Rum Corps to IXL: Services to Pastoralists and Farmers in New South Wales

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Part II 1850-1890: The Gold Rush and its Aftermath

By 1850, New South Wales (NSW) appeared to have entered a period of long term economic stability which was almost entirely dependent on the production of fine wool. The prospects of such a future vanished with the discovery of large quantities of alluvial gold in 1851. The population of the colony almost doubled, increasing from 179,000 in 1851 to 351,000 in 1861 (Vamplew 1987, p. 26).

1. The Gold Rush and the Pastoral Industry

The immediate effect of the gold rush and the increase in population was to raise wages and the prices of all commodities. Within five years the price of food, transport and labour doubled while the price of imported goods and of exported wool only increased by 16 per cent (Vamplew 1987, p. 212). Few diggers found gold and they were forced to work to earn the capital needed to continue the search for it. Providing higher wages were paid the squatters could therefore obtain sufficient labour to carry on. The squatters also managed with less labour. The number of people employed in the pastoral industry in 1861 was only one-quarter of the number employed in 1851. Shepherding was abandoned when it was discovered that the dingoes could be destroyed by poisoning them with strychnine (Joyce 1942, p. 83). Sheep were kept in one area by constructing small dams, which were their only supply of water.

Crude fences were also erected in some areas to contain flocks of sheep. In regions where timber was plentiful, dog-leg fences were built without fence posts, by laying one log on the ground and placing the end of another log on top of the end of the first at an obtuse angle, continuing this arrangement and adding one or two more logs to build up the panels. Alternatively, chock-and-log fences could be made by sinking a series of pairs of posts in the ground about four inches apart, with ten to twelve feet between pairs, along the line of the fence. Saplings were placed between the pairs of posts and separated from each other by short chocks.

At the higher wages which had to be paid to shepherds during the gold rush, fencing was more profitable for the squatter than shepherding, even though lambing percentages were lower in unshepherded flocks (Davidson 1981, pp. 120-22). However, there were only 20,000 miles of such fencing in NSW as late as 1871 (Butlin 1962, pp. 325-33).

As transport costs were high, the cheapest sources of food on most diggings were the neighbouring squatters' runs. Many squatters increased the area of wheat and vegetables grown and altered their livestock activities to provide meat, butter and eggs for the gold fields. Some even replaced their hand or horse-powered flour mills with water or steam mills to produce more flour (Joyce 1942, pp. 143-75). Even squatters further from the gold fields benefitted from sales of store stock for fattening (Brodribb 1883, pp. 77-112). Station transport was hired out for cartage and diggers' horses were taken in on agistment.

2. The Aftermath

The immediate effect of the gold rush was dwarfed by the changes that occurred in the 1860s. In 1856 the Crown Colony of NSW was granted representative government with a Lower House elected on a

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Commissioned series. Review co-ordinated by David Briggs.

one-man-one-vote basis. The control of Crown Lands, including the squatters' leases, passed from the Governor and the squatter-dominated Legislative Council, which had advised him, to a Government elected by ex-miners and other landless men. With the "working out" of most of the alluvial gold in 1860 these electors demanded land for farming. The Robertson Land Act of 1861 enabled anyone to select between 40 and 320 acres of Crown Land in the old Settled Districts or intermediate lands, including that leased by the squatters, for a price of not less than £1 per acre. One quarter of the purchase price was to be paid immediately and the balance within three years, during which period the purchaser was required to reside on the land and make improvements to the value of £1 per acre. On full payment the land could be transferred to any purchaser (New South Wales 1861a). From this point in time, land was divided between small farmers and the surviving holders of pastoral runs.

3. The Pastoralists

The squatters could only protect their holdings by purchasing the Crown Land they occupied under the Selection Acts. In NSW the purchase by any one individual was limited to 320 acres. However, larger areas were obtained by purchasing land in the names of all members of the family, by employing others to select land then purchasing it from them, or by purchasing the best land so that the remaining land was of little use to selectors. Minors were not prevented from purchasing land until 1875 and married women could do so until 1884 (New South Wales 1875). In addition, under the Occupation Act of 1861 squatters had the right to purchase one twenty-fifth of the run and had a prior claim to leasing three times the area they had purchased (New South Wales 1861b).

Squatters could also order land to be measured for auction and any land purchased at auction did not require either residence or improvements before a title was granted Once measured, land was available for selection before it was auctioned. However, as squatters commanded the capital for purchase at auction, and were often better informed than selectors as to which land was about to be auctioned, they were normally able to purchase it (Coward 1969). By 1883 it was estimated that approximately half of the land originally selected in NSW had passed into the hands of the ex-squatters (New South Wales 1883).

In spite of obvious abuses, the rate at which land was disposed of in NSW continued to increase. Between 1861 and 1872, three and a half million acres of Crown Land were sold or selected and in the next decade more than 25 million acres were alienated. A large proportion of sales between 1872 and 1882 were purchases at auction by squatters or land speculators in the Riverina.

The 1884 Crown Lands Act prevented land transfers for a period of five years after selection. More importantly, Land Boards were appointed to see that the conditions of selection were observed (New South Wales 1884). However, by this time much of the best land had passed into the hands of the large graziers.

Of the £450,000 advanced as long term loans to graziers by the Australian Mortgage Land & Finance Co. in 1875, half was used to purchase land (Bailey 1966, p. 81). The high wool prices of the 1870s led to improved buildings being constructed on most stations. These were chiefly weatherboard structures with roofs of corrugated iron and floors of sawn timber. In addition, graziers began to fence and subdivide their holdings.

With the discovery of artesian water, the dry Western Division west of the Lachlan was occupied. The land was obtained at little cost as it was leased from the Crown. However, bores costing from £1000 to £2000 each had to be constructed by contractors and as the carrying capacity was low, wire had to be provided to fence very large paddocks.

Wire fencing was also adopted in other regions of NSW in the 1870s and cost approximately £45 per mile to erect (Robertson 1964). During this decade the length of fencing in NSW increased from 20,000 miles to three-quarters of a million miles and an additional 1 million miles of fencing were added in the 1880s (Butlin 1962, p. 333). In the 1880s rabbits invaded NSW from Victoria and wire fences had to be made rabbit-proof by the addition of wire netting at a further cost of £40 per mile (Queensland 1897).

3.1 Selling the clip and financing the pastoralists

The purchase of land after 1861 and the introduction of fencing required more capital than the squatters had required in the 1850s, when capital was only needed to purchase livestock and to finance the next year's operations. The method by which such finance was obtained was closely linked with the sale of the wool clip.

By 1860 the regular wool auctions, which had been established by Richard Goldsbrough in Melbourne, C.J.Dennys in Geelong and Mort & Co. in Sydney, were attracting English topmakers. However, in that year 80 per cent of the Australian wool clip was still consigned directly for sale in England. Most English wool manufacturers were small and could not afford to employ their own purchasing agents at all sources of supply (Barnard 1958, pp. 65-9). More importantly local merchants in Australia were unable to raise the large amounts of capital needed by the grazing industry.

Wool consigning services were provided by the Australian wool auctioning firms, by specialized departments of Australian importing firms such as Dalgety's and Elder Smith and by British firms offering finance to graziers. The British firms normally entered the consignment trade by purchasing a colonial mercantile consigning company. Thus, the British firm, Australian Mortgage Land & Finance Co., purchased Gibbs Ronald & Co. in 1865 (Bailey 1966, pp. 14-15). Some of the consigning firms also acted as general merchants for the station owners arranging for the purchase and transport of building materials, fencing wire and other station requisites.

