless, the reasons for this stagnation were complex. Wool prices declined after 1873 and by that time the country was stocked up so that the market for surplus sheep disappeared. Runholders on the plains turned to grain production in order to keep their stations economically viable. By 1881 1.3 million acres had been broken in by the plough.\textsuperscript{54} After successive crops were taken, this country was sown down in English pasture plants which improved stocking rates and stock production. So a series of factors came into play: fencing and pasture improvement worked to increase the availability and management of feed for sheep, while the swing to cropping and the impact of burning and overgrazing worked to reduce sheep feed.

Moreover, sheep numbers alone do not tell the full story. The 1870s saw a marked swing from Merino to bigger crossbred sheep on the plains. Mature crossbred wethers weighed a third more than Merino wethers and, consequently, they required more feeding. The increase in production per animal, as seen at Holme Station and Orari Gorge in the previous discussion of fencing, came from better feeding. Thus a sheep in 1871 did not necessarily equate to a sheep in 1881 in terms of measuring the stocking rate of the country.

Despite the complexity of the problem, there was a levelling out in the growth of sheep numbers in the 1870s and The Levels Station provides an example of this. In 1865, the year before the Rhodes family sold it, the station carried 100,000 sheep, with 39\% of the run as yet unburned and only lightly stocked. By 1870 all but 7,000 acres of that block remained unburned but sheep numbers had only risen by 2,000 head. During the 1870s the run underwent a huge development programme so that by 1878 much of it had been subdivided into 10,000 acre blocks and 21,680 acres had been sown down in English grasses; yet sheep numbers had increased by only 13,400 above the 1865 figure of 100,000.\textsuperscript{55}

\begin{flushright}
\textsuperscript{54} Graeme Wynn and Garth Cant. 'The Bonanza Wheat Boom'. Garth Cant and Russell Kirkpatrick, ed., \textit{Rural Canterbury. Celebrating its History} (Wellington, Daphne Brasell, 2001) p.68
\textsuperscript{55} Noel Crawford, pp.22-63
\end{flushright}
Burning was a land management tool introduced into Canterbury from Britain. It was used from the very beginning of the pastoral farming era, but, perhaps not as systematically as has been suggested by some historians. The combination of burning and grazing depleted the grassland of many of the species of plants preferred by sheep. In the hills and high country, the effects of burning and overgrazing were difficult to remedy and, when combined with the depredation caused by rabbits, led to the decline in the carrying capacity of these lands after about 1881. On the plains, where runholders had access to the plough and English pasture plants that were adapted to grazing, burning was one factor in a complex interplay of forces that were at work. The combination of new fencing and cultivation technology from Britain and the USA and its local adaptation led to the creation of a more intensive system of farming. The burning of pasture on the plains was made obsolete, although the burning of stubble is a practice that still continues today.

The adaptation of land management techniques and cultivation technology were part of a complex set of influences that shaped the intensification of farming on the plains and downlands of Canterbury from the mid-sixties. Animal management and animal health issues also played an important part in this development. It cannot be stressed too much how interconnected each of these factors were in shaping changes in farming practice. This will become more obvious as animal management and animal health are dealt with in the next two chapters.

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CHAPTER FIVE
ANIMAL MANAGEMENT PRACTICE IN THE PASTORAL ERA:
LAMBING TIME AND WINTERING STRATEGIES

This chapter examines the origin of the animal management practises that were
followed by pastoralists in Canterbury. It will show that animal management issues
provided major problems for runholders. They were slow in adjusting the techniques
that they adopted from Britain and Australia to the rhythms of the Canterbury
environment. Many persisted with autumn and winter lambing, despite the high
lamb losses that resulted from the practice. Occasional severe snowstorms led to
heavy stock losses which bankrupted some runholders.

The solutions to these problems were found by largely by trial and error methods.
The increasing use of technology allowed pastoralists in Canterbury to feed and
manage their sheep better. Farm machinery and fencing technology from Britain and
the USA were imported into Canterbury and then adapted to suit local conditions.
The improvement in animal management practices and animal performance in
Canterbury in the period between 1843 and 1882 demonstrates how pastoralists
adopted ideas from elsewhere, and by experimentation, modified them to deal with
problems that were specific to the local environment.

For any livestock operation to be successful the animals must be managed in a way
to keep them healthy and productive. Farm activities, such as lambing and weaning,
have to be timed to suit the normal seasonal pattern of grass growth. Ideally, in-
lamb ewes need to be on a rising plane of nutrition so that lambs are not too big
before they are born, which can lead to birthing difficulties. At the same time there
needs to be ample feed for the ewe to milk well after the lamb is born. The lamb
needs abundant feed after it is weaned to maintain its growth rate and its good
health. Wintering systems need to be planned so that the most valuable stock, the
young stock and the rams, receive the best treatment.
LAMBING TIME

The early pastoralists in Canterbury had a choice of two quite different approaches to take over the season of the year in which to lamb their ewes. In Britain farmers lambed their sheep in spring, in the Australian colonies lambing generally took place in the autumn. Despite the severity of Canterbury winters many adopted the Australian system in the 1850s and sixties. This is an example of how slow some runholders were to adapt their management system to match the local environment.

The debate over the time of lambing was possible because of the ability of the merino ewe to cycle throughout the year. By contrast, the sexual activity of British breeds is dictated by the diurnal rhythm of the seasons. Burke wrote: 'it does not often occur that any British sheep, excepting the Dorsets, can be induced to take the ram before September'. Consequently, lambing in Britain took place in spring and the lambs were weaned the following autumn. This was a natural pattern which matched the seasonal growth of feed. However, British farmers were aware of, and utilised, the merino's ability to lamb 'out of season'. Burke related that Sir Hugh Vavasour had imported merinos to Yorkshire from Saxony in the spring of 1835. The ewes lambed in December of that year and again in the following December. One of the ewes had three lambs in fourteen months.

In the Australian colonies it took some time to develop any pattern for timing the lamb drop. It seems that at first the ewes and rams were run together so that the ewes lambed all year round, and it was not uncommon for a ewe to lamb twice in fourteen months. This practice was adopted in an effort to increase sheep numbers as quickly as possible and because it spread the risk of lamb losses caused by inclement weather. It also reflected the low level of management inputs in the early squatting years: there was very little fencing and the shepherding was done by convict labour.

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1 Burke, British Husbandry, Vol. 2, p.455
2 ibid., p.455
3 Kiddle, p.70
However, there were serious drawbacks with this system. It must have been difficult to manage a property with lambs almost always on hand. Moreover, the stress on the ewes of constantly carrying and feeding lambs was injurious to their health and longevity. Consequently, squatters came to concentrate the time of lambing to one season. In New South Wales lambs were dropped in mid-winter so that they were big enough to take advantage of the first flush of growth in spring.\(^4\) In Victoria autumn lambing had become the accepted practice by the early 1840s.\(^5\)

In New Zealand, Frederick Weld, whose experience had been gained in the mild climate of the Wairarapa and Marlborough, advocated autumn as the optimum time for lambing.\(^6\) Autumn-born lambs were weaned in spring onto fresh growing feed and the ewes had no lambs to get in the way at shearing, which, at that time, took place in summer. Interestingly, it was Weld who claimed that sheep management in New Zealand followed the practice of Britain's hill districts, where they lambed in spring. His advice was clearly based on his experience in New Zealand and is an example of adapting management practice to suit local conditions. Unfortunately, in most of parts of Canterbury the winters are much too hard for autumn lambing to be practicable.

In early Canterbury some pastoralists experimented with lambing all year round for the same reasons as Australian pastoralists: it was seen as a way to get more lambs. However, it was also the result of poor management. Canterbury winters are more severe than most parts of Australia and took a heavy toll on autumn-born lambs. In 1853, when the Hall brothers took over the Rakaia Terrace Station from Mark Pringle Stoddart, one of the original Australian Prophets, they found their ewes lambing through the winter. The result was a thirty-six per cent death rate in the lambs, caused by inclement weather, or by the ewes abandoning lambs because they were hungry and unable to produce milk. The following year the Halls lambed their ewes in the autumn, and although lambing was finished by early May, the winter

\(^4\) Youatt, p.189  
\(^5\) G.F. James, ed., p.81  
\(^6\) Weld, p.10
still took its toll. On 1 June 1854 the diary noted that the lambs were looking weak and nine days later a storm killed thirty-four. Losses continued through the winter.\(^7\)

The Halls’ problems were exacerbated by their system of lambing. The lambing mob was folded every night. The following morning, ewes that had lambed and their lambs were caught and put into a separate pen. This system was extremely stressful for highly-strung merino sheep, whose natural instinct is to select a private place to lamb. It was hardly surprising that the Halls often found dead lambs in the pen in the morning, probably abandoned by ewes disturbed by the crowding. Also, the act of catching the lambed ewes and lambs was likely to have stressed the other ewes, causing them to slip their lambs prematurely. Alfred Joyce, in his writing on early pastoralism in Victoria in the 1840s, described exactly this system of lambing.\(^8\)

There appears to have been some experimentation in Canterbury to find the most suitable time to lamb. This can be seen in Frank Mathias’s journal when he was a stockman at Lake Coleridge, Glenthorne and the Rakaia Forks stations. In his first year, docking began in the middle of November. The following year it began in the last week of August, and in the year after that, 1861, docking took place in September.\(^9\) This contrasts with modern practice when the time that the lambs are tailed is a date that is observed so devoutly that station life is organised around it.

In the Mackenzie Country, the swing to spring lambing was noted in the *Lyttelton Times* in September 1862 by a correspondent who wrote, ‘I have seen most of the sheep farmers here and have heard very good accounts of the late lambing... Some few farmers have avoided lambing during the past winter and this example will soon be generally followed’.\(^10\) At the Grampian Hills run, in each of the years from 1862 to 1865, Harry Ford put his rams to the ewes on 14 or 15 April, which would have had the ewes lambing about 6 August. When Ford moved down to Holme Station, where spring comes earlier than it does in the Mackenzie, the rams went out on 20 April, but the following year this was brought forward to 10 April and this

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\(^7\) Rakaia Terrace Station Journal

\(^8\) G.F. James, p.82

\(^9\) Frank Mathias Journal

\(^10\) *Lyttelton Times*, 10 September 1862, p.4
continued until 1873, which was the final year of the diary. This suggests that Ford had settled on spring as the optimum time to lamb, and all that was then required was some fine tuning concerning the best time to suit the property.\textsuperscript{11}

Although better operators like Ford saw the advantages of spring lambing, it appears that many were slow to adapt their management to make this change. A report in 1864 by P. B. Boulton, the Inspector of Sheep for the Canterbury Province, estimated the average lambing for the year at about fifty-five percent. He wrote that the low figure was due, ‘in great part from a number of settlers persisting in lambing in the depth of winter, a cause of much loss not only in lambs but in wool, as well as causing great injury to the sheep’.\textsuperscript{12}

Thus, in early Canterbury, the Australian practice of autumn or winter lambing was adopted by some runholders, although its acceptance was far from total. In the end, however, when runholders improved their management and wire fencing enabled them to better separate rams from their ewes, the British system of spring lambing and autumn weaning became the norm. This matched Canterbury’s climate pattern. The flush of spring growth provided abundant feed for lactating ewes; lambs could be weaned onto fresh autumn growth and they were mature enough to cope with all but the hardest of winters.

\section*{WINTERING STRATEGIES}

There is a fundamental difference between managing sheep in Canterbury and managing sheep in most parts of Australia, and that difference is driven by climate. In Australia the feed stops growing in the hot dry summer months; in Canterbury’s cold winters the grass can stop growing for anything from four weeks to four months depending on altitude. Moreover, for those farming in Canterbury at an altitude of 300 or more metres above sea level, the occasional heavy snowfalls can be destructive. The 1992 snow in Canterbury, for example, showed that even with modern machinery, which enabled farmers to get feed to stock, snow can cause devastating stock losses, and heavy snow remains as a real concern for modern

\textsuperscript{11} Henry Ford Diaries
\textsuperscript{12} \textit{Lyttelton Times}, 8 September 1864, p.3
farmers. For pioneering pastoralists, losses caused by snow could force them from their land. Though Australian squatters are often credited with creating the pastoral system in Canterbury, seasonal timetables and techniques learned in Australia were of little value when it came to developing a management system to cope with a Canterbury winter. This chapter will show that the wintering system practised in early Canterbury originated in the hill districts of the British Isles.

The prevailing wintering strategy that was practised in the colonial period was to have the stock in such good condition before winter that they could afford to lose some liveweight through the winter on the reduced amount of available pasturage. This lost condition would be replaced as feed became abundant in spring and summer. In the earliest years of pastoral farming in Canterbury the runs were so understocked that wintering on the plains should have been quite straightforward. However, although this was a simple system, it did require some planning, and some runholders found themselves caught out after the onset of winter.

The Hall brothers, who took over the Rakaia Terrace Station at the onset of winter in 1853, soon discovered the problems created by not being prepared. Their situation was made worse because the ewes lambed through June and July. Thus, their feed demand was highest at the very time that feed availability was at its lowest. Early in June the station journal noted that the ‘sheep were getting very insufficient feed on the flat’ and were moved up on to the plain.\(^\text{13}\) This did not alleviate the problem as, later in the month, some of the ewes were so weak they ‘were scarcely fit to go up the hill’.\(^\text{14}\) It proved to be an expensive winter and the mortality rate among the sheep, especially the lambs, was high.

Snow complicated the system of wintering stock on standing feed. It is a common occurrence in winter on the high plains, foothills and high country, but presents no problem for livestock if it is followed by a quick thaw. The early pastoralists seemed to accept snow as part of the business of farming in that type of country. In June 1856 Henry Phillips made a note about the presence of deep snow; however, it

\(^\text{13}\) Rakaia Terrace Station Journal, 10 June 1853. The station is on the Canterbury plains and drops, in a series of terraces, down to flats along side the Rakaia River.

\(^\text{14}\) ibid., 18 June 1853
did not seem to interfere with the work routine of the station staff. Frank Mathias’s journal noted regular snowfalls which did not cause problems for stock. A heavy dump of snow in August 1860 had him checking the cattle; in places he found snow up to his middle, but the cattle seemed to have been safe. After occasional falls of snow over the next few days Mathias went out on his horse to get the cattle down. A two-inch fall of snow, in June 1861, had him out to bring the sheep down onto safer ground at the Rakaia Forks Station.

Mathias’s experience showed that snow was accepted as part of backcountry farming. However, the severe snows of 1862, 1867 and 1878, presented serious difficulties for pastoralists and caused heavy sheep losses. According to Acland, the 1862 snow put the Kennaway brothers and Delamaine out of Clayton. In a particularly poignant chapter in Crusts, Kennaway described the pitiful condition of the sheep that managed to survive the ordeal and how Delamaine had been ‘shut in’ at the station by snow for six weeks. G.A.E. Ross and Charles Harper were forced off Clayton five years later in the big snow of 1867. That winter also broke Frederick Broome at Steventon, when he lost 4,000 out of 7,000 sheep. Broome’s wife, Lady Barker, described the difficult conditions caused by the snow that lay six feet deep, and the struggle to save their sheep.

The standard procedure for rescuing sheep trapped in snow is snow raking, a technique brought to Canterbury from northern Britain. Snow raking involves tramping a track to the trapped animals and then encouraging them to follow the track out to clear country. In heavy snow, where sheep are completely buried, it is a skill to find them. An experienced hand knows the likely places to find sheep that have tried to shelter. He also knows to look for blowholes in the snow, where the breath of trapped animals has kept an airway clear.

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15 Rockwood Station Diary, 12 June 1856
16 Frank Mathias Journal, 10-16 August 1860
17 ibid., June 1861
18 L.G.D. Acland, p.177
19 Kennaway, pp220-223
20 L.G.D. Acland, p.177
21 ibid., p.231
22 Lady Barker, Station Life In New Zealand (Christchurch, Vintage, 2000) pp.192-205
One of the problems in heavy snow is that even sunny country may not clear quickly enough, so that there is nowhere for snow-bound sheep to go. Although L.G.D. Acland reported the use of a snowplough at Raincliff station as early as 1868, the early pastoralists did not have the technology to cope with severe snow. Until the techniques were developed to conserve hay in large quantities and get it to trapped animals, stock losses were inevitable.

The solution to getting sheep through a normal winter was to manage the available feed better, to grow more feed, or to conserve surplus feed grown in spring and early summer, in the form of hay, and feed it out in the winter. Many of the early pastoralists tried to employ all three of these options. However, with the technology available at that time, these solutions were not easy to put into practice. Without fencing and with the shortage of staff, runholders found it difficult to manage their flocks. In winter it was the task of shepherds to keep sheep off the shady and snow-prone country until a snow boundary was formed to keep them on the sunny faces. The introduction of wire fencing made this a more straightforward task. Over time the increasing subdivision on run country enabled stockmen to utilise high snow risk areas for summering sheep, and save the sunny country for the winter months. It also enabled managers to control the grazing pattern of stock and thereby conserve feed banks for wintering.

Cultivation was commonly a part of farm practice; oats were grown for the horses and wheat and barley for consumption on the station and as a commercial crop. After these crops were harvested, the paddocks were sown down into pasture, which was later cropped for hay. The Halls adopted this system and in the spring of 1853 began ploughing for wheat, which they sowed down by the end of August. Oats and a small area of barley were sown in the first week of October. Harvesting was completed by the end of February. However, other station work intervened and grass seed was not sown down until May. The Phillips family at Rockwood followed a similar system, with minor differences in the timing of sowing and harvesting.

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23 L.G.D. Acland, p.183
24 Rakaia Terrace Station Journal
This widespread pattern was seen when stations were advertised for sale; they often listed the number of enclosed paddocks and areas sown in pasture. The Terrace Station was advertised for lease in 1854 with two large paddocks. In early 1861 a sheep run was advertised with 50 acres of sheep-proof paddocks, including thirty acres in English grasses. This steady increase in the area of improved pasture on the pastoral runs of the Canterbury plains in the early years is seen in Table 4.1 in Chapter Four, where the acreage under crop increased from 6,462 in 1855 to 50,000 in 1864. By 1881 1,300,000 acres in Canterbury were in crop or had been sown in pasture.

It is likely that, in the early years, most of these sown paddocks were made into hay. By 1865 Harry Ford was making hay at the Grampian Hills. This continued on a bigger scale when he shifted to Holme Station. The quantity of hay made from these areas was insignificant in terms of the stock numbers being carried. The hay was probably kept for the most valuable stock, horses and rams, and if there was any spare it went to individual sheep that were not doing well.

Another technique for coping with hard winters was to grow extra feed. In Britain the use of root crops in the crop rotation had led to a dramatic improvement in animal nutrition in the early years of the nineteenth century. In 1854 Christchurch nurseryman W. Wilson advertised swede, turnip, wurzel and parsnip seeds and station journals show that these root crops were used, but on a small scale. Henry Phillips sowed beets and turnips in the spring of 1855, and the following year grew turnips and swedes. However, the use of root crops did not become widespread in Canterbury until the 1870s.

