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Livestock Industries in Australia

by

C. L. SUNDARARAJAN, B. SC. (Ag.)

Sheep: Australia is the leading wool producing country in the world. With less than one-sixth of the world's sheep population, she produces more than one quarter of the world's wool. It is often said that Australia is riding on the sheeps' back and that the nation is built on grass. Export figures (£ 42 millions or 50% of the total exports) vouchsafe for the accuracy of the former statement. How literally true the latter statement is, one can only understand from a visit to many of the sheep stations scattered right through the continent. Whether in the rich Camperdown district in Victoria or in the poorer Urriara and Tharwa of New South Wales, one cannot but be struck by the wonders that the clovers are doing for the farmer in particular and the nation in general. Apart from its intrinsic value as a good feed, the clover plants are so many miniature fertiliser factories fixing atmospheric Nitrogen in the soil and adding fertility to the paddock in the same way as and at a lesser cost than, the factories. By a series of trials and experiments over a period of many many decades, various strains of clovers have been selected and adapted for the development of the pastoral industry. And in recent years a new strain of sub-clover which thrives in sub-tropical conditions, has been evolved by workers in Sydney University. Attempts are still being made to find suitable legumes for growth in the tropical areas. The significant work done by scientists in discovering nutritional deficiencies of each individual type of soil and rectifying them by the application of super-phosphate and many trace elements specially molybdenum, copper, zinc or cobalt, has transformed many of the former scrub lands into good pastoral areas. Nor less important is the pioneering work done by the early settlers in introducing Merino and other breeds of sheep and evolving suitable strains to suit different local conditions; strains different in their body size, appearance, response to varying climatic conditions and feed requirements, but all producing the best of a number of types of wool to meet the varied requirements of the modern markets.

Scarcity of water and arid conditions are the bane of the country; but the innumerable tiny patches of water so meticulously conserved from run-off during times of high rainfall, by the construction of small earthern dams, and a good number of shallow

bore wells worked by wind mills, so characteristic of the Australian rural scenery, open our eyes to the wonders one can do in the most adverse situations. Each farm is subdivided into a number of paddocks enclosed by the same monotonous barbed wire fencing, 4 feet high with closely knitted fencing for the first three feet, which we learnt, is essential for rotational grazing and for keeping off that plague of pastoral industry — the rabbit, five of which consume as much grass as one sheep does. Here too, modern seience has come to the rescue of the farmer in the form of myxomatosis — the deadly virus which has helped the almost complete extermination of the pest. Once on a sheep farm, we are at first perplexed by the innumerable "cocky gates", stocks of various medicines and appliances in the farm, the very many dipping and spraying devices, the different types of machinery, the various dwelling houses for shearers and farm hands and lastly the inevitable sheep dogs. No wonder then that the Australian sheep industry is a specialised one and it is by no mean chance that the Australian sheep gives the highest yield of the best clips of the world.

Coming to the details of production, we find that, with the use of superphosphate and of minor trace elements for fertilizing the paddocks, the subclover *(Trifolium subterraneum)* thrives well and in due course, stores up nitrogen in the soil thus increasing its fertility. The various grasses like rye grass, Paspalum, *(Paspalum dilatatum)* or Cocksfoot, depending upon the rainfall of the area put on growth in proportion to the nitrogen status of the soil. This results in a good pasture of legume cum grass, which combination caters to the protein and carbohydrate requirements of the animals grazing on it. As compared to the native pastures, the improved pasture not only gives increased yield of fodder, but gives a fodder of superior nutritive value. The subclover seeds profusely and the seeds serve as excellent food concentrate during dry summer when all the plants dry out. Experiments carried out at Dickson Experiment Station, Cnaberra indicated that the introduction of subclover alone in the native pastures increased the carrying capacity of the paddock to two sheep per acre, while the introduction of a suitable grass, rye grass, and use of super-phosphate increased the carrying capacity to six sheep per acre as opposed to one sheep per acre usually carried by the native pasture. In another set of experiments it was proved that the average weight of sheep on improved pasture was 99 lb. compared to that of 52 lb. of a sheep on un-improved pasture. The yield of wool per sheep rose

from 9 lb. to 12 lb. The lambing of ewes increased from 65% to 110%, while the wool from improved pasture was claimed to be of a better staple and of finer quality. The irrigated pastures carried 8 to 10 sheep per acre per annum.