The enormous demand for capital by the graziers after 1860 for land purchases and station improvements was partly met by the new Australian banks which had access to British capital. The acquisition of freehold land enabled the banks to play a larger role in financing the pastoral industry as land was more readily accepted as security than wool or livestock.

The other major sources of finance were the pastoral finance houses established in Britain in the 1860s. The most important of these were the Australian Mortgage Land & Finance Co. and The New Zealand Loan & Mercantile Agency Co. (Bailey 1966, pp. 4-13, 24). Capital was raised in Britain by these companies selling debentures to small British investors at 4 per cent and lending money to Australian graziers secured on wool, livestock or land at from 8 to 10 per cent. Australian wool consigning companies found it difficult to retain customers unless they were prepared to supply them with credit between wool clips. Thus in the early 1880s, Australian wool auctioning and consigning firms such as Richard Goldsbrough, Mort & Co., Elder Smith and the Australian consigning firm Dalgetys, proceeded to raise capital in Britain by selling debentures to enable them to finance the graziers (Bailey 1966, p. 55). Conversely, those British firms providing finance were forced to act as consignors to protect their security. By 1870 even the banks had commenced consigning wool to London for clients. As this was not recognized as a legitimate part of banking, some banks were reluctant to admit that they participated in the trade. However by 1868 the Colonial Bank of Australia was advertising its services in this field (Barnard 1958, p. 63).

On arrival in England, Australian wool, no matter how consigned, was sold to raw wool consumers or dealers by British wool brokers. Importing merchants acted as agents for Australian consignors or merchants and supervised the landing, storage and sale of wool. The large pastoral finance companies established their own agencies in England to fulfil these functions. This, together with the increasing competition from Australian auctions, tended to concentrate sales of wool in England into the hands of a few brokers. By 1874, 81 per cent of the Australian wool clip consigned to England was sold by five English brokers (Barnard 1958, p. 73).

Although the major source of finance for the wool industry remained in Britain, the centre of wool selling began to move from Britain to the colonies in the 1870s. Early in that decade the Suez Canal, which offered a fast passage for wool-carrying steamers, and the cable between Europe and Australia, which enabled market information to be passed instantaneously between Australia and Europe, were completed. The combined effect was to make selling cheaper in Australia than in London (Barnard 1958, p. 176). This move was facilitated by the growth of the wool industry in Europe.

Buyers from the continent found that the cost of purchasing in Australia was lower than in London. The number of specialized wool buyers from Britain and the Continent attending Australian wool sales increased and regular auctions were held in Melbourne, Sydney, Adelaide and Geelong. In the 1870s most of the wool auctioned in Australia was sold by the expansion of the activities of the existing firms such as Richard Goldsbrough and Mort & Co. in Melbourne and Sydney, C.J. Dennys in Geelong and Elder Smith in Adelaide. By the 1890s even the pastoral financing and wool consigning firms New Zealand Loan Mercantile & Agency & Co., and the Union Mortgage & Agency Co. Ltd., as well as Dalgetys, were forced to establish warehouses and wool auctions in the colonies to retain clients (Barnard 1958, pp. 65-69).

4. The Selectors

In spite of the acquisition of large areas of land by the ex-squatters, it was estimated that 33,000 selectors were still on their original holdings in NSW in 1882 (New South Wales 1883). However, with the exception of the few selectors close to centres of population, or those with alluvial land on the coast whose surplus maize could be sent to Sydney by sea, the only marketable products were wool, hides and livestock and such grain as could be sold locally. Grain could not be transported profitably by land from the interior to the coast because of the high cost of land transport.

An uncleared selection of 320 acres carrying a sheep to three acres was incapable of producing enough revenue to pay installments to the government for land. Even when cleared it produced a cash income which was less than a stockman's wage (Davidson 1981, pp. 144-7). Most selectors only survived by producing milk, butter, eggs, meat, fruit and vegetables, and supplementing the small income earned from sales of wool, hides and tallow by wages earned as shearers, boundary riders and fencers, and later as rabbiters on the stations. Some selectors followed the methods of the squatters and took up additional land in the names of other members of their families or purchased additional land. Some of these acquired holdings which were large enough to make a living from grazing sheep and cattle (Karr 1974). The need for large areas of land, if settlers were to make a living, was finally recognized in the Land Act of 1884, which permitted settlers to take up 640 acres in the Eastern Division and 2,560 acres in the Central Division of NSW (New South Wales 1884).

The selector was almost a subsistence farmer. His dwelling was a bark or slab hut roofed with bark and with an earth floor. Such furniture as he possessed was made by himself (Gilmore 1963; Jenkins 1975, pp. 19-26; Lawson 1948, pp. 29-33, 359-378). Unlike the large wool consigning and financing firms and the banks which served the large squatters, the storekeepers and firms processing agricultural commodities and providing the essential materials in the country towns were nearly all small family businesses. This is certainly suggested by the *Sands Directories* which were published as a guide to business houses and commercial travellers and contain the names and nature of business carried out by commercial firms, government services and sporting clubs in NSW in both city and country areas. Of the 524 registered firms that can be identified as providing services to farmers, excluding importers, shippers and bankers, only 44 were registered as companies in 1871. In 1881 there was a total of 1287 such firms, of which only 69 were companies (*Sands Directory of New South Wales* 1871, p. 511; 1881, pp. 302-58).

City merchants were not prepared to process the produce of small selectors or to supply the food, clothing, simple farm implements and transport they required. This gave rise to the country towns outside the Nineteen Counties. Some of these were centres surviving from the gold rush, but the majority were created by the selectors' need for services. Even in the Riverina, which was a well developed grazing region in 1861, Albury, Wagga Wagga and Deniliquin were the only towns with more than 500 people. Thirty years later, ten towns in the Riverina had populations exceeding 500 people, and the population of Albury and Wagga Wagga exceeded 4000 (Buxton 1967, pp. 211-13).

The country storekeeper not only supplied the selector's material needs but was also often the means by which he disposed of any surplus produce in the form of hides, sheepskins, wool, hay and grain. The same storekeeper together with the local squatter was the sole source of credit for many selectors, often charging more than 20 per cent

interest (Cannon 1973, p. 148). Handling of the selector's produce ensured goods were paid for and interest payments met (Waterson 1968, pp. 167-171).

5. Communications

5.1 Coastal shipping

In 1850 the only satisfactory method of moving large quantities of any material in NSW was by sea. Almost all imports and exports from the colony were through the ports of Sydney and Morpeth on the Hunter River. However, coastal transport developed rapidly between these ports and the small ports on the coast of NSW. Cargoes were mainly carried by the small steamers of the Australian Steam Navigation Co. (Bach 1976).

Large quantities of wool and sheep skins were shipped from the tablelands via the coastal ports to Sydney and pigs reared on the coast were shipped live to the colonial capital. Potatoes and wattle bark from the South Coast and timber and cereals from all of the coastal regions were also shipped to Sydney (Table 1). In addition to the items mentioned, large quantities of produce listed as casks, boxes, packages or bundles of unspecified size containing butter, cheese, eggs, tobacco, hides, leather, hay, pork, beef and several kinds of fruit (oranges, grapes, apples and bananas) are recorded as being shipped to Sydney. The size of the trade in later years is not available as the *Shipping Gazette* ceased publication in the early 1850s. However, as population and the number of farmers in these regions increased, the trade in coastal ships must have increased until they were replaced by railways between 1870 and 1920.