The Country Journal recommended the use of turnips as a crop to avoid overstocking. The livestock market report in the same journal noted that, by 1877, most fat sheep coming forward had been turnip fed, and commented that it was ‘a

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25 Lyttelton Times, 3 June 1854, p.2
26 ibid., 27 February 1861, p.3
27 Graeme Wynn and Garth Cant, 'The Bonanza Wheat Boom', Rural Canterbury Celebrating its History, p.68
28 Henry Ford Diary, 13 February 1865; 23 November 1867
29 Lyttelton Times, 23 September 1854, p.2
30 Rockwood Station Diary, 15 October 1855; December 1856
brand of farming that is now universal in Canterbury'. By 1880 Longbeach Station had achieved a remarkable level of development and was growing 1,400 acres of turnips and mangels as well as rape. In addition 300 acres were mown for hay.

However, E.C. Studholme acknowledged the problems that arose at Te Waimate with their reliance on turnips. The turnip crop was usually broadcast, without fertiliser, after a grain crop had been taken. This resulted in poor strikes and, if sown too late, the crops failed completely, which led to serious shortages of feed for the young stock in winter. This problem was later solved by cultivation after the cereal crops were taken off, and by the use of improved seed drills.

The massive increase in cultivation that took place in Canterbury and the swing to hay and turnips for wintering and fattening was a result of the widespread use of new agricultural technology in the province. British and American cultivation, drilling and harvesting machinery appeared in Canterbury soon after it was released in the home markets. Joseph Keetley of Kaiapoi, who designed and built ploughs that outperformed English models, was one of many local engineers and blacksmiths who improved on these designs, and built machinery that suited local conditions.

There is no doubt that the ideas and techniques that were used in Canterbury to get sheep through the hard local winters came from the British Isles. The technique of snow raking and the utilisation of sunny country for wintering came from snow-prone regions of northern Britain. The utilisation of fencing, to subdivide runs into summer and winter country, and to create seasonal feed banks, was, however, a development that took place locally. The use of turnips in the crop rotation as a fattening, then as a wintering, feed source was a technique widely used throughout Britain. Moreover, the highly integrated system of stock rearing and cropping that was achieved at Longbeach, and begun with people like Henry Phillips and John

31 Country Journal, Vol. 1, No.3, 1877, p192; No.4, p. 282
32 ibid., Vol.4, No.4, 1880, p.231
33 Studholme, p.115
Hall in the early 1850s, was the British mixed farming system practised on a grand scale.

Solutions to the problems of matching lambing time and wintering techniques to the local climate took time to solve in Canterbury. Imported methods did not always work in the Canterbury environment. The answers to these problems were developed along with the adoption of a wide range of new technologies and techniques that saw the management of runs improve steadily over the period from 1850 to 1882. Fencing, and new cultivation and harvesting technology from the USA and Britain, along with locally-made machinery, enabled pastoralists to create saved feed for stock that could be utilised when needed. These changes over time exemplify the trial and error methods that characterised the early years of pastoralism in Canterbury.
CHAPTER SIX
ANIMAL HEALTH

Keeping animals healthy and productive is an ongoing problem for modern farmers. In spite of the support that they have from veterinarians and remedies from international pharmaceutical companies, animal health problems continue to cost farmers dearly due to losses in production, or to expenses incurred in the prevention and treatment of diseases. Moreover, animal health problems force farmers to change their management practices thereby shaping the farming system. A modern example of this is found in changes in pasture management forced by the increasing resistance of internal parasites of sheep and cattle to anthelmintics. In the past farmers relied on these drugs to kill or control internal parasites, they now they must manage their grazing rotation to achieve this.

For pastoralists in Canterbury in the early colonial period, issues concerning animal health were even more problematic. Not only were there few veterinary surgeons in the region,¹ but veterinary science was at an embryonic stage in its development. The real causes of many animal health problems were yet to be discovered, and there were few commercial remedies available. As late as the 1860s it was widely believed that disease arose from decaying matter to form a miasma which was carried in the atmosphere to susceptible animals.² Another belief was that disease was generated spontaneously within an animal itself. The most common methods of treatment involved bleeding and purgatives. The cost of maintaining animal health is a drag on the profitability of modern farmers; whereas the costs incurred through losses resulting from animal health problems in the colonial period, in some cases, forced pastoralists off their properties.

In colonial Canterbury most animal diseases came with the animals that were imported. Scab and footrot, the major causes for animal deaths or losses in production in the early colonial era, were serious problems in the Australian

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¹ *Southern Provinces Almanac*, 1861, p.142. Three veterinary surgeons advertised for business: all were in the Christchurch area.
colonies and were also common in the British Isles. The remedies that were used to deal with these problems were essentially British in their origin. However, these practices had been modified in Australia, where the scale of these problems forced squatters to develop techniques of dealing with large numbers of sheep at a time. Tutu poisoning, which caused high sheep losses particularly in the early years, was an endogenous animal health problem.

The solutions to animal health problems helped shape the development of pastoralism in the region. Measures introduced to control scab, such as compulsory branding and dipping, remained standard farm practice long after scab had disappeared. Footrot was a major influence that led to the development of the Corriedale breed. This chapter also shows the interconnectedness of farming practises. Changes in land management practices affected animal health, which forced sheep farmers to change their management and their breed of sheep.

**SCAB**

Scab was the most serious stock health problem in the first twenty years of pastoralism in Canterbury. It began to affect the viability of some runholders by the late 1850s and its impact peaked in December 1863, when 192,000 sheep were declared scabby. By this time scab had appeared on stations as far south as the Mackenzie Country. However, within six months, P.B. Boulton, Chief Inspector of Sheep, was able to report that the number of diseased sheep had been reduced to 16,500.³ In May 1865 the number of stations with scab stood at 11; by the end of 1867 no runs south of Ashburton were affected, and by December 1869 only Glenmark and a neighbouring property at Waipara had scabby stock.⁴ However, it was not until 1884 that Canterbury was finally declared clean of scab.

The disease was known throughout Britain, although the impact of scab was not as devastating there as it was in the colonies. As late as 1848 John French Burke wrote that scab resulted from bad feeding in wet ground, which led to 'an impure state of

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³ Lyttelton Times, 8 September 1864, p.3
⁴ ibid., 8 September 1864, p.3; The Press, 7 November 1867; 7 December 1869
the blood'.\(^5\) This was a surprising belief, since the disease was caused by the sheep mite, a tiny insect barely visible to the naked eye, but easily seen under a magnifying glass. This confusion is an indication of the ignorance about the causes of diseases at the time. According to Burke, the acknowledged treatment for scab in Britain was to dip affected sheep with tobacco-wash.

Scab was widespread in the Australian colonies and its spread was exacerbated by the management system of close shepherding and folding. Under this system, once an infected straggler from a neighbouring property got boxed in a flock, the disease was quickly spread to previously clean animals. Alfred Joyce, a squatter in Port Phillip, described the curse of scab and its costs. In 1844 he saw sheep treated for the disease by immerising them in corrosive sublimate. Arsenic was another treatment tried by squatters, but it was poisonous to both men and sheep. By 1851 Joyce was using lime and water as a dip, which proved to be ineffective and in that year Joyce and his brother lost nearly half of their 16,000 sheep to scab and footrot. All of these treatments were associated with scarifying, which involved scratching the sheep all over with a sharp comb to allow the dip to get into the skin. This treatment was so severe that weak sheep died under it. Scarifying was a time-consuming process; it took as long to scarify a sheep as it did to shear it. In 1853 Joyce tried a new cure, which became the most widely used remedy for scab, using tobacco, arsenic, sulphur and salt. He estimated his sheep losses and the expense of the treatment to cost 3,000 pounds for the year.\(^6\)

In Australia, each colonial authority adopted its own approach to solving the problem of scab. South Australia enforced strict guidelines concerning dipping and movement of infected sheep and claimed to have eradicated the disease by the middle of 1862.\(^7\) The Chief Inspector of Sheep in New South Wales declared that colony clean in 1867, but the disease remained a widespread problem in Victoria.\(^8\)

The model for the involvement of government in animal health issues was found in the reaction of the British Government to the outbreak of rinderpest in the eighteenth century. The official response to the problem was organised at both

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\(^5\) Burke, Vol.2, p.496
\(^6\) G.F. James, pp.42, 107, 133-4, 139
\(^7\) Lyttelton Times, 17 October 1862, pp.3-5
\(^8\) The Press, 3 August 1867
central and local government levels to control stock movements and enforce the compulsory slaughter of diseased animals.\(^9\)

There is some debate as to the time that scab appeared in Canterbury. Acland claimed it arrived with sheep from Nelson in 1854.\(^10\) However, scab was so prevalent in the Australian colonies that it is highly likely that the disease was introduced with infected sheep from the time the importations began. The Deans brothers, who seemed to have had a good appreciation of stock and were competent managers, had an outbreak of scab in their flock early in the autumn of 1848.\(^11\) It is likely that speculators, like Charles Sidey, were less conscientious in selecting stock in Australia than the canny Deans brothers. Sidey is reported to have shipped half-starved animals across the Tasman; it is probable that he also shipped diseased stock as well.\(^12\) The importation of diseased stock became such a concern that John T. Parkinson, the Sheep Inspector, published a notice in the *Lyttelton Times* in July 1851 warning importers that sheep landing at Lyttelton would be subject to inspection for scab or other contagious diseases.\(^13\)

The early runholders, fully aware of the devastation that scab had caused in Australia, were extremely fearful of the disease getting out of control in Canterbury. They used their political clout to have a series of ordinances passed in the Provincial Council to control the spread of the disease and then to eradicate it. The penalties and restrictions imposed under these ordinances became increasingly severe as early attempts at control failed and scab spread through most of the region. Runholders also resorted to litigation to protect themselves from neighbours or to recoup compensation for losses due to infection from wandering stock.

The first scab regulation that operated in Canterbury was passed in 1849 by the Legislative Council of New Munster.\(^14\) John Parkinson’s role as Sheep Inspector at Lyttelton in 1851 was authorised under this ordinance. The Canterbury Provincial

\(^10\) L.G.D. Acland, p.28  
\(^11\) Deans, p.124  
\(^12\) Alice B. Clayton, p. 40. See Chapter Two, Note 25  
\(^13\) *Lyttelton Times*, 12 July 1851, p.8  
\(^14\) *Legislative Council of New Munster Scab Ordinance 1849*
Council acted to control the spread of scab with a series of ordinances, modelled on the Australian regulations, beginning in 1853, although there was considerable debate about their effectiveness.\(^{15}\)

One of the first legal cases taken under the Scab Ordinance was instigated by Charles Torlesse against John Frazer in March 1857. Frazer was fined six pence a head for 900 sheep when he did not leave written notification of his intention to drive sheep through the property at the chief station of Torlesse’s run. This case showed how contentious the issue of driving stock through the region had become. Nelson stock were notorious for scab, but the region was the chief source of sheep for the expanding pastoral industry in Canterbury. Several of the scab ordinances passed by the Canterbury Provincial Council were intended to ensure that sheep coming from Nelson were inspected, and later dipped, for scab before being allowed to cross into Canterbury. The *Torlesse v. Frazer* case was an example to drovers that they must comply with the law. The Resident Magistrate commended Torlesse for bringing the matter into the Court and allowed him his legal expenses.\(^{16}\)

The following year, in April 1858, Frazer was again before the Court in a case under the Scab Ordinance. The mob of 3,200 sheep he was driving south had been inspected and passed before he entered the province, but a short time later he was stopped by another inspector, who found one diseased sheep in the mob. Frazer was fined one shilling per sheep, a total of 160 pounds, and had to cure the mob before moving them on. The *Lytelton Times* commented that ‘no neglect imputed to Mr Frazer’ and claimed the case showed that the act failed to do justice.\(^{17}\) However, for runholders trying to keep scab from spreading, the case sent a clear message to drovers that the risk of driving diseased stock would be expensive.

There were many instances of neighbours resorting to the courts to resolve disputes over straying sheep and the spread of scab. Perhaps the most notable example occurred in 1864 when John Hayhurst took an action against G.H. Moore and was

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\(^{15}\) The Canterbury Provincial Council passed numerous ordinances relating to scab including the following: the *Scab and Catarrh Ordinances* of 1853, 1854 and 1857; the *Scab Prevention Ordinance 1858*; the *Sheep Ordinance 1859*, amended 1861; the *Sheep Ordinance 1864*, amended 1869.

\(^{16}\) *Lytelton Times*, 28 March 1857, p.7

\(^{17}\) ibid., 24 April 1858, p.5
awarded 2,000 pounds in damages after his flock had been infected by Moore’s sheep wandering onto his property. Moore was notorious for having scabby sheep at both his Wakanui and Glenmark properties. In 1861 he was fined 700 pounds for having 20,000 infected sheep and in 1864 he paid over 2,000 pounds in fines. Glenmark was the last place in Canterbury to be declared clean from the disease. Acland claimed that Moore deliberately kept his sheep scabby to frighten off freeholders and to enable him to buy out his partners more cheaply.

Scab was a real threat to the viability of pastoralism. In Canterbury the disease ruined many in the 1850s and early 1860s. In 1859 George and Richard Mason were forced off Birchdale and Mt. Mason because of scab. These properties were particularly vulnerable as they were the first stations south of the Hurunui, on the stock route from Nelson to Canterbury. Dugald Macfarlane of Ledard was ruined by scab in 1860 and in 1866 Mannering and Cunningham were forced off Snowdale, Fernside and Birch Hill.

Edgar Jones graphically described the impact of the disease in his autobiography. He had a particularly rough run on the south bank of the Waiau River. The owners of the neighbouring St. James Station, which was the last run in the Amuri to be infected with scab, bought wethers from Horsley Downs, on the south side of the Hurunui. Some of these wethers headed for home and ten were seen crossing the Waiau on to Jones run. He immediately mustered his easier front country and dipped all the sheep. Jones and his men then mustered part of his backcountry and found one of the stragglers in a mob of 150 wethers - they killed them all. They then helped G.W. McRae from the Glens of Tekoa to muster his adjoining block and got another scabby sheep in a mob of 500. These were mustered down to a set of yards and killed. Jones was obligated to kill his flock of 7,000 sheep and was unable to restock his run with sheep for the next two years.

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18 L.G.D. Acland, p.126
19 Lyttelton Times, 14 September 1861, p. 4, 22 September 1864, p. 3. This figure was given in a speech by Mr Maude in the Provincial Council. Although Moore was not named in the address an examination of the breaches of the Sheep Ordinances show it could only have been Moore.
20 L.G.D. Acland, p.276
21 Alice Clayton, p.105
22 L.G.D. Acland, pp.41, 252
23 Edgar Jones, pp. 42-44
Scab and the enforcement of the sheep ordinances had a considerable impact on the development of farm practice in Canterbury. It was the appearance of scab in the district that made the Hall brothers adopt the Australian system of sheep management in their first year on the Rakaia Terrace Station, when they had their flock closely shepherded and folded at night. G.H. Moore followed this system for his sale rams at Glenmark. In 1859 he advertised them as being tailed and yarded separately from the rest of the flock, probably to counter the concerns of potential buyers, as Glenmark was a notoriously scabby run. ²⁴

A requirement of the 1854 Scab and Catarrh Ordinance was that every property must have a brand that distinguished its sheep from its neighbours and that sheep infected with scab had to be branded with an S until they were declared clean by an inspector. These station brands were maintained in a record book kept by the Provincial Council. ²⁵ This was the beginning of a system of marking sheep that has continued into modern farming where sheep are ear-marked when they are lambs to show that they belong to a particular property. Brands and earmarks had been used in the British Isles for hundreds of years to distinguish ownership of stock and both were transplanted into the Australian colonies and New Zealand. ²⁶

The rapid expansion of fencing in the early 1860s, after light wire became available, can be explained, in part, by the anxiety of runholders to protect their sheep within their own boundaries. Without the threat of scab it is quite possible that some runholders might have been less inclined to embark on such expensive capital development, and to continue to make do with the less secure natural boundaries.

Dipping was the only way to cure diseased stock, although many different remedies were tried in order to make an effective wash. The 1864 Sheep Ordinance made it obligatory for properties running sheep to erect sheep dipping facilities by 31 March 1865. ²⁷ Hitherto, there was no set system for dipping. Some runholders had built

²⁴ Lyttelton Times, 22 June 1859, p.1
²⁵ Wellington and Canterbury Almanac (Lyttelton, 1855) p.128
²⁷ Lyttelton Times, 11 February 1865, p.6
their own dips and charged neighbours a set rate per head for use of the facilities. Many made do with jerry-built affairs. L. G. D. Acland noted that the first public sheep dip was authorised by the Provincial Council in 1861.\textsuperscript{28} John Barton Acland of Mt. Peel described his dipping apparatus as a ‘good, strong, serviceable trough, about twenty feet long, five feet wide at the top and four and a half feet deep’.\textsuperscript{29} The sheep were thrown in and swum through the trough and then allowed to walk up a ramp to a draining pen. With a system like this Acland reckoned five men could dip 3,000 sheep in a day.

This sort of system was a colonial adaptation to deal with large mobs of sheep in as short a time as possible and with a minimum of labour, and was developed in Australia before it appeared in Canterbury. The development of this system can be seen in Alfred Joyce’s letters from Victoria from 1843 to 1864. In 1843 he saw sheep being dipped immersed in a large tub to dip them for scab. By 1853 the system he described was very similar to that used by Acland. Similarly, another labour saving method for handling sheep, the use of a drafting race and drafting gate, was first reported in Victoria in 1844.\textsuperscript{30}

There were a remarkable variety of dipping concoctions devised for controlling the disease. John French Burke advised the use of tobacco wash, although another remedy from England used arsenic and soft soap, which was claimed to be ‘cheaper than tobacco and equally efficacious’.\textsuperscript{31} There were also several patented remedies available in Britain, including \textit{Hayes Specific}, which was advertised in Canterbury in 1863.\textsuperscript{32}

In Australia, where the problem of scab seems to have been more serious than in Britain, many different remedies were tried. In 1853 the Sheep Inspector for South Australia described twelve different treatments that he had heard of, ranging from passing the sheep two or three times through a waterhole into which a load of quick

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\textsuperscript{28} L.G.D. Acland, p.35  
\textsuperscript{29} J.B. Acland, p.12  
\textsuperscript{30} James, G.F., ed, pp.42, 63,139  
\textsuperscript{31} \textit{Lyttelton Times}, 15 May 1852, p.7  
\textsuperscript{32} ibid., 29 September 1863, p.2
lime had been thrown, to the use of a patented medicine called *Long’s Specific.* Most concoctions used in Canterbury and Australia were based on the use of boiled tobacco water with the addition of a mixture of salt, saltpetre, sulphur and sometimes arsenic. Often the decision about which mix to use depended on the whim of the person in charge of the job. In 1868 John Robinson, the manager at Whiterock, dipped the sheep in arsenic, which killed several hundred of them and nearly killed the shepherds as well.

Tobacco was expensive to import and was often in short supply, especially in the 1850s. In 1855 Nelson tobacco was advertised in Canterbury and by 1857 commercial quantities were being grown in the Province. Many runholders grew their own and in 1864 the *Lyttelton Times* reprinted a letter from the *Nelson Colonist* on the cultivation and preparation of tobacco for sheep wash.

It can be seen, then, that the disease of scab had a significant influence on shaping the development of pastoralism in Canterbury. The cost of scab ruined some pastoralists and forced the rest into expensive control measures using capital that might have been directed elsewhere. Fencing was adopted quickly in the Province partly as a measure of self-protection against the disease. The problem of scab also brought government regulation into the pastoral system from its very inception. Provincial Government ordinances forced sheep owners to register station sheep brands and to build sheep dips; both remain features of modern farming.

