THE DEVELOPMENT OF THE SOUTH AUSTRALIAN DAIRY INDUSTRY

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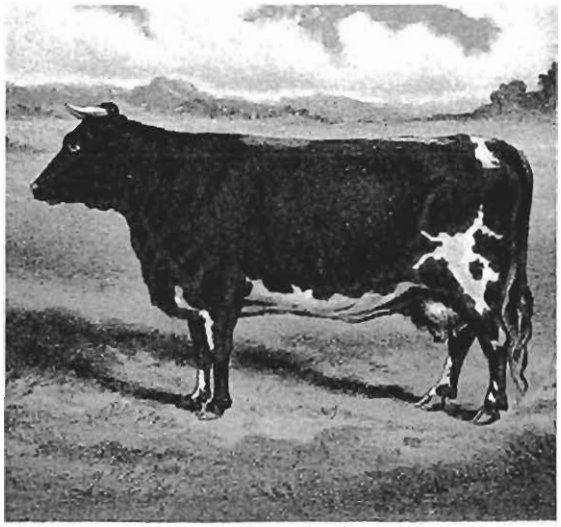
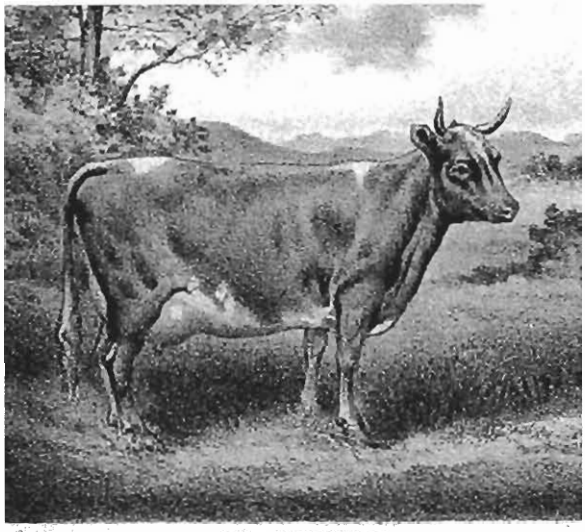
The first dairy cows appeared to have been brought to the fledgling colony of Adelaide by John Barton Hack, who arrived in February 1837 from Van Diemen's Land with a range of livestock including six heifers and a bull. Later he imported from South Africa another six heifers, purchased for £27 each. These were described as "blue and white Fatherland breed" and were probably zebu-derived. He established the first commercial dairy at North Adelaide. Additional stock were driven overland from Sydney. The South Australian Company also established a dairy. Soon, Hack has two dairies each of 70 cows at Echunga and was selling farm-made butter for up to 2/6 per pound and cheese for 9d per pound. Hack was involved in establishing the Joint Stock Marketing Company which is recorded as having exported cheese to India and Singapore in 1842. Although much butter and cheese-making was done in batches on the farm, small factories began to appear from the late 1840s. However, quality was inconsistent. Attention to hygiene was often rudimentary. Transport of produce over long distances in hot summer weather in areas distant from the fresh milk and processed products market in Adelaide meant the spoilage was a constant problem.

Most farmers kept a cow or two to provide milk for family use. Wilkinson (1848) suggested that new emigrants should aim to get about four cows for about £5 each. At the Adelaide markets on January 1, 1847, cows were selling at £3-10-0 to £4-0-0 each. Young stock were £1-15-0 to £3-0-0 each. The Durham (Shorthorn) breed was suggested as best for milk, draught use and cheese, with Alderney cows being smaller with lower yield but very rich milk. (The distinct Alderney breed has since been lost, largely interbred into Guernseys.) The custom seems to have been to milk the cows early in the morning, let their calves run with them during the day, then shut the calves up separately at night. Calving was primarily in the September-December spring flush period.

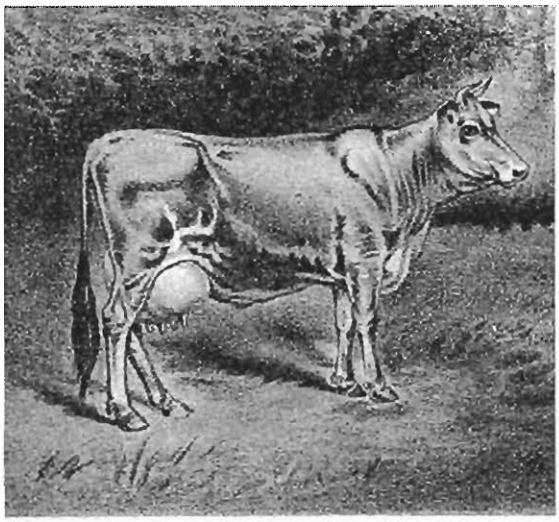
The dairy industry developed on properties in the Adelaide Hills, Fleurieu Peninsula, along the River Murray and in the mid-North of South Australia. Initially, the cattle used were an admixture of whatever was available, but progressively, the industry began to mature. By the 1880s, there was an increasing understanding of microbiology, both in terms of human health and the risk of disease transmission from contaminated foodstuffs including milk, and the role of microbiology in making dairy products, particularly cheese. Interest increased in the respective merits of selected elite stock from dairy cattle breeds, initially Ayrshires and Jerseys.