5.2 Roads

Such roads as NSW possessed deteriorated rapidly with the massive increase of traffic after 1851. By 1856, the road from Windsor to Bathurst was almost impassable (Henning 1969, pp. 38-9). In 1858, the Government assumed responsibility for the maintenance of all main roads, but the new municipalities, which were created in the same year with the power to collect rates and borrow money, were responsible for all other roads. Initially these changes seemed to have had a beneficial effect. In 1857 there were only 340 miles of main roads in NSW and scarcely a river was bridged on any of them, but by 1860 there were over 900 miles of such roads and all creeks and rivers were bridged (Thomas 1967, p. 61). As a result, after 1860 waggon freight

Table 1: Goods shipped from NSW coastal ports to Sydney in 1850

	Units	North Coast	Hunter Manning	Central Coast	South Coast	TOTAL
Total no ports	no	8	11	7	17	43
Wheat	tons	32	4278	453	1738	6501
Maize	tons	273	1195	1000	350	2818
Barley	tons	7	257	11	210	485
Potatoes	tons	19	68	31	3915	4033
Wattle bark	tons	2	4	31	458	495
Pigs	no	0	5577	0	1355	6932
Wool	bales	2081	11168	0	560	13809
Sheep skins	thous	23	16	0	22	61
Cedar	thous ft	2667	350	56	77	3105
Hardwood	thous ft	589	52	1270	219	2130
Shingles	thous ft	0	1331	3537	20	4888

Source: The Shipping Gazette and Sydney Trades List

rates declined (Table 2). Cobb & Co.'s coaches which were introduced into NSW in 1860 increased the speed, comfort and reliability of passenger travel. However, in the sparsely settled countryside of NSW it was difficult to raise enough money to build and maintain roads. Tolls were abolished on main roads between 1878 and 1880 and on minor roads in 1900, and this probably increasd the problem. In the 1880s most roads in the interior were simply rutted tracks leading to the nearest railway line (Thomas 1967, p. 62).

Communications with the interior were improved when river steamer services were established on the Murray, Murrumbidgee and Darling Rivers by the Randells and by Francis Cadell in the 1850s. Freight rates from Adelaide to the Murrumbidgee were only 40 per cent of those charged by bullock waggons supplying that region from Melbourne (Mudie 1972).

5.3 Rail

It was difficult to construct a profitable railway system in Australia. The large colonial capital cities and some of the larger towns such as Newcastle were close to the sea and ships provided a cheaper form of transporting goods and people than did railways. Any railway constructed to the interior of NSW could only serve a scattered population of station owners and shepherds whose major product, wool, provided little freight for a new railway. In time, the railways were to become one of the important factors in making wheat production possible in the interior, but wheat did not provide freight for the railway when it was first established. In addition the southern and far western regions of NSW were already provided with a cheap, if somewhat erratic, form of transport by paddle steamers on the Murray, Murrumbidgee and Darling Rivers. The most promising railway lines were those constructed to the northern or central interior from a coastal port on the east coast. However, before these reached the interior they had to cross the Great Dividing Range where construction costs were high (Blainey 1966, pp. 228-240).

As the initial investment required to construct railways was high and the immediate returns were small, it is not surprising that the first railways, which were commenced by private companies in 1846, running from Sydney to Parramatta and from Newcastle to Maitland, had to be taken over by the NSW Government before they were opened for traffic. From this point in time all railways in NSW, with the exceptions of one joining Deniliquin with the Victorian rail system and another linking Broken Hill with the South Australian rail system, were constructed by the government. In the longer term, the net returns from NSW railways were extremely high. Railways reduced goods freights by 80 per cent of those charged by teamsters, and passenger fares by 55 per cent of Cobb & Co. fares. Profits from more intensive types of farming such as wheat

Table 2: Wagon freight rates

	Distance (miles)	1857 (£ per ton)	1864 (£ per ton)
Goulburn to Sydney	134	12.5	3.8
Bathurst to Sydney	145	15.5	6.5
Orange to Sydney	165	20.5	7.5
Yass to Sydney	183	16.0	4.8
Wellington to Sydney	277	27.5	11.5
Gundagai to Sydney	247	25.5	8.0
Albury to Sydney	363	27.5	13.0
Murrurundi to Maitland	99	9.0	6.5
Tamworth to Sydney	160	11.6	7.0
Armidale to Sydney	229	26.0	11.0

Source: NSW (1865-66), "Report on the state of the roads", *Journal of the Legislative Council* 3, 247.

growing and meat production were higher than from producing wool, and these types of land use were only possible because railways provided a cheap means of transporting the farmers' produce. However, most of the net return was absorbed by rail consumers and little of it was returned to the government (Davidson 1982). The alternative of making land grants to private railway companies and permitting them to sell land to pay for the cost of railways was never considered as a serious option. Most railway construction took place after 1870, and by this time the best land had already been taken up by selectors.

5.4 River transport

By 1864, a railway line had been constructed from Melbourne to Echuca by the Victorian Government and most of the trade on the Murray and Murrumbidgee Rivers passed through this port to Melbourne rather than down the Murray to Goolwa and via Victor Harbour to Adelaide. Commercially the Riverina became and remained part of Victoria. As the major port for the Riverina and part of the southern slopes of NSW as well as northern Victoria, Echuca rapidly became the second largest port of Victoria.

The paddle and stern wheeled steamers could on- or off-load at Echuca's multi-tiered wharf at any river height. Its wood and shingle buildings were replaced by civic buildings and churches built of brick and roofed with corrugated iron. Its citizens walked on streets which were lit by gaslight and paved with wooden planks. The thirst of river men, teamsters, bullockies, drovers and timber getters was quenched in its 70 hotels which were served by two breweries and three cordial factories.

The port contained the Echuca offices of the main shipping companies, including McCulloch & Co. which handled over half of the 72,000 bales of wool passing through the port in 1875. Many of the boats which plied the river were built of red gum in its shipyards. Saw mills, one of which employed 1500 men, converted the red gum forest into timber and red gum blocks to pave the streets of Melbourne and London (Phillips 1980, p. 122). Much of the river trade depended on individual skipper owners such as Randell and Cadell who operated from one to three steamers. However, some companies operated a number of steamers. These included the Gem Navigation Co. and McCulloch & Co. which was later purchased by Permewan Wright (Phillips 1972, pp. 130-2).

Echuca's 'high tide' was the early 1870s. In 1872, 240 steamers cleared its wharf. By 1890 the number had declined to 75 (Phillips 1972, p. 9). The very railways which made it a great port also destroyed it. In 1873, a railway line from Melbourne was completed to Albury and by 1895 seven lines had reached the Murray from Melbourne. Railways were also constructed from Sydney. The first of these reached the Murray at Albury in 1881 and an extension reached the Murrumbidgee at Hay in 1882. A line to Nyngan, 76 miles from the Darling River, was completed by 1883 and was extended to Bourke on the Darling in 1895. River carriage was as cheap as rail but it was far slower and less reliable. River boats, which only operated for part of the year and which could not operate at all in years of drought, were unable to compete with government operated railways, which were not required to pay for the capital required to build them. Government assistance to river traffic in the 19th century was limited to wharf construction, and the snagging of the rivers by the three colonial governments (Phillips 1980, pp. 86-93).