Britain provided a model for the involvement of government in the eradication of animal diseases and British farmers had remedies for scab. However, the scale of the problem was much greater in the Australian colonies. It forced squatters and colonial governments to develop remedies and practices that in the end led to the eradication of the disease. It was these Australian methods that were adopted in Canterbury.

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33 *Lyttelton Times*, 13 August 1853, p.9
34 L.G.D. Acland, p.255
35 *Lyttelton Times*, 17 February 1855, p.5; 28 January 1857, p.9
36 ibid., 15 October 1864, p.8
FOOTROT

Footrot had replaced scab as the most serious animal health problem in Canterbury by the late 1860s. The intensification in farming practices that took place with fencing and pasture improvement changed the landscape of the plains and downlands. The lush pasture and higher stocking rates encouraged the spread of footrot. The disease became such a problem that sheep owners were forced to move away from the Merino breed, which was particularly susceptible to footrot. The shift to cross breeding and the development of a new breed of sheep, the Corriedale, was part of a fundamental shift in farming practice and a response, in part, to the problem of footrot.

Footrot was widespread in Britain. The *Mark Lane Express* concluded that footrot was caused by the soil and pasture on which sheep grazed and wrote: ‘We have never known a case [of footrot] to occur on the hard, mountainous districts of Peeblesshire, Selkirkshire or Argyleshire; but on very soft, greasy land it abounds in every county that we are acquainted with’.\(^37\) John French Burke agreed that the disease was more prevalent in low marshy districts than in uplands, but he was more accurate in his assessment of its cause, writing that it was ‘communicated by matter discharged from the foot’.\(^38\) The treatment he recommended was to pare the affected part away with a sharp knife and then treat the foot with ointment. He proposed a variety of ointment mixtures including: turpentine, vitriol, vinegar, sulphate of copper and sulphate of zinc.\(^39\) This method of treatment has not changed since Burke wrote his treatise, with zinc sulphate currently being the preferred dressing.

All sheep are susceptible to footrot to some degree, although British breeds that were adapted to heavy, low lying and more fertile regions were less prone to catching the disease and less affected by it than other breeds. The Romney Marsh is probably the breed least affected by footrot, although Lincolns and Leicesters are also comparatively resistant to it. The Merino had originated on dry, stony lands and remains extremely susceptible to footrot. This was one of the reasons why the breed

\(^{37}\) *The Press*, 7 September 1869
\(^{38}\) Burke, *British Husbandry* Vol.2, p.497
\(^{39}\) ibid., p.498
never found widespread popularity in Britain when it was the fashionable type throughout much of the western world in the nineteenth century.

Footrot was a major problem for squatters in Australia from the beginning of the pastoral era. William Youatt noted: ‘footrot seems to assume a character of its own in New South Wales ... if neglected, it speedily becomes inveterate, and preys upon and destroys the animal. The losses occasioned by it in the early existence of the colony were frightful’.\textsuperscript{40} The disease was spread by the Australian management system. Confining sheep in folds overnight provided the ideal environment for spreading the bacteria that cause footrot. In the early period this was made worse because the Saxon merinos that had been imported had been housed for generations and so had no resistance to the disease. The method of treatment practised in the Australian colonies was the same as that recommended by Burke for British farmers.

There can be no doubt that footrot came to New Zealand with sheep from Australia as the bacteria that causes the disease can live in the hooves of sheep for years, ready to break out when suitable conditions arise. It is likely that the low sheep numbers in the early years and the management system in Canterbury, where sheep were not confined but allowed to run on open blocks, meant that the disease was not spread as readily as it was in Australia.

The disease did not appear to be a serious concern for Canterbury’s pastoralists in the earliest years. Weld commented that isolated cases of it occasionally occurred, but he did seem not consider it a problem.\textsuperscript{41} As late as 1858 John Barton Acland claimed that footrot was unknown in Canterbury.\textsuperscript{42} However, it was likely to have been a problem for farmers on the heavy soils between Kaiapoi and Ellesmere and was probably the reason why they were the first to introduce British sheep breeds into Canterbury. As early as 1848 the Deans had noticed how quickly the hooves of their sheep grew on the heavy country at Riccarton and decided that sheep farming might be more successful on the hill country where the hooves would be kept.

\textsuperscript{40} Youatt, p.189
\textsuperscript{41} Weld, p.3
\textsuperscript{42} J.B. Acland, p.11
shorter on the stonier ground.\textsuperscript{43} By the beginning of 1855 the disease had broken out on The Levels Station, and the overseer John Sidebottom was recorded as having been hard at work footrotting sheep when news of McKenzie's theft of sheep from the station was reported to him.\textsuperscript{44}

As farming intensified, footrot became an increasingly serious problem for runholders; in wet seasons sheep became infected by the thousands. E.C. Studholme described the tedious job of treating 16,000 infected sheep in one winter at Te Waimate. The treatment was much the same as had been recommended by John French Burke for the disease in Britain: the infected hooves were pared back to healthy tissue, then the sheep were run through a long trough that contained a mixture of bluestone, arsenic, soda and water. The footrot mob was run through the trough every fortnight, but the cure rate was low until the season became drier and the infection went into remission naturally.\textsuperscript{45} Various patent cures for footrot were advertised including \textit{Allen's Patent Foot-Rot Ointment} and \textit{Hayes Specific} for scab and footrot, but Studholme claimed that the bluestone mix was the commonly used treatment. The system of running sheep through purpose built-troughs to treat them appears to be an adaptation that originated in the Australian colonies to deal with large mobs. It used the same logic as that found in the purpose-built dips to treat large mobs for scab and later ticks and lice.

The problem of footrot was influential in the shift from Merinos on the plains. The significance of this should not be underestimated. A correspondent to the \textit{Country Journal} in 1879 emphasised this point when he wrote that, 'it is impossible for us to keep the Merino on the bulk of our cultivated lands, for the simple and best of reasons – their feet are not adapted to moist lands, and that footrot is the result'.\textsuperscript{46} The loss of production and the difficulty and expense involved in curing or controlling the disease made the change to breeds that were more resistant an attractive proposition. When this advantage was combined with increased wool weights and the better finishing qualities of crossbred sheep it led to a fundamental change in farming on the plains and downlands of the region. The shift to cross

\textsuperscript{43} Deans, p.135
\textsuperscript{44} Noel Crawford, p.12
\textsuperscript{45} Studholme, pp.115-6
\textsuperscript{46} \textit{New Zealand Country Journal}, Vol. 3, 1879, p.395
breeding and the development of the Corriedale was a local response to a local problem. In the harder hill and high country where footrot was not a problem Merinos remained the favoured breed.

OTHER ANIMAL HEALTH PROBLEMS IN EARLY PASTORALISM

The early pastoralists encountered a stock health problem peculiar to New Zealand: losses of stock from eating tutu. Weld noted that poisoning from tutu was more common among newly landed sheep or where grass was scarce.47 Once the country became stocked up and there was less droving the problem of tutu became a minor issue for pastoralists.

However, in the early days when sheep were expensive and runholders were struggling to build up their flocks, these losses were significant. Hungry sheep landed off ships from Australia were particularly susceptible to tutu poisoning and this was a major factor in the high loss rates that sometimes occurred among imported sheep. The Deans letters referred to ‘fearful losses after landing of three cargoes that Sidey has imported. They will cost the purchasers very high prices before they get any returns’.48 The experience of the Reverend John Raven and Thomas Kinnersley Adams with tutu was typical of the problem faced by drovers when shifting sheep on to new country. In 1856 they drove 1,400 sheep from the Rakaia River to Albury Station, a South Canterbury run that they had recently taken up. They overnighted at John Hayhurst’s Ashburton run, where 500 from the mob were ‘tuted’. The affected sheep were bled but over 120 died.49

Bleeding was the accepted remedy for tutu poisoning. Stoddart wrote, “The cure is instantaneous if applied in time, and consists simply of bleeding by cutting boldly across the bars of the palate - the swallowing of blood brings immediate relief”.50 Bleeding was widely used as a cure for many ailments at the time and was probably used in cases of tutu poisoning because there were no other remedies available. The

47 Weld, p.10
48 Deans, p.253
49 Pinney, p.27
50 Colin Amedeo, The Summer Ships; being an account of the first six ships from England to New Zealand by the Canterbury Association in 1850-1851 (Christchurch, Caxton, 2000) p.280
Hall brothers resorted to the practice when they found a mob of ewes, that they were grazing on terms for John Beswick, had been eating tutu and "began to fall in all directions".\textsuperscript{51} In the end the losses were few, only 13 out of 706, but the station staff were fully occupied with the crisis for five days, bleeding the sheep and administering belladonna lotion. They found the recovering sheep very difficult to deal with, as they would not keep with the main mob and they had to be tethered so they did not stray.

Many diseases associated with sheep in Britain and Australia were likely to have arrived in New Zealand with imported animals, but they do not seem to have been seen as problems, especially in the foundation period of pastoralism. Weld noted that apart from the presence of scab, footrot and staggers, 'sheep appear to be ... exempt from all ailments which so often entail ruin upon their owners in the neighbouring colonies'.\textsuperscript{52} It may well have been that the low stocking rates, the system of management and the clean country, as yet uncontaminated by a build up of parasites, masked these potential problems, at least in the short term.

Fly strike, ticks and sheep-lice were all problems that affected sheep in Britain, but they do not seem to have been considered of any significance in Canterbury by the early commentators on farming. J.B. Acland commented that although the country swarmed with blowflies, they never touched live sheep.\textsuperscript{53} However, by 1881 the \textit{Country Journal} reported on authenticated cases of fly struck lambs in South Canterbury. The \textit{Journal} recommended whale oil or white lead as means of prevention and control of the problem.\textsuperscript{54}

In 1850 William Deans found a tick on a sheep newly landed from Australia.\textsuperscript{55} He resolved to shear the mob and to then treat them, probably using a dip concocted of tobacco water, which was the remedy suggested by Burke for ticks and lice.\textsuperscript{56} This incident suggests that ticks and lice were present in both Australia and Canterbury. Certainly, by 1870 there was a bad outbreak of ticks on The Levels. A sheep dip that

\begin{itemize}
\item \textsuperscript{51} Rakaia Terrace Station Journal, 3 February 1854
\item \textsuperscript{52} Weld, p.3
\item \textsuperscript{53} J.B. Acland, p.11
\item \textsuperscript{54} \textit{Country Journal}, Vol.5, No.3, 1881, p.214
\item \textsuperscript{55} Deans, p.173
\item \textsuperscript{56} Burke, p.496
\end{itemize}
had been planned for some time was finished in order to dip the lambs at weaning. It is likely that dipping for scab kept ticks and lice under control through this period.

Internal parasites, which are a major cost to modern stock farming, were not referred to as problems until late in this era, probably because the life cycle of these worms were not clearly understood at this time. In Australia the system of folding and close shepherding lowered the productivity of the sheep. This loss of production was partly a result of stress, but it is highly likely that it was also a result of high levels of internal parasites as the sheep were grazed over previously fouled pasture when they were driven out to their daily feeding grounds. In Canterbury, where sheep were able to spread over a large area relatively undisturbed, these worms would have been less of a problem. The benefit of this was evident in the better stock performance found in Canterbury as compared to New South Wales.

The intensification of sheep farming in the 1870s confined sheep onto smaller blocks but there is no evidence from the diaries of the time that stock health suffered as a result. As E.C. Studholme observed: ‘in the Good Old Days [sic] the stock were wonderfully free from disease ... and there was very little mortality amongst either ewes or lambs’. He did admit, though, that lungworm led to scouring and deaths in lambs after weaning. The lambs were dosed with turpentine and milk. Turpentine seems to have been a widely used remedy and Burke recommended that it be used internally and externally as a cure for a range of diseases.

It was not until 1881 that an article on worms in animals appeared in the Country Journal. This reported on recent studies from England that had appeared in the Live Stock Journal about the discovery of liver fluke worms and bronchial worms, which caused diseases in sheep. The author went on to describe cases he had seen caused by the bronchial worm in Canterbury, and recommended turpentine as the best remedy. The advice given to prevent an outbreak of the problem was remarkably modern: to prevent pasture from becoming contaminated the lambing paddock

57 Noel Crawford, p.42
58 Weld, p.2
59 Studholme, p.115
60 Burke, British Husbandry, Vol.2, pp.494-499
needed to be virgin pasture or at least kept unstocked for some time. The lambs then needed to be weaned onto turnips and hay or light, well-drained land.⁶¹

Animal health was a major problem for early pastoralists, as it is for modern stock farmers, although the particular problems they have had to deal with have changed over the years. Several early writers commented how healthy the Canterbury environment was for sheep. Yet two diseases, footrot and scab, proved to be very costly and the efforts made to overcome them led to fundamental changes in the pastoral system. Dipping, earmarking, and the rapid uptake of fencing technology were all associated with efforts to minimise the impact of scab. Crossbreeding became widespread on the Canterbury plains and downlands partly to counter the impact of footrot. The development of the Corriedale breed grew out of these crossbreeding experiments. The remedies used in the early pastoral period to cure animal health problems came to New Zealand and the Australian colonies from Britain. However, the techniques to deal with large numbers of sheep at a time were Australian in origin.

The close relationship between land management, animal management and animal health also needs to be noted. The introduction of the technology that led to land development - fencing, cultivation, seed sowing, manuring and harvesting technologies - created different animal health problems for pastoralists and farmers. As stocking rates lifted and sheep were confined onto smaller blocks of land, footrot and internal parasites became increasingly serious problems, and remain so in modern farming systems.

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CHAPTER SEVEN
WOOL: PREPARATION AND HARVESTING

In the colonial period, wool from New Zealand, the Australian colonies, South America and southern Africa was marketed on the selling floors of London and Liverpool. English processors were the main buyers, but from the early 1860s processors from the USA and Europe, particularly France, Belgium and Germany, became significant purchasers of colonial wool through the English marketing structure. The dominant influence of the English marketing and processing systems had a huge effect in shaping farming practice and wool preparation in the wool producing regions. The type of wool they produced, sheep washing before shearing or wool scouring after shearing, and the preparation and classing of wool were all practices driven by the English market.

One of the most striking features of the New Zealand wool trade in the colonial era was the continual chorus of complaint from English agents about the poor standard of presentation of the country’s wool. As early as April 1853 London wool brokers were complaining that ‘more care ... is required in sorting and packing the various qualities’ and that fleeces in the grease (unwashed) should be carefully excluded from wools in good condition.¹

This chapter explores how Canterbury runholders improved their facilities and systems to overcome the complaints from English wool staplers. The methods they used originated in Britain and Europe, and were adapted in the Australian colonies to deal with large numbers of sheep. However, local factors influenced the speed with which pastoralists took up the techniques to improve their sheep and wool handling systems.

WASHING

Washing wool, on the sheep or after shearing, was the first step in the preparation of wool for the market. It was so widely practiced throughout the British Isles and

¹ Lyttelton Times, 9 April 1853, p.7
Europe that buyers refused to deal in wool that did not have the grease and foreign matter removed. Accordingly, pastoralists from the colonies who wanted to sell their wool in England were forced to comply.

Washing was practiced to remove dirt, plant material, and the yolk from the fleece so that buyers could see the uncontaminated wool. Moreover, buyers were unhappy to pay for contaminants when all they wanted was the wool. Washing probably became more common as sheep farming intensified and folding increased. Folding confined the sheep onto small areas. Their trampling stirred up dust and mud which got into the fleece. Yolk, made up of wax and suint, is a significant part of an unwashed fleece. Wax is produced by the sebaceous glands in the skin, and protects the wool fibres from weather and dirt. Suint, which is produced by sweat glands, can cause unwashed wool to appear a golden colour instead of white. By removing all of these non-wool components of the fleece by washing, the buyers were better able to assess the quality of the wool. In fact, the prices they paid for wool were directly related to the quality of the washing.

In Spain, Merino sheep were shorn in the grease and the wool washed later. To make shearing easier the sheep were packed into a sweating-house over night. This softened the yolk in the fleece, which made it more easily cut with shearing blades. However, in many wool-growing parts of the world, including Britain, Saxony, and the USA, sheep were washed before shearing to remove the dirt and heavy grease that accumulated in the fleece.

In Britain, where breeds had less grease in their wool, fleeces were contaminated with dirt as a result of the practice of folding. Burke observed that in hill farms, where folding was not practiced, sheep were not always washed, while Youatt complained that not enough washing was done in Scotland, except in the south, where the farming was more intensive and folding was practised.

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2 Barnard, *The Australian Wool Market*, p.15
4 Barnard, *The Australian Wool Market*, p.15
5 Youatt, p.153
6 Youatt, p.32
The washing methods varied from the very simple, where the sheep were made to swim three or four times across a local stream, to purpose-built wash-dikes that were let to sheep owners at a set fee per sheep washed. Wash-dikes were constructed in a stream or a pond: there were pens where sheep were soaked, they were then forced into a smaller pen or tub where each animal was individually washed, after which it was then able to swim ashore to clean pasture. Washing usually stopped in the middle of the afternoon to allow washed sheep to dry and warm up before nightfall. Robert Bakewell advocated warm water washing as it was better for the animal and because cold water was not able to remove grease, only dirt, from the fleece.\textsuperscript{7}

*The American Shepherd*, published in 1845, described the meticulous method of washing sheep in Saxony. It reported that extraordinary care was taken in the process so that there was minimal wastage when manufacturers later scoured the wool. The book advised American wool growers that the water and the weather must be comparatively warm when washing.\textsuperscript{8}

At first Australian pastoralists tried both the Spanish system of washing the shorn wool and the more common method of washing the sheep in the wool. In 1830, a report to the Agricultural and Horticultural society described how William Cox of Mudgee had his wool washed in warm soapy water and then rinsed in cold running water before being air dried on racks. It was a labour intensive method, but he received more than double the price for his wool compared to similar quality wool washed on the sheep.\textsuperscript{9} However, care had to be taken with this method to avoid felting the wool, and English wool brokers often complained about some Australian wool being badly scoured.\textsuperscript{10}

Merino sheep have more sebaceous glands than other breeds and so have more grease in their wool. This high grease content was even more marked in the early colonial period when often only fifty per cent of the fleece was actually wool. When

\textsuperscript{7} Burke, *British Husbandry*, Vol.2, pp.472-473


\textsuperscript{9} Garran and White, pp.126-7

\textsuperscript{10} *Lyttelton Times*, 29 May 1861, p.1
such heavy conditioned fleeces were filled with dirt and dust the yield could drop to thirty per cent wool.\textsuperscript{11} In the Australian colonies the early practice of washing in running streams was found to be ineffective in removing this heavy grease and dirt. Consequently, in the 1850s and 1860s increasingly elaborate systems were developed to do this. Special soaps were imported from England and France, pumps and tanks were installed, and spout washing with hot water became the ideal.

Washing was normal practice in most of the Australian colonies. In 1854, the \textit{Lyttelton Times} noted an added pressure encouraging Australian squatters to wash, when it reported that ‘Sydney offices will not insure greasy wool’ and that ‘shipowners refuse to carry it in their vessels to England except at largely increased rates’.\textsuperscript{12} There is no record of similar pressure being put on Canterbury’s pastoralists. In 1869 seventy per cent of Australian wool sold in England was washed.\textsuperscript{13} However, pastoralists in South Australia began the trend away from washing in the 1850s and by the early sixties most of that region’s wool was marketed unwashed.\textsuperscript{14} Squatters in the other Australian colonies slowly followed. By 1875 forty-nine per cent of the Australian clip was sold in the grease.\textsuperscript{15}

There were a variety of reasons for this change in Australia. Improvements in the internal transportation system made it cheaper to get wool from the inland stations to the coastal ports, so that the cost of carting the weight of grease and dirt in unwashed wool became less significant. More importantly, technical changes and structural changes in the wool processing industry meant that manufacturers preferred to take delivery of wool in the grease and scour it to their own specifications.\textsuperscript{16} French and American processors adopted this technology earlier.

