PASTORAL RESOURCES AND DAIRY INDUSTRY.

NOTWITHSTANDING the fact that the soil, climate, and indigenous herbage of Australasia are admirably adapted to the sustenance of animal life, no attempt was made to test the capabilities of the land as a feeding-ground for flocks and herds on a large scale until the example of Captain Macarthur had demonstrated beyond doubt that Nature favoured the production in Australasia of a quality of wool unsurpassed by that of any part of the world. Then the settlers began to understand and utilise the natural resources of the country, and as the indomitable spirit of exploration gradually opened up the apparently boundless plains of the interior, pastoralists extended their domain, and sheep and cattle in increasing numbers spread over the face of Eastern Australia. The expansion of the pastoral industry is gradually converting the central and western portions of the continent into holdings devoted to the production of the greatest element of the wealth of Australasia.

The beginnings of pastoral enterprise in Australia were very humble. The whole stock of the community which accompanied Captain Phillip comprised only 1 bull, 4 cows, 1 calf, 1 stallion, 3 mares, 3 foals, 29 sheep, 12 pigs, and a few goats; and although the whole of the present flocks and herds of Australasia have not sprung from these animals alone, it will be seen on how small a scale the business of stock-raising was first attempted. No systematic record of the arrival of stock seems to have been kept in the early days of settlement, but it appears that in the period between Governor Phillip's landing and the year 1800 there were some slight importations, chiefly of sheep from India. In 1800 the stock in Australasia comprised 6,124 sheep, 1,044 cattle, 203 horses, and a small number of swine; while in 1894 the numbers had increased to 120,866,718 sheep, 13,359,240 cattle, 1,891,197 horses, and 1,191,605 swine.

The following figures give the number of stock in Australasia at various epochs ending with 1851 :—

Year.	Sheep.	Cattle.	Horses.	Swine.
1792.....	105	23	11	43
1800.....	6,124	1,044	203	4,017
1810.....	33,818	11,276	1,114	8,992
1821.....	290,158	102,939	4,564	33,906
1842.....	6,312,004	1,014,833	70,615	66,086
1851.....	17,326,021	1,921,963	166,421	121,035

The progress since 1861 is illustrated in the following table :—

Year.	Sheep.	Cattle.	Horses.	Swine.
1861.....	23,741,706	4,039,839	459,970	362,417
1871.....	49,773,584	4,713,820	782,558	737,477
1881.....	78,063,426	8,709,628	1,249,765	903,271
1891.....	124,547,937	11,861,330	1,785,835	1,154,553
1894.....	120,866,718	13,359,240	1,891,197	1,191,605

The numbers of each class of stock per inhabitant at the same periods were as follow :—

Year.	Sheep.	Cattle.	Horses.	Swine.
1861.....	18·8	3·2	0·4	0·3
1871.....	25·3	2·4	0·4	0·4
1881.....	27·7	3·1	0·4	0·3
1891.....	31·8	3·0	0·5	0·3
1894.....	29·1	3·2	0·5	0·3

It will be seen that in 1861 there were 18·8 sheep for every person in Australasia, while in 1894 the number had grown to 29·1; on the other hand, cattle gave the same average per head in both years, although during the intervening period the number was smaller than 3·2. The breeding of horses and swine has about kept pace with the population.

Sheep.

The suitability for pastoral pursuits of the land discovered in the early days of New South Wales was undoubtedly the means of inducing the infant colony to take its first step on the path of commercial progress and it is not a little surprising at this distance of time to note how steadily some of the settlers, in the face of the almost insurmountable difficulty of transport which existed a century ago, availed themselves of the opportunities at their disposal. The importation of valuable specimens of sheep from England or the Cape of Good Hope prior to the introduction of steam was at all times attended with great risk, and it frequently happened that many of these costly animals died during the tedious voyage. These enterprises were, however, on the whole successful, and thus the flocks and herds of the colonists surely, if at first slowly, increased and multiplied.

By the year 1795 Captain Macarthur, one of the first promoters of sheep-breeding in New South Wales, had accumulated a flock of 1,000, which were held in great estimation, and gradually increased in value until, as recorded by an entry in his journal ten years later, the market price of a fat wether had risen to £5. Not satisfied with the natural

increase of his flocks, Macarthur sought to improve the quality of his fleeces, by which means he could see opening before him the promise of great wealth and the prospect of establishing important commercial relations with Great Britain. With these ends in view, he procured from the Cape of Good Hope, at great cost and trouble, a number of superior rams and ewes. A happy circumstance favoured his enterprise; for he had the good fortune to secure possession of three rams and five ewes of very fine Spanish breed, which had been presented by the King of Spain to the Dutch Government. These animals, out of a total of twenty-nine purchased at the Cape, arrived in Sydney in 1797, and were disposed of to various breeders. With the exception of Macarthur, however, those who had secured sheep of the superior breed made no attempt to follow up this advantage, being probably amply satisfied with the larger gains from the sale of an increased number of animals. Macarthur, on the other hand, thought little of present profits, and still less of breeding entirely for human consumption. He attentively watched the results of crossing his imported rams with the old stock, and by systematically selecting the finer ewes which were the offspring for further mingling with the sires, he gradually improved the strain, and in a few years obtained fleeces of very fine texture which met with the ready appreciation of English manufacturers. It has been asserted that Macarthur was not the first to introduce merino sheep into Australia; but whether this be so or not, there is no doubt that to him is due the credit of having been the first to prove that the production of fine wool could be made a profitable industry in New South Wales.