By 1876, railway lines radiating from Sydney had crossed most of the Southern Tablelands and the western line across the Blue Mountains had reached Bathurst in the Central Tablelands. A line from Newcastle up the Hunter Valley reached Murrurundi in the same year. By 1881, the southern line had reached Albury and a branch line had been built to Narrandera. The western line had crossed the Central Tablelands and the Western Slopes to Dubbo and the north-western line was extended to Tamworth on the North Western Slopes (New South Wales Railway Commission 1861, 1871, 1881). Railway freight charges were only a fifth of those charged by bullock waggons (Davidson 1982, p. 133). They were as cheap as river boats and faster and more reliable than other forms of transport and they were the only profitable means of transporting grain over long distances in the interior (Table 3).

In spite of the loss of the Riverina trade to Victoria in the 1860s and the expansion of the NSW rail-

Table 3: Effect of railways on transport costs

Route	Means	Year	£ Per ton	Means	Year	£ Per ton
Goulburn to Sydney	Road	1864	3 to 4.5	Rail	1869	1.4
Hay to Melbourne	River & road	1862	15 to 20	River & rail	1880	4.75 to 5.75
Bourke to Victor Harbour	River	1870*	4.6			
Bourke to Sydney				Rail	1890	4.75

*Includes insurance and interest
Source: Barnard, A.(1958, pp.182-4)

ways, exports of wool and imports of essential station stores by river boats from South Australia increased until the 1880s (Table 4). Sheep numbers in the Western Division increased until 1894 and transport costs to and from this region were lower from Adelaide via the Murray and Darling Rivers than from Sydney or Melbourne. It was not until the railways from Sydney entered the Western Division in the 1880s that the river trade began to decline (Table 4). The imports also indicate the

Table 4: Exports from and imports to NSW from SA via the Murray River

	Units	1861	1871	1881	1891
Exports					
Wool-greasy	tons			2017	4720
-greasy & scoured	tons	821	2818		
-scoured	tons			7870	1132
Tallow	tons	9	54	27	na
Hides	no	1270	na	1048	na
Imports					
Flour	tons	827	1610	852	744
Cereal grains	tons	11	62	141	247
Bran & pollard	tons	11	13	64	89
Hay & chaff	tons	60	96	419	111
Potatoes	tons	67	301	242	305
Salt	tons	70	68	204	198
Sugar	tons	66	246	854	140
Rice	tons	2	16	69	21
Onions	tons	0	na	26	32
Tea	tons	14	30	482	16
Butter	tons	0	0	2	10
Cheese	tons	0	1	3	4
Dried fruit & vegetables	tons	0	23	73	36
Bacon & ham	tons	0	na	6	775
Jam	tons	0	13	91	28
Soap	tons	2	15	20	87
Candles	tons	na	2	15	15
Corrugated iron	tons	0	0	140	146
Tobacco	tons	6	8	16	10
Spirits	thous gals	5	9	16	15
Wine	thous gals	2	2	27	2
Beer	thous gals	4	14	30	45

Source: South Australia, *Proceedings of Parliament and Papers* (1862, 1872, 1882, 1892)

degree to which this region, in which cropping was impossible, was dependent on imported food for humans and animals.

5.5 Postal services

In NSW postal services had always been controlled by the government. The first post offices were established in 1828. In the main centres of population these were staffed by government officials but in small centres the post office was often operated on a contract basis by the local storekeeper or publican.

Postal services also expanded rapidly after the gold rush. By 1855, over two million letters were carried over more than one million miles of regular postal routes to 155 post offices. Mails were transported by the government railways where they existed. In other regions they were transported by private contractors, the chief of which was Cobb & Co.'s coaching company. A government telegraph serv-

Table 5: Production of tallow and soap in NSW*

	Year	Establishments (No)	Sheep slaughtered (No)	Cattle slaughtered (No)	Tallow produced (Tons)	Soap & candle factories (No)
North Coast	1861	9	0	8733	500	4
	1871	6	0	93	2	1
Hunter & Manning	1861	10	5893	20308	1038	3
	1871	5	212082	0	1503	5
Central Coast	1861	18	0	1213	600	14
	1871	24	59757	27	1954	14
Northern Tableland	1861	0	0	0	0	0
	1871	0	0	0	0	2
Central Tableland	1861	1	1008	274	29	5
	1871	0	0	0	0	5
Southern Tableland	1861	0	0	0	0	1
	1871	0	0	0	0	1
North Western Slopes & Plains	1861	0	0	0	0	0
	1871	1	5960	0	40	2
Central Western Slopes & Plains	1861	0	0	0	0	0
	1871	0	0	0	0	1
Riverina	1861	0	0	0	0	1
	1871	1	28000	0	185	0
Western Division	1861	0	0	0	0	0
	1871	2	1000	13	3	0
TOTAL NSW	1861	38	6901	30528	2167	28
	1871	39	306799	133	3687	31

*No data available for 1881, and no cattle or sheep were slaughtered for tallow on the South Coast or the South West Slopes in 1861 or 1871
Source: NSW, *Statistical Register*

ice was established in Sydney in 1858 and by 1877 messages were carried over 9800 miles of wire that reached almost all parts of the colony by 1890 (Coghlan 1890-91, pp. 384, 392).

6. The Processing of Agricultural Produce

6.1 Pastoral products other than wool

No record exists of the number of livestock slaughtered for meat in NSW between 1850 and 1881. As there was no refrigeration most of these must have been slaughtered close to where they were consumed. Most farmers slaughtered their own livestock to provide themselves with meat. Some cattle and sheep were slaughtered and boiled-down purely for tallow, particularly on the coast and in the Riverina. The number of livestock slaughtered for tallow depended on seasonal conditions and varied greatly from year to year. Additional tallow was obtained from the boiling-down of offal. However, the quantity produced by the latter process was not recorded. Some tallow was exported and the remainder made into soap and candles in the same region as the tallow was produced (Table 5). In years in which no surplus livestock were available, slaughter-houses, boiling down works and soap and candle factories were closed.[1]

Local tanneries curing cattle hides and fellmongeries for removing wool were located in all parts of the colony. Bark of the black wattle was the main tanning agent and trees were stripped and the bark milled on the coast and tablelands (Table 6).

6.2 Carbohydrates for humans

The main sources of carbohydrates for humans were wheaten flour and potatoes. As both of these products were bulky and, before the introduction of railways, expensive to transport, wherever possible they were produced and processed where they were consumed. However, fungal diseases in wheat made the production of large quantities of this crop difficult on the coast, and potatoes could only be grown satisfactorily in the moist coastal and tablelands regions (Table 7).

[1] In 1861 and 1871 the *Statistical Register of New South Wales* published their statistics in Counties and Pastoral Districts, and in 1881 and 1891 for each Electorate. In order to create a comparable basis over time the Counties and Electorates have been grouped into the Statistical Regions in which statistics were published in 1920 and later by the Australian Bureau of Statistics. This procedure was followed in Tables 5 to 12.