\textsuperscript{11} Garran and White, p.85
\textsuperscript{12} \textit{Lyttelton Times}, 22 April 1854, p.7. This was probably due to concerns about the combustion of wool when it was compressed in the holds of ships. When the wool was dry combustion was not a problem.
\textsuperscript{13} Geoff Raby, \textit{Making Rural Australia. An Economic History of Technical and Institutional Creativity, 1788-1860} (Melbourne, Oxford University Press, 1996) p.103
\textsuperscript{14} \textit{Lyttelton Times}, 20 October 1858, p.4 noted the good demand for unwashed Australian and Cape wool in the English marketplace. 21 February 1865, p.4 reported that South Australian wool was ‘chiefly in the grease.’
\textsuperscript{15} Massey, p.459
\textsuperscript{16} Raby, p.103
than more established British mills and were active in purchasing greasy wool in the early 1860s.\textsuperscript{17}

In Canterbury, washing was never as widely practised as in Australia and this received regular comment from English woolbrokers. There are several probable reasons why this was so. Folding was never widely practiced in Canterbury, so the wool never got as dirty as Australian wool. This had two advantages. The quality of the wool was easier to assess because it was cleaner. Moreover, because it was cleaner the freight costs were relatively lower for pastoralists in Canterbury who did not have to transport as much dirt as did Australian squatters. Canterbury runholders also had the advantage of being closer to ports. So, while transporting the clip was not easy for them, it was less problematic than it was for Australian pastoralists whose runs were often huge distances from the coast.

The New Zealand system of management also worked against washing in that it was not always easy to get a clean muster with sheep ranging over open country. Consequently, sheep that were missed on a muster were not washed with the main mob, and had to be shorn in the grease. English brokers regularly complained about unwashed fleeces being found in bales of washed wool. In fact, they became so frustrated with partly washed flocks that they decided that it was better for the pastoralists not to wash at all, than for them to wash badly.\textsuperscript{18}

Many runholders had already come to that conclusion themselves. In 1860 the \textit{Lyttelton Times} reported in that ‘there seems to be a growing disposition among flockowners to shear their flocks in the grease, under the impression that unless they are able to get up their wool in a really creditable manner, it is useless to wash their sheep at all’.\textsuperscript{19} In 1863 the same paper noted that almost all the Dunedin clip was in the grease and the following year reported that nearly all the wool shipped from New Zealand was unwashed.\textsuperscript{20}

\textsuperscript{17} \textit{Lyttelton Times}, 4 February 1864, p.4 noted that ‘greasy wools are protected by orders from America, and are selling at full rates.’

\textsuperscript{18} ibid., 7 December 1859, p.4

\textsuperscript{19} \textit{Lyttelton Times}, 17 November 1860, p.3

\textsuperscript{20} ibid., 28 March 1863, p.4; 14 June 1864, p.5
The Lyttelton Times, in 1865, noted the advantages of not washing before shearing: ‘In the first place, the sheep suffer comparatively little from being shorn in the grease. They are not chilled or drowned in the washpens, and put off their feed, and so reduced in condition, by being kept from their accustomed feeding ground and camping places for two or three weeks, while waiting to be shorn. When shorn without being washed, they are driven to the shed one day and away the next, without loss in number or in weight, and advantage estimated at a good round sum by the owners of large flocks’.\textsuperscript{21}

There were other disadvantages as well. The amount of labour and the time and effort involved in washing were costly. Moreover, there were no guarantees that all the effort would end in success. After washing, it was recommended that sheep should be kept on the best grass, free from dust or anything likely to discolour the wool until sufficient yolk had risen to allow the wool to again become soft and pliable.\textsuperscript{22} The period suggested between washing and shearing being ‘three clear days’.\textsuperscript{23} For most runholders in early Canterbury these requirements were more than they could meet. Few had the holding capacity to keep sheep for such a period. Moreover, Canterbury’s notorious winds could fill a newly washed fleece with dust before the sheep could be shorn, thereby undoing the hard work.

Interestingly, it appears that some of the early runholders who washed their sheep did allow a period of time between washing and shearing. Whether this was to allow the yolk rise in the wool, or just reflected the difficulty of getting both jobs done concurrently is difficult to know. At the Rakaia Terrace run John Hall and his staff washed the sheep on 2 November and commenced shearing six days later, on the eighth.\textsuperscript{24} A time delay of this length was strongly disapproved of by the authorities who wrote on the subject. The Phillips’s at Rockwood appeared to be no better organised. They washed on Boxing Day 1856 and began shearing on 2 January.\textsuperscript{25} In these first years sheep numbers on these runs were low. As they increased, holding large mobs over this length of time became impractical.

\textsuperscript{21} Lyttelton Times, 14 January 1865, p.4
\textsuperscript{22} ibid., 22 September 1860, p.3
\textsuperscript{23} ibid., 11 June 1853, p.6
\textsuperscript{24} Rakaia Terrace Station Journal, 2 – 8 November 1853
\textsuperscript{25} Rockwood Station Diary, 26 December 1855 – 2 January 1856
Of course, there were a variety of responses from runholders to the issue of washing. Some, like Harry Ford at the Grampian Hills and later at Holme Station, did not wash at all; others made only a half-hearted effort to do the job; and some went to a considerable cost and effort to do it well. Acland related a story from Easedale Nook Station where a traveller came across the manager, Robert Ford Thomas, and three shepherds washing sheep in the Kowai River. They had a hurdle yard jamming the sheep in a big hole and a man ‘about three chains up the river with a bag sprinkling soda, as Thomas said, just to soften the water a bit’. 26 At Mt. Hutt the sheep were hot-water washed until about 1887, making it the last property in Canterbury to continue the practice of washing, according to Acland. 27

The debate over whether runholders should wash or not continued into the 1870s, but by that time the argument had already been decided in favour of shearing in the grease. Wool sale reports in 1873 and 1874 show that the leading Canterbury runs had adopted this practice and were selling their wool in the grease. These runs included: Leslie Hills, Mt. Peel, Waikakahi, Cheviot Hills, Orari Gorge and John Hall’s Terrace Station. Other stations, such as Te Waimate, shore their sheep unwashed, but then had the wool scoured before shipping it to England. 28

Scouring became popular with some wool growers in the later years of the 1870s. The first woolscour in Canterbury was established at Waikuku in 1869. In the 1870s a further nine were built in the region, several of which were associated with boiling down works. 29 However, as the Table 6.1 (below) demonstrates, most of the wool exported from New Zealand in 1882 was in the grease.

<table>
<thead>
<tr>
<th></th>
<th>Greasy</th>
<th>Scoured</th>
<th>Washed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1880</td>
<td>51,313</td>
<td>7,639</td>
<td>7,907</td>
</tr>
<tr>
<td>1882</td>
<td>52,927</td>
<td>7,486</td>
<td>4,909</td>
</tr>
</tbody>
</table>

26 L.G.D. Acland, p.235
27 ibid., p.108
28 The Press, 1 October 1873; 26 November 1874
This discussion has shown that washing was a practice that was demanded of colonial pastoralists by the English wool trade. Washing techniques were adopted from Britain and Europe and adapted in the Australian colonies to deal with bigger mobs. However, washing was never as widely adopted as a farm practice in Canterbury as it had been in much of Australia. The Canterbury system of sheep management kept the wool cleaner, transportation of wool bales to port was less problematic, and the effort was not seen as being cost effective by many runholders. The practice disappeared completely with the development of commercial scouring, but more importantly because greasy wool became accepted in the marketing system.

SHEEP and WOOL HANDLING FACILITIES

Facilities to handle sheep and wool were critical to the success of pastoral runs. The systems that were adopted in Canterbury originated in the British Isles and Europe. However, there had been some adaptations made to them in the Australian colonies prior to the establishment of the pastoral industry in Canterbury. The essence of the Australian adaptations was to enable squatters and their staff to deal with large numbers of sheep at any one time. This was seen in the use of races found in washing, dipping and footrotting facilities. Similarly, races were used in sheep yards and woolsheds to allow a faster throughput of sheep.

The earliest sheep yards in the Australian colonies and Canterbury were hurdle yards which were adopted from the British system. Hurdle yards were adapted from the practice of folding and were able to be moved to areas of the station where they were needed. The Halls erected hurdle yards at the river when they washed, then shifted them to the woolshed for shearing.\textsuperscript{31} Hurdles continued to be used after permanent yards were erected, either as temporary yards that were shifted around the property as required, or to enlarge the permanent yards when large mobs were brought in to be drafted or at shearing time.\textsuperscript{32}

\textsuperscript{30} ibid., p.128. From table compiled by John R. Fairweather, Agricultural Economics Research Unit, Lincoln College.
\textsuperscript{31} Rakia Terrace Station Journal, 1 - 4 November 1853
\textsuperscript{32} Henry Ford Diary, 28 November 1862
The first permanent yards were constructed of sod or posts and rails or a combination of both. Frank Mathias’s diary shows the development of sheep yards over a short period. The early sheep yards consisted of a large rectangular area with a smaller rectangular yard in one corner for drafting. By 1861, when Mathias helped build the sheep yards at the Rakaia Forks run, they involved two large yards with a smaller drafting yard and a long narrow branding yard, which looked like a modern race. By the late 1860s drafting races were added to the facilities, and sheep yards took on a modern appearance.

The most significant development that took place in sheep handling facilities in this period was the introduction of the drafting gate. There is some debate about exactly when and where it was first used. However, there is no doubt that this was an Australian invention. Garran and White claim the drafting race came into use in about 1845. At that time Australian pastoralism was severely depressed and the only outlet for surplus sheep was boiling down. The drafting race enabled pastoralists to draft off inferior animals for disposal. Burdon claimed an Australian manager introduced the drafting gate into Canterbury at Shepherd’s Bush Station in the late 1860s. The idea must have spread quickly as Harry Ford’s diaries show he was using a drafting race in January 1867. He referred to racing the lambs off the ewes at the end of that month. Earlier he had noted that they drafted the wethers, but hand-drafted the ewes.

Hand-drafting must have been a back-breaking job, particularly when the stations began running big flocks of sheep. With sheep getting boxed when there was less fencing, it was a regular chore to be attended to. However, some runholders opposed the use of the drafting gates, arguing that hand-drafting knocked the sheep about less than putting them through a race. L.G.D. Acland claimed that double drafting gates were introduced about eight or ten years after the introduction of the single gate. Even so, it was many years after this before Glenmark Station gave up hand-drafting.

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31 Frank Mathias Journal, April 1861
32 Garran and White, p.220
33 Burdon, p.93
34 Henry Ford Diary, 11-31 January 1867
35 L.G.D. Acland, p.275
The improvements to sheep yards had a beneficial impact on the way pastoralists could prepare their sheep for shearing. One of the complaints from the English wool trade concerning the presentation of New Zealand wool was the mixing of different types of wool, particularly baling short and long wool together. Processors demanded wools of a specific type to make a particular product. They required wool that was a certain length, fineness, tensile strength and colour for manufacturing. If the bales they bought turn out to be deficient in any of these qualities it slowed down the speed of the processing machinery which made the processing more expensive. Consequently, when manufacturers order a particular type of wool from a broker they expect to get that type and not a mixed line.

Sheep of the same breed but different ages and sex grow wool of different type. A dry ewe will grow longer wool than a ewe that has reared a lamb; an old sheep is likely to grow shorter wool than a young one; a wether will grow longer wool than a ewe, unless it has been run on particularly hard country; and a hogget will grow the shortest and finest wool of all. These types are difficult enough to keep separate in a modern system where there is ample yard space and room to hold sheep undercover. It was impossible to manage this in early Canterbury where sheep yards were simple and woolsheds were just areas to store wool bales.

Improvements in sheep handling methods and in fencing gave pastoralists the ability to better manage their different mobs. The implications of this at shearing time were that mobs could be separated out more easily and shorn in lines. In 1867, at Holme Station, all the sheep for shearing were drafted into different mobs: wethers, ewes, lambs and ram lambs. The ewes were culled to take out the aged ones, which were then shorn as a separate mob. This gave a more even flow of different wool types, making it easier for the wool sorter to class it into different lines.\(^{38}\)

Developments in woolsheds in the early colonial period also enabled wool growers to improve the preparation and presentation of their wool. The earliest woolsheds were built to protect wool bales from the weather before they were transported to the port for shipment. Sheep were shorn outside on boards or tarpaulins. At Dugald

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\(^{38}\) Henry Ford Diary, 11 January – 13 February 1867
Macfarlane's Ledard run in 1852, the upturned drawing-room carpet was used as the shearing board. The wool was simply rolled up and tramped into woolpacks, without any sorting. This led to the complaints from London wool-brokers about the inadequate sorting and packing of New Zealand wool.

Income from wool enabled runholders to improve their handling and shearing facilities through the fifties. By 1857 the woolshed at George D uppa's St. Leonards Station had slatted grating, allowing sheep to be kept overnight without staining their wool. By the mid-1860s the best woolsheds of the day were very modern in their layout. Lady Barker's description of shearing at Heathstock in 1865 - with the modern additions of electric lighting, a hydraulic woolpress and women woolhandlers - could easily describe a blade shed in action today.

This type of shearing shed seems to have been an Australian development. In Spain sheep were shorn in large sheds where 150 to 200 shearsers cut out about 1,000 sheep a day. However, there was no grated area, and the wool was not sorted and baled, as in the Australian system, but held over to be washed and sorted later. Burke described shearing in Britain as taking place either under cover on the clean floor of a barn, or outside. While this system has little in common with purpose-built Australian shearing sheds, in parts of England sheep were kept inside on grating to be fattened for mutton. In this system it was recommended that the sheep ... should be upon gratings, made with oak frames and deal tops, ¾ of an inch between the bars. Beneath the gratings, which should be supported on either side, without cross supports, ... should be a pit ... not less than 2 ½ to 3 feet deep, so as to contain all the manure'. This type of barn for stall-feeding may well have been the model for the grated sheep holding area of the Australian woolshed.

If the sheep yards and woolsheds used in colonial Canterbury originated in Australia, the shearing and wool handling methods were of British origin. Burdon

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39 L.G.D. Acland, p.40  
40 P.R. Stephens, 'The Age Of the Great Sheep Runs 1856-80', R.F. Watters, ed., Land and Society in New Zealand. Essays in Historical Geography (Wellington, Reed, 1965) p.54  
41 Lady Barker, pp.82-85  
42 Youatt, p.153  
43 Burke, British Husbandry, Vol.2, p.473  
44 Milburn, p.111
claimed that the modern method of shearing, which involves sitting a sheep up rather than having its legs tied, was introduced into Northumberland and the Border counties in the early nineteenth century, from where it spread to Australia and then New Zealand.\textsuperscript{45} In 1853, C. Warren Adams noticed no difference in technique between English and New Zealand shearers, but he did comment on how fast and rough the colonials were.\textsuperscript{46}

Interestingly, at the Christchurch Agricultural and Pastoral Show in 1873, the shearing competition was held in two divisions; five competitors entered in the English-style contest and six in the colonial style. In the English style, each competitor had an hour to shear three sheep, whereas in the colonial style competition, each entrant had five minutes to shear five sheep.\textsuperscript{47} It can be assumed that this was put on more as an entertainment than a display of practical shearing. Shearers were paid per sheep shorn, which meant that the slowness of the English style would have been impractical in the real working environment of a woolshed.

Shearers were not always easy to find in the early period. Often shearing took place simply when shearers were available, not necessarily when it suited the runholder. It appeared that the Phillips family did their own shearing and wool handling in January 1855, with the whole process taking seventeen days. However, it is not clear whether they did the job themselves when they sheered again the following December.\textsuperscript{48} The Halls employed Watts and Bryan to do their first shearing at the Rakaia Terrace.\textsuperscript{49}

Two different systems were followed for employing shearers. Some runholders used gangs that travelled together and often worked through a district, going from shed to shed. Others used an open shed system where they advertised for shearers. J. Cracroft Wilson placed an advertisement in the Lyttelton Times in September 1860 for 10 shearers and 2 packers. This suggests that there was little or no sorting of the wool and that it was simply rolled up and baled as it was shorn. When travel across

\textsuperscript{45} Burdon, p.84  
\textsuperscript{46} C. Warren Adams, \textit{A Spring in The Canterbury Settlement} (London, Longmans, 1853) p.73  
\textsuperscript{47} \textit{The Press}, 14 November 1873  
\textsuperscript{48} Rockwood Station Diary, 2-19 January; 10-18 December 1856  
\textsuperscript{49} Rakaia Terrace Station Journal, 8-25 November 1853
the Tasman was made easier, with the introduction of a regular and reliable steamship service in the late sixties, the South Island became part of an Australasian shearing run. This cemented the shared shearing practices that already existed among the colonies.

One of the reasons why New Zealand wool growers continued to receive criticism about the preparation of their wool was that there were few people in the country with the expertise to improve the practice. The first advertisement for the professional preparation of wool did not appear in the Lyttelton Times until 1857, when A.R. Homersham advertised as a woolstapler with twenty years experience.

He offered to take wool from the runs and sort it at his base in Kaiapoi, from where it would be transported to the port for export. The 1862 census listed only one woolstapler in Canterbury.

The following year, Joseph F. Nettleton began to advertise in the Lyttelton Times for business as a wool classer. He had eighteen years experience in Bradford, and claimed that his classing would enhance the value of wool. Nettleton gave the names of two runholders, J.H. Lance and J.F.N. Macfarlane, who would supply references. In October 1864 two new advertisements appeared for wool classing. W. and J. Wilson ‘lately from Kendal, Westmoreland, England’ advertised themselves as classifiers, sorters and pressers with 15 years’ experience. The other notice was from Henry Marten, ‘late of the firm of William Marten and Sons, Woolstaplers, Bradford, Yorkshire’, to inform sheep owners that he was anxious to be employed in classing wool. Henry Ford employed a wool classer at Holme Station for the first time in 1867.

It appears that the mid-sixties were a turning point as English professionals with expertise in wool preparation became increasingly available to runholders. This development from the rough-and-ready conditions of the early years reflects the progressive improvement found in other areas of pastoral farming practice.

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30 Martin, p.35
31 Lyttelton Times, 15 August 1857, p.8
32 ibid., 14 June 1862, p.3
33 ibid., 26 September 1863, p.3
34 Lyttelton Times, 8 October 1864, p.8
35 Henry Ford Diary, 14 January 1876
finances allowed, pastoralists improved their sheep handling and shearing facilities, adopting improvements that had been made in the Australian colonies. Other changes were made by runholders, in response to demands from the English wool market, to better sort and pack their wool. The skills and guidance to make these improvements came from people trained in the English wool industry.

The underlying reason for these developments was to increase the profitability of the stations. Better facilities meant less time was spent on the work, which meant less money was spent on employing labour. Many runholders soon decided that washing was not cost effective and gave it up. They anticipated that improved shearing facilities and wool preparation would pay off in higher wool returns. This reinforces the argument that the actions of the early pastoralists were driven by the marketplace, rather than being determined by inherited custom. Their motivation was to make money.