Prior to the present century the production of the finest wool had been confined chiefly to Spain, and woollen manufactures were necessarily carried on in England upon a somewhat limited scale, which was not likely to improve in face of certain restrictions which the operatives endeavoured to place upon their employers. These men, in support of their contention that the woollen trade could not be expanded on account of the limited supply of raw material, argued that fine wool was obtainable only in Spain; and it was at this favourable period that Macarthur arrived in England with specimens of the wool obtained from his finest sheep, conclusively proving the capabilities of Australia as a wool-producing country. In this way he opened up with English manufacturers a small trade which, as Australasian wool rose in public estimation, gradually increased until it reached its present enormous dimensions. During his visit to England, Macarthur purchased an additional stock of ten rams and ewes of the noted Spanish breed, nearly equal in quality to those which in 1797 he had procured from the Cape of Good Hope. That these animals were the finest obtainable in Europe may be gathered from the fact they also had formed portion of a present from the King of Spain to George III. Thus did Macarthur, after his return to New South Wales, patiently continue for many years the process of selection, with such success that in 1858, when his flock was finally dispersed, it was

estimated that his superior ewes numbered fully 1,000. Victoria secured a considerable portion of his flock, and the process of breeding proceeded simultaneously in that and other adjacent colonies.

Although the increase in the numbers of the finer sheep was satisfactory, the importation of superior stock was not discontinued, and the stock of the colonies was augmented in 1823 and 1825 by the further introduction of Spanish sheep. Sheep-breeding was about this period commenced in the Mudgee district of New South Wales, and the climate of that region has produced a more favourable result upon the quality of the fleeces than that of any other part of the colony, and it was thence that the finest merinos were for a long time procured. As was to be expected, the climate has in some respects changed the character of the Spanish fleece. The wool has become softer and more elastic, and while it has diminished in density it has increased in length, so that the weight of the fleece has only slightly altered. The quality of the wool has thus on the whole improved under the beneficial influence of the climate, and if no further enhancement of its intrinsic value can be reasonably hoped for, there is at least every reason to believe that Australasian wool will maintain its present high standard of excellence.

The following table shows the number of sheep in each colony at the close of 1861 and 1894; also the annual increase per cent. in comparison with that of the population :—

Colony.	Number of Sheep.		Annual Increase from 1861 to 1894.	
	1861.	1894.	Sheep per cent.	Population per cent.
New South Wales	5,615,054	56,977,270	7·27	3·87
Victoria	6,239,258	13,180,943	2·29	2·38
Queensland	4,093,381	19,587,691	4·86	8·07
South Australia	3,038,356	7,325,003	2·70	3·17
Western Australia	279,576	2,132,311	6·35	5·14
Tasmania	1,714,498	1,727,200	0·02	1·70
New Zealand	2,761,583	19,936,300	6·17	6·04
Australasia	23,741,706	120,866,718	5·06	3·67

Tasmania is the only colony of the group in which the business of sheep-breeding has not advanced since 1861, though, strange to say, it is singularly well adapted for sheep raising, and its stud flocks are well known and annually drawn upon to improve the breed of sheep in the other colonies. In all the other provinces there has been a material increase; but in Queensland, Victoria, and South Australia the proportion of sheep has declined as compared with the population. There has been a very substantial increase in the number of sheep depastured

in Queensland during the period covered by the table, but the population has progressed at a rate even more rapid. In South Australia the area adapted to sheep is limited, and no great expansion in sheep-farming can be looked for. As regards Victoria, the important strides made by that province in agriculture and kindred pursuits afford sufficient explanation of the slow rate at which its flocks are increasing. The following statement shows the proportion of sheep in each colony to the total flocks of Australasia. In 1861, out of every 100 sheep, New South Wales depastured 23·7, while in 1894 its proportion had increased to 47·1, or little short of one-half the total flocks. In the latter year New Zealand came second, with 16·5 per cent. With the exception of the two colonies named, and of Western Australia, the proportion of sheep depastured in each colony to the total number of sheep in Australasia was less in 1894 than it was in 1861 :—

Colony.	1861.	1894.
	per cent.	per cent.
New South Wales	23·7	47·1
Victoria	26·3	10·9
Queensland	17·2	16·2
South Australia	12·8	6·1
Western Australia	1·2	1·8
Tasmania	7·2	1·4
New Zealand	11·6	16·5
Australasia	100·0	100·0

The value of the sheep depastured in Australasia, on the basis of the average prices ruling in 1895, was £38,747,000, thus distributed among the various provinces :—

	£
New South Wales	17,805,000
Victoria	4,341,000
Queensland	5,142,000
South Australia	2,014,000
Western Australia	693,000
Tasmania	777,000
New Zealand	7,975,000
Australasia	£38,747,000

Cattle.

Except in Queensland, cattle-breeding in the Australasian colonies is secondary to that of sheep. In New South Wales the industry, relatively to population, does not occupy so important a position as it formerly did, the increase having only been 8·5 per cent. since 1861, or

at the rate of 0·25 per cent. per annum, while during the same period the population has increased at the rate of 3·87 annually. The lowest point was reached in 1885, when the herds only numbered 1,317,315, the result partly of continuous bad seasons, but principally of the more profitable character of sheep-farming, which had induced graziers on many runs to substitute sheep for cattle. Since that period the improvement has been gradual, and, though small, would seem to indicate a disposition on the part of pastoralists in some parts of the colony to devote more attention to cattle-breeding. The progress of Victoria in this direction has been steady; but although the total number of cattle was nearly three times as great in 1894 as it was 33 years before, the position occupied by the colony in relation to the other provinces remained much the same as in 1861. Queensland has largely increased its herds, and now possesses 52·5 per cent. of the total cattle of the whole group. New Zealand and Western Australia—especially the former—show decided improvement, and the breeding of this class of stock seems to be greatly in favour in those colonies.