Table 6: Processing hides and skins in NSW

	Bark Cutting Mills* (No)		Tanneries (No)			Fellmongers* (No)	
	1871	1881	1861	1871	1881	1871	1881
North Coast	0	2	1	2	3	0	0
Hunter & Manning	1	3	9	14	13	3	4
Central Coast	28	19	24	53	47	8	11
South Coast	11	15	12	16	21	1	1
Northern Tableland	0	14	3	4	5	5	13
Central Tableland	8	3	5	13	11	8	2
Southern Tableland	5	12	21	21	14	3	4
NW Slopes & Plains	0	0	0	2	1	2	3
CW Slopes & Plains	0	0	0	1	1	0	6
SW Slopes	0	1	0	1	3	1	1
Riverina	0	0	1	2	2	0	7
Western Division	0	0	0	0	0	0	3
TOTAL NSW	53	69	76	129	121	31	55

* No data available for 1861
Source: NSW, *Statistical Register*

Table 7: Population and the production of wheat and potatoes in NSW

	1861			1871			1881		
	Popn (Thous)	Wheat (Tons)	Pots (Tons)	Popn (Thous)	Wheat (Tons)	Pots (Tons)	Popn (Thous)	Wheat (Tons)	Pots (Tons)
North Coast	6	190	440	19	13	507	31	5	777
Hunter & Manning	58	8518	2777	77	4602	4784	100	4157	4011
Central Coast	125	2920	2310	167	260	3484	255	40	2623
South Coast	34	8089	9872	39	1286	9818	49	244	9538
Northern Tableland	10	656	731	17	3929	2462	31	6099	3594
Central Tableland	45	8705	7258	67	22063	11508	73	26456	10540
Southern Tableland	29	9209	7256	40	9648	8674	53	12442	10050
NW Slopes & Plains	8	107	185	16	2716	555	35	7532	738
CW Slopes & Plains	7	611	115	15	4192	894	33	8692	719
SW Slopes	8	1414	298	14	4195	782	35	17362	1327
Riverina	12	2633	563	22	6820	1289	32	8180	418
Western Division	6	0	0	12	0	0	22	32	1
TOTAL NSW	348	43052	30905	505	59724	44757	749	91241	44336
Net Sea Imports		27962	2501		43417	13454		22253	25955
Net River Imports*		1181	67		2306	301		1235	242

*Net Imports to NSW = Imports to - Exports from NSW
Source: NSW, *Statistical Register*

The need for external services in the production of flour commenced with the harvest. Although "Ridley's stripper" first became available in 1843 there is no record of this machine in the NSW *Statistical Register*. Part of the crop was harvested by reapers and binders and was later threshed and winnowed by contractors with threshing machines. The total number of harvesting machines in different regions in NSW is shown in Table 8. In general, changes in the distribution of harvesting machines reflects the changes in the quantity of wheat produced in the different regions.

Table 8: Harvesting machines and flour mills in NSW

	Reaping and Threshing			Winnowers*		Flour Mills		
	1861	1871	1881	1871	1881	1861	1871	1881
North Coast	4	1	1	0	7	0	2	0
Hunter & Manning	100	62	89	76	127	43	29	23
Central Coast	32	56	33	51	47	40	30	16
South Coast	56	44	72	15	43	23	19	14
Northern Tableland	2	26	115	7	47	14	14	14
Central Tableland	16	180	528	182	136	23	35	24
Southern Tableland	51	90	261	66	146	27	30	26
NW Slopes & Plains	0	24	31	0	15	2	6	9
CW Slopes & Plains	4	19	182	10	38	4	3	7
SW Slopes	12	48	250	103	187	7	15	17
Riverina	15	105	149	94	120	3	5	9
Western Division	0	0	4	0	1	0	0	0
TOTAL NSW	292	655	1715	604	914	186	188	159

*No data for 1861
Source: NSW, *Statistical Register*

Wheat was converted into flour in a large number of small mills throughout the colony. Between 1861 and 1881 the number of these either increased at a slower rate than the quantity of wheat milled, or actually declined because larger steam driven mills replaced smaller water or horse driven mills (Table 8). In the early 1880s roller flour mills were introduced. Although these were much more expensive than stone grinding mills they had a much greater throughput per unit of time and produced a better quality of flour than the stone mills (Parsons 1971, pp. 133-9). With the growth of railways the cost of transporting wheat to mills was reduced and this, together with the introduction of large roller mills, tended to concentrate flour milling in the metropolitan area and the larger towns.

As flour contains 6.125 times as much carbohydrate per unit weight as potatoes, it is probable that any surplus or deficit of carbohydrate was transported as flour. If it is assumed that the consumption of carbohydrate per capita throughout NSW equalled the average per capita for the colony, it is possible to calculate the surplus or deficit of flour in each region. The total wheat produced in each region was assumed to produce 70 per cent of its weight as flour and the total potatoes in each region were divided by 6.125 to obtain their contribution to carbohydrate requirements in terms of flour equivalents. The population of the region was then multiplied by the average consumption per capita of flour and potatoes of the colony, expressed as flour equivalents, to obtain the total requirements of flour equivalents for the region. The requirements of flour equivalents were then deducted from those produced in the region to find the surplus or deficit of flour. The results of this calculation (Table 9) suggest that between 1850 and 1881 the coastal region was very dependent on imported wheat and flour.

Initially, as it was unprofitable to transport wheat from the interior, most of the flour was imported by sea from South Australia. After the railways were constructed, wheat and flour were railed from the tablelands to Sydney. In the 1860s, all of the inland regions except the Central and Southern Tablelands were deficient in flour. In some years the quantity of wheat or flour transported to and from these regions probably exceeded the total weight of wool produced. By 1881, all inland regions were self-sufficient in wheat with the exception of the Western Division which was supplied with wheat or flour by river boats from the Riverina and South Australia.

In country areas, wheat was often sold by farmers directly to country flour mills. However, much of the transfer of wheat from the tablelands to the coast and imports of wheat from South Australia were handled by merchants, the largest of whom were Dalgety & Co., Mort & Co. and later Permewan Wright.

6.3 Carbohydrates for animals

Maize was the major grain for animal fodder in NSW between 1850 and 1880. The main centres of production were the coastal regions. Both oats and barley were important in the southern interior but the total quantity of oats and barley produced in NSW was normally less than 10 per cent of the amount of maize grown. The crop was harvested by hand using casual labour and after the cobs were dried in corn barns the grain was shelled. Some shelling was done by travelling contractors, but much of it was carried out by small farm shellers. Unfortunately the statistics do not distinguish between the size of these machines or the number used by contractors.

Hand feeding of animals was limited to pigs, poultry and some horses, as the latter obtained enough fodder from grazing unless engaged in heavy work. As the statistics do not separate draught horses from stock horses, or give any indication of when the latter were engaged in heavy work, it is impossible to estimate the amount of fodder consumed by them. Similarly no statistics of poultry are available until the 1890s. The number of pigs are available for each statistical district. Before the introduction of dairying in the 1880s and the use of skimmed milk for pig raising, most pigs were fed on grain and slaughtered as porkers. The statistics indicate that one in seven pigs were sows.

The total pig feed required per pig recorded in the agricultural census is calculated in Appendix 1, using the standard feed requirement and growth rate of pigs. This suggests that 852 lbs. of grain are required for each pig recorded in the census. If the total number of pigs in the census is multiplied by

Table 9: Surplus or deficit of wheat and potatoes expressed in terms of flour equivalents, and wool produced in NSW

	1861		1871		1881	
	Surplus (+) or deficit (-) flour equivs (Tons)	Wool prod (Tons)	Surplus (+) or deficit (-) flour equivs (Tons)	Wool prod (Tons)	Surplus (+) or deficit (-) flour equivs (Tons)	Wool prod (Tons)
North Coast	-669	85	-2730	49	-3798	6
Hunter & Manning	-1918	471	-7731	718	-9367	2010
Central Coast	-14374	11	-23721	55	-31736	12
South Coast	+2017	32	-3541	105	-4572	71
TOTAL COAST	-14944		-37723		-49473	
Northern Tableland	-822	1110	+379	2681	+507	2922
Central Tableland	+673	835	+5818	2631	+9262	2603
Southern Tableland	+3138	1009	+1481	2624	+2633	5194
NW Slopes & Plains	-1029	1502	-558	4486	+490	8665
CW Slopes & Plains	-587	879	+779	2955	+1339	11498
SW Slopes	-100	551	+804	3151	+6858	3909
Riverina	+170	865	+1345	5238	+1084	13528
Western Division	-863	762	-1807	4574	-2880	15843
TOTAL INLAND	+580		+8241		+19293	
Sea & rail net imports to NSW	19573		33016		19816	
River net imports to NSW	838		1673		905	

Net imports of flour equivalents = Imports minus Exports to and from NSW of wheat flour and potatoes expressed as flour equivalents. These increased the quantity of carbohydrates available for human consumption in NSW. Those imported via the Murray-Darling River system were probably consumed in the Western Division.

