100 Years of Queensland Dairying—I.

Queensland Had Only 12 Dairy Cows in 1859

By E. B. RICE, Director of Dairying.

In the closer settlement of Queensland and the establishment and growth of many country towns, the dairying industry has played an influential role.

In the pioneering stages of Queensland agriculture a farmer could settle on land suitable for dairying with the assurance that almost as soon as he started to develop a farm from the virgin scrub or bush a regular cash income would be received from the produce of a few cows. As additional land was cleared and the dairy herd could be increased, his income would steadily rise.

In contrast with most forms of primary production, where partial or complete failure of a crop through adverse seasonal conditions or other factors may mean the loss of all or most income in a year, dairying has always provided a farmer with a regular monthly cheque from the dairy factory which he supplies.

Pioneering Stage to 1900

The first dairy cattle were brought into Queensland from the Illawarra district in New South Wales in the 1840's and depastured near Ipswich. They were evidently few in number, as there were reported to be not more than 12 dairy cows in Queensland when it was separated from New South Wales in 1859.

As population increased, the numbers of dairy cattle rose steadily to satisfy the demand for milk for household use. Any surplus milk was made into butter on the farm.

Dairying methods in this pioneering stage of the new State were primitive. The milk to be converted into butter was poured into shallow pans or dishes about 18 in. wide by 4 in. deep and the pans were placed in a cupboard for 24 hours or longer. The cream which had risen to the surface of the milk was then ladled or skimmed off. The cream was churned into butter in a small hand-operated churn. The resultant butter was sold to, or bartered with, local storekeepers, who retailed it to their customers.

The locally-produced butter was insufficient for the needs of consumers, and butter was imported into Queensland until 1893. The imported butter was reported to

be of inferior quality, as in those early years there was no refrigerated shipping of butter.

Travelling Dairy Plant

In 1888 the Government, in its efforts to foster the dairying industry, inaugurated a travelling dairy plant which visited the fast-developing dairy districts for the purpose of demonstrating the use of cream separators and methods of manufacturing butter and cheese.

Mr. Baron Jones was in charge of this travelling dairy.

A second unit was placed in commission in 1889, with Mr. John Mahon (who later became the first principal of the Agricultural College at Gatton) in charge.

The first plant continued until 1892, but the second travelling dairy continued its demonstrations until 1896. The equipment of a travelling dairy consisted of one horse-operated separator, two hand separators, one Lister cream tester, two wooden box churns, one cheese vat, one cheese press, cheese moulds, a curd rack and curd cutter.

There was an almost immediate change effected in dairying through the activities of the travelling dairies, and small factories were built in rapidly increasing numbers.

There are conflicting reports on when the first dairy factory was erected in the State, possibly due to differing opinions as to what would be defined as a factory in those times. Some, perhaps, gave this term to a place where simple mechanical facilities were provided, and where milk was purchased from neighbouring settlers, as distinct from the farm operation of making butter by a hand-churn solely from surplus milk.

However, the first central dairy is claimed to have been established by Mr. C. H. Buzacott at Hampton on the Crow's Nest branch railway in 1887. This factory is mentioned in a booklet titled "Dairying in Australia", published in 1902 as a reprint of a series of articles by the agricultural editor of *The Queenslander*.

A special committee appointed by the Queensland Council of Agriculture in 1923 stated in its report on "History of Queensland Dairying, together with Investigation of Its Problems of Production and Marketing" that the first cheese factory of any pretension was erected at Yangan in 1893, and the first butter factory at Allora in 1895. Possibly these establishments were more deserving of being described as factories, but the annual reports of the Department of Agriculture mention the numbers of factories from 1890 onwards.

Brisbane Factory

A central butter factory was erected at South Brisbane in 1890 and by the end of that year there were eight cheese and butter factories and five creameries. The creameries were wooden buildings where a steam-driven cream separator was installed. Nearby farmers took their milk to the creamery, which, after separating the milk, sold the cream to a central butter factory and returned the skim milk to the farmers. This so-called "separator" butter was of better quality than the farm-made or imported butter and attracted a higher price.