The following table shows the number of cattle in 1861 and 1894, with the yearly increase per cent. during the intervening period, as well as the rate of growth of the population :—

Colony.	Number of Cattle.		Increase per cent. per annum, 1861–1894.	
	1861.	1894.	Cattle.	Population.
New South Wales	2,271,923	2,465,411	0·25	3·87
Victoria	628,092	1,833,900	3·30	2·38
Queensland	560,196	7,012,997	7·96	8·07
South Australia	265,434	675,284	2·87	3·17
Western Australia	33,795	187,214	5·32	5·14
Tasmania	87,114	177,038	2·17	1·70
New Zealand	193,285	1,007,396	5·13	6·04
Australasia	4,039,839	13,359,240	3·69	3·67

The value of the cattle in Australasia, on the basis of the average prices ruling in 1895, was £57,002,000, thus divided amongst the various provinces :—

	£
New South Wales	11,834,000
Victoria	12,241,000
Queensland	19,461,000
South Australia	2,887,000
Western Australia	1,077,000
Tasmania	1,443,000
New Zealand	8,059,000
Australasia	£57,002,000

Horses.

Australasia is eminently fitted for the breeding of most descriptions of horses, and attention has long been directed to this industry. At an early period the stock of colonial-bred horses was enriched by the importation of some excellent thoroughbred Arabians from India, and to this cause the high name which was acquired by the horses of Australia was largely due. The abundance of good pasture everywhere obtainable also contributed to this result. The native kangaroo-grass, especially when in seed, is full of saccharine matter, and young stock thrive excellently upon it. This abundance of natural provender allowed of a large increase in the stock of the settlers, which would have been of great advantage had it not been that the general cheapness of horses led to a neglect of the canons of breeding. In consequence of the discovery of gold, horses became very high priced. Under ordinary conditions this circumstance would have been favourable to breeding, and such was actually the case in Victoria. In New South Wales, however, it was far otherwise. The best of the stock of that colony, including a large proportion of the most valuable breeding mares, was taken by Victoria, with the result that for twenty years after the gold rush the horses of New South Wales greatly deteriorated. One class of stock only escaped—the thoroughbred racer was probably improved both by the importation of fresh stock from England, and by the judicious selection of mares.

The colonies are specially adapted to the breeding of saddle and light-harness horses, and it is doubtful whether these particular breeds of Australasian horses are anywhere surpassed. The bush horse is hardy and swift, and capable of making very long and rapid journeys when fed only on the ordinary herbage of the country; and in times of drought, when the grass and water have become scanty, these animals often perform astonishing feats of endurance. Generally speaking, the breed is improving, owing to the introduction of superior stud horses and the breeding from good mares. Where there has been a deterioration in the stock, it has been due to breeding from weedy mares for racing purposes and to the effects of drought.

Although the demand in India is fair, and Australia is a natural market from which supplies may be derived, the speculation of sending horses there is one open to many risks, as, apart from the dangers of the voyage, there is always an uncertainty as to the stock being accepted. Owing, therefore, to the limited foreign demand, it has not been found advantageous to breed horses for any but local requirements.

The following table shows the number of horses in each colony at the end of 1861 and 1894, also the proportion to the total at each period. In 1861 New South Wales possessed 50·7 per cent. of all the horses in Australasia, Victoria being second, with 18·3 per cent. In 1894 New South Wales still held the leading position as regards numbers, but its proportion to the whole had fallen to 27·4 per cent. Queensland and

New Zealand exhibit relatively the most progress, having increased their respective proportions from 6·3 and 6·2 per cent. in 1861 to 23·5 and 11·2 per cent. in 1894 :—

Colony.	Number of Horses.		Percentage of each colony to total of Australasia.	
	1861.	1894.	1861.	1894.
New South Wales	233,220	518,181	50·7	27·4
Victoria	84,057	431,547	18·3	22·8
Queensland	28,983	444,109	6·3	23·5
South Australia	52,597	201,484	11·4	10·7
Western Australia	10,720	50,001	2·3	2·6
Tasmania	22,118	34,835	4·8	1·8
New Zealand	28,275	211,040	6·2	11·2
Australasia	459,970	1,891,197	100·0	100·0

The value of horses in the various colonies is estimated as follows :—

	£
New South Wales	3,938,000
Victoria	3,539,000
Queensland	2,842,000
South Australia	1,491,000
Western Australia	400,000
Tasmania	227,000
New Zealand	1,709,000
Australasia	£14,146,000

The Flocks and Herds of the World.

The following table gives the flocks and herds of each of the great divisions of the globe. The returns are the latest available, and, with the exception of those for Australasia, are based on figures given in the report of the Statistician to the American Department of Agriculture :—

Continent.	Sheep.	Cattle.	Horses.	Swine.
Europe	187,144,000	104,430,000	36,483,000	49,164,000
Asia	39,922,000	60,847,000	4,279,000	489,000
Africa	35,589,000	6,095,000	1,239,000	547,000
America	147,535,000	115,497,000	23,203,000	50,783,000
Australasia*	120,884,000	13,500,000	1,897,000	1,227,000
Total	531,074,000	300,369,000	67,101,000	102,210,000

* Including Pacific Islands.

Stock-carrying Capacity of Australasia.