The increasingly technical nature of farming practice as it developed overtime is a theme that runs through the colonial period. It was seen in the improvement in wool preparation, in wintering techniques, and in general management of sheep. Up until this point, and where it has been possible, the thesis has examined how these changes occurred. The next chapter explores the mechanisms that spread these developments to the wider farming community and by doing so, helped establish a farming system.
CHAPTER EIGHT

DISSEMINATION OF INFORMATION

Pastoral farming in Canterbury was developed by pastoralists adopting practices from a variety of sources and then, by trial and error, adapting them to suit the local conditions. Since a minority of them had experience in sheep farming it begs the question: how did these men, with so little farming knowledge, establish an industry that became the economic driving force for the development of Canterbury for most of the colonial period? For example, Samuel Butler had no background at all in farming, yet in four years was able to double his capital and retire on the income derived from his subsequent investments. Where did he get the necessary ideas and technical information to establish a successful station?

Clearly, the ideas and techniques employed by pastoralists in Canterbury came from a wide variety of sources: Britain, the Australian colonies, Europe and North America. There was also a good deal of experimentation to fit imported techniques to local needs, or to formulate and develop local solutions to solve local problems. The pastoral system in Canterbury was created as the farming community at large adopted these ideas and adaptations. The widespread uptake of these ideas could only happen if there were mechanisms for disseminating this knowledge.

Agricultural historians have regarded the period from 1850 to 1875 as golden age of the ‘High Farming’ era in Britain.\(^1\) The founding of the Royal Agricultural Society of England in 1838, the publication of Lieberg’s *Organic Chemistry in its Application to Agriculture and Physiology* in 1840, and the commencement of the systematic field experiments at Rothamstead in 1843 have been described as major turning points in agricultural science.\(^2\) The opening, in 1845, of the Royal Agricultural College at Cirencester established formal education in farming matters in Britain. In 1851, Cyrus McCormick displayed his mechanical reaper to the world at the Great Exhibition in London.\(^3\) These developments accelerated the spread of technical and scientific inputs into farming throughout the western world. By way of

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\(^2\) ibid., p.11

example, in 1851 there was one publicly funded agricultural research station in Germany, by 1875 there were 90.\footnote{Paul Brassley, ‘Agricultural science and education’, \textit{The Agrarian History of England and Wales}, Vol. 7, p.617}

In the 1850s, the application of science would appear to have little relevance for the early pastoralists in Canterbury struggling to create a farming system in a wild landscape. However, earlier chapters in this thesis have shown that farming practices developed remarkably rapidly in the years 1850 to 1882 and farming in Canterbury, like farming elsewhere in the western world, became increasingly technical. Clearly, these changes did not happen independently. The early runholders were well educated group who were able to keep in touch with developments in agriculture and the market place through books, newspapers and periodicals. Many of them continued to travel after establishing their properties, which kept them abreast of international developments. They maintained networks with like-minded people both within Canterbury and in Britain and Australia.

The development of systems to disseminate information within the farming community between 1843 and 1882 mirrored the development of social institutions in the wider community; the dissemination of farming ideas and techniques became increasingly more structured and technical over time. In the earliest period ideas were spread by simple, informal communication between individuals. However, pastoralists soon established associations and clubs that can be seen as the first attempts to put the dissemination of ideas on a more formal basis. \textit{The Country Journal} began publication in Christchurch in 1877 and gave pastoralists access to the international network of scientific agricultural knowledge by reprinting articles from farming and scientific journals from Britain, Europe, North America and Australia.\footnote{New Zealand Country Journal: \textit{A Record of Information connected with Agricultural, Pastoral and Horticultural Pursuits and Rural Sports in New Zealand}, Volume 1 Monday, 1 January, 1877 (Christchurch, Committee of the Canterbury Agricultural and Pastoral Association, 1877)} In 1880 the Canterbury School of Agriculture was opened at Lincoln as a formal institution to educate future farmers and as an experimental farm to test ways of improving farm production.
NETWORKS

The uptake of new ideas is never universal and farmers, like any group, show a wide range of attitudes towards the acceptance of new ideas. Those on the leading edge of innovation adapt old systems or develop new techniques, many take up new ideas after they have been proven by the innovators, while some have the eyes firmly fixed on the past, unable or unwilling to adopt new methods.

The early runholders, as a group, were open to new ideas. Most had no farming experience, and while this was a disadvantage, it did mean that they carried fewer preconceptions and prejudices and so were open to new ways of doing things. They were also a small, well-educated group (there were about 205 stations according to L.G.D. Acland) and they were keen to do well. It was discussed in Chapter One that the majority of the early runholders were middle-class English entrepreneurs. Their Victorian mentalité empowered them with the belief in their right to change their world and gave them the energy to do it. Moreover, they were commercially driven. The purpose of their efforts was not only to make the world better, but also to make money, as they equated wealth with respectability.

Butler commented that when they met, runholders talked nothing but ‘sheep, horses, dogs, cattle, English grasses … I soon discovered that a person’s sheep are himself. If his sheep are clean (free of scab) he is clean’. This enthusiasm meant that new ideas spread quickly within the small community of pastoralists and, at first, word of mouth was the most important means of spreading those ideas. The Terrace Station Journal demonstrated the close interaction between neighbours from the outset of runholding. The journal had regular entries referring to visits by neighbours and associates; they swapped rams, returned stragglers, some stayed and helped out for a few days and they socialised. Among the visitors mentioned were their immediate neighbours, Sanderson, Brayshaw and Henry Phillips, other pastoralists who visited included Tancred, the Studholme brothers, the Bealey brothers, Burke, Perceval, Beswick and Stericker. These visits gave these men plenty of opportunity to engage in the sort of discussions described by Butler.

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6 Samuel Butler, *A First Year in the Canterbury Settlement*, p.31
Sanderson, who had many years experience as a manager and squatter in Victoria before coming to Canterbury, was an invaluable source of useful information for the Hall brothers. He checked their stock for them, lent them his German rams and selected which ewes to mate them to.\textsuperscript{7} This must have been a typical situation in the early days, when the men who had experience guided ‘new chums’ in the business of pastoral farming.

The Rockwood Diaries show a similar pattern of visiting by neighbours and associates. T.H. Potts, Stoddart and the Studholmes were regular visitors and often helped out with work around the run. This shows the close relationships that were formed in the small runholding community despite the isolation of the station properties. It is easy to see how gossip, news and ideas were spread throughout the community by word-of-mouth.

Visiting was not the only mechanism for the transfer of information. Runholders soon developed clubs where they could meet when they travelled to town. The Christchurch Club, which was established in March 1853, was modelled on the gentleman’s clubs that proliferated in Victorian England.\textsuperscript{8} The Club provided pastoralists with a place of residence on their visits to town and gave them a location where they could socialise with their peers. Nearly two-thirds of the membership of the Christchurch Club was made up of runholders, the rest were prominent men of high social standing in the town.\textsuperscript{9}

The importance of the city clubs to the runholders can be seen in John Barton Acland’s diary. Through much of the early part of 1859 Acland had an illness that he was unable to shake off. To recuperate he left Mt. Peel Station and went to stay at ‘the Club’ in Christchurch. Between 30 June, when he arrived, and 8 September, when he left, Acland named 44 different runholders who visited the club, some of them on several occasions. Acland returned to the club on 28 December 1859 and stayed until 24 January. Many pastoralists visited the club over that period, but

\textsuperscript{7} Rakaia Terrace Station Journal, 11 October 1853

\textsuperscript{8} Megan Woods, ‘Behind Closed Doors: A study in elite Canterbury Masculinity 1856-1900 – with specific reference to the Christchurch and Canterbury Clubs’, Hist. 630 essay, History Department, University of Canterbury, 1995, p.2

\textsuperscript{9} ibid., pp.5-7
Acland did not name them, although on 29 December he noted that he dined with Tripp and others, and the following evening he was with Fereday and others. On 5 January there were 20 at dinner, none of whom were named, although he noted that ‘Jollie had a shakedown in my room’.

The club provided an informal setting where runholders could socialise with each other and with the leading businessmen of Christchurch. It is easy to imagine that the conversation often turned to farming topics just as it does when farmers meet today. Issues such as the price of wool, washing methods and whether one should wash or not, the cost of shearing, scab and its treatment, the cost of labour must have been given a good airing on these occasions. Clearly, these social occasions were valuable as a means of spreading ideas through the farming community and it is likely that those who were seen as successful would have had influence over those new to the business.

The early runholders did not only establish networks within the Canterbury pastoral community. Trans-Tasman links were maintained, links were established with North America and ties with Britain were continued. An example of this sort of networking was found in the connections between John Barton Acland and his older brother Thomas Dyke Acland. T.D. Acland was a prolific writer in the agricultural press in Britain and in the 1850s he revived the Royal Bath and West of England Society which had been founded originally in 1777. An address to the Society by J.B. Acland, made when he visited England in 1858, was published as Notes on Sheep-Farming in New Zealand. Among the activities of the Society was the organization of agricultural shows. Interestingly, the first sheep show in Canterbury, held in 1859, was organised at the suggestion of J.B. Acland.

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10 John Barton Acland, Diary 1858-1860, Macmillan Brown Library, 5 January 1860
12 John Barton Acland, *Notes on Sheep-Farming in New Zealand, with a short notice of the Canterbury Province* (London, W.Clowes, 1858)
13 Johannes C. Anderson, p.93
CADETS

Another institution for introducing inexperienced ‘new chums’ to the practical knowledge of sheep farming was the cadet system, which appeared in Canterbury at the very beginning of the pastoral era. This system had its origins in Britain where young would-be farmers learned the business on the job. J.C. Morton described the system in 1865, when he wrote, ‘the present generation of practitioners has been bred and educated by the last, and is engaged in the education of the next’. Paul Brassley, in his work on agricultural education, described how a young man paid a fee of 50 pounds per annum and a weekly payment for board and lodging for his farming apprenticeship. This system of training continued in the colonies with the term cadet being used in New Zealand and jackaroo in Australia.

Many of Canterbury’s early runholders began their farming careers as cadets, two of the most famous being J.B. Acland and C.G. Tripp. Acland paid Henry Tancred 30 pounds for a period of up to a year to train at Malvern Hills Station, while Tripp paid 25 pounds to work for Michael John Burke at Raincliffe. Tancred had been an officer in the Austrian army and there is no record of him having any background in farming, so it is difficult to see what useful knowledge he had to pass on to his apprentice. However, Acland seemed to have been satisfied with his education at Malvern Hills for he later had a succession of cadets at Mount Peel and in his address to the Bath and West of England Society in 1858 he recommended that: ‘The best course for a man to adopt who intends sheep-farming is to reside six or twelve months at a sheep-station, where he will learn his business, and probably gain some experience without paying too dearly for it’.

Acland may not have learned much directly from Tancred, but his time spent as a cadet gave him the opportunity to watch how station staff went about their work.

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15 ibid., p.623
16 Edward E. Morris, Austral English. A Dictionary of Australasian Words, Phrases and Usages, with those Aboriginal-Australian and Maori words that have become incorporated in the language and the commoner scientific words that have had their origin in Australasia (London, Macmillan, 1898) p.76
17 John Barton Acland, p. 7
Tancred employed a manager who would have provided guidance as to how jobs should be carried out. In his role as station owner, Acland did not need to have all the practical skills that were required to make a run successful. What he did need to know was how the station should work and whether the work was being done well by his manager and staff. Clearly, Acland was happy that his time spent as a cadet was useful in providing him with these skills.

Although the cadet system was widely practised during the colonial era, it came in for a good deal of criticism and was held in low regard by many. In April 1862 the Lyttelton Times ran a particularly scathing article criticising cadets and the system. The paper complained about young gentlemen being sent to the colony by their families to get them out of their way. ‘These men are not only useless in a colony, they become the pests of its society,’ it wrote. ‘They go as cadets on stations, getting no pay and lazing about doing little work.’

Frank Mathias, the young stockman at the Rakaia Forks run, was more succinct with his estimation of cadets, who he viewed in much the same way as the newspaper. Filling in a wet Sunday at the station Frank wrote out a list of axioms he thought were necessary to be a successful sheep farmer. The third axiom on his list was: ‘Never take a cadet he is generally more trouble than he is worth’.

Samuel Butler described the conundrum of the cadet system. Those who paid ‘for the insight that he obtains into up-country life, then is at liberty to work or not as he chooses’ he wrote. For those who took on a cadetship where ‘he is neither paid nor pays. He receives his food and lodging gratis, but works (or is supposed to work) in order to learn. The cadet soon gets tired of working for nothing; and, as he is not paid it is difficult to come down on him.’ Butler observed that station hands looked down on cadets who chose to do nothing, but concluded that those who paid for the privilege of idleness had the right to use it if they saw fit.

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18 Lyttelton Times, 5 April 1862, p.9
19 Frank Mathias Journal 12 August 1861
20 Samuel Butler, A First Year in the Canterbury Settlement, pp.73-4
In his book *Early Canterbury Runs* L.G.D. Acland noted that the system changed over time. In the early days a cadet often used to pay 100 pounds a year for the privilege of learning the business. This was replaced by the system of working ‘on even terms’ where the cadet did not have to pay, but was not paid. This too had its difficulties, as Butler explained, and so it became normal practice for cadets to be paid a small wage.\(^{21}\)

Despite the problems and the criticism, the cadet system met the needs of farmers who required cheap labour and young men who wanted to train for a life on the land, for it continued well into the twentieth century. Even today most farmers and farm workers gain their experience by working for other farmers.

**AGRICULTURAL ASSOCIATIONS AND CLUBS**

The cadet system was one of many social institutions that the settlers brought from Britain to the new colony. To improve farming knowledge, pastoralists and others involved with agriculture soon set up societies and clubs that copied institutions from ‘home’. Agricultural societies were popular in Britain during the nineteenth century. The Royal Agricultural Society of England (R. A. S. E.) was founded in 1838, while the Agricultural Society of Scotland was established as early as 1723. The R. A. S. E. organised an annual show in a different place each year. Initially the emphasis of these shows was on the improvement of livestock, but from the 1850s the innovation in agricultural machinery became their main focus. The society was also responsible for the establishment of the Royal Show.\(^{22}\)

When the Christchurch Agricultural, Horticultural and Botanical Society was founded in July 1853 its expressed purpose was to encourage the importation of pedigree stock, selected grasses and fodder plants. The Society held a cattle show on 6 October 1853 in temporary yards erected in Market Square.\(^{23}\) The Canterbury Pastoral Association was founded in 1859 and in September that year held its first sheep show at Benjamin Moorhouse’s Shepherd’s Bush Station, on the north bank

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\(^{21}\) L.G.D. Acland, p.360


\(^{23}\) *Lyttelton Times*, 15 October 1853
of the Rangitata River opposite Mt. Peel Station. Its second show was held at Turton’s accommodation house in the Ashburton District in 1860. There was a deliberate policy of the Canterbury Association to follow the peripatetic nature of the R. A. S. E. shows. As the *Lyttelton Times* noted, ‘like the Royal Agricultural Society of England, the Pastoral Association of Canterbury must take all districts by turns, and be not only a living but a moving body’.

The first show attracted twenty-eight pens of Merino sheep; the second show over fifty pens. Unfortunately the reports do not tell us the number of people who attended the Shepherd’s Bush show. However, according to the *Lyttelton Times*, many of the inhabitants of Christchurch availed themselves of the opportunity to visit the second show near Ashburton. This was clearly regarded as a social occasion and the day finished with a ball where dancing ‘was kept up with great spirit until 5 o’clock in the morning’.

These shows were more than occasions for runholders to get together socially. They were seen as a means of improving the region’s sheep and wool quality by demonstrating the desirable characteristics of good Merinos and by showing pastoralists the sort of animals they should be trying to breed. At the second show there were displays of wool samples that showed ‘the improvement that has taken place during the last few years’.

Founded in January 1863, the Canterbury Agricultural and Pastoral Association, succeeded the two early agricultural societies. Robert Wilkin, a businessman, runholder and a keen improver was the first President of the new Association. The Association held its shows on land that is now Sydenham Park until 1887 when it moved to Addington. Its first exhibition attracted 1,500 people and included a trial of implements as well as competitions for sheep, cattle, horses, pigs, and poultry.

The A. and P. Association, under Wilkin’s energetic leadership produced herd and stud books for cattle and horses. In January 1877 it published the first edition of *The New Zealand Country Journal*, which described itself as: ‘A Record of Information

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24 *Lyttelton Times*, 24 September 1859  
25 ibid., 22 August 1860, p.3  
26 ibid., p.3  
27 ibid., 22 October 1863, p.4
connected with Agricultural, Pastoral and Horticultural Pursuits and Rural Sports in New Zealand'.

The agricultural shows in Canterbury provided the opportunity for pastoralists to get away from their isolated runs and gather in an environment where ideas could be transferred. New implements were trialed and assessed, and the display of the best stock and wool from the region provided a benchmark for others to aspire to. Moreover, the shows were social occasions where new techniques and ideas could be discussed informally. Word-of-mouth remained a powerful medium for the spread of ideas.

Farmers clubs were another means of spreading agricultural knowledge and, like the Agricultural and Pastoral Association, they were modelled on similar societies in Britain, which were established for educational and social purposes. In Canterbury farmers clubs were founded for and by small farmers rather than for the benefit of large scale pastoralism. However, as the boundary between the two became blurred with the intensification of farming on the plains from the middle of the 1860s, the techniques advocated for small farming became more relevant for runholders, with the difference being the scale of the operations.

The first farmers club in Canterbury was founded in 1858 and organised a ploughing match in September of that year. After that there were no more reports of its activities. Another club was started at Mandeville in 1861, which also was involved in promoting ploughing matches. Other clubs slowly followed; two began in South Canterbury in 1871, one at Waihi Crossing and the other at Pleasant Point, and the Lincoln Farmers Club was established later in the same year.

The *Timaru Herald* was a great supporter of the idea of farmers clubs and was critical of the ability and skills of the small farmers in the district. An editorial in 1871 claimed that 'a large percentage of the small farms in the southern district are

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28 *The New Zealand Country Journal*, 1 January 1877 (Lyttelton Times, Committee of the Canterbury Agricultural and Pastoral Association, Christchurch, 1877)

29 Other A and P Associations in the Canterbury region organised their own shows. The first Timaru show was held in October 1866. *Timaru Herald*, 27 October 1866, p.2

30 Lyttelton Times, 18 September 1858, p.2

31 *Timaru Herald*, March 1871, 12 July 1871; *The Press*, 13 September 1871
owned by men who ... are not practical farmers'. It went on that many had invested too much in land and had little capital for machinery, fencing and other improvements. In February the following year the paper wrote that farmers clubs were an excellent means of educating the farmers of the district to improve their management skills and to overcome problems such as overcropping, which was already becoming a problem in some places.

The Agricultural and Pastoral Associations and the farmers clubs were more than just societies for organising shows and ploughing matches. Clubs held regular meetings where speakers gave addresses on various technical matters. The Country Journal often published these presentations. An address to the Canterbury A. and P. Association in April 1876 by Robert Wilkin on ‘Grasses and Forage Plants Best Adapted to New Zealand’ appeared in the first number of the Journal. T.H. Anson presented a lecture on sheep, and another entitled ‘On a Better Style of Farming’, which promoted crop rotation and manuring. L.W. Tosswill gave a talk about the most suitable crop rotation for the Courtenay district. These were also printed in the Country Journal.