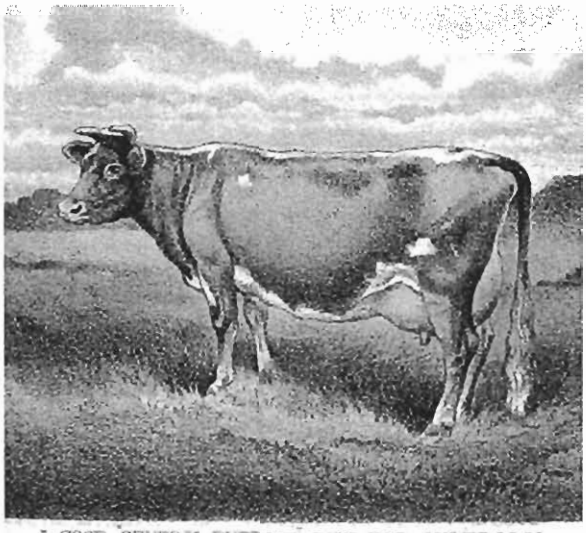
THE SHORTHORN.



THE AYRSHIRE.



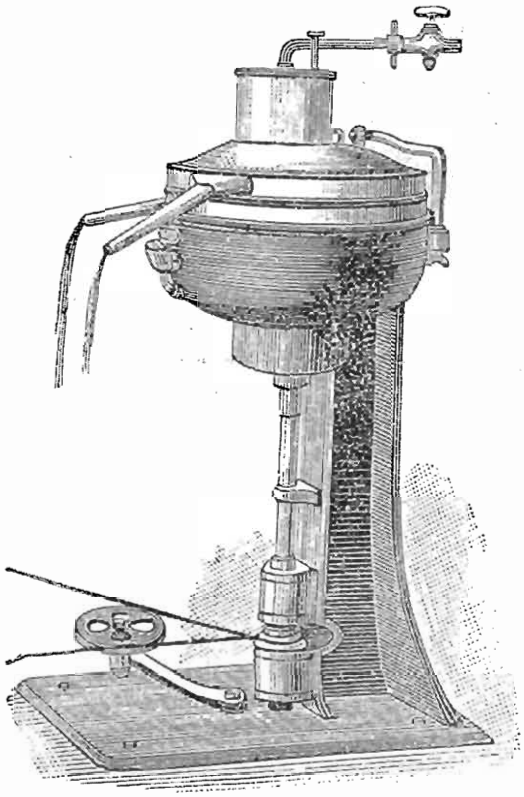
THE JERSEY.



A GOOD GENERAL PURPOSE COW FOR AUSTRALIA.

From Brown, W, (1889) The Science and Practice of Butter Making in Australasia. (McCarron, Bird & Co Melbourne)

The cream separator became available about 1880, and dairy manufacture became centralised. Dairying was perceived as a "systematic industry" by 1885.

