

Figure 18. 'Culinary operations' in the uncompleted limestone buildings of Castle Hill Station. *Photo courtesy of Canterbury Museum (Denbam Collection; reference number CMNZ 15551).*



Figure 19. Castle Hill Station, with water reservoir in foreground and the old homestead in the distance. Kura Tawhiti is the low hill in the middle distance at the right. *Photo courtesy of the Alexander Turnbull Library, Wellington, New Zealand (reference number 104398 ½).*



1864, Otekaike was transferred to Robert Campbell. By this time, 12 300 sheep grazed on the property (Hall 1985).

Eton-educated Campbell, in partnership with William Anderson Low, had acquired Benmore Station in the upper Waitaki in April 1863 (Hall 1985). Campbell and Low paid £36,000 for the 200 000-acre (81 000-ha) property and around 15 000 sheep. Campbell and his family firm in England, Robert Campbell and Company, also had interests with Low in Galloway Station, similarly situated in the upper Waitaki. Otekaike became the family firm's headquarters for their New Zealand estates. By 1868, Robert Campbell was running 24 000 sheep there (Hall 1985).

Since he had access to capital, Campbell was able to survive periods of recession and depression (Hall 1985). However, his money was used more for the extensive acquisition of land than for improvements. In 1869, he took up Run 17 (Ben Lomond), which extended Otekaike's boundaries beyond Otekaike Creek to the Maerewhenua River, Station Peak on the other side of the Waitaki River in South Canterbury, and Rocky Point, which adjoined Station Peak in the upper part of the Hakataramea Valley (Hall 1985).

By 1876, Campbell had a vast network of landholdings all over Otago and Southland (Hall 1985). In North Otago he held almost 300 000 acres (121 500 ha) of land. By 1877, he owned the largest number of sheep (155 000) in the entire district (Hall 1985). His various Waitaki properties were managed as one.

Otekaike was also prominent because of its stud merino flock and baronial-style homestead (built in 1875-76) and grounds (Hall 1985). The English-style manor was stately and dignified, with a conservatory, wide lawns, avenues, gravel drives, ponds and water lilies, peacocks, extensive stables, and a lodge (Hall 1985).

The lease for Run 28 expired in 1878. The Government resumed control of 9000 acres (3645 ha) of it and Campbell retained the rest (Hall 1985). Lying west of the station homestead between Kurow and Otiake Creeks, the land was settled as small farms. Run 17 was also taken back by the Government and offered for sale in 1880 (Hall 1985).

In 1889, a new company named 'Robert Campbell and Sons Limited' was formed to run the New Zealand properties. At the time, Otekaike Station consisted of c.19 000 acres (7695 ha) of freehold land and 37 000 acres (14 985 ha) of Crown leasehold land. Although Robert Campbell died in 1889 (aged only 46), the collective Campbell properties in New Zealand survived intact because they were in the hands of extremely competent managers (Hall 1985). A nephew, Robin O. Campbell, took over the supervision of the company's Waitaki properties in 1897, and he and his wife perpetuated the Otekaike tradition of ostentatious display and *noblesse oblige* (Hall 1985).

### 5.2.3 Small farms

The total area of Crown pastoral leasehold land in South Canterbury had decreased from 2 276 213 acres (c.921 866 ha) in 1871 to 1 473 269 acres (c.596 674 ha) by 1881, and then remained relatively constant until 1891, when it was 1 580 706 acres (c.640 186 ha) (Hearn 1971). Virtually all Crown pastoral leasehold land was in the high country. By 1880, the readily accessible and more valuable Crown lands had generally been taken up. A trend toward smaller holdings on the downlands had been evident from 1878 and even earlier (Hearn 1971).

The agricultural recovery after 1895 created a demand for farms, inflating the value of land and prompting owners of large properties to sell (Hatch 1992). The new sheep farming was better suited to small family farms than to large-scale operations, and family labour was cheaper than hired labour. Some pastoralists on the plains and foothills became farmers after subdividing their properties and keeping a portion for themselves (Hatch 1992). Others who had land in high-country areas that were not suited to farming carried on as runholders, but at times subdivisions occurred for family and financial reasons, and the land was carved up into medium-sized runs (Hatch 1992).

Between 1886 and 1906, sheep numbers in the North Island rose by 3.9 million while those in the South Island fell by 1.3 million (Duncan 1962). Mixed crop and livestock farming expanded in areas such as the downlands of North and South Canterbury, and in Central Otago, where extensive grazing still prevailed in 1886. Geographer J.S. Duncan contended that:

‘The overall decline in sheep numbers was due partly to slaughtering for the frozen meat trade (about five million carcasses a year were being exported by 1906), partly to a fall in the carrying capacity of the tussock grasslands as the result of overgrazing, excessive burning, and the rabbit plague, and partly to snow losses on the high country.’

(Duncan 1962: 175)

In 1906, small farms occupied roughly twice as much of the better quality New Zealand land as they did in 1886, and there were nearly twice as many of them. Duncan concluded that:

‘As a result, a fundamental fact of the modern pattern of settlement in New Zealand began to appear: the marked contrasts in size of farm and density of rural population between the steep hill country and the flat or rolling lowlands.’

(Duncan 1962: 190)

#### 5.2.4 Transport and communication

More accommodation houses were built to cater for drovers, carriers and other travellers to and from the high country. For example, in 1901 a six-room building, furnished and managed by holders of the Waiau-Kaikoura mail and passenger service contract, was built in Kaikoura County, in the Conway Reserve, on the northern terrace above the ford on the inland road (Sherrard 1966). After the subdivision of Crown land near Greenhills Station, strangers could no longer expect to find shelter at the local sheep run (Sherrard 1966). Figure 20 shows the Bealey Hotel on the route to Arthur's Pass in Canterbury.

Conflict occurred between local and central government over who should build and maintain roads (Sherrard 1966). For example, the road south from Kaikoura to Christchurch, which was built between 1882 and 1887, was prone to slips in the winter, and when high-country runholders in Amuri County balked at repairing the road, John McKenzie (Minister for Public Works) said in the House of Representatives that the members of the Amuri County Council belonged to:

‘...the one class—squatters and large land owners: in other words, they were “social pests” ... At certain seasons of the year they put the roads into a decent state of repair, in order to enable themselves to get their wool to the nearest shipping port or railway station; and for the rest of the year they did not require the roads...’

(McKenzie 1894: 273, cited in Sherrard 1966: 246)

In July 1896, the Amuri and Kaikoura County Councils received a negative response from McKenzie when they asked for aid, after 60 000 sheep and large mobs of cattle had passed through to Canterbury over the previous 8 months (Sherrard 1966).

Cheap rail transport was extremely important in facilitating market expansion (Sherrard 1966). The meat-freezing industry, for example, needed railways to carry sheep and lambs to the works, and frozen

Figure 20. Bealey Hotel, 1892. The number of coaches and their loads illustrates the volume of traffic over the key route of Arthur's Pass. *Photo courtesy of the Alexander Turnbull Library, Wellington, New Zealand (reference number 19638 ¼).*



carcasses to the ports. Every freezing works was situated next to the railway (Sherrard 1966). In the South Island, the main extensions to the railway system were the Central Otago line, which arrived at Clyde in 1907 (stimulating fruit growing in that district), and the branch lines to Culverden and Ethelton, serving the Amuri and Cheviot Basins (Sherrard 1966).

Developments in transport were a boon to Cheviot farmers. A continuous railway track from Parnassus to Christchurch and the Waiau River road-and-rail bridge were opened in 1911 (Haythornthwaite 1982). Before this, all traffic was forced to ford the dangerous Waiau River. For example, in December 1905 the *Cheviot News* reported that while crossing the river earlier that month:

‘Mr Barr, of Barr & Davies was nearly drowned, a few days later a commercial traveller was capsized, losing all his stock and last week Misses E. and C. Holton were washed downstream and had a miraculous escape. On the same day the Parnassus gardener was washed off his horse. Early in January one of Mr A.W. Rutherford’s wool wagons was returning with a load of timber [to the Amuri high country]. The horses had to swim and the wagon struck the stump of a tree and capsized. The horses were drowned and the driver was carried downstream for about a mile.’

(*Cheviot News*, 6 January 1903, p. 2, cited in Holm 1992: 120)

The railroad enabled people, stock and wool to move from Cheviot to Christchurch much more easily. The trip took a day (Haythornthwaite 1982). The arrival of the first motorcar at Cheviot in around 1910 (Haythornthwaite 1982) heralded changes to the roadway system. At the time, the roads were all shingle and there were many streams to ford (Haythornthwaite 1982).

In the Mackenzie Basin in 1891, a telephone link was established from Fairlie to Burkes Pass (Whelan 1989). By 1896, it had been extended to Tekapo (Whelan 1989).

### **5.2.5 Population drift**

Between 1886 and 1906, there was a strong population drift to the north (Duncan 1962). Since the gold rushes of the 1860s, the South Island had attracted more people than the North Island; the population difference between the two islands was numerically greatest in 1881 (Duncan 1962). That difference disappeared before 1901 (Duncan 1962). Local losses in the South Island were interspersed with local gains. The population of the alluvial goldfields of Otago decreased, while sawmilling brought increases in Clutha, Southland and Wallace Counties (Duncan 1962). By the 1880s, the sons of the first European runholders were looking for farms; because scope for subdivision was limited, they went elsewhere, frequently to the North Island, and many sons and daughters moved into urban areas (Duncan 1962).

There was also a shift in the comparative numbers of sheep. By 1898, the North Island had 150 000 more sheep than the South Island, and by 1900,

it had half a million more (Scotter 1965). In 1899, Wellington Province (with 4.05 million sheep) had 14 000 more sheep than Canterbury Province, where numbers had steadily declined since the great 1895 snow storm, which resulted in heavy continuous killing (Scotter 1965). In 1914, Wellington Province had 5.4 million sheep to Canterbury's 4.6 million sheep. The New Zealand total in the same year was 24.8 million (Scotter 1965).