NEWSPAPERS

Newspapers, books, almanacs and journals were other ways of disseminating knowledge to the farming community. Numerous farming periodicals were published in Britain and North America through the nineteenth century and it is certain that Canterbury’s runholders had access to some of them. Articles from British publications such as the Field, the Mark Lane Express and the North British Agriculturalist were often reprinted in local newspapers, as were those from American journals such as the Rural New Yorker and the American Farmer.

The first number of the Lyttelton Times was published on 11 January 1851, within weeks of the arrival of the first colonists. The paper was not particularly orientated
towards farming matters; it published regular commercial reports on wool and stock prices and printed news such as meetings of stock holders, but in the period up to 1865 there were few articles on farm practice. A column called the ‘Calendar of Garden and Farm Operations’ was published monthly from October 1852 but soon petered out. In May 1863 a column entitled ‘Farming Notes’ began, but it too soon disappeared. However, the Lyttelton Times did stress the importance of pastoralism to the development of Canterbury and the paper’s editorials occasionally printed opinions about contentious farming matters. The scab problem drew editorial comment as early as November 1854; the paper again entered into the debate when scab became a serious threat to the pastoral industry in 1863.

The Press began publication in 1861 and reported wool and stock prices, as well as news items such as reports on the A. and P. shows; but articles on practical farming appeared even less frequently than those of its competitor the Lyttelton Times. These newspapers may have simply been following the pattern of English papers, which were criticised by the editor of the Mark Lane Express for ignoring agricultural issues. In February 1873 The Press began an ‘Agriculture and Pastoral’ column which ran for six weeks and then disappeared. However, the paper did run occasional articles on technical farming matters from Australian and British newspapers and journals such as The Australasian, the Sydney Mail, the Times and the Economist.

Readers of the Timaru Herald were treated to a much more thorough coverage of farming matters than readers of the leading Christchurch papers. The Herald carried numerous articles from British, Australian and North American newspapers and journals as well as articles sourced locally. Many of these provided useful advice on practical farming matters such as guidelines to the getting up of wool, a series of articles on the establishment and management of permanent pasture, and

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37 Lyttelton Times, 9 October 1852, 13 May 1863
38 ibid., 15 November 1854, 17 June 1863, 1 August 1863, p.4
40 In its second full year of publication, 1866, in addition to advertisements for agricultural goods and reports on the markets, the Herald ran articles from Australia (1) and the USA (2) on farming matters. In 1874 it carried over thirty-two articles from overseas sources on farming topics – Australia (16), Britain (10), USA (7).
another series on the establishment of tree plantations. By 1874 the paper was running increasingly technical articles on farming such as the trial of wide drilling of wheat and barley by the Cirencester Chamber of Agriculture in Britain. The paper disseminated the same sort of information that was later carried by the specialist-farming periodical, The New Zealand Country Journal.

The Herald reprinted articles from American journals on Merino sheep, the management of permanent grassland and how to treat fence posts to make them last. Articles from British publications covered a wide variety of topics including chemical manuring, cross breeding, hay making, farm machinery, and sowing rates of seeds. Material from Australian sources was mostly from newspapers and reported on current topics such as the state of crops, wool prices and agricultural statistics. However, these publications also carried more technical information about sheep breeding, wool preparation, improvement of pasture, and drainage for agriculture. These examples show that there was no apparent focus on specialist topics from these different sources. British publications did not concentrate on, say, cropping, while Australian sources wrote on sheep. Rather, the Herald reprinted material on a wide variety of issues and from a wide variety of sources.

It is interesting to note that while farmers were presented with a good deal of information by the Herald and later the Country Journal, they did not necessarily follow it. In 1868 the Herald published two separate articles on an improved sheep washing apparatus. The same paper had noted a year earlier that New Zealand wools were being shipped to England 'largely in the grease'. Clearly, farmers had already made their mind up about washing before shearing and their decision was not changed by the invention of a new apparatus.

**JOURNALS, PAMPHLETS and BOOKS**

The Country Journal was published by the Canterbury Agricultural and Pastoral Association from January 1877. Sheila Crawford claimed that for many years it was

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41 Timaru Herald, 14 September 1874, p.4
42 ibid., 18 July 1868, p.2; 16 September 1868, p.2
43 ibid., 28 August 1867, p.2
the only agricultural publication in Australasia.\textsuperscript{44} While that may be so, the \textit{Country Journal} sourced many of its articles from Australian publications: in its first number there was an article on colonial cultivation statistics reprinted from the \textit{Australasia Sketcher}, the second issue had a report on the wool selling system in London by the \textit{Sydney Town and Country Journal}.\textsuperscript{45} In its first year of publication the Journal ran sixteen articles from British publications, eight from the USA and five from Australia. As with the articles published in the \textit{Timaru Herald}, this material reprinted from overseas sources covered a variety of topics. A piece on from hedge cultivation came from the \textit{Adelaide Observer},\textsuperscript{46} an article on weeds in pastures was reprinted from the \textit{Irish Farmer},\textsuperscript{47} and points of excellence to note when judging Ayrshire cattle originated in the \textit{New York Agricultural Association}.\textsuperscript{48}

The \textit{Country Journal} was a specialist publication for agriculturalists and pastoralists, and gave them access to a wide variety of scientific and technical information from around the world. Articles of interest to sheep farmers included those on animal health problems, grasses and forage plants that might be suitable for New Zealand conditions, sheep selection and cross breeding, a series of articles by George Gray (who taught at Lincoln College) on the chemistry of manures, as well as pieces on cropping and refrigeration. There was also a section that answered farmer's queries and gave advice on farming problems sent in by readers. In September 1882 the journal published a remarkably prescient article called 'England's New Sheep Farm'. It was by a British writer who saw, after the arrival of New Zealand's first successful shipment of frozen meat in London in May 1882, that the country's farming production would be directed towards supplying the British market.\textsuperscript{49}

Thus, between 1851 and 1882 agriculturalists in Canterbury had access to farming information through local newspapers and a local journal. Throughout the period these sources gave farmers excellent coverage of commercial information concerning prices and trends in the marketplace. Although the \textit{Lyttelton Times} and

\textsuperscript{44} Sheila Crawford, \textit{Sheep and Sheepmen of Canterbury}, p.111
\textsuperscript{45} \textit{Country Journal}, Vol.1, No.1, p.49; Vol.1, No.3, p.198
\textsuperscript{46} ibid., Vol.1, No.2, p.138,
\textsuperscript{47} ibid., Vol.1, No.1, p.53
\textsuperscript{48} ibid.,Vol.1, No., 2, p.122-3
\textsuperscript{49} ibid., Vol.5, No.5, p. 319
The Press were less useful as sources of information on practical farming matters, the Timaru Herald provided its readers with practical and technical information from a variety of local and international sources. The Country Journal gave Canterbury farmers access to scientific farming information from throughout the western world and kept its readers up to date with the latest trends in farming.

Pamphlets written by early pastoralists were another means of disseminating knowledge to aspiring runholders. Frederick Weld’s Hints to Intending Sheep-Farmers in New Zealand was the best of these tracts, but there were many others including Robert Bateman Paul’s Letters From Canterbury, which included a chapter on establishing a station by Charles Hunter Brown. J.B. Acland’s address to the Bath and West of England Society included information on the establishment and management of a pastoral run. S. Hodgkinson, who farmed in the colony for three years, wrote a very general description of Canterbury and farming practice in 1856, and the Provincial Government published a series of pamphlets for intending immigrants that covered similar material.

These pamphlets were written for the British market with the purpose of attracting potential emigrants to Canterbury. They provided readers with only a limited amount of useful information about the business of pastoral farming. Nonetheless, Weld’s guide was a remarkably thorough description of runholding as it was in the early days and was full of sound advice. It is hard to know how much influence these treatises had on would-be runholders, but John Hall did credit Weld’s pamphlet as being a major inducement in his decision to emigrate to New Zealand.

In the early colonial period, there were a variety books available in Britain on practical farming. Among them were William Youatt’s Sheep, Their Breeds, Management and Diseases, which was first published in 1837, and John French Burke’s two volumes on British Husbandry which appeared in 1834 and 1848. Other publications included J.C. Loudon’s Encyclopedia of Agriculture (1825) and

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51 S. Hodgkinson, Emigration to New Zealand. A Description of the Province of Canterbury, New Zealand Founded on Experience Obtained during Residence of Three Years as a Sheep-Farmer in the Colony (London, Cad, 1856); The Province of Canterbury New Zealand Information for Intending Emigrants (Christchurch, Provincial Government, 1873)
52 Jean Garner, p. 43
J.C. Morten's *A Cyclopedia of Agriculture, practical and scientific* (1855). Stephens' *Book of the Farm* first came out in 1840 and was reprinted in 1852. There were also more technical books such as Liebig's *Chemistry in its Application to Agriculture* and *Chemistry of the Farm* by R. Warrington.  

It is almost certain that many pastoralists in Canterbury had access to these books and others of their kind. Both of Burke’s volumes and Youatt’s *Mountain Shepherd’s Manual* had practical advice which could be adapted to Canterbury’s environment. Burke’s advice on the treatment of footrot, washing and the management of hedges foreshadowed the way that these practices were carried out in Canterbury. Although, Australian methods of using races to handle big mobs of sheep modified Burke’s method of treating sheep for footrot.

**AGRICULTURAL EDUCATION**

The Royal Agricultural College at Cirencester had begun taking students in England in 1845. However, its syllabus was criticised for being biased towards irrelevant science and not sufficiently practical. Moreover, by 1882 it remained the only college of its type in England and Wales. This slow progress in agricultural education brought considerable criticism from within Britain and from the colonies.

In Canterbury, as farming became increasingly more technical, with the shift to large scale cropping and stock fattening, the pressure for a more formal education in agriculture began to mount. Newspapers began publishing articles about developments in agricultural education around the world. In 1871 *The Press* reprinted an item from the *Australasian* which claimed that for agricultural education to keep pace with science there must be ‘a systematic course of training at a college ... where a sound knowledge of the principles of agriculture and the sciences connected with it are imparted to the student’. The following month the paper reprinted an article from the *Irish Farmers’ Gazette* that espoused a similar

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55 Paul Brassley, ‘Agricultural science and education’, p.629  
56 *The Press*, 12 December 1871
view; it observed that a technical education in agriculture was becoming increasingly a necessity.\textsuperscript{57} Articles and correspondence advocating the need for such a college appeared occasionally over the following years and the editorial views of the region’s newspapers supported the need for education in scientific agriculture.

The Canterbury Association included provision for education to a university level in its charter; however, the lack of financial resources meant that it was not until 1874 that classes began at the university college in Canterbury. A.W. Bickerton, the Professor in Chemistry, gave weekly lectures on agricultural chemistry, which began the teaching of scientific agriculture in Canterbury.\textsuperscript{58} However, it was not until July 1880 that classes in the formal teaching of agricultural subjects began at the Canterbury School of Agriculture.\textsuperscript{59}

There were a variety of opinions about the purpose of a farm attached to the college. Some teachers viewed it as a tool for the instruction of students. Those who were scientifically minded saw the potential of the farm for experimental uses. While more practical supporters preferred the idea of creating a model farm.\textsuperscript{60} The \textit{Country Journal} was supportive of the school but hostile to the idea of it being associated with an experimental farm. The publication referred to the situation that developed at Cirencester, where the college found the cost of running an experimental farm ruinous and was forced to lease it out.\textsuperscript{61} When it was established the 500-acre farm was referred to as the experimental farm.

W.E. Ivey, the superintendent of Experimental Farm Reserves in Victoria, was appointed ‘Manager’ of the School of Agriculture in 1878 and oversaw the establishment of the college.\textsuperscript{62} Ivey was an Englishman who had been educated at the Royal Agricultural College at Cirencester.\textsuperscript{63} He believed that the role of the school was to ‘train those sons of colonists who are intended to follow the calling of

\textsuperscript{57} ibid., 18 January 1872
\textsuperscript{59} I.D. Blair, \textit{Life and Work at Lincoln Agricultural College. The First Seventy-five Years of the Agricultural College at Lincoln New Zealand} (Christchurch, Caxton, 1956) p.22
\textsuperscript{60} Sally Davey, p.16
\textsuperscript{61} \textit{Country Journal}, 2 April 1877 Vol.1, No. 2, pp.75-6
\textsuperscript{62} I.D. Blair, p.17
\textsuperscript{63} Davey, p.17
the farmer ... the system of education adopted should be one which should instil habits of regularity, should develop and discipline the brain, as well as afford a good practical knowledge of farming operations; should thoroughly blend science with practice, which is the aim of all useful technical schools'. Ivey's view that the object of an agricultural education was to blend science with practice differentiated Lincoln from Cirencester, which was criticised for the emphasis it placed on science while neglecting practice.

At the time of the school's opening the curriculum covered most aspects of farm production and management. There was instruction in the chemistry of the soil, dairy production, and plant and animal growth, biology, geology, veterinary medicine, surveying, and book-keeping. The course also included practical work with the construction and use of implements, and hands-on work with livestock. The *Country Journal* commented on the significance of this training to the country, 'the value of such an institution ... cannot well be overestimated, more particularly so when we consider our relations with other countries and the markets of the world'. A visiting agricultural reporter from the *Melbourne Leader* noted that there was nothing in Australia to compare with the school at Lincoln.

However, despite the increasingly technical nature of farming and the establishment of Lincoln College, education in farming matters remained practical and hands-on. Farmers and farm workers continued to learn from those who were established and experienced in the business. Methods of transfer that had been adopted from Britain and then slowly adapted to meet local needs - agricultural societies and their shows, the cadet system and journals - continued to be the main means of disseminating knowledge within the farming community. The scientific and technical knowledge that came out of Lincoln was transferred to farmers through these media.

The beginning of instruction at Lincoln College in 1880 coincides with the end of the period covered by this thesis. Consequently, there has been no assessment made of the role of the College in shaping the development of farming in Canterbury in

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64 *Country Journal*, 1 September 1880, Vol.4, No.5, p.276
65 ibid., pp.273-5
66 ibid., 1 January 1881, Vol.5, No.1, p. 172
subsequent years. In terms of this thesis, the creation of an educational institution in scientific agriculture can be seen as an end-point in a process that began over thirty years earlier. It reflected the increasingly technical nature of farming and the high capital investment that had taken place on the large estates on the Canterbury plains and downlands.

It was a far cry from the rough-and-ready, trial-and-error days of the early fifties when people like John Hall, Henry Phillips and John Barton Acland relied on a network of friends and associates for moral and physical support and to keep each other up to date with farming ideas and techniques. However, despite their physical isolation, the early pastoralists always maintained links to the British Isles, the Australian colonies, Europe and North America. They were kept informed of advances in farming methods through newspapers, journals and books. British social institutions were transposed into Canterbury, including agricultural societies, gentlemen’s clubs, and the cadet system, which were used to transfer knowledge. As farming became increasingly technical it became necessary to disseminate information in a more formal way. The Country Journal was established as a specialist periodical that kept its readers up to date with advances in scientific agriculture from within New Zealand and around the world. The opening of the Agricultural School at Lincoln established one of the earliest schools in the education of practical and scientific agriculture in the British Empire.
CONCLUSION

From its foundation, the pastoral industry in Canterbury was part of an international system of production and trade based on wool. European entrepreneurs introduced Merino sheep onto the grasslands of southern Africa, South America, Australia and New Zealand. The production system was based on cheap land and low labour costs. Wool was easy to transport and did not spoil on long sea voyages. Most importantly, wool was in demand for the expanding textile industries of Britain, Europe and the USA.

The pastoral farming system in Canterbury was not unique. Many of the methods practised by Canterbury’s pastoralists would have been recognisable to a sheep farmer from the Australian plains, the central valley of California, or the hills of the Border district between England and Scotland. The sheep and the ideas, techniques and technology to manage them had been adopted from Australia, North America, Britain and Europe. Nevertheless, the pastoral farming system in Canterbury was not simply borrowed from elsewhere; it was created on the ground in the region. It was a local variation of a larger pattern that was fashioned from imported elements and by local adaptations and local innovation.

The mentalité of the people who created the system, the influence of the markets, and the influence of the local environment shaped the development of the pastoral system in Canterbury in the years between 1843 and 1882. The mentalité of the pastoralists shaped why the system was established. The demands of the marketplace shaped what commodities were produced. The interplay between experience, experimentation and the environment shaped how those commodities were produced.

The large majority of the early pastoralists in Canterbury came from the middle and upper-middle classes of English society. These classes included the businessmen, industrialists, merchants and working landowners who drove the economy of Britain and who shared a common set of values. They believed in the importance of progress. Societies, they believed, were like people, in that they developed, reached
maturity and then grew old and weak. A society that was not progressing was stagnating. Therefore, it was the duty of a nation’s citizens to work hard and to prosper. Everything in the world was a potential resource to be utilised for the benefit of progress. Land that was not worked was thought to be waste. Consequently it was the right, if not the duty, of people to improve that land, to make it productive. This belief empowered Britons to take up the ‘waste’ lands of the new world. Burning, draining, fencing and cultivation were seen as progress; taking an unused resource and developing it to create wealth.

The creation of wealth was an important feature of the Victorian society from which the pastoralists came. Wealth was associated with respectability and was not simply an end in itself. This belief created the entrepreneurial spirit of the age. When it was coupled with a belief in the right of people to utilise unused resources for the benefit of progress it provided a powerful argument for colonisation and land development. In Canterbury this value system underpinned the attitudes of the settler society and was fundamental in fashioning the pastoral system.

The entrepreneurial instincts of the early pastoralists meant that they were driven by the motive of making money out of the business. This in turn gave power to the marketplace, for in order to make money the pastoralists had to produce what buyers wanted. Wool was the obvious commodity to produce and export. The Australian colonies had already established a colonial wool trade with England based on the production of fine-woolled Merino sheep. Pastoralists from Canterbury tapped into this trade. They imported Merinos from Australia, and then looked to superior sheep from Europe, Britain and the USA to improve them.

When the marketplace began to demand longer combing wool, instead of the short superfine Merino type, Canterbury’s pastoralists changed their type of sheep to meet the change in demand. At the same time they improved the management of their sheep and the way they prepared their wool, to meet the requirements of the wool trade. Improvements to sheep handling facilities, woolsheds, wool preparation, sheep washing and wool scouring were introduced to make the wool more saleable on the auction floors of London and Liverpool. Many of these methods were practices that had originated in Britain and came through the Australian colonies.
Conclusion

However, Canterbury’s pastoralists were not just receivers of ideas and techniques. They adopted measures that suited them, changed them as needed and discarded methods that did not suit. Canterbury runholders gave up sheep washing before shearing at a time when English wool staplers were still encouraging them to improve their washing methods. Clearly, runholders decided that the price differential between greasy and unwashed wool did not justify the cost and effort of washing, and that there were real benefits for them in not washing.

Changes in demand from the marketplace from the 1850s to 1882 encouraged pastoralists in Canterbury to make changes to their production. In the 1850s they concentrated on producing fine Merino wool. In the sixties they began to change from Merinos to cross bred sheep, as the markets demanded combing wool and meat. In the 1870s the decline in wool prices and in the demand for meat entrenched the shift to cross bred sheep, which produced more wool per head and returned more from the boiling down process than Merinos. Furthermore, opportunities in the export market for grain encouraged the move to large-scale cropping on stations on the plains and downlands. It is clear that the early runholders responded readily to changes in the marketplace.