The subclover seeds profusely right under the ground and regenerates itself during autumn every year. A pasture of subclover and rye grass is thus kept on indefinitely for years till the soil becomes too rich for clover and is, therefore, dominated by grasses. The high latent fertility of the soil is then cashed in by raising a cereal crop, wheat, barley or oats or rice, reference to which is made later. We came across at least two outstanding farmers in two places, far apart who claimed an average clip of 14 lb. of wool per sheep per annum. Both were prosperous farmers owning, even by Australian standards, large blocks of land under improved pasture and managing their property in the most efficient manner.

The locality of a farm determines the breed of sheep and the type of sheep farming carried out on that farm. In well-watered country with even rainfall and good growth of pasture, fatlamb production assumes importance and the production of wool becomes subsidiary. Fatlamb production and cross breeding of sheep (Merino and any one of the British breed of sheep — Lincoln, Border Leicester or Romney Marsh or Dorset Horns) go together. The aim of cross breeding is the production of a dual purpose animal, the ewes of which have a body form with good mutton qualities and yield a reasonable amount of tolerably good quality wool. The wool pays the upkeep of the ewe for the year leaving the fat lamb as the profit. The lamb attains a live weight of 75 lb. in about 16 weeks time. It has been estimated that in a flock of 100 ewes with 80% lambing, a gross return of £ 586 is attained, £ 246 being the value of fleece and £ 340 being the value of lambs. The gross return per ewe per annum is £ 5—17—0. In another survey the net return per sheep per annum is estimated at £ 2—4—0.

Merino sheep are kept in comparatively arid country with light rainfall and extremes of temperature. Food is scarce and the merino with its hardy body is able to traverse long distances for food and water. There are a number of strains of merino for different types of country. Corriedales and Polwarths, evolved in Australia and New Zealand, are also to be seen in this country. The finest wool comes from the poorest country. Cross-bred sheep give wool spinning up to 56's to 58's while the merino gives wool spinning from 60's to 90's.

The four big jobs in a wool growers' year are dipping, crutching, lamb marking and shearing. Dipping, or more appropriately, spraying the sheep against infestations by external parasites, is done 4 to 6 weeks after the sheep have been shorn. Crutching is shearing off a long oval portion of wool from the sheep's crutch under the tail to keep the area clean and guard against blow fly pest, the maggots of which will kill sheep if infestation is not corrected. This is done a month before the sheep are due for lambing. Each sheep owner has a registered mark and the sheep are marked every year to identify its owner.

Shearing of wool is usually an annual affair taking place at the beginning of summer. Shearing is done with the aid of mechanical contrivances and is an art specialised by a team of people who migrate from station to station and do this tricky job on a contract basis. A good shearer usually shears about 150 sheep per day and gets a wage of £ 7—6—0 per 100 sheep shorn. Flocks of sheep of the same age and sex are shorn separately. Wool-classing is a specialised work and many of the farmers undergo training in wool-classing in the local technical schools. In the bigger sheep stations grading and preparing the clip for the market is done by prefessional classers. Marketing of wool in Australia is entirely a free trade and sales are conducted by open auctions by the great wool brokers in important cities and attended by buyers from all the world over.

Sheep raising is carried on in all parts of the Commonwealth with the greatest concentration of sheep population in New South Wales (60 millions) and Victoria (21 millions) followed by Queensland and South Australia. The total population of sheep in the country is estimated at 127 million heads and the production of wool at 1,245 million pounds. The production of mutton and lamb is estimated at 395,090 tons.

During our visit to one of the warehouses of a firm of wool brokers in Geelong, Victoria, we saw wool being sorted out and rearranged for auctions. One particular bale of superfine wool attracted our attention and we were informed that this bale was from the Victorian Valley, Western Australia, and represented the Super A fine wool in its best. The staple length was 2" and less and the wool would spin 90's. These fine wools were usually exported to Italy for the manufacture of luxurious garments and billiard table cloths. A pound of wool in Grease would fetch

anything from 160 to 200 pence. The price of a pound of average quality of merino wool is at present about 60 pence.