### **5.2.6 Flocks**

In 1896, the New Zealand and Australian Land Company had the biggest flocks in New Zealand: it had 84 000 sheep at the Levels in Geraldine County and 76 000 at Pareora and Hakataramea in Waimate County (Scotter 1965). Other large flocks in the south were those of Allan McLean (67 000 at Waikakahi), Arthur Elworthy (54 000 at Holme Station), and Acland and Tripp (both over 40 000) (Scotter 1965). In the Mackenzie Country, no owners had more than 30 000 sheep (Scotter 1965). In mid-Canterbury, William Gerard had 34 000 sheep at Double Hill and 21 000 on Snowdon, and J. Grigg and D. Cameron had 30 000 each (Scotter 1965). The New Zealand Loan and Mercantile Agency had 130 000 sheep in four flocks in Ashburton County and on three runs in Selwyn County (Scotter 1965). In Amuri County, A. Macfarlane and H. Wharton and Company had over 40 000 sheep (Scotter 1965).

In 1914, for the first time, not a single flock of over 40 000 sheep was recorded in Canterbury in the sheep returns (Scotter 1965). The New Zealand and Australian Land Company had 39 000 at Hakataramea (Scotter 1965). G. and D. Hamilton at Clayton, between Mount Peel and the Two Thumb Range, had 29 000 sheep (Scotter 1965). George Gerard ran 10 000 sheep on Double Hill No. 4 Run, 17 000 on Mesopotamia and 10 000 on his Snowdon freehold (Scotter 1965). In North Canterbury, the biggest flocks were owned by Pratt Brothers at St James Station and the New Zealand Loan and Mercantile Company at Acheron, Clarence and St Helens Stations (Scotter 1965). Twenty-two members of the Rutherford family in the northern counties owned a total of 140 000 sheep (Scotter 1965).

### **5.2.7 Scientific farming**

John McKenzie, Minister of Lands, realised that if New Zealand's farmers were to compete in international markets, they would need scientific advice to improve their efficiency and productivity (Brooking 1996). Also, quality control was necessary to ensure that produce arrived at its overseas destination in uniformly good condition (Brooking 1996).

The colony's natural abundance had declined alarmingly as grain growing exhausted soil fertility and overgrazing reduced the nutritional value of native grasses (Brooking 1996). Droughts in Marlborough, Canterbury and Otago had increased during the 1880s (Brooking 1996), and there was a scourge of rabbits to contend with. Previously, large private organisations like the New Zealand and Australian Land Company had pioneered developments in breeding and farming technology, and had been key

players in promoting refrigerated shipping (Brooking 1996). Although wealthy landowners had endowed Lincoln Agricultural College in 1872 (Brooking 1996), the institution suffered from chronic underfunding (Brooking 1996). Agricultural and Pastoral (A and P) Associations and Farmers' Clubs also tried to disperse knowledge, but they had quite small memberships (Brooking 1996).

McKenzie wrote to the United States, Canada, Britain and Australia, where departments of agriculture had already been established, for information (Brooking 1996). He also consulted with the Parliamentary Stock Committee and A and P Associations (Brooking 1996). McKenzie was spurred into action by enthusiastic responses to a circular he sent to the A and P Associations, and firm support for the establishment of a department of agriculture in New Zealand. On 31 March 1892, he set up the Department of Agriculture by combining the Stock and Agricultural Branches from the Colonial Secretary's Office and the Crown Lands Department (Brooking 1996).

The objectives of the Department of Agriculture were to assist farmers and pastoralists to maintain and increase production levels, and to improve standards in order for New Zealand to compete successfully on the world market (Nightingale 1992). Scientific knowledge that enabled increased production was to be translated into practical advice for the landholder. J.D. Ritchie, the Chief Inspector of Stock and an experienced farmer, became the first Secretary of Agriculture (Nightingale 1992). Permanent staff numbers rose rapidly, from 83 in 1892 to 371 in 1910 (Nightingale 1992). The system of livestock inspection and quarantine was already in place, and in late 1892 the first two veterinarians were employed (Nightingale 1992). Six more were hired in 1898, and by 1901 there were 31 (Nightingale 1992). In 1900, B.C. Aston became Agricultural Chemist (Nightingale 1992). His role was to analyse soil samples, find soil deficiencies and recommend fertilisers to farmers. By 1910, nine experimental farms had been established (Nightingale 1992).

### 5.3 LAND TENURE

In the first two decades of the 20th century, the small farmer rose to a position of prominence in the New Zealand economy and politics, and high-country runholders were no longer able to dominate politically as they had done in the past. The upswing in agricultural prices brought about a new phase of upward mobility (Hatch 1992). The social divide between runholders and farmers narrowed (Hatch 1992).

#### 5.3.1 Leasehold v. freehold

The debate concerning leasehold and freehold forms of land tenure became the foremost political issue of the 1890s. By this time, the colony's best land had already been made freehold. Land in the South Island high country was still mainly leasehold (Condliffe 1959).

Liberal politicians John Ballance, Robert Stout and John McKenzie became leaders of the moderate 'leasehold group', recommending that

the Government hold on to as much remaining Crown land as possible and resume control of some private land held by absentees, banks or companies (Brooking 1996). They always argued for fair compensation. According to this viewpoint, long or perpetual leases were more secure than freehold.

A practical argument in favour of the leasehold option was that capital could be used for improvements rather than for repaying mortgages (Brooking 1996). If state rents were low, capital would be available for stocking, fencing and cultivating properties. Long leases also provided protection against eviction and gave holders the confidence to plan long term and to make improvements (Brooking 1996). According to Brooking (1996), there were no major protests about the leasehold system until after 1900, when land values began to rise.

In contrast, freeholders argued that land ownership provided the greatest level of security and independence, and greatly benefited the community (Brooking 1996). Like the agricultural reformer Arthur Young, they believed that whereas a man with secure possession of a bleak rock would transform it into a garden, the same individual given a 9-year lease would convert it into a desert (Brooking 1996). (The fate of the Mackenzie Country seemed to prove his point.) New Zealand freeholders and champions of that option believed that the freehold system had the power to transform the environment in a way that the leasehold did not and that the yeoman farmer who worked with this tenure was the best citizen of all because of his independence, self-respect, industry, frugality and foresight (Brooking 1996).

Everyone agreed that those who used the land most efficiently and farmed it well had the foremost legitimate legal and moral claim to ownership (Brooking 1996). Absenteeism, or treating the land as a neglected speculation, was widely scorned (Brooking 1996).

### **5.3.2 Liberal Government policies**

In 1891, the Liberal Party was elected on a platform of: closer settlement by allocation of Crown land to farmers, not speculators; the extension of leasehold rather than freehold land tenure; the repurchase of large estates for subdivision by the Crown; the introduction of a land tax to break up large estates in the high country and elsewhere; and cheap finance for the improvement of new farms (McLintock 1966). That same year, the property tax was replaced by a flat tax on all land valued at over £500, and a graduated tax on land worth more than £5000 (McAloon 2002).

The Land Act 1892 brought in the lease-in-perpetuity for 999 years, which was almost equivalent to the freehold system. As a compromise between advocates of leasehold and freehold tenure, it gave the State the power to control land aggregation and initial residence, and the lessee the opportunity to secure occupation at low rent (McLintock 1966). The Act was designed to place settlers of limited means on the land and to prevent the amalgamation of large holdings. It opened up rural lands for selection under the optional system. This meant that the selector (i.e. person choosing the land) could decide to purchase land for



cash, take an occupation-with-right-of-purchase licence, or take a lease-in-perpetuity (McLintock 1966). No selector could hold more than 640 acres (259.2 ha) of first-class land or 2000 acres (810 ha) of second-class land, inclusive of any land already held. If the land was purchased for cash, certificate of title would be issued after 7 years only if specified conditions had been met. The licence for occupation-with-right-of-purchase tenure was for 25 years, the yearly rental was 5% of the cash price, and the right to freehold tenure was allowed only after the tenth year. The lease-in-perpetuity had no option to freehold land, and the yearly rental was 4% on the capital value of the land (Jourdain 1925). The aggregation of large areas of Crown leasehold land was discouraged by restricting the area of one run to 20 000 acres (8100 ha), and by prohibiting a freeholder or leaseholder of 1000 acres (405 ha) of land or more from selecting a run under small-grazing-run tenure. Pastoral runs were divided into two types: pastoral lands suitable exclusively for pasturage, and pastoral-agricultural land suitable for subdivision in areas not exceeding 5000 acres (2025 ha). Like its predecessor in 1885, the Land Act 1892 provided for village and special settlements, and then the Land for Settlements Act 1892 authorised the Government to purchase land for closer settlement (Jourdain 1925).

Compulsory purchasing power and the use of loan money to buy land was authorised by the Land for Settlements Act 1894. Land was to be taken up either by lease-in-perpetuity or small-grazing-run lease, with rents fixed at 5% of the capital value of the land. In the same year, the Advances to Settlers Office was established, to give farmers access to credit that was cheaper and more extensive than that provided by stock and station agents, trading banks and private lenders (McLintock 1966).

A number of vendors of land in the high country and on the plains and foothills were heavily mortgaged and wanted to sell anyway to relieve their financial problems (McAloon 2002). Most vendors sold willingly; therefore, compulsory purchase under the Land for Settlements Act 1894 was relatively rare and usually unnecessary (McAloon 2002). Compulsory acquisition in Canterbury and Otago appears to have been invoked only against especially noticeable magnates and it was sometimes used to force stalled negotiations (McAloon 2002). For instance, the trustees of Cracroft Wilson's estate offered the 25 000-acre (10 125-ha) Culverden property to the Government in 1908 for £6 per acre, but after protracted negotiations had broken down, they received £4 2s compulsorily (McAloon 2002). Historian Jim McAloon commented that 'Invoking compulsion against a prominent land owning family may have been attractive with an election approaching and a need to demonstrate a continuing commitment to the agenda of 1890' (McAloon 2002: 133).