None of the colonies is stocked to its full capacity, while in the large territory of Western Australia and in the Northern territory of South Australia the process has only begun. A clear idea of the comparative extent to which each colony is stocked cannot be given unless the different kinds are reduced to a common value. Assuming, therefore, that one head of large stock is equivalent to ten sheep, and stating cattle and horses in terms of sheep, it will be found that the number of acres per sheep for each colony is as follows :—

Colony.	No. of acres per sheep.
New South Wales	2·3
Victoria	1·6
Queensland	4·5
South Australia	35·9
Western Australia	138·7
Tasmania	4·4
New Zealand	2·1
Australasia	7·2

The most closely-stocked colony is Victoria, with 1·6 acres per sheep, but this is by no means the limit to the carrying-capacity of that province ; on the contrary, there is still a considerable tract to be brought under the sway of the pastoralist. Neither New Zealand nor New South Wales, with 2·1 and 2·3 acres per sheep respectively, can be said to have reached its full carrying-capacity. If the present average of New South Wales be taken as the possible limit to which Australasia may be stocked, then there is room in these colonies for 580 million sheep or 58 million cattle more than are now depastured. That Australasia could carry 1 sheep to 2·3 acres, however, is an improbable supposition ; in almost every colony the best land is under occupation, and the demands of the farmer must diminish the area at present at the disposal of the grazier. This will more especially prove true of Victoria, New Zealand, and Tasmania. On the other hand, by resisting the temptation to overstock inferior country, and by increasing the natural carrying-capacity by water conservation and irrigation and by the artificial cultivation of grasses, the colonies in which agriculture has made most progress will be able to carry stock in even larger numbers than they have hitherto attempted. Taking all circumstances into consideration, it may be fairly estimated that under the present system the colonies are capable of maintaining, in ordinary seasons, stock equivalent to 390,000,000 sheep ; that is, about 116,000,000 sheep or their equivalent in cattle more than are now depastured.

The number of stock in Australasia, expressed in terms of sheep, the number of acres per sheep, and the number of sheep per head of population, at various dates since 1861, were as given below :—

Year.	Sheep.	Cattle, in terms of Sheep.	Horses, in terms of Sheep.	Total.	Acres per Sheep.	Sheep per head of Population.
1861	23,741,706	40,398,390	4,599,700	68,739,796	28·7	54·3
1871	49,773,584	47,138,200	7,825,580	104,737,364	18·8	53·2
1881	78,063,426	87,096,280	12,497,650	177,657,356	11·1	62·9
1891	124,547,937	118,613,300	17,858,350	261,019,587	7·5	67·4
1894	120,866,718	133,592,400	18,911,970	273,371,088	7·2	65·8

Value of Pastoral Property and Production.

The total value of pastoral property in Australasia—that is, of improvements, plant, and stock—was estimated in 1896 at £240,116,000, and of this large sum £78,433,000, or nearly one-third, belonged to New South Wales. In that amount the value of stock alone (excluding swine) comes to about £109,895,000. No account is taken of the value of land devoted to pastoral purposes, for though much purchased land is used for depasturing stock, the larger area comprises lands leased from the State, so that a statement which omitted to take into account the value of the State lands would be misleading. The annual return from pastoral pursuits in 1894-5 was £34,304,000, the share of each colony in the total production being as follows :—

New South Wales	£13,390,000
Victoria	4,892,000
Queensland	5,597,000
South Australia	1,897,000
Western Australia	461,000
Tasmania	590,000
New Zealand	7,477,000
Australasia	£34,304,000

The products of dairy cattle and swine are not included in the foregoing statement, the figures being given in another place. It should be understood that the values quoted are those at the place of production. The value of the return from each class of stock may be approximately reckoned as follows :—

Sheep	£25,168,000
Cattle	6,621,000
Horses	2,515,000
Total	£34,304,000

As might be supposed, the greater part of the value of stock returns is due to wool. Thus, out of the £34,304,000 quoted above, £19,795,000 is the value of wool, viz.:—£19,615,000 for wool exported, and £180,000 for wool used locally. The wool export of the Australasian colonies during 1894 was 743,404,750 lb., weighed in the grease, and the quantity used locally 6,489,873 lb., making the total clip 749,894,623 lb. The value of the exports, according to the Customs returns, was £20,292,000—that is to say, £677,000 more than the figures shown above. The excess represents the cost of freight, handling, and brokerage between the sheep-walks and the port of shipment.

The quantity and value of the wool clip in the grease is given for each colony in the subjoined table for the years 1881 and 1894. The value of the clip of the latter year in Victoria, South Australia, Western Australia, and Tasmania does not compare favourably with that of 1881; but all the colonies, with the exception of South Australia, show an improvement in the quantity of the clip, this increase being relatively greatest in Queensland, New Zealand, and New South Wales. New South Wales maintains its high position as a wool producer; and it cannot be denied that in New Zealand sheep-breeding is a flourishing concern, for though the number of sheep in 1894 was not largely in excess of that in 1885, this was mainly due to the heavy demand upon the resources of the province for the supply of stock to meet the requirements of the London market in frozen mutton. In comparing the weight of the clip with the number of sheep shorn in each colony, it will be seen that the New Zealand clip is proportionately the heaviest, and that the Western Australian and Queensland clips are the lightest.