None of these responses were unique to Canterbury. What made the pastoral system different in Canterbury was the local environment and the advantages and constraints that it provided. In general, the climate, soils and topography of Canterbury are different to those of Australia and the British Isles. Consequently, the ideas, techniques, technology, and even the animals that were imported, had to be adapted to this new environment. An excellent example of this process was the different grazing systems adopted in the Australian colonies and in Canterbury. On the open grasslands of the plains where rivers and streams provided reasonable boundaries, at least in the early days, Canterbury’s pastoralists could let their sheep roam freely. Predators were only a minor problem and Maori were not a threat to their land or their stock. Squatters in the Australian colonies did not have these advantages and were forced to close-shepherd and fold their sheep, which was expensive and counterproductive to good animal health and good production.
The region's environment had an influence on the type of sheep that could be run. From the outset, pastoralists realised that their land and climate did not suit the superfine Merinos of New South Wales, and so concentrated on growing sheep that shore heavy wool weights rather than small quantities of very fine wool. The impact of this was that Canterbury's Merinos grew into bigger sheep, which were more fecund and were better suited to crossing with larger breeds.

Canterbury's hard winters were a limitation on production, in comparison with Australia. The most dramatic examples of this were the years when heavy snows killed thousands of sheep. Less dramatic, but more significant, was the time it took runholders to adapt their lambing times to suit the climate. Autumn and winter lambing were the norm in Australia, but Canterbury's winters are too hard for this system to be practicable. Yet it took until the mid-1860s for spring lambing to become common practice in the region. The lack of adequate fencing to control ewes and rams may have been a reason for this slow shift to spring lambing. Nonetheless, this process of change is a good example of the experimentation that went on to find a system that best suited the local environment.

The interaction of new technologies, such as fencing and cultivation equipment, with the environment had an enormous impact on the shaping of production and management practices in the colonial period. Fencing enabled managers to control their stock. This had significant advantages and unforeseen impacts on the development of the Canterbury pastoral system. Fencing allowed runholders to protect their sheep from sear by keeping them away from neighbours' stock. It also gave runholders the ability to improve their grazing management by controlling where sheep could feed. This resulted in improved wool weights and lambing rates. Fencing also enabled managers to control the season in which their ewes lambed. Another benefit of fencing was that made it possible for pastoralists to winter their sheep on warm, sunny country and keep them off snow prone areas.

However, in Canterbury's heavier soils and wetter pastures, when sheep were confined onto smaller blocks by fencing, footrot became a major stock health problem and a serious constraint on sheep production. Moreover, the combination of fencing, cultivation and the widespread use of improved pasture plants lifted
stocking rates, which exacerbated the problem of footrot. Merino sheep, which have little natural resistance to the disease, were crossed with British breeds to overcome the problem. Problems of variability that arose with cross breeding led to the creation of a stabilised half bred cross, the Corriedale, which was adapted to the Canterbury environment.

Cultivation became widely adopted from the late 1860s, due to new technology and, more importantly, to changes in the native vegetation caused by burning and grazing. Improved ploughs, several designed and made locally to suit Canterbury’s soil types, made the job more straightforward. However, it was the need to increase pasture production that was the real spur to the rapid spread of cultivation. The most palatable native grasses and herbs disappeared from the grasslands as a result of burning and selective grazing, and were replaced either by less favoured plants or by bare ground. Faced by falling production and rising costs, particularly the cost of freeholding, pastoralists were forced to cultivate and sow down introduced pasture plants that were adapted to grazing.

Cultivation, along with fencing, improved stock performance. Cross bred sheep grew bigger, produced more wool, fattened more quickly and had more lambs than the small, fine Merinos of the 1850s. However, the intensification of the pastoral system had drawbacks, particularly, in terms of stock health. Scab was the major health problem until the late 1860s, when the impact of government controls and fencing reduced its significance. Footrot became the major stock health problem from the late 1860s as stocking rates were lifted and sheep were confined on to small blocks. By the early 1880s, internal parasites began appearing in the intensively farmed flocks of the plains. They continue to be a major threat to sheep productivity in modern farming.

Clearly, pastoralism developed in Canterbury as a result of a complex interplay of factors. Pastoralists were entrepreneurs who were very responsive to the requirements of the marketplace. They introduced ideas and technology from a variety of sources, which had both desired and unexpected consequences. New technology led to improved stock management, higher stocking rates and better stock performance. However, it also led to increased animal health problems.
Pastoralists overcame problems by trial and error and in some cases were particularly slow to adapt to the constraints of their environment.

One of the dominant features of the period between 1843 and 1882 is that it was a time of constant change. The development of pastoralism can be seen as a progression of stages from take-up to consolidation and then development, but the boundaries between these phases was always fluid. Leading operators never stood still for long. John Grigg, Charles Tripp and the Michael Studholme were typical of many. They were innovators who started out with bare land and with no improvements. They burned, fenced, drained, and cultivated. They built woolsheds, sheep yards, washing facilities and homesteads. They began with fine Merinos, experimented with cross breeding and then settled on farming half bred sheep.

Important parts of this change were in ideas and technology. In the years between 1843 and 1882, farming became increasingly technical. This was the golden age of High Farming, a period which witnessed the increasing application of science to agriculture, especially in Britain, Europe and the USA. New Zealand farmers were part of this international network of scientific knowledge. They had access to up-to-date information through newspapers, overseas farming journals and books. Pastoralists in Canterbury developed their own mechanisms for transferring information, most of which were copied from British institutions. They created farmers associations and clubs, established shows, and an agricultural journal. In 1880 they established an agricultural college and experimental farm at Lincoln that was unique in the southern hemisphere.

By 1882 the pastoralists on the plains and downlands of Canterbury had created their own system of farming: a mixed farming system based on cropping and half bred sheep producing medium-fine wool and meat, and grain for the British Isles. Leading sheep breeders in the region had produced a new breed, the Corriedale that was adapted to the local environment and which was becoming increasingly popular. They had created a system that was ideally placed to take advantage of the new technology of shipping frozen meat.
The conventional view of the origins of pastoralism in Canterbury is that it was simply an extension of the Australian industry. The evidence presented in this thesis does not support this view. Most of the ideas and techniques that were practiced in the early years originated in the hill districts of Britain. The system of grazing management, the use of working dogs, animal health remedies and wintering methods were all British in origin. Australian methods of handling large flocks for dipping, drafting and shearing were adopted in the 1850s, and in the early 1860s Scottish shepherds refined the system that was clearly already in place. Ideas and technology were also adopted from Europe and North America. However, local pastoralists were pragmatic; they experimented with new ideas, discarded those that did not fit the system and adapted those that did. The local pastoral system was created on the ground in Canterbury by entrepreneurs who saw the opportunity of creating wealth by producing wool, and later grain and meat, for the British marketplace, within the constraints imposed by the local environment and by taking advantage of the opportunities it provided.
### APPENDIX