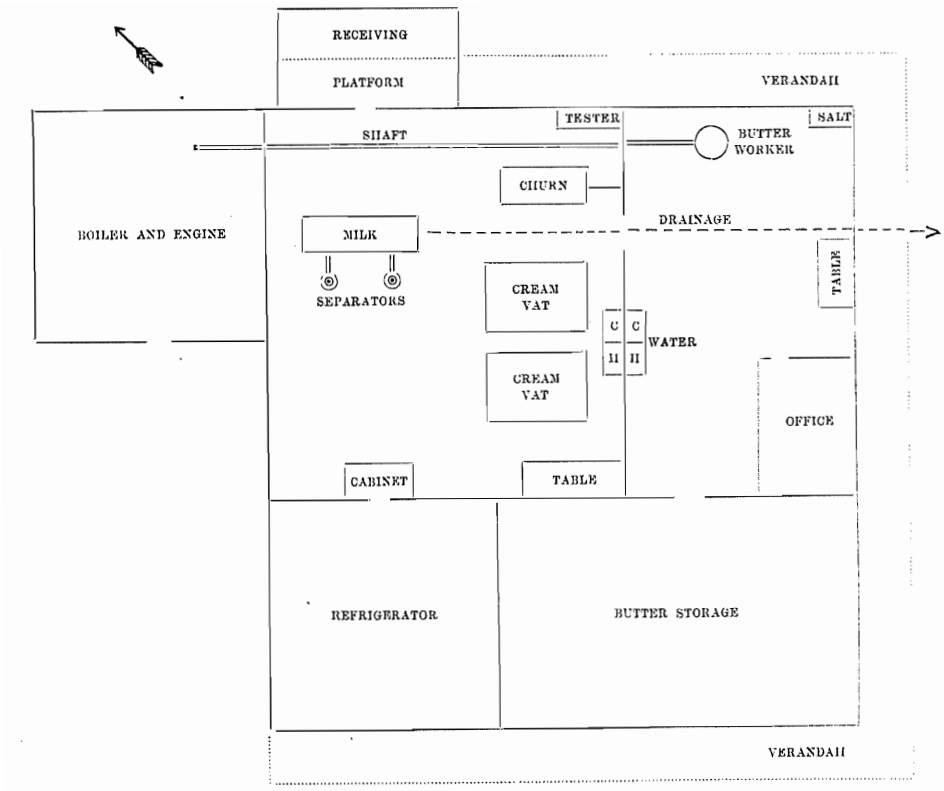


De Laval Cream Separator

Illustration taken from an advertisement for J Bartram & Son, Melbourne, in Brown, W, (1889) The Science and Practice of Butter Making in Australasia. (McCarron, Bird & Co Melbourne)

From the 1880s, there was much debate about the idea of groups of people establishing co-operatives. One of the early ones was the South Australian Farmers Cooperative Union (SAFU), which had its origins in Jamestown in 1888, mainly to handle wheat marketing and the provision of supplies, notably cornsacks, for growers. Some cooperative dairy factories and creameries were in place by 1891. In 1902 there were 25 dairy factories in South Australia and by 1909, there were 70 butter and cheese factories and creameries.

A model factory taking the milk from 300-500 cows might be laid out as below.



Brown, W, (1889) The Science and Practice of Butter Making in Australasia. (McCarron, Bird & Co Melbourne)

Costs to establish a factory about 1890 were estimated as land - £200, Building £600, two separators £175, two churns £40, a 6hp engine £125, boiler, shafting etc £150, two cream vats £60, butter worker, tester etc £50 and sundries £100, an all-up investment of £1,500 (Brown 1889).

It was not until 1919 that SAFU moved into dairying by purchasing the factories of Murphy Fromen and Company in the Adelaide Hills and Fleurieu Peninsula. Soon afterwards, SAFU built a dairy factory at Murray Bridge.

The Agricultural Bureau movement was established in 1888 based on the suggestion of Albert Molineux, with branches created throughout the state. The movement was guided by the Central Agricultural Bureau in Adelaide, of which Molineux was Secretary. This "self-help" organisation further facilitated dairy development. The idea of consciously breeding to improve the quality of existing dairy stock was recognised. Members of Bureau branches would club together to buy a superior dairy bull which member could access. When available, non-members could also access the bull's services for 5/- a time. From 1900, the government subsidised the purchase of bulls by Bureau branches on a £1 : £1 basis up to a maximum contribution of £12-10-0. A later scheme in 1923 paid 60% of the purchase price paid by anyone for any eligible bull on condition that other dairy farmers could access the bull in the following twelve months for 10/- per service. This scheme continued in various forms for over 30 years.

The Ayrshire Cattle Herd Book Society of Australia was first dairy stud society established in Australia, publishing its initial herd-book in 1892. Most others followed during the next twenty years, with the Australian Illawarra Shorthorn Society becoming a separately identifiable breed in 1930.

Mechanical refrigeration was introduced in the 1890s and cold stores were established. The Ocean Steamship Company's cool stores at Port Adelaide were approached in 1891 to handle dairy produce. AW Sandford constructed a refrigeration works in Grenfell Street in 1893 that could be accessed for butter-making. By then, some cream was being railed up to 300 miles in cans with the empty cans returned free. Butter was transported in refrigerated trucks cooled with ice, while cream was railed in open trucks to allow it to "ripen". Pasteurisation began in 1895. Butter had previously been preserved for export with 0.5% boric acid, but with pasteurisation and refrigeration, this was prohibited. In 1894-5, the government introduced the *Butter Bonus Act* to encourage dairy manufacturing for export. This resulted in an increase from 165 tons in 1894 to 589 tons in 1895. Exporting factories were located at Adelaide, Aldinga, Auburn, Bald Hills, Brackenfield, Clarendon, Gum Creek, Gumeracha, Hay Flat, Hillside, Hodby, Kodoparinga, Lakeside, Mount Barker, Mount Gambier, Onkaparinga, Pioneer, Point Pass, Port Elliott, Rapid Bay, Second Valley, Sellicks Hill, Somerset, Springton, Strathalbyn, Tatiara, The Gorge and Yongala. One supplier was already selling pasteurised milk for home use in 1895, though milkman travelling in horse-drawn carts continued to dispense raw milk with a dipper from milk cans into billies left out overnight by consumers until the 1960s. Horses continued in retail milk and bread delivery long after motor vehicles were used elsewhere as the horses learned where they had to stop for customers and hence much of the delivery process could be operated without a driver.