Colony.	Weight of clip in grease.		Values.	
	1881.	1894.	1881.	1894.
	lb	lb	£	£
New South Wales	157,881,700	361,639,245	7,187,700	9,038,578
Victoria	58,832,500	68,274,895	2,562,800	1,881,243
Queensland	32,532,500	93,415,023	1,331,900	2,655,900
South Australia	46,328,200	46,130,029	1,573,300	1,098,126
Western Australia	4,107,000	9,820,481	256,700	208,981
Tasmania	8,269,700	9,313,335	498,400	253,973
New Zealand	70,787,000	161,301,615	2,910,600	4,657,752
Australasia	378,738,600	749,894,623	16,321,400	19,794,553

According to returns prepared in London, the number of bales of Australasian wool imported into Europe and America during the year 1894 was 1,896,000, which were valued at £11 10s. per bale, giving a total of £21,804,000. The average price per bale in Sydney during the year was £10. In comparing these prices, it must be remembered that

not only have freight and charges to be added to the Australian value, but some allowance must be made for the difference in the quality and condition of the wool dealt with in the Australian markets and in London. Large quantities of the inferior portions of the clip intended for sale in the London market are scoured prior to shipment, and the London price is therefore raised to an average considerably higher than the Sydney or Melbourne price with freight and charges added. Similar returns for the year 1895 show the imports into Europe and America as 2,001,000 bales, valued at £22,011,000—a decrease of 10s. per bale on the 1894 prices, notwithstanding the rise in the price of wool in the latter part of the year.

The average price per lb. obtained for wool in grease, at the London Wool Sales, for the five series during each year from 1885, was as follows :—

Year.	New South Wales. (Good Merino).	Victoria. (Good Merino.)	New Zealand. (Good Cross-bred.)
	d.	d.	d.
1885	8¼	10⅜	8¾
1886	8¼	10¼	9¼
1887	9⅜	10⅞	9¾
1888	8¾	10½	9¼
1889	10	11½	10
1890	10	11¾	10¼
1891	8¾	11¾	10¼
1892	7¾	11	9½
1893	8	10	10
1894	7	9	9½
1895	6½	8½	9

It will be noticed that Victorian wool averages a little less than 2d. per lb. higher than New South Wales wool. The figures must be taken with qualification. Much of the New South Wales wool, the product of the Riverina districts, is exported *via* Melbourne and sold as Port Phillip wool, and brings a price considerably in excess of the average given in the table for the colony of which it is the produce.

The Frozen-Meat Trade.

In view of the large increase of stock which a succession of favourable seasons has brought to the flock-masters of Australasia, the question of the disposal of the surplus cast has become a matter of very serious consequence. In New South Wales especially, and in the Riverina district in particular, it was found necessary to have recourse to the old method of boiling down, which a fortunate rise in the price

of tallow made it possible to carry on with a margin of profit; but with such prices as have ruled for tallow during the past few years it cannot be said that boiling-down offers any inducement to the pastoralist, although in 1894 the production of tallow in the colony reached the large quantity of 1,069,100 cwt. In New Zealand a much better solution of the question of disposal of the surplus cast was found, and a trade in frozen mutton with the United Kingdom has been established on a thoroughly payable basis—an example which some of the other colonies are endeavouring to follow, although considerably handicapped by the want of cross-bred sheep and the prejudice of the English consumer against merino mutton.

The first successful attempt at shipping frozen mutton to England was made in New Zealand in 1882, and since then the trade has attained great proportions, to the immediate benefit of the Colonial producer as well as the English consumer. The trade initiated by the New Zealand Land Company has been extended by the formation of numerous joint stock companies, which now own twenty-one meat-freezing works in the two islands, having an aggregate capacity for freezing about 4,000,000 sheep per year. The sheep are generally killed up country, and transported by rail to the freezing works. Four fleets of steamers are engaged in the trade, and the freight rates charged enable the companies to realise satisfactory profits. The growth of the frozen and preserved meat industries of New Zealand since 1881 is shown in the following table. The shipments are almost exclusively made to the United Kingdom :—

Year.	Frozen or Chilled Meat.						Preserved Meat.	
	Beef.	Mutton.	Lamb.	Mutton and Lamb.	Total Weight.	Total Value.	Weight.	Value.
	cwt.	carcases.	carcases.	cwt.	cwt.	£	lb.	£
1881	....	.....	.....	.....	.....	.....	1,074,040	22,391
1882	....	.....	.....	.....	15,244	19,339	2,913,904	54,397
1883	937	.....	.....	86,995	87,932	118,261	3,868,480	72,778
1884	1,644	.....	.....	252,422	254,066	345,081	3,103,744	59,224
1885	9,170	.....	.....	286,961	296,131	373,326	4,047,904	81,401
1886	9,391	.....	.....	336,405	345,796	426,556	2,592,464	47,426
1887	6,630	656,823	110,816	421,405	428,035	454,942	4,706,016	79,246
1888	44,613	885,843	94,081	507,306	551,919	629,110	4,912,544	86,128
1889	63,298	990,486	118,794	583,524	656,822	783,374	5,325,152	106,772
1890	98,234	1,330,176	279,741	798,625	896,859	1,084,992	6,702,752	136,182
1891	103,007	1,447,583	338,344	889,012	992,019	1,185,122	5,447,904	111,133
1892	55,020	1,316,758	290,996	806,304	861,324	1,021,838	3,939,712	69,420
1893	11,059	1,355,247	475,365	883,455	899,514	1,078,427	2,656,416	46,601
1894	912	1,633,213	459,948	1,001,342	1,002,254	1,162,770	3,368,736	57,325

Amongst the continental colonies the frozen-meat trade has reached its largest dimensions in Queensland, although of course the exports consist chiefly of beef, the trade in mutton forming but one-eleventh of the whole. So far as they can be given, the figures showing the growth of the Queensland frozen-meat trade, as well as the exports of preserved meat, will be found below :—