Another historian, J.B. Condliffe (1959), argued that whereas the aggressive intervention instigated by John McKenzie (Minister of Lands in the Liberal Government) loosened the grip of the land monopolists initially, it was the prevailing economic situation from 1895 that did most to create an environment conducive to closer settlement. When the Long Depression ended, productivity increased and price levels rose. Crown tenants who had been placed on the land by McKenzie's leasehold policies had begun

to clamour for the freehold option (Condliffe 1959). Condliffe contended that the main reason for the freehold agitation was 'the desire to be free from government restrictions in order to participate in the speculative land-selling that began after the turn of the century to dominate farming in New Zealand' (Condliffe 1959: 255). Although the advantages of the leasehold system were great, especially the freeing of the tenant's capital for improvements and the dispensation from taxation, leaseholders were constrained by 'restrictions of area, occupation and improvement conditions, government oversight, and difficulties in the valuation of improvements' (Condliffe 1959: 256). Furthermore, Condliffe (1959: 256) argued that the 'lure of rising prices' proved most powerful.

Gardner (1956) also pointed out that as prosperity returned and land prices rose, selling became financially rewarding for runholders, and new settlers were able to purchase land with borrowed capital. 'World economic factors ... were ultimately more important than land legislation' in breaking up the great estates (Gardner 1956: 294). Some Amuri runholders sold when it suited them, whilst others established their sons on part of the original estates (Gardner 1956).

McKenzie pursued three main objectives: consolidating existing legislation; centralising administration; and making legislation more coercive (Brooking 1996). The huge Stock Act 1893 was an important example of consolidation. It incorporated sheep, branding, diseased cattle and rabbit nuisance acts (Brooking 1996). It also shifted control from local bodies to central government and empowered sheep, cattle and rabbit inspectors to add horses, pigs, dogs, poultry, canaries and pigeons to their sphere of interest. Brooking (1996) wrote that 'Inspectors operated as a kind of rural police. They could enter private property and fine "negligent" farmers' (Brooking 1996: 163). 'New Zealand's big estate owners and runholders had to follow Department of Agriculture directives whether they liked it or not. McKenzie's tightening regulation of farming practice provided both a means of reducing the power of the old oligarchs and of involving farmers in the new democracy' (Brooking 1996: 168).

In June and July 1895, a great snowstorm enveloped the South Island (Scotter 1965). The losses of sheep were so great that before the end of the year the Liberal Government introduced the Pastoral Tenants' Relief Act 1895 to ameliorate the damage done to leasehold runs (Scotter 1965). The need to suppress rabbits was an added incentive. Canterbury runholders, who lost 340 000 of their 780 000 sheep as well as horses and cattle, made 81 applications for relief (Scotter 1965). Relief was given in the form of remission of rent and of the sheep rate or an extension of the lease (Scotter 1965). Acland and Tripp were almost ruined by their losses (Scotter 1965). The Mackenzie Country suffered most (Scotter 1965). In the north, losses were not so heavy; in Amuri, on average one-third or one-quarter of the flock was lost (Scotter 1965). Applications under the Act were made by four Amuri runholders or managers and the Commissioner for Nelson Province reported that owing to the financial burden of rabbiting and to the low prevailing prices for wool, the runs had been worked at a loss for several years (Gardner 1956). Three of the applicants were granted substantial remissions and new leases on better terms.

### 5.3.3 State subdivisions

#### *Cheviot*

The Cheviot Estate, which encompassed the high country of the Lowry Peaks District, was the first to be subdivided under the Land Act 1892, and as such acquired immense symbolic significance in the colony (Gardner 1990). It was broken up in 1893 (Gardner 1990). The owner, William Robinson, had died on 9 September 1889. His 93 000-acre (37 665-ha) estate was valued at £324,729 soon afterwards (Gardner 1990). It was second in value in New Zealand only to G.H. Moore's Glenmark Station, also in Canterbury.

John McKenzie, Minister of Lands, decided to mix the freehold and leasehold tenures (Haythornthwaite 1982). The higher and more broken ground on the eastern and western sides of the estate was designated grazing land and split into larger farms ranging in size from 665 acres to 3068 acres (c. 269-1243 ha), while the undulating and flat land through the centre was to be agricultural. The homestead site was retained as a unit of 5058 acres (c. 2048 ha) and put up for sale. Nearby, an area of small sections was set aside to provide land for workers' settlements and for the township. Port Robinson was to continue to provide sea access to the township and district, and a village was established there as well (Haythornthwaite 1982). Village settlements were also set out at Domett, Mina, Phoebe and Spotswood. Through the centre of the estate and Cheviot, land was reserved for a railway (Haythornthwaite 1982).

McKenzie's vision of mixed tenures on the Cheviot Estate was not realised by the sales (Haythornthwaite 1982). The Crown lease-in-perpetuity and lease of grazing land proved too popular (Haythornthwaite 1982). In all, 20 788 acres (c. 8419 ha) were leased as grazing farms, pastoral leases and licences; 1435 acres (c. 581 ha) were leased in perpetuity as rural and village homesteads; and 41 sections of town and suburban land were sold for cash. The 5058-acre (c. 2048-ha) homestead block was sold back to Sir Charles and Lady Campbell (a daughter of William Robinson) for an amount much less than anticipated, the upset price of £25,000 (Haythornthwaite 1982).

Excluding the Mansion House Block, only 2% of the estate was actually put into freehold tenure. The remainder was leased from the Crown, mostly through the lease-in-perpetuity system (Haythornthwaite 1982). The Cheviot Estate Disposition Act 1893 fixed lease-in-perpetuity rents at £5 per annum on the capital value of the land and set certain conditions concerning cropping, grazing, burning, maintenance of ditches and hedges, and eradication of weeds. Absentee landlordism was not permitted and substantial improvements to the land were required (Haythornthwaite 1982).

### ***New Land Acts***

A Royal Commission to study the problem of land tenure in New Zealand, the results of which would have a direct impact on the South Island high country, visited Cheviot on 17 April 1905 to gauge the opinion of the settlers regarding the freehold system (McLintock 1966). The members reported back later in the year, but were unable to come to a unanimous decision on the question of land tenure (McLintock 1966). The majority of five members including the chairman advocated freehold, the minority of the other five members advocated leasehold (McLintock 1966). As a result of the report submitted by the majority, the Liberals under Prime Minister Joseph Ward revised land legislation in 1907, removing the lease-in-perpetuity option from the statute books and replacing it with one of renewable leases. Tenants, including those of high-country runs, were also given the right to purchase the land, and 7 million acres (2 835 000 ha) were to be designated as National Endowment Land (McLintock 1966). According to Condliffe (1959), the three acts revising land legislation were:

1. The Land and Income Tax Amendment Act 1907. This was intended to compensate for the cessation of costly repurchase and subdivision. It stiffened earlier graduated tax on the unimproved value of the land, so that the land tax system consisted of a flat tax of a penny in the pound of unimproved value, and an additional graduated tax.
2. The Land Laws Amendment Act 1907. This abolished the lease-in-perpetuity option and gave tenants in the high country and elsewhere the right to freehold land. It introduced 'renewable leases' for 33 or 66 years, with perpetual right of renewal on revaluation.
3. The National Endowment Act 1907. This preserved 7 million (later 9 million) acres (2 835 000 ha; later 3 645 000 ha) as an endowment in perpetuity, to be disposed of only on leasehold tenures. But the land, which ran along the eastern side of the high country, was poor, and the plan that the net revenue should go to education and old age pensions proved illusory as insufficient funds were acquired.

Freehold advocates continued to agitate for the freehold option and finally gained the ascendancy after the election of William Massey as Reform Prime Minister in 1912 (Haythornthwaite 1982). Under the Land Laws Amendment Act 1912, the holders of leases-in-perpetuity were given the right to purchase the fee simple (land with unrestricted rights of disposal) either for cash or deferred payments. In 1913, the right to purchase the fee simple was extended to lands, including those in the high country, that came under the Lands for Settlement Act 1894, but Cheviot Estate was excluded (Haythornthwaite 1982). Cheviot leaseholders would not be able to purchase the fee simple until 1928, when the Land Laws Amendment Act was passed (Haythornthwaite 1982).

Why were the tenants of Cheviot the last to obtain the right to purchase their freehold lands? D.W.R. Haythornthwaite (1982) argued that politicians were chary of tinkering with the first major experiment in land reform in New Zealand. Also, the fact that the 1928 amendment was passed

immediately before an election indicates that Cheviot was being used for political gain yet again (Haythornthwaite 1982).

Gardner remarked that:

‘A striking long-term feature of ... Cheviot is that so much of it survived and flourished without marked change, or could easily be adjusted to economic trends ... The settlement became stronger as a farming district and as a community based around families holding the same farms generation after generation. The Cheviot settlers began with a nineteenth-century blueprint and soon made it into a twentieth-century farming enterprise.’ (Gardner 1992: 189-190)

He reflected that ‘the main social significance of Cheviot was that it revealed in a new way the nature and extent of land hunger in Canterbury, and to some degree elsewhere in the South Island’ (Gardner 1992: 193). The settlement was founded in two of the worst years of depression and the Advances to Settlers Department helped many of the successful settlers, who at the time were heavily mortgaged, to pull through (Gardner 1992). Cheviot settlers, however, gained one enormous boost from the depression. They were able to stock their farms cheaply in 1894 because sheep prices were low and the Culverden sheep yards were nearby. ‘Amuri runholders thus contributed to the establishment of the small men whom McKenzie intended should supplant them’, wrote Gardner (1992: 201).