Two serious impediments in the increased use of wollen garments are (1) shrinkage of the material and (2) the difficulty involved in washing and laundering them. These shortcomings place the woolen garments at a decided disadvantage over the new synthetic fibres now flooding the market. To overcome these defects, the wool research Laboratories of the C. S. I. R. O. at Geelong is carrying out some fundamental experiments on these twin problems. Results so far obtained indicate, that shrinkage of the material can be overcome by the use of some synthetic resins during the processing of wool and a slight modification in the processing will make any woolen garment as easily washable as, say cotton or Nylon. Commercial possibilities of these findings are enormous and it looks as though wool will continue to reign supreme in the worlds' fibre market.

Research on the better production of wool and on the many problems associated with the sheep industry are carried out in many of research stations of the C. S. I, R. O., in close colloboration with the departments of Agriculture and the Universities. The Federal Bureau of Agricultural Economics studies subjects dealing with the economics of wool growing and sheep station management. Finance for these research activities is met from a fund to which the commonwealth Government contributes one half of the amount raised under the wool tax.

The Australian Wool Bureau, constituted under the Wool Use Promotion Act 1953, is a body of representatives of wool growers and meat producers charged with taking measures to improve production and increase the use of wool. The activities of the Bureau are financed by a wool tax of 4 sh. per bale of wool produced.

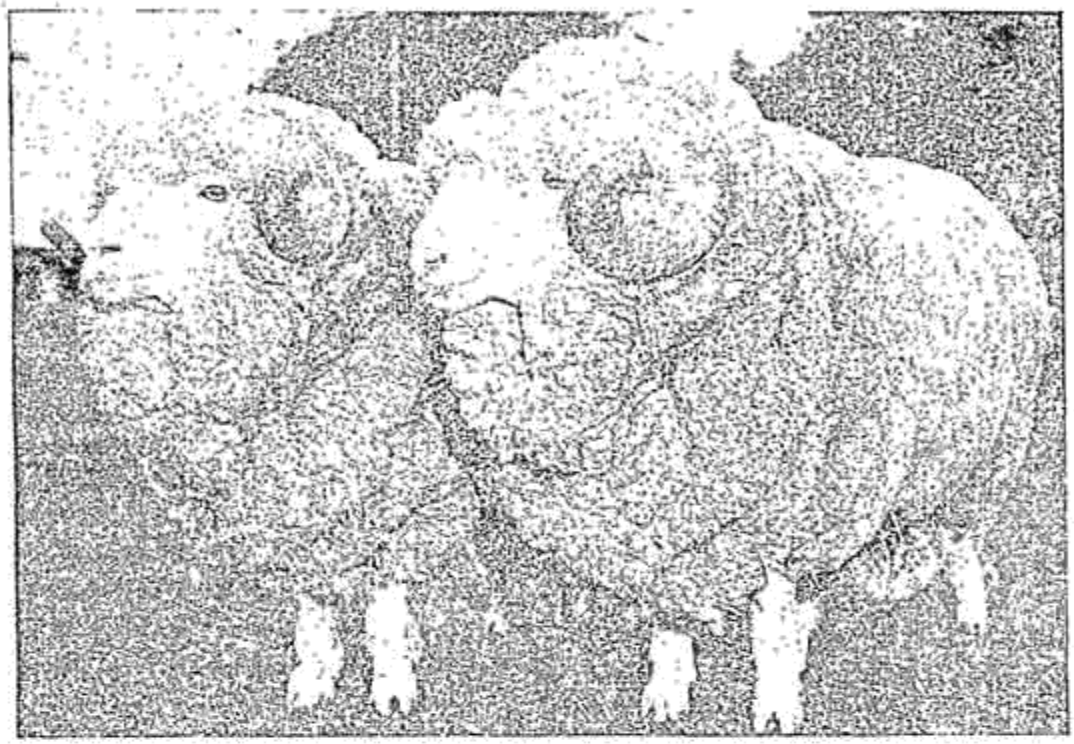
Dairy Industry: A flourishing country is said to be flowing with milk and honey. This statement holds good to a few of the chosen countries of the world and Australia is foremost among them. The number of milk bars one comes across and the enormous consumption of butter, cheese, ice-cream, and other milk products is something colossal. It may even be said that the general health of the population and of the chubby children, we so lovingly fondled in many of the Australian homes we were privileged to stay, is an index of the unfailing supply of that nectar of human health —

milk — and the gigantic proportions of the dairy industry. The industry has been in existance ever since the colony was founded. But the great strides that it made, begin with the perfecting of the technique of cold storage and its application to and use in the ocean-going vessels. Nowadays the Australian dairy products find their way into the homes of many countries in as fresh a state as they left the farms and factories in Australia. In 1953—1954 the net value of all dairy products amounted to £ 135 millions and the dairy industry has to its credit exports valued at £ 30 millions.