#### DATABASE OF RUNHOLDERS WHO TOOK UP LAND IN CANTERBURY BEFORE 1865

<table>
<thead>
<tr>
<th>Runholder</th>
<th>Background</th>
<th>N.Z. Dates</th>
<th>Born</th>
<th>Br. X</th>
<th>A. Dates</th>
<th>A. X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acland, John B A</td>
<td>b. Devon. Son of baronet. Lawyer</td>
<td>1855-d.1904</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acton, Edward</td>
<td>b. Devon. Parson’s son</td>
<td>1855-d.1905</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adams, Thomas K</td>
<td>b. Shrewesbury. Stockbroker’s son</td>
<td>1853-d.1863</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aitkin, John Christie</td>
<td>Overlander to Victoria. Owned runs 1840-70 in A</td>
<td>1852-68</td>
<td>Eng</td>
<td>1838-1870</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Anstey, George A</td>
<td>From Tasmania</td>
<td>1861-d.1893</td>
<td>Eng</td>
<td></td>
<td>?-1861</td>
<td>Yes</td>
</tr>
<tr>
<td>Barker Dr, Alfred Charles</td>
<td>b. Birmingham. Son of wealthy linen merchant. Surgeon.</td>
<td>1850-d.1873</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barrett, Thomas</td>
<td>b. Somerset. 1 of 4 bros who held run in W A</td>
<td>1858-d.69</td>
<td>Eng</td>
<td>1840s-1858</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Bealey, Bros (2)</td>
<td>b. Lancashire. Both active in provincial politics. Samuel left NZ 1867</td>
<td>1851 – John d.67</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beswick Bros (3)</td>
<td>b. Scarborough. Ship owning and merchant family</td>
<td>1850s John d.65 Joes.d.88</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blakiston, Charles R</td>
<td>b. Yorks. Youngest son of a baronet. Held The Springs for 1 year</td>
<td>1852-d.98</td>
<td>Eng</td>
<td>1851-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bray, William</td>
<td>b. London. Son of wine merchant. Civil engineer</td>
<td>1851-d.85</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brown, Charles Hunter</td>
<td>Civil engineer</td>
<td>1849-d.98</td>
<td>Scot</td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Brown, John Thomas</td>
<td>Son of canon of Norwich Cathedral. Surveyor. Farmed</td>
<td>1851-d.88</td>
<td>Eng</td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Browne</td>
<td>An absentee. Allen managing partner 1859-81</td>
<td>1859-1881</td>
<td></td>
<td>1850s+</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Bruce, Thomas W</td>
<td>Managed Motunau for Caverhill before taking up own station</td>
<td>1859-d.1908</td>
<td>Scot</td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Runholder</td>
<td>Background</td>
<td>N.Z. Dates</td>
<td>Born</td>
<td>Br. X</td>
<td>A. Dates</td>
<td>A. X</td>
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</tr>
<tr>
<td>Burke, Michael J</td>
<td>Barrister in Ireland</td>
<td>1850-d.68</td>
<td>Ire</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buchanan, Hugh</td>
<td>Son of farmer. Farmed</td>
<td>1852-d.77</td>
<td>Scot</td>
<td>Yes</td>
<td>1848-51</td>
<td>Yes</td>
</tr>
<tr>
<td>Burnett, Andrew</td>
<td>Highland shepherd</td>
<td>1861-d.1927</td>
<td>Scot</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Butler, Samuel</td>
<td>b. Nottinghamshire, son of rev.</td>
<td>1860-4</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Campion, Rowland</td>
<td>Drowned on visit to Eng</td>
<td>1852-61</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caverhill, John Scott</td>
<td>Son of factor of Estate</td>
<td>1850-d.97</td>
<td>Scot</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Chapman, Edward</td>
<td>b. Middlesex. Banker's son. Pastoral Licence for 80,000 ac</td>
<td>1853-d.98</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chapman, Robert</td>
<td>b. Yorks. Manager for Kaye in A&amp; NZ. Kaye sold out to him. Top Merino breeder</td>
<td>1851-d.82</td>
<td>Eng</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Clifford, Alphonso</td>
<td>b. Lancs. Brother of Charles</td>
<td>1853-93</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clifford, Charles</td>
<td>Wealthy landed family. Trained as engineer</td>
<td>Wellington 1843-60</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clogston, Capt. E L</td>
<td>X Br. Army. Lived in Chch</td>
<td>1861-d.82</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clowes, Thomas A</td>
<td>Son of a vicar from Norfolk</td>
<td>1863-d.85</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cochran Bros (2)</td>
<td>Father x Br. Army</td>
<td>1860s-John d.84</td>
<td>Ire</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Congreve, Sir William</td>
<td>Son of baronet. To Nelson</td>
<td>1848-58</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooke, George</td>
<td>Parson’s son from Suffolk</td>
<td>1864-?</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cookson, Isaac Thomas</td>
<td>Cookson and Bowler Wellington merchants. Land speculators</td>
<td>1840s-Candy 1851 d.1870</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cordy, John</td>
<td>Farmer from Suffolk</td>
<td>1859-d.86</td>
<td>Eng</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cowan, Andrew</td>
<td>Shepherd from Ross</td>
<td>1863-d.1917</td>
<td>Scot</td>
<td>Yes</td>
<td></td>
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<tr>
<td>Runholder</td>
<td>Background</td>
<td>N.Z. Dates</td>
<td>Born</td>
<td>Br. X</td>
<td>A. Dates</td>
<td>A. X</td>
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<tr>
<td>Cox, Alfred</td>
<td>Born in A. Learned farming in Eng</td>
<td>1854-d. 1911</td>
<td>Aust</td>
<td>Yes</td>
<td>1829-57</td>
<td>Yes</td>
</tr>
<tr>
<td>Cox, Charles Percy</td>
<td>Father x Br. Army</td>
<td>1853-d.1925</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Creyke, A R</td>
<td>Son of vicar</td>
<td>1851-60</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Curry, Edward</td>
<td>Banker in Eng</td>
<td>1861-d.1902</td>
<td>Eng</td>
<td></td>
<td></td>
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<tr>
<td>Dalzell, Joseph</td>
<td>b. Cumberland</td>
<td>1857-d.95</td>
<td>Eng</td>
<td></td>
<td>1851-7</td>
<td></td>
</tr>
<tr>
<td>Dampier, Christopher E</td>
<td>Solicitor</td>
<td>1850-d.71</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dark, Edward (2) (with brother)</td>
<td>b. Gloucester. Maltmaster’s sons. Overlanded stock</td>
<td>Canty 53-d.NZ</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day, G F</td>
<td>Father to Nelson 1841</td>
<td>1843-d.1909</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deans Bros (2)</td>
<td>Both undertook legal training but then trained at farming</td>
<td>1843-J.d.54 W.d.51</td>
<td>Scot</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delamain, F W</td>
<td>b.Devon. Father colonel in Indian Army</td>
<td>1851-d.1910</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Denman, Joseph</td>
<td>never came out</td>
<td>1852</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dixon, Marmaduke</td>
<td>b.Lincolnshire. At sea aged 14. Grandson of noted sheep breeder</td>
<td>1852-d.97</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dudley, John</td>
<td>Son of rev. from Staffs</td>
<td>1851-d.61</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dunnage, Rev. George</td>
<td>From Westmoreland. Did LLB. Failed farming WA. Entered Church</td>
<td>1851-d.53</td>
<td>Eng</td>
<td></td>
<td>1829-30</td>
<td>Yes</td>
</tr>
<tr>
<td>Duppa, George</td>
<td>b.Kent. From old landed family</td>
<td>1840-63</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ellis, Thomas</td>
<td>Son of Birmingham doctor</td>
<td>1851-d.90</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elworthy, Edward</td>
<td>Family owned woollen mills in Somerset.</td>
<td>1864-d.1904</td>
<td>Eng</td>
<td></td>
<td>1862-4</td>
<td>Yes</td>
</tr>
<tr>
<td>Ensor Bros (3)</td>
<td>Father Rector of Rollesby, Norfolk</td>
<td>1860-d.1901</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enys Bros (3)</td>
<td>b. Cornwall, landed family</td>
<td>1861-90</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fereday, Edwin H</td>
<td>Father a landowner Staffs. Top merino breeder and judge</td>
<td>1851-d.75</td>
<td>Eng</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Field, James</td>
<td>Farmer from Kent</td>
<td>1851-61</td>
<td>Eng</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr Fisher</td>
<td>b. Devon. Absentee</td>
<td>1854-88</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FitzGerald, James E</td>
<td>Father a landowner Worked in Br. Museum</td>
<td>1850-d.96</td>
<td>Ire</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Runholder</td>
<td>Background</td>
<td>N.Z. Dates</td>
<td>Born</td>
<td>Br. X</td>
<td>A. Dates</td>
<td>A. X</td>
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</tr>
<tr>
<td>Ford, John T</td>
<td>b. Devon. Brought up as a farmer. Worked up from manager</td>
<td>1859-d.1910</td>
<td>Eng</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fraser, John</td>
<td>Overlanded stock from Nelson. In Mackenzie 1859</td>
<td>Nelson 1840-d.NZ</td>
<td>Scot</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gammack, John</td>
<td>Alfred Cox’s half brother</td>
<td>Late50s-left 84</td>
<td>Aust</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gerard, William</td>
<td>Managed <em>Cheviot Hills</em>. Had <em>Snowden</em> and <em>Double Hill</em></td>
<td>1857-d.1898</td>
<td>Eng</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gibson, Edmund</td>
<td>Father Lord Lt.of Lancashire. Family had fallen on hard times</td>
<td>Nelson 1840s d. ?</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gladstone, Henry</td>
<td>b. Liverpool. Son of wine broker</td>
<td>1850s-d.1915</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goldney Bros</td>
<td>Merino stud beaten by footrot</td>
<td>1857-67</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Gould, George</td>
<td>b. Oxfordshire. Chch businessman</td>
<td>1851-d.89</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gray Bros (2)</td>
<td>Sons of Somerset parson. Sheep breeders and judges.</td>
<td>1853-Ern d.95</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greenwood Bros</td>
<td>From farming family in Yorkshire. JH-d.48</td>
<td>1843-JW-d.50</td>
<td>Eng</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grigg, John</td>
<td>b. Cornwall, son of farmer</td>
<td>1854-d.1901</td>
<td>Eng</td>
<td>Yes</td>
<td>1854</td>
<td></td>
</tr>
<tr>
<td>Guinness, Frank</td>
<td>Father Rector of St. Patrick’s Dublin. Cadet with Burke</td>
<td>1852-d.91</td>
<td>Ire</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hall, Bros (3)</td>
<td>b. Hull. Sons of ship owner. GW &amp; TW sea capts. John Sec. to head of P.O.</td>
<td>1852-d.96 TW d.95 J d.1910</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harper Bishop HJC</td>
<td>b. Hampshire, doctor’s son</td>
<td>1856-d.93</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harris, William Hyde</td>
<td><em>Flaxbourne</em> and <em>Stoneyhurst</em></td>
<td>1851-66</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hart, George</td>
<td>Father had property near London.</td>
<td>Wellington 1843 d.1895</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haslewood, Charles C</td>
<td>Son of col. in Br. Army</td>
<td>1852-d.58</td>
<td>Eng</td>
<td></td>
<td>1845-47</td>
<td>Yes</td>
</tr>
<tr>
<td>Hawdon, Joseph</td>
<td>b. Durham. First overlander to Melbourne and Adelaide</td>
<td>1851-d.71</td>
<td>Eng</td>
<td></td>
<td>1834-56</td>
<td>Yes</td>
</tr>
<tr>
<td>Runholder</td>
<td>Background</td>
<td>N.Z. Dates</td>
<td>Born</td>
<td>Br. X</td>
<td>A. Dates</td>
<td>A. X</td>
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<tr>
<td>Hay, Ebenezer</td>
<td>Son of Lowland farmer</td>
<td>1840-d.63</td>
<td>Scot</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hayhurst, John</td>
<td>Lancashire farmer’s son. Worked up from shepherd to manager to owner</td>
<td>1849-d.71</td>
<td>Eng</td>
<td>Yes</td>
<td>1844-48</td>
<td>Yes</td>
</tr>
<tr>
<td>Harman, Richard J S</td>
<td>b. Dublin. Civil engineer</td>
<td>1851-d.1902</td>
<td>Ire</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hill, Joseph</td>
<td>Listed as agriculturalist. Managed for Bray. Bought his stns.</td>
<td>1851-d.1903</td>
<td>Eng</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hornbrook (2) Major Alfred and brother</td>
<td>British Legion in Spain</td>
<td>Wellington 1840s-d.98</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hurst, Charles</td>
<td>b. Yorkshire. Managed stns. in Vic. Top sheep man</td>
<td>1857-d.1903</td>
<td>Eng</td>
<td>1849-57</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Innes, David</td>
<td>Cadet at Flaxbourne and Stoneyhurst with Harris WH</td>
<td>1851-d.65</td>
<td>Scot</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jollie, Edward</td>
<td>Son of rev. Surveyor</td>
<td>1842-d.94</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jollie, Francis</td>
<td>b. Carlisle. Older brother of Edward</td>
<td>1843-d.70</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kaye, William</td>
<td>Owned stations in Vic</td>
<td>1851-3</td>
<td>Eng</td>
<td>1841-67</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Kennaway Bros (3)</td>
<td>From landed family in Devon. Father Mayor of Exeter</td>
<td>1851-74</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knyvett Bros (2)</td>
<td>Parson’s sons from Yorkshire</td>
<td>H 1850s-79</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lance, (2) J D and H P</td>
<td>Sons of rev. from Somerset. East India Co. Army</td>
<td>1858-65 1879-d.97</td>
<td>France</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leach, Francis J P</td>
<td>Trained as a doctor</td>
<td>1851-d.84</td>
<td>Wales</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lean Col. Alexander</td>
<td>Architect. Designed several Clich buildings</td>
<td>1857-d.93</td>
<td>Scot</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Runholder</td>
<td>Background</td>
<td>N.Z. Dates</td>
<td>Born</td>
<td>Br. X</td>
<td>A. Dates</td>
<td>A. X</td>
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<tr>
<td>Lee, Edward J</td>
<td>Son of Custom’s officer London. Bank Clerk</td>
<td>1850- d.83</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lee, George L</td>
<td>b.London.Edward’s older brother</td>
<td>1852- d.97</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lee, George W H</td>
<td>b.Yorkshire</td>
<td>1851- d.83</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lockhart, George D</td>
<td>Son of baronet. Came to N Z with horses and cattle</td>
<td>1854- d.90</td>
<td>Scot</td>
<td></td>
<td>1854-</td>
<td>Yes</td>
</tr>
<tr>
<td>Longden, Joseph</td>
<td>Stock and Station business. Land speculator</td>
<td>1850-62</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Macdonald Bros (3)</td>
<td>AR doctor N Z 1855-58 W K d. 1897. A d.1890</td>
<td>1851- d.*</td>
<td>Scot</td>
<td>Yes</td>
<td>1842-53</td>
<td>Yes</td>
</tr>
<tr>
<td>Macfarlane, Dugald</td>
<td>Br. Army ret. Son of sheep farmer</td>
<td>1851- d.81</td>
<td>Scot</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Macfarlane, John</td>
<td>Wairarapa in early 1840s to Canty 1850</td>
<td>1840s- d.84</td>
<td>Scot</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>McGregor, John</td>
<td>Came out age 26. Shepherd at the Grampians.</td>
<td>1863- d.1918</td>
<td>Scot</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>McLean Bros (3)</td>
<td>Made profit selling gold bearing land in Vic. Sons of sheep farmer.</td>
<td>1852- J d.1902 A d.1907</td>
<td>Scot</td>
<td>Yes</td>
<td>1840-51</td>
<td>Yes</td>
</tr>
<tr>
<td>McRae, George</td>
<td>b.Ross. Started as shepherd at Grampians</td>
<td>1857- d.1911</td>
<td>Scot</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>McRae, William</td>
<td>Scot who had farmed in Ireland</td>
<td>1850- d.86</td>
<td>Scot</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mallock, John W</td>
<td>b.London, studied medicine</td>
<td>1850- d.79</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mannering, Theophilus S</td>
<td>b. London. NZ via A. as 19 year old</td>
<td>1853- d.1910</td>
<td>Eng</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mason, George E</td>
<td>Gloucestershire farmer</td>
<td>1851- d.1910</td>
<td>Eng</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathias Archdeacon</td>
<td>b.Norfolk. Father in Br. Army</td>
<td>1851- d.64</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Matson, George</td>
<td>Judged at first sheep comptn.</td>
<td>1851-63</td>
<td>Eng</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maude, T W (2)</td>
<td>Sons of Rev.</td>
<td>1855- d.1905</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mellish, George L</td>
<td>b.Jersey. X BR. Army</td>
<td>1858- d.81</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meyer Bros (2) Herbert</td>
<td>Son of a sugar refiner who had fallen on hard times</td>
<td>H 1860-70 C 1860- d.78</td>
<td>Ger</td>
<td>many</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Runholder</td>
<td>Background</td>
<td>N.Z. Dates</td>
<td>Born Br. X</td>
<td>A. Dates A. X</td>
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<tr>
<td>Millton Capt. W N</td>
<td>Sea Capt. Ret.</td>
<td>1860-89</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minchin, Edward C</td>
<td>Son of rev. Did not live on his stns</td>
<td>1853-80</td>
<td>Ire</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mitchell Capt.</td>
<td>Indian Army returned India</td>
<td>1848-50</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moore G H (and Kermode)</td>
<td>Son of landowner. Cadet for Kermode in Tas</td>
<td>1853 d.1905</td>
<td>Manx Yes</td>
<td>1830-53 Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moorhouse, (2) Benjamin and Thomas</td>
<td>2 bros. b. Yorkshire. Sons of magistrate who owned</td>
<td>1851-72</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morten, Richard M</td>
<td>Family in shipping. Had considerable capital</td>
<td>1859-72</td>
<td>Eng</td>
<td>Came via Tas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Munro, Dr David</td>
<td>Doctor. Father held Chair of Anatomy at Edinburgh</td>
<td>Nelson 1842-d.77</td>
<td>Scot</td>
<td>1841-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Murphy, John T</td>
<td>Remained in A. Sent over Robert Luke Higgins as managing partner</td>
<td>1851-late 80s</td>
<td>*</td>
<td>Yes Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Murray-Aynsley, Hugh P</td>
<td>b. Gloucestershire. Managed sugar plantation in Trinidad for Miles &amp;Co.</td>
<td>1858-d.1917</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Muter, Dundar Douglas</td>
<td>Colonel in Indian Army</td>
<td>1851-2</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neave, F D S</td>
<td>b. India. Father in Civil Service</td>
<td>1864-1898</td>
<td>India</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Norris, Wm. Thos.</td>
<td>Received an inheritance and returned to Eng</td>
<td>1854-7</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>O’Connell Major E M</td>
<td>Br. Army ret. Wife Sarah ran Mount Grey until her death</td>
<td>Welligtn 1848-d.55</td>
<td>Irish</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oakden, John J</td>
<td>b. Staffordshire. Manager for Robinson (Cheviot) in A.</td>
<td>1856-d.84</td>
<td>Eng</td>
<td>1839-56 Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ostler, Wm Henry</td>
<td>b. Yorks. Managed Benmore</td>
<td>?-d.79</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Owen Rev. J</td>
<td>never came out</td>
<td>1851</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Packe Bros (2)</td>
<td>2 Sons of Lt. Col. in Br. Army. Had land agency</td>
<td>1862-Geo-d.82</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Palmer, Joseph</td>
<td>Son of Bedfordshire landowner. Manager of Union Bank Cheh</td>
<td>1856-d.1910</td>
<td>Eng</td>
<td>1851-56</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parker Bros (3)</td>
<td>Father Vice-Chancellor of Eng.</td>
<td>1850s 2-d.83</td>
<td>Scot</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Runholder</td>
<td>Background</td>
<td>N.Z. Dates</td>
<td>Born</td>
<td>Br. X</td>
<td>A. Dates</td>
<td>A. X</td>
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</tr>
<tr>
<td>Parkerson, (4) Brothers</td>
<td>b. Norfolk. Sons of doctor</td>
<td>All Died In NZ</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paterson, Andrew</td>
<td>Engineer. Moderately successful farmer in Nelson. Overlanded stock</td>
<td>Nelson 1842-d.71</td>
<td></td>
<td></td>
<td>Scot</td>
<td></td>
</tr>
<tr>
<td>Paul, Rev Robert.</td>
<td>Son of churchman from Cornwall. Son-in-law EJ Lee</td>
<td>1851-59</td>
<td></td>
<td></td>
<td>Eng</td>
<td></td>
</tr>
<tr>
<td>Pearson, Joseph</td>
<td>b. Cumberland. Farmers son and farmer. Manager for Hawdon in A</td>
<td>1851-d.1901</td>
<td>Eng</td>
<td>Yes</td>
<td>1841-51</td>
<td>Yes</td>
</tr>
<tr>
<td>Perceval Bros (3)</td>
<td>B. Surrey. Sons of rev. 2 of 3 died in NZ</td>
<td>1851-d.*</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peter, William S</td>
<td>b. Dundee. Explored and squatted in S A</td>
<td>1861-d.91</td>
<td>Scot</td>
<td></td>
<td>1838-60</td>
<td>Yes</td>
</tr>
<tr>
<td>Phillips, Henry</td>
<td>b. Stamford. Came with capital</td>
<td>1851-d.77</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pike, Samuel H</td>
<td>b. West Country - to Nelson - to Canterbury</td>
<td>1853-d.NZ</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polhill, Francis</td>
<td>Worked in lawyer’s office in Adelaide</td>
<td>1857-d.1910</td>
<td>Eng</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Porter Bros (3)</td>
<td>Sons of London land owner.</td>
<td>1851-all died NZ</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potts, Thomas Henry</td>
<td>b. Suffolk. Partner in London gunsmiths</td>
<td>1854-d.88</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prebble, William</td>
<td>Came with family from Kent. Employed by Deans, Greenwood and Rhodes bros</td>
<td>1840-d.1909</td>
<td>Eng</td>
<td>Eng</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purnell Bros (2)</td>
<td>b. Yorkshire. Sons of farmer</td>
<td>1853-d.NZ</td>
<td>Eng</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raine, (4) John</td>
<td>b. Durham. Came out with 3 brothers.</td>
<td>1862-d.1918</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raven, Rev. J</td>
<td>b. Croyden. Son of a stockbroker</td>
<td>1851-58</td>
<td>Eng</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Reed, Charles</td>
<td>b. Devon</td>
<td>1854-d.80</td>
<td>Eng</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rees, G W</td>
<td>Engineer.</td>
<td>1858-d.98</td>
<td>Wales</td>
<td></td>
<td>1852-58</td>
<td>Yes</td>
</tr>
<tr>
<td>Rhodes, George</td>
<td>b. Yorks. Managed <em>The Levels</em> for the partnership</td>
<td>1843-d.64</td>
<td>Eng</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rhodes, Robert H</td>
<td>Studied farming. Managed for W B in A.</td>
<td>1850-d.84</td>
<td>Eng</td>
<td>Yes</td>
<td>1837-50</td>
<td>Yes</td>
</tr>
<tr>
<td>Rhodes, William B</td>
<td>Son of prosperous tenant farmer. Went to sea. Runs in A &amp; NZ</td>
<td>1839-d.78</td>
<td>Eng</td>
<td>Yes</td>
<td>1834-78</td>
<td>Yes</td>
</tr>
<tr>
<td>Runholder</td>
<td>Background</td>
<td>N.Z. Dates</td>
<td>Born</td>
<td>Br. X</td>
<td>A. Dates</td>
<td>A. X</td>
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<tr>
<td>Richardson, Edward</td>
<td>b. London. Engineer</td>
<td>1861-d.1915</td>
<td>Eng</td>
<td></td>
<td>1852-61</td>
<td></td>
</tr>
<tr>
<td>Robinson, William</td>
<td>Son of tenant farmer from Lancashire</td>
<td>1856-d.1915</td>
<td>Eng</td>
<td>Yes</td>
<td>1839-56</td>
<td>Yes</td>
</tr>
<tr>
<td>Rogers, James D</td>
<td>Father Crown solicitor Sydney</td>
<td>1854-d.66</td>
<td>Aust</td>
<td></td>
<td>?-1854</td>
<td></td>
</tr>
<tr>
<td>Rolleston, William</td>
<td>b. Yorkshire. Son of rev. Tutored. Cadet at Lake Coleridge</td>
<td>1858-d.1903</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ross, George A E</td>
<td>Cadet under Tancred</td>
<td>1852-d.76</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rowley, Thomas</td>
<td>Father first designate Dean Chch Cathedral</td>
<td>1853-62 to Eng</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Russell, George G</td>
<td>Son of major in Br. Army</td>
<td>1854-d.60</td>
<td>Ire</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Rutherford, George</td>
<td>Son of tenant farmer</td>
<td>1859-d.85</td>
<td>Scot</td>
<td>Yes</td>
<td>1840-59</td>
<td>Yes</td>
</tr>
<tr>
<td>Sanderson, Thomas</td>
<td>b. Cumberland. 10 years managing stns in Vic</td>
<td>1853-d.90</td>
<td>Eng</td>
<td></td>
<td>1838-50</td>
<td>Yes</td>
</tr>
<tr>
<td>Saunders, William.</td>
<td>Son of a manufacturer from London.</td>
<td>1855-d.1917</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Scott, Alexander</td>
<td>Stn.manager in Nelson. Overlanded stock to Canty</td>
<td>Nelson 1843-?</td>
<td>Scot</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Scott, Henry A</td>
<td>Br. Army ret.</td>
<td>1850s-72</td>
<td>Eng</td>
<td></td>
<td></td>
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<tr>
<td>Sheath, Isaac B</td>
<td>b. Birmingham. Former firearms manufacturer</td>
<td>1861-d.1900</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Shrimpton, Ingram</td>
<td>Printer from Oxford.</td>
<td>1860-d.78</td>
<td>Eng</td>
<td></td>
<td></td>
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<tr>
<td>Sinclair, Francis</td>
<td>Ship’s capt. Pigeon Bay 1843</td>
<td>Wellington 1840-d.46</td>
<td>Scot</td>
<td>Yes</td>
<td></td>
<td></td>
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<tr>
<td>Smith, Alexander B</td>
<td>Former ship builder</td>
<td>1861-d.91</td>
<td>Scot</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Stericker, Edward</td>
<td>b. Yorkshire. farmer’s son. Trained as a teataster</td>
<td>1853-d.1914</td>
<td>Eng</td>
<td></td>
<td>1839-49</td>
<td></td>
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<tr>
<td>Stewart, Francis E</td>
<td>b. Birkenhead. Son of Capt RN. Career in Union Bank</td>
<td>1849-79</td>
<td>Eng</td>
<td></td>
<td>1838-51</td>
<td>Yes</td>
</tr>
<tr>
<td>Stoddart, Mark P</td>
<td>Son of admiral.10,000ac. run in Vic ‘47-’51</td>
<td>1851-d.85</td>
<td>Scot</td>
<td></td>
<td>1832-4</td>
<td></td>
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<tr>
<td>Studholme Bros (3)</td>
<td>b. Cumberland. Land-owning family. 2 of 3 died in NZ</td>
<td>1851-d.*</td>
<td>Eng</td>
<td></td>
<td>1852-4</td>
<td></td>
</tr>
<tr>
<td>Tancred, Henry J</td>
<td>Officer Austrian Army. Brother of Sir Thomas</td>
<td>1850-d.84</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Runholder</td>
<td>Background</td>
<td>N.Z. Dates</td>
<td>Born</td>
<td>Br. X</td>
<td>A. Dates</td>
<td>A. X</td>
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</tr>
<tr>
<td>Tancred, Sir Thomas</td>
<td>Family land in Yorkshire. Son of baronet.</td>
<td>1850-d.80</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Taylor, Henry</td>
<td>Employed on Nelson stn. Drove stock to Chch</td>
<td>1852-d.67</td>
<td>*</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Templar, Edward M</td>
<td>b.Devon. Landed family. Bro-in-law of Caverhill</td>
<td>1850-d.1897</td>
<td>Eng</td>
<td></td>
<td>1839-50</td>
<td>Yes</td>
</tr>
<tr>
<td>Teschmaker, Bros (3)</td>
<td>b.Devon. Family Dutch sugar planters. FW d.78, WH d.88, TJ d.1919</td>
<td>1855</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tinline, John</td>
<td>Worked in solicitor's office in Scot. Took up land 1852</td>
<td>1840-d.1907</td>
<td>Scot</td>
<td></td>
<td>1839</td>
<td></td>
</tr>
<tr>
<td>Tooth Bros (2)</td>
<td>From brewing family. Stns. in A. Lived in Sydney</td>
<td>1861-</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tripp, Charles G</td>
<td>b. Devon, son of parson. Lawyer. Education in ag.</td>
<td>1854-d.97</td>
<td>Eng</td>
<td></td>
<td>Yes</td>
<td></td>
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<tr>
<td>Waitt, Robert</td>
<td>Business training in London. Merchant in N Z</td>
<td>Wellington 1840d.66</td>
<td>Scot</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Walker Bros (2)</td>
<td>b.Yorks. Lancelot x East India Co. Army-d.1907. Sherbourne d.73</td>
<td>1861-d.*</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Walker, Edwin B</td>
<td>A top merino breeder</td>
<td>1860-s/70 s</td>
<td>Eng</td>
<td></td>
<td></td>
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<tr>
<td>Watts Russell, John Charles</td>
<td>X Br. Army. Wealthy landed family from Staffordshire.</td>
<td>1850-d.75</td>
<td>Eng</td>
<td></td>
<td></td>
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<tr>
<td>Wedge, Charles</td>
<td>Family owned properties in Tas and Vic</td>
<td>1851-2</td>
<td>*</td>
<td></td>
<td>1836-?</td>
<td>Yes</td>
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<tr>
<td>Weld, Frederick</td>
<td>b. Dorset</td>
<td>1843-67</td>
<td>Eng</td>
<td></td>
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<tr>
<td>Westenra, Capt. Richard</td>
<td>Son of Lord Rossmore. Br. Army ret.</td>
<td>1851-d.80</td>
<td>Eng</td>
<td></td>
<td></td>
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<tr>
<td>White Bros (3)</td>
<td>Sons of a rev. b Nottinghamshire. Major Thos W. x Indian Army</td>
<td>1855 T W d.87</td>
<td>Eng</td>
<td></td>
<td>1850-4</td>
<td></td>
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<tr>
<td>Runholder</td>
<td>Background</td>
<td>N.Z. Dates</td>
<td>Born</td>
<td>Br. X</td>
<td>A. Dates</td>
<td>A. X</td>
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</tr>
<tr>
<td>Wigley, Thomas H</td>
<td>Father a magistrate in South Australia</td>
<td>1860-</td>
<td>Eng</td>
<td></td>
<td>1838-60</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>d.95</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Wilkin, Robert</td>
<td>Farmer’s son. Educated for farming. Managed in Australia</td>
<td>1858-</td>
<td>Scot</td>
<td>Yes</td>
<td>1839-58</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>d.86</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Wilson, John Cracroft</td>
<td>Civil Servant in India Returned to India 1854-9</td>
<td>1854-</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>d.81</td>
<td></td>
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<tr>
<td>Wood, William Derisley</td>
<td>Held the <em>Sand Hills</em> 1852-3,<em>Snowden</em> 1853-4</td>
<td>1852-</td>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>d.1906</td>
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</tbody>
</table>
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Canterbury Provincial Council Sheep Ordinance Amendment Ordinance 1859
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