### ***Otekaike***

The Canterbury landscape had been changed dramatically by government subdivision. By 1914, the Liberal Government had placed 1702 selectors on farms (Scotter 1965). However, the greatest concentration of estates bought up and subdivided was in North Otago and the Waimate District (McKinnon 1997). Ben Lomond and much of Station Peak were taken back by the Government in 1890. Most of Otekaike Station remained intact until the early 20th century. By May 1905, petitions were circulating urging the Government to take over the estate for closer settlement (Hall 1985). In December of the same year, the Government announced that the Otekaike Estate would be resumed for settlement (Hall 1985). The price paid for 17 495 acres (c. 7085 ha) of freehold land was £97,359.

Otekaike Station was one of the first estates to be settled under the provisions of the 1907 legislation that brought in renewable 33-year leases of rural and pastoral land. The estate was offered for settlement in 1908 (Hall 1985). It was subdivided into seven small grazing runs (varying in size from 998 acres to 12 364 acres; c. 404-5007 ha), 37 farms (58-817 acres; c. 23-331 ha) and 12 smallholdings (10-40 acres; c. 4-16 ha). The big homestead became a ‘School for Defectives’ (Hall 1985).

Later, the Government acknowledged that it had blundered in two areas (Hall 1985). Firstly, by trying to place as many people as possible onto the properties, it made them too small. Secondly, when setting capital values and rents for the properties, the government assessors had taken

insufficient note of weather extremes. Although the land was mostly good quality, the Otekaike settlement was exposed to the full brunt of the northwesterly winds that sweep down the Waitaki Valley (Hall 1985). The new settlers were immediately confronted by drought and rabbits (Hall 1985). Under the terms of their leases, they were not permitted to transfer title for 5 years. In 1913, these settlers began selling as soon as they could (Hall 1985). Almost all the properties were sold. By late 1920, there had been a turnover of 60% of the original settlers, and between 1913 and 1920, 92% of the land changed hands (mostly in 1913 and 1914). On average, runs were held for 8 years, farms for 15 years and smallholdings for 16 years (Hall 1985).

### ***Canterbury high country***

Most of the Canterbury high-country leases were due to expire in March 1912, and before this time the Liberal Government had commissioned the three experts Flanagan, Haszard and Stevenson to inspect the runs and suggest any improvements in their management (Flanagan et al. 1910). While the commissioners were aware that to 'extend the principle of close settlement to high pastoral country would be to court disaster', their aim was 'to secure the occupation of the back country in moderate-sized holdings on sound and safe lines' (Flanagan et al. 1910: 3). After inspecting runs in the upper Ashburton, Rakaia, Selwyn and Waipara River districts and the Amuri area, they advised that the two Double Hill leases, which extended for 24 miles (c. 38.6 km) along the Rakaia River, be subdivided and that Glynn Wye Station be carved into three runs. Other leaseholds were too cold, inaccessible, high or broken to be cut into smaller blocks. The commissioners recommended that the term of lease of the Canterbury pastoral runs be fixed at 14 years to allow for revision of the rental and for further subdivision (Flanagan et al. 1910). Developments in transport meant that 'the back-country of today is the front-country of tomorrow', they wrote (Flanagan et al. 1910: 3). Thirteen of the runs were offered at auction in Timaru on 28 February 1911, and the other 14 were balloted (Whelan 1988). Of the latter, seven changed hands within the first 3 years (Whelan 1988), reinforcing the message that insecurity of tenure discouraged competent land management (Whelan 1988).

Duncan Rutherford was disappointed that the Department of Lands and Survey refused to renew his lease of Glynn Wye, which was due in February 1912 (McCaskill 1970). Instead, the department had made provision for a subdivision to take effect from March 1912 (McCaskill 1970). (The run was split into three blocks called 'Glynn Wye', 'Glenhope' and 'The Poplars'.) Rutherford then decided to take up Molesworth Station. He circumvented the Land Laws Amendment Act, 1907, which stated that no person could hold more than one run except on the recommendation of the Land Board and with the approval of the Minister of Lands, by leasing Tarndale-Rainbow to himself and Molesworth to his wife, Eva, from August 1911 (McCaskill 1970). Consequently, despite the new legislation, the entire block continued to be managed as a unit.

On 3 million acres (1 215 000 ha) of Canterbury high country, there were 94 pastoral leases in 1896, 150 in 1903 and 129 in 1914 (Scotter 1965). The process of division is shown by the steep rise in the number of small grazing runs. In the first year in which a small grazing run was leased under the Land for Settlements Act, 1896, there were 59 runs, of which 18 were on Cheviot (Scotter 1965). By 1914, there were 145 runs, of which 44 were on settlement land (Scotter 1965). The average sizes of the high-country pastoral runs were 26 000 acres (10 530 ha) near the main range and 22 000 acres (8910 ha) in the easterly areas. The small grazing runs averaged 2636 acres (c. 1068 ha)—those on settlement land reduced the average considerably (Scotter 1965). The working of these small grazing runs, especially those outside the settlement areas (which were more difficult to supervise), were becoming a problem (Scotter 1965). The grazing capacity of the country was being badly affected by rabbits, ill-advised burning off and overstocking. The term of the new leases was fixed at 21 years to encourage tenants to care more for their land; the public and political pressure to subdivide was resisted as much as possible; and improvement conditions were attached to the licences (Scotter 1965). Most runholders followed one of the conditions by planting trees (Scotter 1965).

Regardless of the subdivisions, there were still some extensive areas: Glynn Wye Station, 27 000 acres (10 935 ha); Glenhope Station, 55 000 acres (22 275 ha); The Poplars Station, 108 000 acres (43 740 ha); and National Endowment Lands, 1 500 000 acres (607 500 ha). The National Endowment Act had one remarkable effect in Canterbury: it hedged in the freehold land with a band of high-country reserves along the eastern ranges of the Main Divide. The land behind it was almost exclusively either high-country Crown leasehold land or educational endowment land, such as Mesopotamia, for the benefit of separate institutions (Scotter 1965).

### ***Kaikoura***

In Kaikoura, closer settlement schemes could not be initiated by the Liberals until the leases of large blocks of Crown high-country land expired. In 1896, survey parties moved onto the leasehold portions of the Kahutara and Amuri Bluff Runs (Sherrard 1966). Runholders were bitter and sceptical about the financial viability of constructing a costly road from the Conway River to the Kahutara River for a few settlers whose farms had to be cut out of steep bush country (Sherrard 1966). In spite of such fears, the subdivision proved very lucrative, but only after the settlers experienced backbreaking work, primitive living conditions and many setbacks (Sherrard 1966).

Almost 30 000 acres (12 150 ha) in the Hundalee Survey District were broken up into 12 small grazing runs, ranging from 1500 acres to 4000 acres (607.5–1620 ha) in area, containing a mix of high- and low-country land, and accessible from the Kaikoura–Waiiau road, the Kahutara and Cribb River beds or, until the coast road was opened in 1900, the

boat landings at Omihi and Goose Bay (Sherrard 1966). The following is an example of a Land Office advertisement:

‘Small grazing Run No. 88.—All hills, part ploughable; well watered; northern aspect; soil varies from good to poor and stony; 50 acre paddock ploughed and in English grass (good homestead site), balance tussock and fern; 100 chains wire-and-standard fencing on south boundary, and 224 chains within the section. Altitude, 400 ft to 3000 ft. Distant 13 miles from Kaikoura.’ (Sherrard 1966:214)

These runs could be leased for a term of 21 years with the option of renewal for a similar term. The rent was to be not less than 2.5% of the capital value. Tenants were to live on the property and make permanent improvements of a specified value. They had no right to purchase the land but could select 150 acres (60.75 ha) around their homesteads through which no road could be taken without compensation (Sherrard 1966).

In late 1899, reserve land south of the Hapuku River was cut into ten sections for lease on 14-year terms (Sherrard 1966). The Stag and Spey Block was offered next, but the sections and runs were too small to be profitable (Sherrard 1966). Situated at 1000–1500 feet (304.8–457.2 m) above sea level, it was cold country—too cold for the crops and improved pastures of the first selectors (Sherrard 1966). It was also difficult to find sheep. Most settlers left after short tenancies (Sherrard 1966).

The Waipapa subdivision got off to a shaky start. Small grazing runs 107, 112 and 113 were balloted on 8 January 1902 (Sherrard 1966). Within 6 months, run 107 was surrendered so that it could be regrouped with runs 108, 109 and 113 (Sherrard 1966). The tenants of the latter three had walked off the land by the end of 1902 because of difficult access, rabbit infestation, the high prices of stock and fencing, and the low stock carrying capacity of the land (Sherrard 1966). One observer noticed that run 113 was infested with rabbits, much of it was bare, all vegetation on the lower slopes had been destroyed, and the burnt bush near the point of the peninsula was seething with rabbits (Sherrard 1966). By 1906, the Waipapa subdivision had £6,103 worth of improvements, five homesteads and 21 residents (Sherrard 1966).

In April 1902, government advisers declared that almost all suitable Crown land in the district had been cut up and the Kaikoura Survey Office was closed (Sherrard 1966). In 5 years, 25 000 acres (10 125 ha) of better quality Crown land had been surveyed into 60 farms and a further quarter of a million acres (101 250 ha) had been split into 29 small grazing runs (Sherrard 1966).

#### **5.3.4 Statistical overview**

Between 1893 and 1906, the areas acquired for closer settlement by the Liberal Government in the South Island were Marlborough–Awatere, 110 658 acres (c. 44 816 ha); Amuri–Cheviot, 137 743 acres (c. 55 786 ha); South Canterbury, 158 603 acres (c. 64 234 ha); North Otago, 71 483 acres (28 951 ha); and Southland, 54 183 acres (c. 21 944 ha) (Duncan 1962).