In the course of our tours, we visited a good number of typical dairy farms and a few butter factories on the Gippsland Dt., Camperdown Dt., and the irrigated districts of the Murray valley. The dairy industry is concentrated in the richer parts of the country with high rainfall and along the coastal areas east of the Great Dividing Range. The State of Victoria tops the list with a production valued at £ 53 millions followed by New South Wales valued at £ 41 millions.

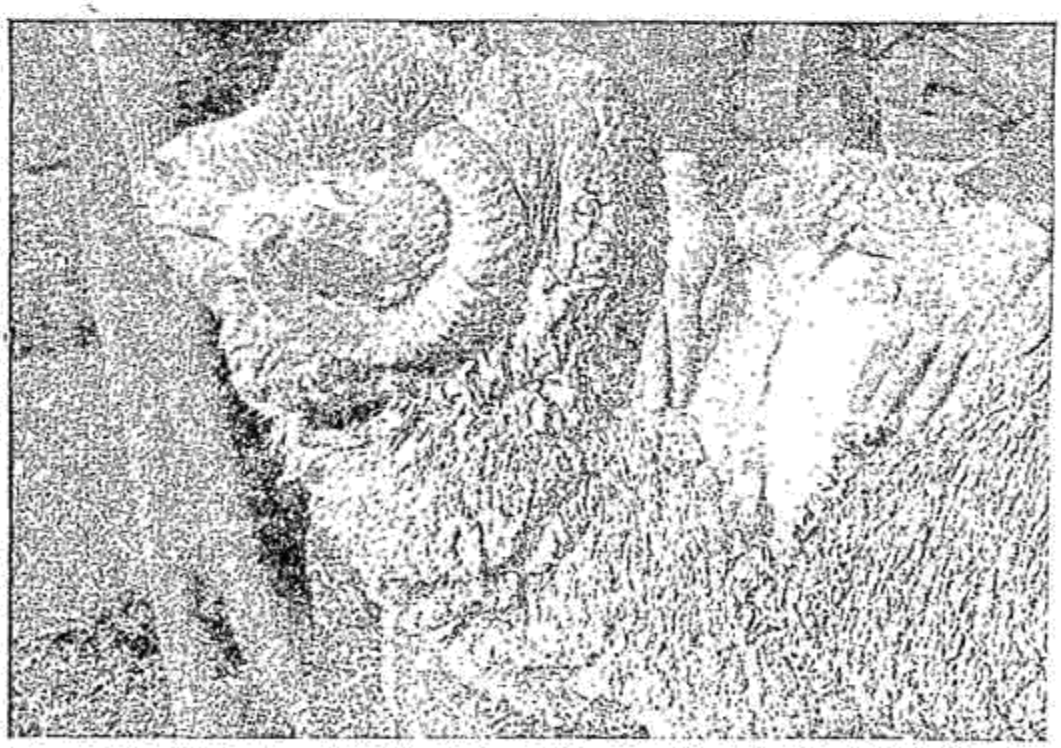
The one peculiar feature that arrested our attention is the complete absence of stall feeding of animals and all the evils associated with it. There are no cow sheds or barns as understood in other parts of the world. No large amount is spent on the purchase of the so-called concentrates considered so essential for maintaining the yield or even of the health of the cow. Here the whole show is so planned, arranged and so highly mechanised to the minute detail that a herd of 50 cows in milk the minimum maintained by a commercial dairy farmer to maintain a decent standard of living (£ 1500 to £ 2000 net income per annum) is entirely and efficiently managed by the farmer with the assistance, perhaps, of his wife.

The culture and management of pastures, the principle of having enclosed paddocks for rotational controlled grazing are the same as found in the sheep stations. In the wetter districts a mixture of white clover and sub-terranean clover along with perennial rye grass, cocksfoot and Phalaris are sown in the pastures and the average carrying capacity was one cow per $2\frac{1}{2}$ acres. The development of perennial pastures in Victoria requires at least 25 to 30" of rainfall per annum. In irrigated districts, white clover predominates and an average paddock carries a cow per acre. Lucerne is also grown in many farms. During spring time when the growth of pasture far exceeds grazing by cows, the pastures are



These two merino rams are typical of the breeding stock on which Australia's vast flocks depend. Both these animals were bred on Haddon Rig, an extensive sheep property in New South Wales.