Year.	Frozen or Chilled Meat.				Preserved Meat.	
	Beef.	Mutton.	Total Weight.	Total Value.	Weight.	Value.
	cwt.	cwt.	cwt.	£	lb.	£
1881	.....	.....	.....	.....	2,276,409	39,956
1882	.....	.....	.....	.....	5,689,189	119,343
1883	.....	.....	1,951	2,151	6,729,721	151,001
1884	.....	.....	8,082	11,240	2,298,696	57,101
1885	.....	.....	3,926	5,003	8,306,432	171,432
1886	.....	.....	9,289	12,103	130,658	1,586
1887	.....	.....	.....	.....	5,272,170	99,653
1888	.....	.....	.....	.....	3,964,419	77,887
1889	8,745	15,542	24,287	62,240	853,621	16,743
1890	30,253	23,799	54,052	75,908	2,769,881	44,040
1891	52,609	53,698	106,307	161,345	3,333,317	59,032
1892	123,196	51,595	174,791	276,113	6,035,035	96,828
1893	204,349	21,898	226,247	377,039	8,001,788	143,146
1894	301,837	32,187	334,024	498,652	15,544,826	250,646

Next to New Zealand, the largest exporter of frozen mutton is New South Wales. During the last few years greater efforts have been made in this colony to expand the trade, and the exports in 1894 and 1895 show a considerable increase on previous years. New South Wales, however, labours under the disadvantage of possessing no cross-bred sheep for export, and the food qualities of the merino are scarcely appreciated in the English market, where New Zealand mutton is favourably known, and brings 1d. per lb. more than Australian. Large tracts of the mother colony, however, are suited to the breeding of large-carcase sheep, and now that the pastoralists are becoming alive to the importance of securing a share of the meat trade of the United Kingdom, attention is being directed to the introduction of British rams into the colony, and it is not unreason-

able to expect a large increase in the cross-bred flocks at no distant date. From the following table, showing the growth of the frozen-meat trade of New South Wales, it will be seen that the exports of beef showed a large increase in 1895; the exports of preserved meat, which are also given in the table, consist almost wholly of tinned mutton :—

Year.	Frozen or Chilled Meat.				Preserved Meat.	
	Beef.	Mutton.	Total Weight.	Total Value.	Weight.	Value.
	quarters.	carcases.	cwt.	£	lb.	£
1881	.....	.....	9,980	8,554	.....	*176,721
1882	.....	.....	13,782	22,910	.....	*143,601
1883	.....	.....	34,911	43,100	.....	*221,912
1884	.....	.....	13,309	12,321	.....	*161,477
1885	.....	.....	6,271	6,064	.....	*166,561
1886	.....	.....	4,852	4,671	.....	*77,756
1887	.....	.....	21,831	19,310	9,761,154	150,714
1888	.....	.....	52,262	44,537	4,528,269	69,481
1889	.....	.....	37,868	33,426	2,877,303	52,321
1890	.....	.....	72,304	71,534	4,655,523	74,329
1891	.....	.....	105,013	101,828	6,581,713	87,632
1892	.....	.....	223,074	169,425	8,620,747	105,922
1893	4,773	364,958	220,584	141,640	13,092,942	164,592
1894	9,538	533,995	339,404	193,760	16,382,597	206,054
1895	88,719	1,021,006	607,818	380,107	22,384,285	302,828

* Including Extract of Meat.

The total capacity of the boiling-down works in New South Wales is stated at 298,500 head of cattle or 7,410,000 sheep; of chilling works, 146,100 head of cattle or 2,730,000 sheep; of freezing works, 186,000 head of cattle or 3,600,000 sheep; and of meat-preserving works, 135,300 head of cattle or 1,590,000 sheep.

The only other colony in which the meat-export trade has reached dimensions of any importance is Victoria, although its exports fall far

below those of the three colonies already dealt with. A statement of the Victorian trade from 1881 to 1894 will be found below :—

Year.	Frozen or Chilled Meat.				Preserved Meat.	
	Beef.	Mutton.	Total Weight.	Total Value.	Weight.	Value.
	cwt.	cwt.	cwt.	£	lb.	£
1881	.....	.....	.....	.....	4,026,072	102,306
1882	.....	.....	18,522	18,969	1,274,066	30,705
1883	.....	.....	9,944	12,220	3,225,657	76,015
1884	.....	.....	41,373	53,196	2,667,866	63,707
1885	.....	.....	39,107	61,617	1,486,849	38,244
1886	.....	.....	39,384	70,319	616,652	17,868
1887	.....	.....	15,245	27,270	629,054	14,291
1888	.....	.....	.....	.....	714,856	16,115
1889	.....	.....	.....	.....	805,580	16,156
1890	.....	.....	.....	.....	893,114	20,197
1891	.....	.....	.....	.....	1,052,887	19,230
1892	.....	.....	.....	.....	1,982,151	51,624
1893	.....	.....	1,307	1,838	777,953	14,349
1894	53	27,182	27,235	25,370	2,267,791	40,082

The seriousness of the question of the disposal of the surplus cast may be grasped when it is understood that, apart from New Zealand, there is a surplus of from 60,000 to 100,000 head of cattle and 4,500,000 sheep which could be exported in any ordinary year without trenching upon local requirements, while if the trade could be expanded without touching ruinous prices the surplus might be made much larger. Looking at the question from all points of view, it cannot be said that the frozen-meat trade is without strong elements of hope for the future. The great difficulty in the way of an expansion of the trade is the serious fall in prices, but there is no reason why better results should not be obtained if shippers are careful not to export anything of unsatisfactory quality, and combine to secure a regular and wide distribution of Australian mutton amongst consumers. Signs are not wanting that the prejudice which existed against frozen mutton in the United Kingdom is fast dying out, and the adoption of the defrosting process, by which the meat may be placed on the market with a much more attractive appearance at an extra cost of $\frac{1}{4}$d. per lb., will hasten its extinction. That it is largely prejudice is made clear by the fact that of the large imports of Australian mutton into London only a small proportion seems to reach the consumer as such, the greater portion being sold as Welsh or English. The abolition of this practice could be secured to a great extent by the formation of a company to control operations at the importing centres, and to establish wholesale depots in the cities and towns for the regular supply of the meat to such retailers as might be induced to place it honestly before the public

by receiving the exclusive right of sale in their own particular districts. It is, however, of the utmost importance that the supply should be a constant one; and the possibility of a glut in the market in one month and a scarcity in the next, such as have been seen in the past, would have to be guarded against.