Across New Zealand, the area of occupied land had expanded from c.20 million acres (c.8.1 million ha) in 1891 to nearly 40 million acres (16.2 million ha) by 1901 (Roche 1994). Only a slow increase was recorded subsequently, with the total levelling off to about 45 million acres (c. 18.2 million ha) in the 1920s (Roche 1994). Geographer Michael Roche commented that this represented:

‘...in effect the closing of the agricultural frontier in New Zealand. The number of land holdings had increased markedly from less than 20,000 in 1891 to 40,000 by 1911. A land hunger was satisfied, but only by opening to settlement lands that in early years would have been deemed unsuitable by both the Crown and the prospective farmer.’

(Roche 1994: 25)

### 5.3.5 Kai Tahu

Throughout the Liberal era, Kai Tahu continued their decline. Alexander Mackay had been appointed as Native Reserves Commissioner in 1882 and a Judge of Native Land Court in 1884. In his July 1891 report on Middle Island Native Claims, Commissioner Mackay described the despair of young Maori:

‘Some of the younger men, when testifying as to the insufficiency of the acreage owned by them for the support of their families, remarked that it would be better for them all to die, as there appeared to be no future for them; every year they found it more difficult to find employment, and if the labour market was closed against them it would be impossible to live on the small parcels of land they possessed. Their fisheries, that used to afford them a slender assistance in providing food for their families, were for the most part destroyed by the drainage of the country or other causes, and other streams and rivers were now rendered unavailable through being stocked with European fish.’

(Mackay 1891: 3)

Maori who were dependent on shearing and harvesting work for a livelihood were finding ‘that the labour-market was gradually getting closed against them, owing to the competition that existed amongst the Europeans to secure work for themselves’ (Mackay 1891: 4). Some lived off rents from lands let to Europeans, but many were in debt because they had drawn income 2 or 3 years in advance (Mackay 1891). The fertility of their plots of land was exhausted because they were unaccustomed to fertilising their land and, confined to their reserves, were unable to shift their cultivations to other places. When searching for supplementary food sources in the high country and elsewhere, Mackay (1891: 6) wrote that they ‘cannot fish in the Waitaki for eels or whitebait, owing to the river being stocked with imported fish; and the runholders will not allow them to go over their country to catch woodhens or other birds in season’.

In 1892, the Liberal Government Native Minister Alfred Cadman promised that land for the settlement of the Kai Tahu claim would be fully investigated during the parliamentary recess (Evison 1993). The Liberal Government’s offer in response to Kai Tahu claims was 100 000 acres

(40 500 ha) of vacant Crown waste land, including remote bush country in western Southland and Stewart Island/Rakiura (Evison 1993). None of this land was in Kemp's Block or the Otago Block.

In December 1893, the Government asked Judge Alexander Mackay and the Surveyor General, Stephenson Percy Smith, to begin working on Cadman's scheme (Evison 1993). Every Maori in the South Island was to be tabulated by name, ancestry and circumstances, and each entitlement assessed in terms of acres, to a maximum of 50 acres (20.25 ha) per adult and 20 acres (8.1 ha) per minor. The task was to take Mackay and Smith 12 years, with much of the work done in their spare time (Evison 1993). In 1894, they were joined by Kai Tahu leader and politician Tame Parata (Evison 1993).

In 1905, Mackay and Smith, who were both retired by that time, completed their work on the allocations of land for Kai Tahu (Evison 1993). They submitted a draft bill, which was the basis for the South Island Landless Natives Act 1906. The bill proposed that the Government be authorised to allocate land to landless South Island Maori in accordance with the lists that Mackay and Smith had submitted. The average allocation was 35 acres (c. 14.2 ha) per person, with the maximum set at 50 acres (20.25 ha) (Evison 1993).

By 1909, most of the titles to the land that was due to be allocated under the South Island Landless Natives Act 1906 had either been issued to their owners or were waiting to be uplifted (Evison 1993). In 1914, it was found that although some of the land allocated to Kai Tahu had been occupied, most of it was mountainous, barren and so unsuited to farming that its future use was questionable (Evison 1993).

## 5.4 SUMMARY

### 5.4.1 General historical features

- Crown pastoral leasehold land was confined mainly to South Island high country
- Environmental problems of South Island high country: exotic grasses invaded it, stock overgrazed it, burning off caused erosion and rabbits reached plague proportions
- Most mahika kai destroyed
- Destruction of remaining forests continued through burning and sawmilling
- Refrigeration stimulated an increase in the number of small farms, some of which were in the high country; more meat, cheese and butter production; diverse sheep varieties bred; and exotic grasses and crops sown
- Wealthy runholders lived in grand houses and developed spacious grounds with tennis courts, croquet lawns, lakes, plantations and other features
- Great estates were subdivided

- State intervention became more intrusive and coercive; the power of the early runholding families diminished
- Stock numbers declined
- Average flock size decreased
- Mixed crop/livestock farming expanded on the plains and foothills
- A marked contrast emerged between the size of farms and density of the rural population in the steep hill country, and the flat, rolling lowlands
- Railways expanded and more bridges were built, facilitating and speeding up transport of high-country produce to markets and ports
- Freezing works were situated near railways and ports
- Evolution of the motorcar encouraged construction of better roads
- Telephone network expanded and communications improved
- Population drifted to the North Island
- Stock numbers in the North Island exceeded those in the South Island
- Scientific farming developed
- Maori ownership and association with the land continued to decline

#### **5.4.2 Key physical resources**

- Environmentally damaged high country
- Few surviving pockets of mahika kai
- Sawmills
- Grand homesteads
- Subdivided large estates
- Small settlements
- Small farms and medium-sized estates
- National Endowment Lands
- Land allocated to Kai Tahu
- Railways, roads, bridges and telephone lines

## 6. 1912–1935: Increasing importance of science, technology and soil conservation

### 6.1 LANDSCAPE MODIFICATION

The period from the 1920s through to the 1960s was notable for the increasingly intensive application of science and technology to farming problems. The State intervened more frequently, producer boards were established, production chains were set up in freezing works and science was employed to boost farm production (Roche 1994). However, while total production rose in the 1920s and 1930s, the signs of localised environmental degradation became more obvious and were defined variously as ‘land deterioration’, ‘land depletion’ and ‘soil erosion’ (Roche 1994). The cumulative effect of over 50 years of high-country pastoral farming combined with more recent occupation of lands that had previously been rejected as unsuitable for farming was starting to show (Roche 1994).

#### 6.1.1 The 1920 Southern Pastoral Lands Commission

Serious erosion problems in certain parts of the South Island high country—i.e. Crown pastoral leasehold tussock lands—attracted a great deal of attention in the early 20th century (Roche 1994). Evidence of forced reductions in stock numbers began to emerge (Roche 1994). For instance, sheep numbers on Galloway Station in Central Otago had declined by 63% between 1879 and 1910 (Roche 1994). In 1920, the Southern Pastoral Lands Commission was appointed to investigate the extent and causes of land depletion and deterioration on Crown pastoral lands in the high country of Canterbury, Otago, Southland and Marlborough (Roche 1994). The commissioners defined ‘depletion’ as the elimination of virtually all grassland species, resulting in a predominance of bare ground in the worst cases, and ‘deterioration’ as reduced palatability through the destruction of edible plants and an increase in unpalatable plants (Sadd et al. 1920). The eight members of the Commission included Commissioner of Crown Lands and Chief Surveyor for the Otago Land District, R.T. Sadd; leading botanist Leonard Cockayne (father of Alfred); Christchurch land valuer W.B. Buckhurst; Dunedin stock and station agent Charles Todd; and several farmers (Sadd et al. 1920).

Between April and June 1920, the Commission travelled extensively throughout the South Island and its high country. Beginning at Invercargill, its members went through the Aparima Valley to Mossburn, and by coach road to Lake Manapouri—observing the depredation caused by rabbits to the tussock grasslands—and then on to Lumsden (Sadd et al.

1920). There they caught the train to Kingston, taking the steamer on Lake Wakatipu to Queenstown. Next they crossed the Waimea Plains to Gore, Switzers and Greenvale Station at the base of the Black Umbrella Mountains: 'We examined the pasture *en route* and were struck with the large amount of country rendered worthless through the spread of manuka. We also noted that the sweetbrier was likely to become dangerous' (Sadd et al. 1920:5). They travelled on to Tapanui, observing 'the beneficial effect of close settlement where there had originally been large holdings', and then to Dunedin, visiting the Conical Hills Plantation on the way (Sadd et al. 1920:5).

Journeying in motorcars to Lawrence, Roxburgh and Alexandra, on the road to Fruitlands, the commissioners:

'...were at the average northern limit of the south-western rainfall, and observed on the one side the well-grassed Old Man Range, and on the opposite side of the River Clutha the depleted area of part of Central Otago. We also saw the extensive orchards planted a few years ago by the Fruitlands Company on ground which has suffered considerable depletion.' (Sadd et al. 1920:5)

Driving to Cromwell, they visited 'first the striking example of dry farming conducted by Mr. Barker, and next the power-house on the Fraser River', investigating the supply of water for irrigation (Sadd et al. 1920:5). They went on to Northburn Station, where 'we had an opportunity of carefully examining the experimental plots designed by the Department of Agriculture with the view of finding out some of the fundamental principles on which the regrassing of the depleted areas depends' (Sadd et al. 1920:5-6).