Source: NSW and SA, *Statistical Register*

852 lbs. it is possible to obtain an estimate of the total grain required for pigs in each region. This can be compared with the total grain available as maize, barley, bran and pollard in each region, assuming 30 per cent of the weight of wheat milled was bran and pollard (Table 10). Oats was excluded as it was mainly fed to horses.

In all years the North Coast and the Hunter Valley produced far more feed than the pigs in these regions could consume. However grain could be moved cheaply by sea on the coast. If the coastal region is considered as a whole, including the bran from imported wheat milled, adding imports and subtracting exports of maize and barley, the total feed available in the coastal region can be compared with the total required. In all years, the amount of grain available on the coast is greatly in excess of that required for pig feed. The surplus may have been even greater than these figures suggest, as it is doubtful if all sows produced two litters of pigs per annum. In other areas of NSW animal fodder exceeded the requirements of pigs in some years and was deficient in others. However, some wheat was probably fed to pigs in these areas as the quantity of wheat grown exceeded that required for flour in most inland regions. A large proportion of the maize not required as pig feed on the coast was probably used to feed horses, as only limited areas of oats were grown in the coastal regions.

Table 10: Feed grains available* and the estimated quantity of grain consumed by pigs

	1861			1871			1881		
	No. Pigs	Pig feed reqd (Tons)	Grain avail (Tons)	No. Pigs	Pig feed reqd (Tons)	Grain avail (Tons)	No. Pigs	Pig feed reqd (Tons)	Grain avail (Tons)
North Coast	4393	1671	13072	8943	3402	29954	15076	5734	47187
Hunter & Manning	35534	13516	17082	50037	19032	35676	44604	16965	50192
Central Coast	16786	6385	4783	12402	4717	7317	11070	4211	4937
South Coast	24723	9404	7745	38731	14731	10142	59502	22632	13821
TOTAL COAST	81436	30976	42682	110113	41882	83089	130252	49542	116137
Net Sea Imports (+) or Exports(-)			+1303			-5082			-9113
Coast + Sea Imports - Exports			43985			78007			107024
Northern Tableland	1375	523	411	4790	1822	1973	6103	2321	4219
Central Tableland	40566	15430	7015	34110	12974	16094	17978	6838	11594
Southern Tableland	15463	5881	4864	29664	11283	9912	15732	5984	5033
NW Slopes & Plains	1491	567	252	7278	2768	1440	8632	3283	3587
CW Slopes & Plains	4412	1679	193	6208	2361	2002	9166	3486	3293
SW Slopes	6048	2300	572	6400	2434	1900	12437	4731	7196
Riverina	6955	2645	1057	10067	3829	3108	10705	4072	2592
Western Division	6588	2505	0	4563	1736	0	3212	1222	10
TOTAL INLAND	82898	31530	14364	103080	39207	36429	83965	31937	37524
River Imports			354			692			371
West Div+ River Imports			354			692			381
TOTAL NSW	164334	62506	57046	213193	81089	119518	214217	81479	153661
Net Imports(+) or Exports(-)			+1657			-4390			-8742

*Maize, barley, bran and pollard

The feed grain supply in NSW was increased by net imports or decreased by net exports of maize, barley, bran and pollard. Sea exports were mainly maize grown in the coastal region and most sea imports were probably consumed in this region. River imports via the Murray-Darling River system were probably consumed in the Western Division.

Source: NSW and SA, *Statistical Register;* Appendix 1

6.4 Other rural products

Tobacco leaf, sugar cane and grapes all contained a large proportion of water in terms of the final product and to avoid transporting water these were processed in small manufacturies located where the particular crop was grown. Thus most tobacco drying plants were in the Hunter Valley and on the Central Coast and sugar mills were concentrated in the same areas and on the North Coast. Vines were

grown over a wide area of NSW and wine presses were equally widespread. However, the main centres of production were the Hunter Valley, the Riverina and the Central Coast. On the other hand, it was cheaper to transport barley and malt to where beer was consumed to avoid transporting water. Thus breweries were located at the main centres of population rather than where barley was grown (Table 11).

Australian brewers using English techniques found it extremely difficult to manufacture good beer which could be transported long distances without deteriorating. It was not until the late 1880s that the Melbourne brewery chemists, August de Bavay and C.W.Muller were able to produce a satisfactory yeast that overcame most of the problems of brewing in a country with low humidities and high temperatures (Parsons 1971, pp. 139-46). The transport problem was aptly described by the visiting German chemist, Dr. Carl Roch, who pointed out:

> "there is probably no better country in which more severe demands are made on the durability of beer than in Australia. Lager beer brewers will be horrified to learn that a retailer often required longer than eight days to accomplish the sale of a barrel - thirty-six gallons - of colonial beer; that the colonial beer in cask, after being shipped a day's journey by rail must make a journey of 200 or 300 miles to some far off spot in the Australian bush by team i.e. in a waggon drawn by fourteen or twenty oxen or camels, under the burning heat of the sun, a journey that may endure six weeks or more." (In Parsons 1971, p. 145).

7. Building Materials

The prosperity of the graziers in the 1870s led to the demand for better housing, which in turn created a demand for bricks, sawn timber and galvanized iron. Much of the additional one and three-quarters of a million miles of fencing constructed in NSW between 1870 and 1890 was made from imported wire. However, wherever possible building materials were obtained from local sources because of the high cost of transport, and sawmills and brick yards were found in all regions of the colony. The number increased as population increased in each region. As late as 1881, when railways provided cheaper transport, the numbers of both were still increasing in country areas (Table 12).

Galvanized iron for roofing had been invented in

Table 11: Number of factories processing rural products

	Tobacco Manufacturers			Sugar Manufact*		Wine Presses*		Breweries		
	1861	1871	1881	1871	1881	1871	1881	1861	1871	1881
North Coast	0	0	0	27	70	0	18	1	0	0
Hunter & Manning	10	24	8	14	6	71	102	0	0	3
Central Coast	1	5	5	15	1	37	23	3	8	11
South Coast	0	0	0	0	0	17	16	2	3	1
Northern Tableland	0	0	0	0	0	03	13	1	4	0
Central Tableland	0	1	1	0	0	8	56	1	1	7
Southern Tableland	0	0	0	0	0	12	7	4	1	2
NW Slopes & Plains	0	1	0	0	0	4	9	0	0	3
CW Slopes & Plains	0	0	0	0	0	1	12	0	0	1
SW Slopes	0	1	0	0	0	10	89	0	0	9
Riverina	0	1	0	1	0	80	38	0	5	5
Western Division	0	0	0	0	0	0	0	0	2	8
TOTAL NSW	11	33	14	57	77	243	383	12	24	50