During the years 1894 and 1895 several attempts, more or less successful, were made to place live cattle and sheep in the English market. The great difficulty which so far has been found to be in the way of establishing such a trade is the wildness of the cattle, the mortality in some of the shipments being sufficiently high to provoke strong criticism in England as to the cruelty to which the cattle are subjected by being shipped on such a long voyage. It is to be feared, however, that these expressions of opinion have been prompted, not by the alleged sufferings of the cattle, but by the interests of the English producer and the American exporter. At the same time, it is clear that a permanent and profitable trade cannot be established until the cattle have been handled sufficiently to bring them into a tractable condition. If this be done, there can be little doubt that the Australian pastoralist will find the trade one worthy of his attention.

Dairy-farming.

Dairy-farming has of late years made fair progress in Australasia, especially in the colonies of New South Wales, Victoria, and New Zealand. The introduction of the factory system at convenient centres and the use of the cream separator have done much to cause the extension of the industry. The number of dairy cows and the estimated quantity of milk produced by them in each colony in 1894 were as follow:—

Colony.	Dairy Cows.	Quantity of Milk produced (estimated).
	No.	gallons.
New South Wales	438,211	157,755,960
Victoria	465,389	167,540,040
Queensland	125,000*	37,500,000
South Australia	100,000*	36,000,000
Western Australia	9,000*	2,700,000
Tasmania	38,400	15,360,000
New Zealand	257,140	107,998,800
Australasia	1,433,140	524,854,800

*Estimated.

The estimated value of the milk and its products, butter and cheese, and of the return obtained from swine, together with the total value of dairy produce for each colony in 1894, will be found below :—

Colony.	Value of Milk, Butter, and Cheese.	Value of Return from Swine.	Total Value of Dairy and Swine Produce.
	£	£	£
New South Wales	2,270,800	427,900	2,698,700
Victoria	2,444,600	460,200	2,904,800
Queensland	591,500	87,500	679,000
South Australia	556,000	123,600	679,600
Western Australia	59,600	30,700	90,300
Tasmania	243,100	72,900	316,000
New Zealand	1,498,100	360,900	1,859,000
Australasia	7,663,700	1,563,700	9,227,400

The production of butter and cheese in each colony during 1894 is estimated to have been as follows :—

Colony.	Butter.	Cheese.
	lb.	lb
New South Wales	27,360,000	4,820,000
Victoria	35,580,000	4,153,000
Queensland	4,306,000	1,537,000
South Australia	6,400,000	1,572,000
Western Australia	160,000	.....
Tasmania	2,430,000	700,000
New Zealand	19,370,000	9,285,000
Australasia	95,606,000	22,067,000

The colonies having a surplus of butter and cheese available for exportation during 1894 are shown in the following table :—

Colony.	Butter.	Cheese.
	lb.	lb.
New South Wales	4,177,690	162,442
Victoria	23,676,419	885,722
South Australia	1,507,788	.....
Tasmania	61,623	.....
New Zealand	6,805,202	6,229,564
Total	36,228,722	7,277,728

New South Wales was formerly both an importer and an exporter of butter, for only during the spring and early summer months was the production larger than the local requirements, while during the

remainder of the year butter had to be imported to meet the local demand. This importation, which was made chiefly from New Zealand, has now practically ceased, and such as took place during the last two or three years came chiefly from South Australia as supplies for the Barrier district. During 1895, owing to diminished production, due to scarcity of food for the cattle on account of the drought, the imports exceeded the exports by 51,611 lb.

The colonies which, on the other hand, were obliged to import butter and cheese during 1894 are shown below :—

Colony.	Butter.	Cheese.
	lb.	lb.
Queensland	215,646	63,721
South Australia	.....	1,172
Western Australia	1,269,473	335,362
Tasmania	.....	981
Total	1,485,119	401,236

From the foregoing figures it will be seen that those colonies which produce a surplus of butter and cheese have, after providing for the deficiency of the other provinces, a balance available for exportation to outside countries, this balance in 1894 amounting to 34,743,603 lb. of butter and 6,876,492 lb. of cheese. An export trade in butter and cheese has long been maintained by New Zealand, while in recent years Victorian, New South Wales, and South Australian butters have been sent to the London market, and their very favourable reception there has given a fresh stimulus to the dairying industry in those colonies. The rapidity with which this trade is growing may be gauged from the following table, which shows the quantity of butter exported to the United Kingdom during the six years ended 1894 :—

Year.	Exporting Colony.			
	New South Wales.	Victoria.	South Australia.	New Zealand.
	lb.	lb.	lb.	lb.
1889	284,251	505,478	.....	2,363,088
1890	589,160	1,286,583	10,850	2,976,848
1891	391,180	3,778,775	23,864	3,246,768
1892	1,532,782	6,446,900	.....	4,648,980
1893	2,846,989	13,141,423	357,087	5,864,656
1894	4,333,927	22,139,521	1,233,539	6,590,640

In 1895 the exports from New South Wales to the United Kingdom fell to 1,852,360 lb., in consequence of the diminution in the production caused by the drought.