After going through the Kawarau Gorge to Arrowtown, at Lake Hayes and near the gorge of the Arrow River they noticed 'a new pasture weed, hitherto unrecorded for New Zealand—one of the American meadowsweets' (Sadd et al. 1920:6). The commissioners warned that this plant 'should be at once eradicated so as to prevent its further spread' and noticed 'the spread of that truly noxious weed, St. John's wort (*Hypericus perforatum*)' (Sadd et al. 1920:6). When passing through the Crown Range on the way to Pembroke, 'A short stay was made on the summit, and the effect of burning the snow-grass and so encouraging the growth of unpalatable plants was observed' (Sadd et al. 1920:6). In Cardrona Valley, 'the bad effects of burning at the wrong season' were noted (Sadd et al. 1920:6). They went to Pembroke and Glen Dhu Station, 'where ground originally covered with fern was now growing luxuriant cocksfoot and red clover', past Lake Hawea and across the Hawea Flat to Tarras, observing irrigation works and plantations of gums and turnips (Sadd et al. 1920:6). The Department of Agriculture's experimental plot at Clyde was studied, as well as experimental tree planting and regenerating pasture in an enclosure on Galloway Station. They went on to Naseby through the Ida Valley, 'seeing the splendid result of irrigation in that district, where a depleted area has been turned into dairying-land', and to Ranfurly, Middlemarch, and then Dunedin via the Rock and Pillar Range and the Taieri Plain (Sadd et al. 1920:6).

They next went by train to Kurow, inspecting the Hakataramea Valley pastures, and on to Omarama, 'noting *en route* some fine crops of lucerne in the Waitaki Valley, and how, near Omarama, there was on parts of the mountains depletion not unlike that of the worst part of Central Otago' (Sadd et al. 1920:6).

In Canterbury, the Commission visited The Hermitage at Mount Cook, 'seeing the Benmore country, and near Lake Pukaki, on Ben Ohau and Rhoboro Downs, the runs recently set aside for settlement of soldiers' (Sadd et al. 1920:7). They examined 'the high mountain grassland on the Sealey [*sic*] Range, which is in its absolutely virgin condition, with abundance of blue-grass and aniseed (*Angelica montana*), a herb eaten out of sheep-pastures in general' (Sadd et al. 1920:7). Proceeding to Lake Tekapo and Fairlie via Burkes Pass, the following was noted:

'Between Tekapo and Burke's Pass we noticed that the depletion was the effect of the tussock dying out through some cause other than that of the rabbit or burning - possibly the grass-grub. A good deal of depletion in dry areas arises from this cause.'

(Sadd et al. 1920:7)

The commissioners then went to Timaru, Geraldine, Ashburton and by train to Christchurch.

After inspecting the hydroelectric works at Lake Coleridge and tussock grassland on the Lake Coleridge Run, the commissioners continued on to Hanmer, seeing along the way 'the fine tussock-grassland of the Waiau Valley', to 'the lower part of Jack's Pass Valley, where, in many places, European grasses have naturally replaced tussocks' (Sadd et al. 1920:7), to Culverden, Waiau and 'to Kaikoura by way of the coastal road, snow having hindered us going by the Whalesback Road' (Sadd et al. 1920:7). The great spread of fern and manuka near Hunderlee was noted.

In Marlborough, the commissioners were 'greatly struck ... with the excellent lucerne and with the danthonia pastures, this grass having in many places replaced the tussock altogether' (Sadd et al. 1920:7). They went to the Waiau Valley, 'here again noting the value of close settlement on Erina and Hillersden' (Sadd et al. 1920:7).

The Commission then split three ways: three members went to Cheviot, Cockayne went to Wellington, and the rest went to Benhopai to inspect the grassland. Finally, some reviewed irrigation at Alexandra, the depleted areas and dry farming in Central Otago, the countryside in the Clutha, Tarras and Northburn Valleys, the Galloway experimental station, and Lauder Station 'where Mr. John Wilson was interviewed in regard to his methods of irrigating grassland—he having had thirty years' experience in this work both with miners' water and with clear water' (Sadd et al. 1920:8). After visiting Ophir and Ida Valley, the 'travelling sub-committee' proceeded to Naseby via Puketoi, to Linburn Bridge on the Maniototo Plain, Patearoa, Waipiata, Pigroot, Dunback and Palmerston South (Sadd et al. 1920:8).

In their report, the commissioners pointed out that high-country pastures lacked uniformity (Sadd et al. 1920). There were extreme

ranges of climate, and soils varied greatly in fertility, especially those overlaying greywacke and those of mica-schist. Because there was an eastern limit to the northwest rainfall and a northern limit to the southwest rainfall, some pastures were wet and some were dry; and those exposed to the southwest were vulnerable to snowfall (Sadd et al. 1920). While mica-schist soils were extremely fertile, soils overlaying greywacke were far poorer, disintegrating easily and forming shingle slips (Sadd et al. 1920).

In Central Otago, although the mountains were exposed to rain from all directions, the river valleys, intermontane basins and lower hills were extremely dry. Other dry areas were the Mackenzie Country in Canterbury, and the Clarence and Awatere Valleys in Marlborough (Sadd et al. 1920).

The commissioners also noticed that there was a variety of tussock types, and that their correct identification was of great importance in determining the feeding value of a pasture (Sadd et al. 1920). The different types were: snow tussock, fescue tussock, tall blue tussock, blue grass, small blue tussock, snow grass and red tussock. As well as the tussocks, in the mountainous sheep pastures of the high country there were at least 300 indigenous and some 40 introduced plants, mostly European. Of the indigenous plants, only a dozen had any feeding value (Sadd et al. 1920). Especially aggressive indigenous unpalatable plants were piripiri, allies of the scabweed, especially the turfy raoulia, the mountain twitch, the mountain cotula, the Maori onion, and the common cotton plant. Spreading indigenous shrubs were the mountain tauhina and manuka. Invasive introduced plants were the sweetbriar, especially in drier areas, and bracken fern in wet areas such as Lake Wanaka and Lake Wakatipu (Sadd et al. 1920).

The key causes of soil deterioration and depletion in the high country were listed by Sadd et al. (1920) as:

- Burning the tussocks, especially at the wrong time of year
- Overstocking with sheep
- Continuous grazing for 70 years without any attempt at improvement
- Allowing rabbits to become extremely numerous (the most potent cause)
- Land tenures and some of their conditions

Deterioration was observed in all land districts. Declining sheep returns showed that gradual deterioration had been occurring for many years (Sadd et al. 1920). In one extreme case (Vincent County), sheep numbers had declined from 511 188 in 1880 to 315 757 in 1919 (Sadd et al. 1920). Whereas lowland farming had leapt forward, high-country sheep grazing had gone backwards (Sadd et al. 1920).

Indiscriminate burning and extremely dense stocking had caused great changes in the high-country landscape, notably an increase of unpalatable plants on ground that had been denuded by burning, and erosion caused by the exposure of bare ground. It was noted that had it not been

for the invasion of foreign grasses of higher palatability, the pastures would have been in much worse condition (Sadd et al. 1920). In the early 1880s, rabbits had begun to infiltrate the high country, and dry areas were turned into bare ground or taken over by unpalatable plants. Depletion had taken place to such an extent in the driest area—the upper Clutha River basin of Central Otago—that between an altitude of 170 m and 800 m the country was like a desert: ‘There, instead of waving tussocks, as in the early days of settlement, the landscape, as far as the eye can pierce, consists of bare hills looking like huge sand-dunes’ (Sadd et al. 1920: 15).

Depletion was most apparent in parts of Central Otago, the Mackenzie Country, the upper Waitaki Valley, and the Clarence and Awatere Valleys, where much scabweed was evident, the slopes of the Rock and Pillar Range, and the greywacke mountains of Canterbury and Marlborough (Sadd et al. 1920).

According to geographer Kenneth Cumberland, nature exacted its revenge from the early 1920s (Brooking et al. 2002). Around 14 million acres (5.67 million ha) of English grasses had been laid by 1911, but productivity dropped drastically once the original fertility had gone (Brooking et al. 2002).

In 1928, the Christchurch Fields Superintendent for the Department of Agriculture, R. McGillivray, noticed that a tussock that was not palatable to stock was aggressively displacing native tussock in the high country (Nightingale 1992). This *Nassella* tussock of Argentinian origin was positively identified in 1934, and had already spread across Canterbury and Marlborough, proving difficult to eradicate by traditional methods such as grubbing (Nightingale 1992). By the 1940s, it dominated the high-country tussock land in the Waipara area of North Canterbury, and in 1946 the *Nassella* Tussock Act was passed to control it by spraying (Nightingale 1992).

During this period, individuals, acclimatisation societies and governments continued to introduce wildlife (Grey 1994). Changes to high-country waterways were most pronounced with the influx of trout and salmon. Some of the most successful importations were made by the State (Grey 1994). From 1900, salmon were introduced to the Waitaki, Hakataramea, Rakaia, Rangitata and Waiau Rivers (Grey 1994). Many organisations, including the Government, carried on importing and protecting various fish, animals and plants until well into the 1920s. The desires of recreational hunters and anglers, especially those from overseas, and sentiment and aesthetics were called upon to justify such action (Grey 1994). For example, new grazing and browsing animals were brought in to enhance big game hunting: chamois and tahr at Mount Cook, and moose and wapiti in Fiordland (Grey 1994). These contributed to the list of already established pests such as rabbits and Australian possums, which were brought in to develop the fur trade (Grey 1994).

In 1936, Herbert Guthrie-Smith, the owner of Tutira Station in Hawke’s Bay and also a naturalist, expressed a view that was an exception rather



than the rule. He wrote despairingly of his own kind: 'the squatters are a class accurst in that the ravishment of the Dominion has been their handiwork' (Guthrie-Smith 1936:16). Worse still, the 'ravaging energy of the Anglo-Saxon breed, its ferocious rat-like pertinacity has accomplished the ruin of a Fauna and Flora unique in the world—a sad, bad, incomprehensible business' (Guthrie-Smith 1936:16). As both a runholder (albeit in the North Island) and a naturalist, he personally felt torn:

'Alas! too, for the conflicting moods of even the writer himself, but though sometimes pluming himself as superpatriot on the thousand blades of grass created by him where less than none had grown, he can state honestly that oftenest he deems himself unfit to live.'