*No data available for 1861
Source: NSW, *Statistical Register*

Table 12: Number of factories producing capital goods

	Saw Mills			Brickkilns			Coach & Waggon builders*		Agric implement manuf*		Saddle & Harness makers#
	1861	1871	1881	1861	1871	1881	1871	1881	1871	1881	1881
NorthCoast	2	6	16	3	6	13	0	4	0	6	13
Hunter & Manning	9	15	48	19	29	38	17	25	10	29	38
Central Coast	30	42	59	34	82	166	41	57	5	5	47
South Coast	6	7	42	11	13	24	5	11	0	1	25
Northern Tableland	5	5	19	5	11	20	2	11	1	11	16
Central Tableland	2	10	15	13	46	33	13	13	0	1	18
Southern Tableland	2	11	11	15	30	32	7	6	4	0	14
NW Slopes & Plains	1	3	14	0	10	15	0	10	1	1	13
CW Slopes & Plains	2	3	21	8	3	18	3	7	0	0	17
SW Slopes	2	5	12	4	13	21	1	9	0	5	11
Riverina	0	5	13	6	7	14	0	13	1	3	11
Western Division	0	0	10	0	6	18	0	7	0	0	6
TOTAL NSW	61	112	280	118	256	412	89	173	22	62	229

*No data available for 1861
#No data available for 1861 and 1871

Source: NSW, *Statistical Register*

Britain in 1837 and was first imported in the early 1840s. In 1879, a Bristol manufacturer, John Lysaght, established a central selling agency for this material in Melbourne (Cannon 1973, p. 150). From this date onward, the same firm has been the chief means by which an Australian countryman kept a roof over his head and ensured that bush architecture was more utilitarian than aesthetic. Until the arrival of the railways, river boats were the main means of transporting galvanized iron and wire to the inland areas of southern and western NSW.

8. Farm Transport and Implements

Farm transport consisted of bullock waggons, horse waggons, buggies and sulkies and the harness for horses drawing these vehicles. Complex farm implements such as stripper harvesters and reapers and binders were not manufactured in NSW before the turn of the century. Most of them were imported from abroad or from the neighbouring colonies of Victoria and South Australia. Implements manufactured in NSW were of simple design. Unfortunately, none of these were recorded in the statistics until 1871, and saddle and harness makers were not recorded until 1881. Apparently there were few economies of scale in manufacturing waggons, harness or simple agricultural implements, as the firms carrying out this work were found in all regions of NSW and appear to have been more closely related to population than to any other factor. Such works were also dispersed within each region, the only notable centre of concentration was the Sydney metropolitan area (Table 12).

Both the blacksmith and the saddler were essential services in any country town. Providing the demand existed, it was a simple matter for these to expand into coach building, agricultural implement making, or the manufacture of harness.

9. Education and Culture

It is probable that a high proportion of the selectors' and working men's children received little or no education in NSW before 1880. Until 1848, all schools were operated by the church with some financial assistance from the state. In that year, national schools completely financed by the state

Table 13: Education in country areas in NSW

	1871	1881
Total number of schools in NSW	1445	2059
Government & government supported schools in NSW	884	1552
Private schools in NSW	561	507
Private schools in country areas	322	262
Number of one-teacher private schools in country areas	239	97
Average number of pupils per one-teacher private schools	17	21
Half-time government schools as a per cent of total government schools	7	5
Provisional government schools as a per cent of total government schools	14	12

	1861	1871	1881
	%	%	%
Children 6 to 14 years attending school	46	56	98

Source: NSW, *Statistical Register*

were introduced. The two systems operated together until 1880, when state aid for church schools was abolished and education was made compulsory for all children between 6 and 14 years of age (Table 13).

In the 1860s and 1870s, one-third of the colony's schools were privately operated without any assistance from the state with over half of these in country areas. In 1871, three-quarters of the private schools in country areas were one-teacher schools with an average of 17 pupils per school. These small private schools were either established by teachers and financed by charging fees, or by the local community providing a building and paying a teacher's salary. Most were simple slab or bark huts. Under the Public Schools Act of 1866, provision was made for three types of government school, namely fulltime Public Schools, where more than 25 pupils could attend, Provisional Schools with not less than 15 pupils, and Half-time Schools, with only 10 pupils. In 1871, 21 per cent of all government schools were in the last two categories. Government financial support was still given to denominational schools until 1880, but the numbers of these schools other than Roman Catholic schools declined in all country areas (Matheson 1974, p. 175).

Public Schools were limited to larger towns. Initially, the government only provided two-thirds of the cost of the building, the remaining cost had to be provided by the community. No equipment was provided by the government until 1870. It was not until 1875 that the full cost of constructing Public Schools was taken over by the government. Some of the new schools included the teacher's residence. The only government support given to Provisional and Half-time Schools was partial payment of the teacher's salary. Buildings and equipment had to be provided by the community. Until the early 1900s many of these schools were still housed in primitive slab huts with bark roofs.

With the introduction of compulsory education in the 1880s all of the teachers' salaries in both Public and Provisional Schools became the responsibility of the state. In the larger towns, new buildings were erected, and until these were available, some pupils had to be housed in marquees or tents. Until 1880, teachers were partly paid by pupils' fees which were sometimes paid in kind. Until that date, most

teachers were poorly paid (Ramsland 1983). Inspectors who were appointed after 1866 appear to have been both underpaid and overworked. Their duties involved reporting on the supply and demand for educational facilities, the examination of teachers and the regular inspections of schools, which involved travelling long distances on horseback in all kinds of weather. No payment appears to have been made for their accommodation or horse feed. In addition, they were expected to ensure that the locally elected school boards maintained the buildings (Francis 1980).

Only 46 per cent of the colony's children between the ages of 6 and 14 years attended school in 1861, and the proportion had only increased to 56 per cent in 1871 (Table 13). It is probable that the proportion of children not attending school was higher in country areas than in the city. In country areas children were often an essential part of the selector's work force. Those that did attend were often too worn out from farm work to do anything but sleep in school (Clark 1978, p. 287).

Additional attempts were made to extend a measure of culture to rural areas through the "Sydney Mechanics School of Arts" which was established in NSW in 1833 (McDonald 1968). By 1880, 70 Schools of Arts had been established and these were provided with books by the lending branch of the Public Library of New South Wales in the 1880s. In 1886, 77 boxes of books were provided to 42 institutes, travelling an average distance of 340 miles per box. Of the 2,600 books forwarded to country libraries in that year, 50 per cent were works dealing with Natural Philosophy, History, Geography and a further 25 per cent were Biography (Coghlan 1886, p. 462). Both the limited number of institutes receiving books, and the nature of most of the reading matter, suggests that the books were for the better educated members of the community, rather than for the selectors and their families. It is not surprising that many of the institutes abandoned their educational functions and became recreational halls in which entertainment in the form of billiard rooms, dancing and concerts were provided. It is probable that most entertainment was provided in individual's homes and by the numerous public houses throughout the country areas.

There is little doubt that the public's major reading matter in country areas consisted of newspapers, rather than books. The number of Sydney newspapers circulated did increase as the railway network expanded, but they were not widely read in country areas before 1920. However, the number of country newspapers published in NSW increased from 4 in 1859 to 143 in the 1880s. The available evidence suggests that the number of country newspapers sold was one to each three persons. The local papers normally adopted a definite editorial stand on current political questions. They carried summaries of major world and colonial events and discussed political matters, particularly those such as government road, rail or educational policies, which were likely to affect the local district. Full reports were made of any local event from political meetings to Sunday School Picnics (Harman 1975).