Australian News & Information Bureau.



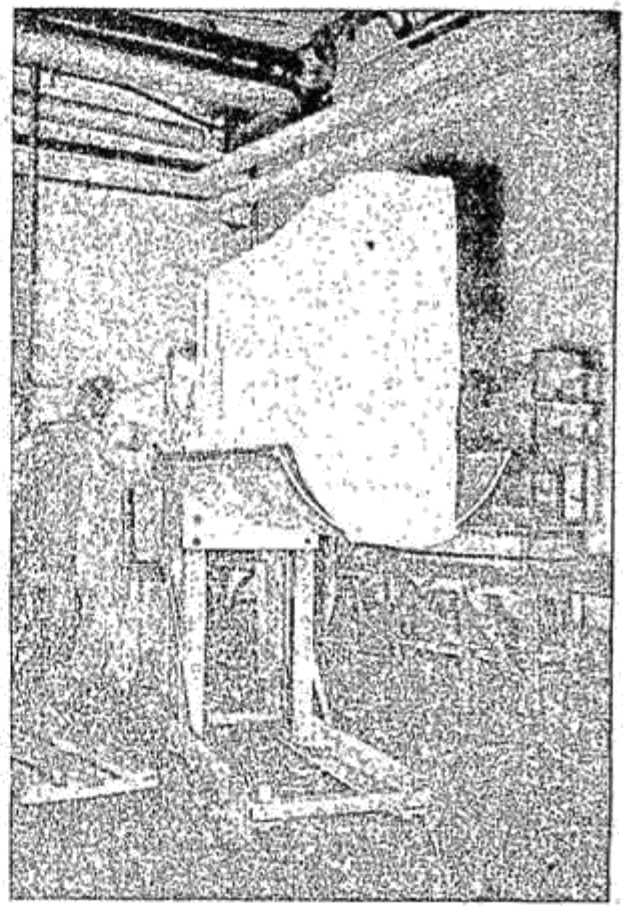
Examining the fleece of a two-year-old Merino stud ram at Boonoke Station, New South Wales.

A Prize-winning Illawarra Shorthorn dairy cow. This breed, developed in Australia, and named from the New South Wales south-east district where they originated, are renowned for their milk production. The beast seen here, in eight 273-day lactations produced 103,000 lb. of milk, yielding 3,950 lb. of butter fat.

(Australian Information Bureau).

Shearers on the "board" at Wales handle on an average, 17,000 sheep each year. During a season, which lasts about 11 months, full-time shearers each handle about 20,000 sheep. When a shed is completed they move to another.

Cream is being delivered at a picking-up point.
Lower Southgate, N. S. Wales.



Butter being taken into cold store at an
Australian butter factory.

mowed and hay is baled and stacked for use in winter. A modern innovation is in the use of electric fences, to sub-divide each paddock, to allow strip grazing and to force the animals to feed close to the stubbles and thus avoid wastage of feed.

The cows are pictures of perfect health and satisfaction. They are there on the paddocks right through the year, grazing as they pleased and having at their will full access to water and shade. There is no let or hindrance in their way of life except during milking time, when they quietly enter the shed, part with the enormous burden of milk in their udders and quietly slip away back into the paddocks, the happier for being light in the hind quarters. Some farmers are in the habit of feeding the cows a pound or two each, of oats at the time of milking. Hand milking is too costly and cumbersome a method to be followed by the modern dairy farmer. The milking machines of stainless steel kept under conditions of good sanitation are there in every farm and takes only 6 minutes to milk a cow giving an yield of 4 gallons per milking. Some farmers send the whole milk to the factory while others separate the cream in their own premises and despatch the cream alone to the factory. In the latter case pig raising, to utilise the skim milk, is a profitable side line.

In this connection mention must be made of a gigantic milking plant we saw in Camden, N. S. W., the rotolactor plant in the possession of the Camden Park Estate Pty. Ltd., where 1500 cows can be milked every day morning and evening, at the rate of 350 cows per hour and employing only ten men to do the job. The plant is one of the two that exist in the world, the cost being £ 50,000/-. This firm has extensive grazing properties and specialises in supply of full milk to Sydney market.