(Guthrie-Smith 1936:16)

## 6.2 PHYSICAL REMAINS

Through to 1921, although runholders continued to dominate in the high country, agricultural products brought such good prices that small farmers made a very good living, and generally throughout New Zealand their numbers expanded to the extent that they replaced runholders as the major land users (Hatch 1992). As stated in section 4 (the Liberal era), for the first time in New Zealand, small farmers became economically and politically dominant. This was because of the agricultural recovery from the mid-1890s, the expansion of refrigerated shipping and the increase in the number of small farms (Hatch 1992). By 1914, intensive agriculture had become more important to the economy than extensive pastoralism, and the amount of land devoted to extensive grazing and the ratio of pastoralists to farmers was declining (Hatch 1992).

Although the possession of extensive sheep runs no longer gave high-country pastoralists the economic and political status they had enjoyed up to the 1890s, their lifestyle continued to mark them off from the farmers, who were situated mainly on the foothills and plains (Hatch 1992). Until the 1920s, the most wealthy runholders had servants, entertained house parties for hunting and other sporting activities such as tennis, and sent their children away to boarding school in New Zealand or abroad (Hatch 1992). However, some of the more prosperous farmers also began to send their children away to boarding school and to hire maids (Hatch 1992). Anthropologist Elvin Hatch remarked: 'the markers of social distinction between the elite run-holder and farmer were being effaced' (Hatch 1992:33). Farmers and runholders started to mix in social and sporting events (Hatch 1992).

While the economic position of the farmer improved greatly through to 1921, that of the worker did not (Hatch 1992). Whereas the gap between farmer and runholder narrowed, that between farmer and worker widened. Increasing mechanisation meant that the wages of working men stayed low, jobs were often insecure and in many cases their living

conditions had changed little since the Long Depression of 1879 to 1895 (Hatch 1992).

While the farming industry prospered from the time of the economic recovery of the mid-1890s until 1921, between 1921 and 1930 a series of recessions and recoveries occurred, and from 1930 to 1935 depression prevailed (Brooking 1996). Dependence on agriculture left New Zealand exposed to the drop in prices for primary production. In 1930, the overseas deficit rose astronomically (Brooking 1996). Farmers' incomes fell (Brooking 1996). However, the continuing importance of wool secured the survival of pastoralists on large areas of land and they kept their place in the economy because much marginal high country could only be farmed in large units. Historian Tom Brooking wrote:

'The pastoralists assumed a lower profile than in previous years, especially in national politics. They cut their holdings and flocks back to more manageable levels, cashed in on rising land values through voluntary subdivision, invested in urban real estate, and continued in considerable comfort even though the ostentation of their earlier lifestyle was reduced.' (Brooking 1996: 233-234)

### **6.2.1 New technology**

In the 1880s, traction engines and mechanically powered shearing machines had begun to appear (see section 5). By the early 20th century, the internal combustion engine began to make an impact: cars, trucks and tractors eased the work and isolation of many farmers (Brooking 1996). In the high country, however, difficulty of access meant that these inventions were not as widely used as on the hills and plains. Traction engines were used in the Mackenzie Basin from around the late 19th century (Whelan 1988). They were used to transport wool and supplies to and from the rail heads at Mount Somers and Alford Forest (Whelan 1990). Benmore was one of the earliest stations to begin mechanical shearing (Whelan 1990). A system of 28 Wolseley machines was installed in 1889. Water power was used to drive a turbine wheel, and 80 000 sheep were shorn.

In the late 20th century, the remains of the riveted iron water pipes and the turbine could still be seen on the western side of the woolshed (Whelan 1990). Motorcars were acquired by runholders from c.1910 (Whelan 1988, 1990). Motor lorries appeared within a couple of years, and these and early tractors eventually replaced traction engines (Whelan 1988, 1990). The first motor lorries were not strong enough to carry loads from the most isolated stations until the 1930s. Roads were metalled over time (Whelan 1988, 1990).

### **6.2.2 Transport**

Following the completion of the main trunk lines (1908 in the North Island; 1912 from Parnassus to Invercargill in the South), the Government began to focus on roads because increasing use of motorcars and lorries had made their development essential (Brooking 1996). Although motor vehicles began to make initial forays into the high country, bullocks and horses often remained the key means of getting wool to the nearest railhead or road. For instance, even in the 1930s the road to Molesworth Station was a tortuous track winding over the shifting shingle beds of the Awatere River. The last 15 miles (c. 24 km) between Langridge Station and Molesworth Station homestead was usually travelled on horseback because motor cars and lorries often became stranded in the icy waters of the river (McCaskill 1970). Once high-country produce reached the coast by road or rail, shipping remained an important mode of transport (Brooking 1996).

### **6.2.3 Mining**

Extractive industries declined in importance in the high country and elsewhere in New Zealand. Although coal mining expanded initially to provide fuel for the spreading railway system, as rail construction slowed in the 1920s and the use of electric power grew, the industry lost its importance (Brooking 1996). Coal mining was carried out at Flock Hill and Avoca Stations in the Broken River area, Canterbury, between 1918 and 1928 (Ian Hill, DOC, pers. comm.). Gold was exported until the First World War, and there were many technological innovations, particularly in alluvial dredges and in quartz mine chemicals (Brooking 1996). Eventually, the gold ran out (Brooking 1996).

### **6.2.4 Electricity**

Electricity began to reach rural areas in the 1920s (Brooking 1996), making life more comfortable for some farming families, but not for most runholders in remote high-country areas. Hydroelectric plants became more important than the earlier coal-fired stations (Brooking 1996). In 1911, Lake Coleridge in the Canterbury high country was the first large station to be completed in New Zealand, and during the 1920s, the State built a series of generating stations (Brooking 1996). Probably the earliest, isolated private hydroelectric plant was built in 1927 at Irishman Creek Station in the Mackenzie Country by runholder and inventor C.W.F. (Bill) Hamilton (Whelan 1988). (His inventions would eventually include developments in heavy earth-moving equipment and the 'Hamilton' jet boat.) The power plant, 17.5 kW and manufactured in Scotland, and 5-acre (c. 2-ha) dam, constructed with earth-moving equipment designed by Hamilton himself, were installed to power his workshop and homestead. In the 1980s, they were still in use (Whelan 1988).

### **6.2.5 Scientific development**

Geographer Alan Grey noted that 'The problems of developing and maintaining a good sward led, after 1910, to a two-pronged attack: the development of better and more reliable strains and associations of grasses, and the improvement of soil fertility' (Grey 1994: 354-355).

When Sir Frank Heath, head of the British Department of Scientific and Industrial Research (DSIR), visited New Zealand in 1926, he was astonished by the interest shown by ordinary people in scientific work (Atkinson 1976). Third-generation pastoralists and farmers were aware that the fertility of the soil was becoming exhausted, that diseases had to be mastered, and that markets were becoming more and more competitive. He recommended that a DSIR be established in New Zealand, and the new department was established in August the same year (Atkinson 1976).

The *Journal of Agriculture* had been started by the Department of Agriculture in 1910 and proved very useful to pastoralists and farmers (Brooking 1996). Declining soil fertility spurred landholders to reconsider their management practices and to search for scientific remedies (Brooking 1996). After the DSIR was founded, scientists from there and the Department of Agriculture began to liaise systematically with the pastoralists and farmers (Brooking 1996). Lincoln School of Agriculture, which was established by landowners in 1880, was upgraded in 1896. Massey Agricultural College was founded in 1926 (McLintock 1966).

Organised research was just beginning to get off the ground as the country felt the full impact of the economic depression in 1930 (Atkinson 1976). Although the pastoralists and farmers had been hopeful that some of their worst problems could be solved by science, expansion was not possible as the depression deepened (Atkinson 1976).

### **6.2.6 Effects of the 1930s depression**

During the depression of 1930-35, runholders on large high-country estates managed relatively well. Some had enough capital to purchase cheap stock and land and to make considerable improvements to their properties (Brooking 1996). By contrast, indebted small farmers on marginal areas could not survive (Brooking 1996). The extent of unemployment generally in New Zealand (12%-15%), and the poverty and malnutrition among the unemployed, the unskilled, the financially over-committed small farmers, women and most Maori helped a radical new Labour Government to sweep into power in 1935 (Brooking 1996).

### **6.2.7 Case studies**

This section follows the fate of two vast high-country landholdings that were discussed earlier in the report. The first, situated in Nelson/Marlborough, became an environmental and financial disaster, and the second, which was in Otago, was subdivided into many smaller blocks.

### ***Tarndale, Rainbow and Molesworth***

In July 1911 Tarndale, including Rainbow Station, was transferred from William Acton-Adams to Duncan Rutherford of Leslie Hills Station (McCaskill 1970). The next month, Molesworth Station was transferred from Acton-Adams to Rutherford's wife, Eva. At the time, the two runs carried 42 000 sheep and 400 head of cattle (McCaskill 1970).

Unluckily for the Rutherfords, the 1912 winter was severe. Tarndale and Molesworth lost 18 000 sheep worth £9,000, and only 46% of the lambs survived (McCaskill 1970). The Rutherfords asked the Nelson and Marlborough Land Boards to extend their leases, to allow them to risk stocking up again, but were turned down (McCaskill 1970). Duncan Rutherford explained that on the Tarndale-Rainbow runs:

‘I have had four good warm huts erected for winter work; paid two-thirds of the cost of the stock bridge over the Acheron River (which is the first bridge between Marlborough and Canterbury), also a stock bridge over the Clarence River near Lake Tennyson, and paddocks, and have practically broken the back of the rabbits which have been giving so much trouble of recent years. I am also sending up two tons of grass-seed for surface sowing on the Molesworth freehold.’