10. Conclusion

The period 1850 to 1890 in NSW was one in which the large grazier became established on large holdings with freehold tenure. Their produce and necessities, including credit, were largely supplied by large firms financed in Britain. The selectors who were established on small farms during the same period were essentially subsistence farmers. Their produce was processed, and farming equipment and other necessities supplied, by small family firms in country towns. Throughout the period colonial and local government agencies improved roads, postal and telegraph services and educational facilities. Transport was also improved by river boats on the Murray, Murrumbidgee and Darling Rivers. By the end of the period, the basis of the government railway network was being established and this, together with other technical developments, was to change the selector from a subsistence to a commercial farmer in the next two decades.

References

BACH, J.P.S. (1976), *A Maritime History of Australia*, Nelson, Melbourne.

BAILEY, J.D. (1966), *A Hundred Years of Pastoral Banking: A History of the Australian Mercantile Land & Finance Company, 1863-1963*, Clarendon, London.

BARNARD, A. (1958), *The Australian Wool Market, 1840-1900*, Melbourne University Press, Carlton.

BLAINEY, G. (1966), *The Tyranny of Distance*, Sun Books, Melbourne.

BRODRIBB, W.A. (1883), *Recollections of an Australian Squatter*, John Woods, Sydney.

BUTLIN, N.G. (1962), "The growth of rural capital" in A. Barnard (ed.) *The Simple Fleece*, Melbourne University Press, Carlton, pp 322-39.

BUXTON, G.L. (1967), *The Riverina, 1861-1891: An Australian Regional Study*, Melbourne University Press, Carlton.

CANNON, M. (1973), *Life in the Country*, v. 2 *Australia in the Victorian Age*, Nelson Australia, West Melbourne.

CLARK, C.M.H. (1978), *A History of Australia*, v. 1 *The Earth Abideth for Ever, 1851-1888*, Melbourne University Press, Carlton.

COGHLAN, T.A. (1886), (1890-91), *Wealth and Progress of New South Wales*, Government Printer, Sydney.

COWARD, D. (1969), "Free selecting on the Eumerella Shire", *Journal of the Royal Australian Historical Society* 55, 355-79.

DAVIDSON, B.R. (1981), *European Farming in Australia: An Economic History of Australian Farming*, Elsevier, Amsterdam.

DAVIDSON, B.R. (1982), "A benefit cost analysis of the New South Wales railway system", *Australian Economic History Review* 22, 127-50.

FRANCIS, R.I. (1980), "Schooling under the Council of Education 1867-1880: the inspector's lot was not a happy one", *Journal of the Royal Australian Historical Society* 66, 39-46.

GILMORE, M.J. (1963), *Old Days, Old Ways*, Angus & Robertson, Sydney.

HARMAN, G. (1975), "The provincial press and politics in the New England region of New South Wales, 1856-1930", *Journal of the Royal Australian Historical Society* 61, 217-35.

HENNING, R. (1969), *The Letters of Rachel Henning*, edited by David Adams, Penguin, Harmondsworth, Middlesex.

JENKINS, J. (1985), *The Diary of a Welsh Swagman, 1869-1894*, edited by W. Evans, Macmillan of Australia, South Melbourne.

JOYCE, A. (1942), *A Homestead History*, Melbourne University Press, Carlton.

KARR, C. (1974), "Mythology vs. reality: the success of free selection in New South Wales", *Journal of the Royal Australian Historical Society* 60, 199-206.

LAWSON, H. (1948), *Prose Works of Henry Lawson*, Angus & Robertson, Sydney.

McDONALD, D.I. (1968), "The diffusion of scientific and other useful knowledge", *Journal of the Royal Australian Historical Society* 54, 176-93.

MATHESON, I.T. (1974), "A question of conscience: the decline in denominational education in the south-east of New South Wales 1863-1885", *Journal of the Royal Australian Historical Society* 60, 170-85.

MOLNAR, I. (1962), *A Manual of Australian Agriculture*, Heinemann, London.

MUDIE, I. (1972), *Riverboats*, Rigby, Adelaide.

NEW SOUTH WALES (1861a), "An Act for regulating the alienation of Crown Lands" [25 Vic 1], *New South Wales, Public General Statutes* (1852-62), 3375-84.

NEW SOUTH WALES (1861b), "An Act for regulating the occupation of Crown Land" [25 Vic 2], *New South Wales, Public General Statutes* (1852-62), 3385-96.

NEW SOUTH WALES (1875), "An Act to declare and amend the Laws relating to Crown Lands" [39 Vic 13], *New South Wales, Public General Statutes*, 21, 28-39, 95.

NEW SOUTH WALES (1883), "Enquiry into the state of Public Lands and the operation of the Land Laws" Report, New South Wales, Legislative Assembly *V. & P.* 2, 186.

NEW SOUTH WALES (1884), "Crown Lands Act of 1884", [48 Vic 18], *New South Wales, Public General Statutes*, 59-101.

NEW SOUTH WALES Railway Commission (1861, 1871, 1881), *Annual Reports*, Sydney.

PARSONS, T.G. (1971), "Technological change in the Melbourne flour-milling and brewing industries 1870-1890", *Australian Economic History Review* 11, 133-46.

PHILLIPS, P.J. (1972), *River Boat Days: on the Murray, Darling, Murrumbidgee*, Lansdowne, Melbourne.

PHILLIPS, P.J. (1980), *Redgum and Paddlewheels: Australia's Inland River Trade*, Greenhouse, Collingwood.

QUEENSLAND (1897), "Evidence to Royal Commission on land settlement", Queensland, Legislative Assembly, *V. & P.*, 3, 938, 945-9.

RAMSLAND, J. (1983) "Living and working conditions for teachers in a New South Wales country district 1850-1900", *Journal of the Royal Australian Historical Society* 69, 199-210.

ROBERTSON, J.R. (1964), "Equipping a pastoral property: Warrah, 1861-1875", *Business Archives and History* 4, 23-43.

SANDS DIRECTORY OF NEW SOUTH WALES (1871, 1881), Sands & Kenny, Sydney.

THE SHIPPING GAZETTE & SYDNEY GENERAL TRADE LIST (1846-53), Sydney.

THOMAS, R.J.S. (1967), "Some aspects of the history of roads of New South Wales", *Journal of the Royal Australian Historical Society* 53, 52-68.

WATERSON, D.B. (1968), *Squatter, Selector, and Storekeeper: a History of the Darling Downs, 1859-93*, Sydney University Press, Sydney.

VAMPLEW, W (1987), *Australians: Historical Statistics*, Fairfax, Sydney.

Appendix 1: Calculation of Regional Pig Feed Requirements

Assumptions
Each sow has 2 litters of 6 piglets each per annum.
Piglets weaned at 6 weeks of age at 35 lbs. live weight.
Weaners reared to 120 lb. porkers.
Grazing replaces 10% of grain requirements during lactation and rearing.

	Lbs. Grain Required
Dry and Pregnant Sows	
6 lbs. grain per day for 126 days (plus grazing)	756
Lactating Sows	
12 lbs. grain per day for 56 days	
(=672 lbs. grain - 10% replaced by grazing)	605
Growing Porkers	
3.5 lbs. grain per 1 lb. of live-weight gain	
(=85 lbs. liveweight gain x 3.5 = 300 lbs.	
(300 lbs x 6 pigs) - (10% replaced by grazing)	**1,620**
TOTAL GRAIN PER LITTER	2,981
With 2 litters per year, (2981 lbs. grain x 2)	5,962
When the census is taken, only 1 sow and 6 porkers would be on the farm. Thus the total feed required per pig present at the time of census = 5962/7=852	852
Grain required per region for pigs = number of pigs in region at census x 852 lbs.	

Source: Molnar (1962, pp. 562-8).