There are two types of farmers, one specialising in supply of whole milk to the metropolitan areas and the other specialising in butter production. Their areas are clearly demarcated, though, in certain areas, they intermingle. The former invariably has a herd of Friesian or Ayreshire cows, which give the farmer a higher yield of milk (8,000 to 10,000 lbs. per lactation) of low butterfat content (3 to 4%). Basing their economy as they do on butter fat production, the latter prefer to have Jersey cows which are reputed to yield 5,000 to 7,000 lbs. of milk per lactation of 5 to 6% butter fat content.

Three herds of cows evoked our admiration. The Hawksbury Agricultural College, New South Wales, has a herd of fine Friesian cows and an outstanding cow in the herd averages 15,000 lbs. of milk per lactation. The Friesian cows at the Werribbee Experimental Station average 11,000 lbs. The Dookie Agricultural College, Victoria, possesses the finest Ayreshire pedigree cows (165 in number) averaging 10,000 lbs. per lactation of 300 days. The Australian Illawara Short Horn breed does splendidly well in the tropical and sub-tropical areas of Queensland and is well worth introduction and trial in India.

Whatever the breed of cattle a farmer chances to possess he invariably adheres to the following principles in the selection and maintenance of individual cows: (1) The cow shall yield a minimum of 7,000 lbs. of milk or 400 lbs. of butter fat per lactation. (2) The cow shall calve every year. (3) It should be amenable to milking by machines. Cows not conforming to the above requirements are culled.

A good bull is half the herd. The close attention the farmers pay in the selection proper bulls and the strict rules they observe in maintaining the purity of the type and the pedigree of the cows has paid them rich dividends. No effort is spared and no finance is withheld to introduce really good sires. The emphasis laid on the sires was well brought home to us when a few of us saw an outstanding bull of proved performance purchased by a firm of beef cattle breeders at a cost of £ 13,000. Herd testing of cows has become an established feature in many of the commercial dairy farms, some of which reported an average herd increase of as much as 75 lbs. of butter fat per lactation in so short a period of testing as 10 years.

As much as 90% of the total dairy production in the country is marketed through Dairy Farmers' Co-operative Societies scattered throughout the dairy areas. The Dairy Farmers' Co-operative Milk Company, New South Wales has a total annual turnover of £ 5 millions while the Co-operative Factory at Camperdown, Victoria has a turnover of £ 1·5 millions. The latter manufactures a variety of products including skim milk powder and casein and employs the most modern machinery. Rules and regulations regarding the details of construction of dairy buildings and maintenance of the sanitary condition of the premises, utensils and machinery in the factory and on the farm are very strict and are meticulously followed.

The Australian Dairy Produce Board, constituted under an Act of the Parliament, is the sole Australian Exporter of butter and cheese. For various political and economic reasons, the Australian Dairy farmers are unable, at the present time, to compete on equal terms with their counter-parts of other nations, specially the U. S. A., in the international markets. And since the Dairy industry is dependant upon the overseas markets for the disposal of 30% of her total dairy production, the Commonwealth Government have evolved a scheme of high internal market price (£ 420 per ton) and a subsidised export price of £ 400 per ton, the Commonwealth Government paying a subsidy of 9 pence for every pound of butter produced. The subsidy is to enable the farmer to get an over-all average price of 4 sh. 6 pence per pound of butter fat supplied to the factory, the minimum price which would allow the farmer to maintain a decent standard of living. The subsidy paid by the Commonwealth Government in the year 1955–1956 amounted to £ 14·5 million.

The pastoral industry of Australia, whether of dairy or beef cattle or sheep, is fortunate in more ways than one. Rain, though scanty in many areas, is evenly distributed. The land available for the industry is extensive, fertile and responds well to good management. Pioneers have evolved and modern breeders continue to evolve breeds of stock to thrive well on the sunny plains of the country, and maintain their purity and build up the pedigree through well-organised breeders' Societies. To crown them all, the stocks are entirely free from many of the contagious and infectious diseases which cause havoc in many other countries. Foot and Mouth, Haemorrhagic Septicemia and Rinderpest are entirely unknown. The quarantine regulations governing the entry of livestock from other parts of the world area so well laid out and so strictly administered that, for the past many decades, many diseases have been kept off the shores of Australia.