From latest advices it would appear that the price obtained for Australian butter in London was higher than the rates ruling in the local market; and as there can hardly be a limit placed to the capacity of Australasia to produce butter and cheese, it is probable that these high prices will have the effect of greatly stimulating the dairy industry throughout all these colonies. In connection with this subject, it may be mentioned that the value of the butter, cheese, and eggs imported into the United Kingdom during 1894 was £13,456,699, £5,474,940, and £3,786,329 respectively. The supply is chiefly drawn from the Continent of Europe and from America, and of the total amounts mentioned, the only imports from Australasia were butter to the value of £1,429,977, and cheese to the value of £137,512.

It may not be out of place to remark that the export of butter from one or two of the colonies has been made possible only by restricted home consumption. If a season of great prosperity visits Australia there will be a very large increase in the local demand, with a consequent limitation in the supply available for export, so that it may be concluded that under any circumstances the prospects of the industry are encouraging.

The breeding of swine is usually carried on in conjunction with dairy-farming. Below will be found a return of the number of swine in each colony in 1861 and in 1894, together with the proportion owned by each province in comparison with the total stock. It will be observed that the actual number owned by the various colonies has in all cases increased, though the relative proportions have altered considerably. New South Wales, for instance, held over 40 per cent. of the stock of swine in 1861, whilst in 1894 its proportion had receded to 21·6 per cent.; on the other hand, Victoria, which possessed only 12 per cent. in 1861, has now nearly 30 per cent. of the total number. During the intervening period, New Zealand increased its stock from nearly 12 per cent. to nearly 28 per cent. of the whole, while the proportion held by South Australia decreased from 19·1 to 7·9 per cent. :—

Colony.	Number of Swine.		Percentage of each colony to total of Australasia.	
	1861.	1894.	1861.	1894.
New South Wales	146,091	240,860	40·3	21·6
Victoria	43,480	328,162	12·0	29·5
Queensland	7,465	68,086	2·1	6·1
South Australia	69,286	88,153	19·1	7·9
Western Australia	11,984	26,233	3·3	2·4
Tasmania	40,841	51,952	11·3	4·7
New Zealand	43,270	308,812	11·9	27·8
Australasia	362,417	1,112,258	100·0	100·0

The products of the swine—bacon, ham, lard, and salt pork—are still imported by all the colonies with the exception of Victoria and New Zealand, as is shown by the following table, which relates to the year 1894 :—

Colony.	Bacon and Ham.	Salt Pork.	Lard.	Net Value imported.
	£	£	£	£
New South Wales	17,866	*419	*602	16,845
Victoria	*14,738	*992	*1,201	*16,931
Queensland	1,986	414	*2,329	71
South Australia	1,680	*190	.....	1,490
Western Australia	19,851	597	550	20,998
Tasmania	204	.....	.....	204
New Zealand	*6,529	*291	*139	*6,959
Australasia	20,320	*881	*3,721	15,718

The figures marked (*) show an excess of exports; all the others represent an excess of imports. There seems to be considerable scope for an extension of this particular branch of farming in most of the colonies.

Poultry and Minor Industries.

An estimate is given below of the value of the production of poultry and eggs, together with that arising from bee-culture, in each colony during the year 1894 :—

Colony.	Poultry and Eggs.	Honey and Beeswax.
	£	£
New South Wales	700,000	15,500
Victoria	680,000	12,500
Queensland	260,000	7,500
South Australia	230,000	8,000
Western Australia	40,000	1,200
Tasmania	100,000	3,000
New Zealand	400,000	10,000
Australasia	2,410,000	57,700

The most remarkable feature is the trade in eggs between South Australia as supplier and New South Wales, Victoria, and Western Australia as buyers. The returns for 1894 show that during that year South Australia exported eggs to the value of £22,679, viz., £50 to the United Kingdom, £2,990 to Victoria, £15,839 to New South Wales, and £3,800 to Western Australia. The bulk of the New South Wales trade was done with the Barrier district, which is commercially a dependency of South Australia.

Pastoral and Dairy Production.

The total value of pastoral and dairy production during the year 1894, in each colony and in the whole of Australasia, together with the value per inhabitant, is shown in the following table :—

Colony.	Total Value of Pastoral and Dairy Production.	Value per Inhabitant.
	£	£ s. d.
New South Wales	16,804,000	13 11 7
Victoria	8,489,000	7 4 4
Queensland	6,544,000	14 18 4
South Australia	2,815,000	8 1 0
Western Australia	592,000	8 0 11
Tasmania	1,009,000	6 9 5
New Zealand	9,746,000	14 7 0
Australasia	45,999,000	11 3 9

From the following table, which gives similar information for the years 1871, 1881, and 1891, it will be seen that while the total production has increased nearly twofold since 1871 the value per inhabitant has only varied slightly ; and that New South Wales, Queensland, Western Australia, and New Zealand show the most satisfactory progress, while in Victoria, South Australia, and Tasmania the pastoral industry has advanced much more slowly :—

Colony.	1871.	1881.	1891.
	£	£	£
New South Wales	8,709,000	13,151,000	17,460,000
Victoria	7,260,000	7,499,000	9,321,000
Queensland	1,959,000	4,186,000	7,561,400
South Australia	1,800,000	3,178,000	3,148,525
Western Australia	274,000	431,000	647,350
Tasmania	734,000	1,093,000	1,117,550
New Zealand	3,210,000	7,096,000	9,153,225
Australasia—Total	23,946,000	36,634,000	48,409,050
Australasia—Per head	£ s. d. 12 7 7	£ s. d. 13 3 11	£ s. d. 12 12 0