In 1893, the members of the Central Agricultural Bureau inspected a milking machine at Shaw's dairy at Woodville, yet by 1921, there was still considerable debate as to whether machine milking was superior to hand-milking. It was asserted that a machine was desirable where there were more than 12 to 20 cows. One person could handle four "machines" (sets of cups). The installation cost was about £150, and it had been realised that cleanliness was essential to their effective operation. In 1899, there were 84,000 dairy cows in South Australia

By 1899, the government appointed G.M. Thomsen as "Dairy Instructor", and he was followed in 1905 by P. H. Suter who was also put in charge of 600 acres for dairying on a 1600 acre government experimental farm established at Turretfield in 1908. The herd was mainly Shorthorn cows, but also including Jerseys, Red Polls, Ayrshires and Guernseys. In 1909, Suter was also lecturing in dairying at Roseworthy Agricultural College. When Suter retired H.B. "Lofty" Barlow became Chief Dairy Instructor. In the period 1930-1950 Jack Hatter was appointed Principal Dairy Officer. Farm extension by Dairy Advisers in the field included Agricultural Bureau meetings, articles in the Journal of Agriculture, The Chronicle and Stock Journal meetings with the SA dairymens Association and radio. With the introduction of the Metropolitan Milk Board much of this activity occurred outside the MMB area.

The value of butter and cheese production in 1908 had risen to £450,000 of which £103,171 came from exports. Production continued to rise until the drought of 1914-15. The dairy cow population fell by over 25% in the two following years.

Herd recording was introduced in South Australia in 1922 with the creation of Herd Testing Associations. Transport of milk was gradually improving. But a slump occurred in prices in the mid 1920s, resulting in the introduction of the Patterson Plan which involved placing a levy on all production, the proceeds of which were used to provide a bounty on exports. Voluntary equalisation between returns from whole milk and milk used for manufacturing began in the 1920s within the Adelaide area was introduced. Regulation was brought to the industry with the passage of the *Dairy Industry Act 1928* which required the wholesale purchase of milk to be based on a butterfat test, recognition of qualified graders and testers,

compositional requirements for dairy products, adequate standards of hygiene A South Australia Royal Commission on Dairy Prices was conducted into the dairy industry in 1933. This period was one of great hardship for the majority of dairy farmers. A particular problem remained the differences in milk prices obtained when milk was sold for whole milk consumption or dairy manufacture.

Meanwhile, the industry had differentiated into five distinct South Australian production regions – the Barossa Valley and mid-north, the River Murray irrigated swamps and Lakes, the Central Region comprising the Adelaide Hills and Fleurieu Peninsula and the South-East of South Australia.

Since the 1930s, there have been major changes in the statistical description of the dairy industry through changes in the manufacturing and distribution of milk, both of dairy factories and companies. The subsidisation of the purchase of bulls was replaced by artificial breeding from the 1960s with centralised semen stores and the establishment of insemination services.

In the period 1950-1980 the number of small herds declined and weekly cream collection eventually ceased. Herds increased in size and whole milk was either collected in cans or held in refrigerated vats (1970s) on the farm, to be collected by factory owned milk trucks or tankers. Integrated milk collection systems under company control commenced as SA Milk Haulage and the SE Milk Collection Service were introduced. By 2010 milk collection systems were based on external contractors with increased use of B Double transport tankers in some areas.

Milking technology has been revolutionised with the redesign of dairies from the original fixed bales to the walk-through bails followed by the herringbone and rotary dairy designs.. Milk meters have simplified herd recording. Automatic cup removers at the end of milking of each cow have reduced the labour of milking. Cows have been identified by freeze-branding and latterly by digital transponders. Systems of automatic milking have been developed, with the first installation of the first system (where) in 2008 whereby cows come to the automated milking parlour and if they have not been there in the past eight hours, cups will be automatically placed on them without any intervention buy the dairy farmer. Since 2009 robotic milking has been introduced on some farms in South Australia

Sources of information and further reading

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Issues to be built in from previous meetings include research and extension, milking machines, bulk milk, dairy shed design, milk transport, SA Milk Haulage, irrigation, grain feeding, pasture, silage and hay, dairy beef, effluent disposal, herd sires, calf rearing and milk replacers, mastitis, rural finance, economics and veterinary issues.