(Rutherford 1913, cited in McCaskill 1970:108)

In 1915, Eva Rutherford wrote (probably at the behest of her husband) seeking security of tenure; her lease was due to expire in 1918 (McCaskill 1970). She promised that if she was successful, it would be worth her while to open up the country with bridle tracks, make more subdivisions with rabbit netting and plant trees. She explained that:

‘A large portion of the country has been ruined by overstocking, burning and rabbits, and is now quite denuded of herbage of any kind. Eighteen months ago I tried surface sowing (cocksfoot, cowgrass and white clover) with very little results. To do any good, it will be necessary to experiment with various grasses to see which will grow on the loose shingle country. The Government are experimenting in the Mackenzie Country in this direction.’

(Mrs Rutherford 1915, cited in McCaskill 1970:110)

Meanwhile, the Tarndale lease was due to expire in 1917. Both leases were extended until 1938 (McCaskill 1970).

Duncan Rutherford died in 1917, and in 1918 Molesworth was sold to William Nicholls of Belfast, and Tarndale was sold to his son, William Aubrey Nicholls (McCaskill 1970). They had heavy losses of sheep in the snows of 1918, and deer became so numerous between the Rainbow Reserve and Tophouse that the manager was unable to graze stock in that area (McCaskill 1970). William Nicholls died in 1920, and that year R.W. Lochhead, a Canterbury farmer and a director of the New Zealand Farmers' Cooperative Association, purchased the Tarndale-Rainbow lease and his son, John, bought the Molesworth lease (McCaskill 1970). McCaskill (1970:113-114) wrote: ‘It would appear that a syndicate of directors and senior officials of the Farmers' Co-op. Association were the prime movers in the purchase and that the Lochheads were really

“dummies” whose initial contributions towards the purchase were soon lost’. Management policy was under the control of the Association, and the management hardly ever visited the runs. Within a few months, John had a serious accident, and his father offered both runs to the Government for soldier settlement (McCaskill 1970). After inspections by members of both the Nelson and the Marlborough Land Boards and the Commissioners of Crown Lands, the Government was advised that the area was ‘quite unsuitable for soldier settlement owing to the altitude and heavy losses of sheep in winter’ (McCaskill 1970: 114). Hence, the Farmers’ Cooperative Association kept control until 1938 (McCaskill 1970).

Thomas Leighton, who had worked on stations on the Awatere Valley, was appointed manager (McCaskill 1970). He had the task of trying to suppress rabbits, rebuild a flock, repair fences and maintain buildings during the 1920s’ recession and 1930s’ depression. Lochhead had become bankrupt, and the Association was losing money so quickly that in September 1922 it had to take a mortgage of £10,000 from the Bank of New Zealand over the stock (McCaskill 1970). The Nicholls Estate held a mortgage of £6,000 over the freehold areas. In 1932, a Commissioner of Crown Lands wrote that outsiders generally thought the project was grossly mismanaged. While Leighton, the working manager, was considered capable, he was not given a free hand by the Association. The commissioner had been informed that although Leighton wanted to increase the ewe flock and build up the flock from sheep bred on the run, the Association directors would not agree (McCaskill 1970).

Deterioration was visible in the soil, the native pastures and the flock. In 1926, the Farmers’ Cooperative Association offered the combined property for sale. No offer was accepted. One offer, made by a North Canterbury farmer, was of £46,000 for 276 624 acres (c. 112 033 ha), leasehold and freehold, and 17 000 sheep, 1418 cattle and 60 horses (McCaskill 1970). In 1929, following huge losses of sheep in heavy snow, the Association purchased up to 13 500 sheep from the Mackenzie Country to replace them (McCaskill 1970). Within 2 years, all these sheep were dead. From then on, the flock was kept at 20 000 or more (McCaskill 1970). Little was spent on rabbit control. In 1931, the Land Development Board complained about the heavy infestation (McCaskill 1970). The adjoining Muller-Langridge Run was also eaten out by rabbits (McCaskill 1970). In April 1932, the Commissioner of Crown Lands in Blenheim reported that the best country in the valleys and hillsides was swarming with rabbits (McCaskill 1970). About 30 000 rabbit skins had been taken from Rainbow, Tarndale and Molesworth in each of the preceding 2 years (McCaskill 1970). He wrote that:

‘... if three times that number were taken off Molesworth Station, there would be no appreciable difference in the rabbit population. The pest was out of control. Only two poisoners were operating in the country about Lake McRae. Another man and two boys were poisoning in the Severn Valley, one trapper was in the Alma Valley and another was trapping about the homestead. Clearly, the small team of five men and two boys could not hope to deal properly with the pest.’

(McCaskill 1970)

In November, inspectors from the Departments of Lands and Agriculture toured the combined runs. They saw that virtually the entire sunny faces were overrun by rabbits and that the fine pastoral country was so denuded of herbage that soil was slipping into the rivers (McCaskill 1970). By January 1937, the Association decided to abandon the properties (McCaskill 1970). The losses had been so great that the directors were unable to find further advances to work them (McCaskill 1970). Stock were sold.

A party of Marlborough runholders and businessmen visited Molesworth in May 1937. The road was a winding track over constantly moving shingle beds (McCaskill 1970). On their return, the powerful motor lorry that was carrying them became marooned in the middle of the Awatere River. A motorcar and driver attempted to rescue them, but the vehicle was damaged by a boulder. Next, one of the station drays arrived to assist. Unfortunately, it tipped the travellers into the icy river. The men were forced to walk to Blenheim in the dark (McCaskill 1970). One member of the party, G.H. Andrew of Birch Hill Station, blamed the Lands Department for the parlous state of the road because it had refused to agree to improvements between Molesworth and the Acheron Accommodation House: 'All the Lands Department had been doing for years was to take money off the place in the form of rent and put nothing back into it, and many other high-country sheep runs had been treated in a similar manner', he complained (Andrew 1937, cited in McCaskill 1970:127).

With regard to the shingle slides, Leighton, the manager, argued:

'Rabbits are not to blame. In the early years the practice of runholders was to burn off the tussock in the spring. Being spring, the only places which could take the fire were the sunny faces where a fire would burn a foot underground right to the roots of the giant tussocks, leaving the soil exposed to the weather. Periodically, there were terrific cloud-bursts which scooped out whole hillsides at a time. Rabbits did a lot of damage but they didn't range as high as where the shingle first started to slide.'

(Leighton 1937, cited in McCaskill 1970:128)

He believed that the only hope for the future was to stock Molesworth with cattle. In March 1938, the Marlborough and Nelson Land Boards recommended that the Government accept the Lochheads' surrender of their licences (McCaskill 1970). That year, the Department of Lands took over the huge block of country comprising the Molesworth and Tarndale-Rainbow Runs. The runs were characterised by dispersed stock, dilapidated fences and buildings, rampant rabbits, severely degraded grasslands and extreme soil erosion over vast areas (McCaskill 1970).

### ***Benmore***

When Benmore Station was purchased by Robert Campbell and William Low in 1863, they paid £36,000 for 203 560 acres (c. 82 442 ha), about 15 000 sheep, 19 horses, four teams of bullocks and 30 cattle (Pinney 1981). In 1892, James Sutherland from Waitati became head

shepherd and he soon had to deal with a succession of crises. For example, during the 1895 snow storm, 41 729 sheep were lost, leaving 61 344 (Pinney 1981). 1903 was an extremely bad winter, with 2 days of continuous rain followed by 30 inches (c. 76 cm) of snowfall (Pinney 1981). Sheep were soaked through before being snowed in and frozen to death. In the spring of 1904, a storm left dead lambs all over the hillsides (Pinney 1981). Outbreaks of blood poisoning occurred in 1903 and 1909 (Pinney 1981); sheep became lame and many died.

In terms of stocking, by 1898 there were 94 683 sheep on Benmore, 15 500 of which were crossbreeds (Pinney 1981). These were the progeny of merinos crossed with long-wooled breeds that were bigger with longer and coarser fleeces than the merinos. With the developing trade for meat, they had become more valuable than the merinos. By 1916, there were 68 000 crossbreeds and 32 000 merinos, including their crossbred lambs (Pinney 1981). The average wool weight of each sheep had risen, largely because of the replacement of merinos by crossbreeds (Pinney 1981). From 1902, the station also ran Hereford-Shorthorn cattle: 107-173 calves; 50-75 steers; and 20-30 heifers (Pinney 1981). Useful horses were bred—those that could endure harsh conditions and ford rivers (Pinney 1981).

When Robert Campbell and Sons (the London company that had been the owners since 1881) criticised the cost of rabbiting, Sutherland responded that they must be kept down regardless of expense (Pinney 1981). He used three or four gangs of poisoners each autumn and the shepherds usually formed an extra poison gang between midwinter and lambing; the station packmen and waggoners supplied the camps and brought in skins. Up to 16 men followed up the work of the poisoners by shooting, ferreting and digging (Pinney 1981). By 1913, rabbits were hardly to be seen (Pinney 1981).

At Benmore, the only mechanical aid was water power, which was used for shearing, sawing and cutting chaff (Pinney 1981). At this station, men were more valuable than machines. The appearance of traction engines in 1894 had been brief (Pinney 1981): they frequently became bogged down, and their owners were indebted. In 1913, the traction engine owner went bankrupt and the contract reverted to horse waggoners, the Harris brothers of Hakataramea (Pinney 1981). The telephone reached Omarama Station in 1903-04 and Benmore in 1913 (Pinney 1981).

Benmore Station was subdivided in 1916, during the First World War (Pinney 1981). The final shearing was complicated by the absence of Australian shearers and demands for higher wages by New Zealand men not at war (Pinney 1981). In February, 86 000 sheep and 21 000 lambs were assembled, which were sold in March (Pinney 1981). Over 600 people and 150 motorcars arrived at the sale. Many of the sheep were bought by the new tenants of the divisions of Benmore. In April, there was a second sale, and a muster of stragglers brought in 630 more sheep (Pinney 1981). Sutherland bought the homestead block.

The affairs of Benmore were wound up on 30 April 1916 (Pinney 1981). The company had already lost Otekaike and Burwood, and Galloway was