The early records show that among those places where the first small factories were established were Lanefield, Brymaroo, Oxenford, Grandchester, Aubigny, Greenmount, Pilton, Quinalow and Toowoomba.

Farm Separators

About this time, farm separators were first imported into the State

and gave a great stimulus to dairying. By their use, the farmer was relieved of the necessity of taking his produce daily to the factory. As cream has better keeping quality than milk, the farmer was able to forward his cream to the factory several times weekly instead of by the daily delivery necessary for milk. Farms farther away from the factories or creameries then began to be developed for dairying.

In 1895, nearly 200 separators were purchased by factories and farmers. Evidently they increased in numbers very rapidly in the next few years as there is mention in 1900 of their advantages in helping to open up dairy farms further away from factories, and to provide skim milk for calf and pig raising, being offset by neglect of proper cleaning of these machines. It was stated that much of the farm-separated cream was far too advanced in age to permit of it being made into high quality butter, that general failure to keep separators clean was a serious threat to the progress of dairying and some means would have to be devised to check the ill-effects to the industry which were arising from the irrational use of farm separators.

Bonus For Export Butter

To foster expansion of dairying, the government in 1894 offered a bonus of ½d. a lb. for all butter shipped overseas.

The first shipment of butter from Queensland to London was in 1895. A total of 17 tons was exported in that year but by 1898 exports had risen to 436 tons. The advent of refrigerated shipping space stimulated the export trade, but Queensland produce had first to go to Sydney by interstate steamers and was transhipped there on to overseas ships. Ships of the Aberdeen line commenced to call at Brisbane in 1903 in order to load dairy produce and ship it to the United Kingdom.

By 1895, there were in existence 23 small butter and cheese factories and 27 creameries.

Competition for cream supplies soon after the factory system began was obviously keen. The booklet previously mentioned states that in some instances cream so bad as to be wholly unfit for use was rejected by one or two companies, but was bought by another. Preservatives were added to the butter made from the cream.

It went on further to say that some factories made the worst quality cream into butter, which they did not brand but sold in the name of the carter who conveyed it from the factory. However, it appears that by 1900 some improvement was already taking place, as mention is made of increasing local consumption due to the better quality of the article and its lower cost.

Once A Day Milking

In the pioneering years before 1900, cows were mostly milked once daily and calves were allowed to run with them. The farmers relied on the indigenous grasses for the grazing of their herds. The potentiality of paspalum as a pasture grass appears to have been recognised about the end of the century, as there is reference to its seeming to offer the foundation for enduring success for dairy farmers and graziers.

Efforts in Herd Improvement

Agricultural show societies first stimulated interest in improving the quality of the dairy breeds by providing competitions at which initially the animals were judged on conformation to dairy type. Later, the competitions also included milking contests. The

earliest records of winners at show competitions are for the Brisbane Exhibition in 1885, when the dairy cattle exhibited were of the Jersey and Ayrshire breeds only.

The estimated number of dairy cattle in the State in 1896 was 80,000.

Milking Competitions

In 1897, a scheme was started for the improvement of dairy cattle by means of milking competitions in different districts. Successful competitors were registered by the Department of Agriculture and permitted to carry a specified brand. In 1905, the scheme was amended to require a cow to be milked, under the supervision of a Departmental Officer, for a test period of two days, and the cow had to have a calculated record of not less than 12 lb. of butter for a week.

The following figures depict the extent of the dairying industry at the close of the last century:

Butter and cheese produced were estimated to be valued at nearly £500,000 and the contingent products of the dairy industry, such as bacon and ham, were valued at £250,000.

In 1899, there were 256 butter and cheese factories and 438 creameries. Altogether 930 establishments were handling cream only, and 4,740 were handling butter and cream. The total quantity of milk dealt with for manufacture into butter on the farms, in factories and in creameries was 22,934,000 gal. This was converted into 5,796,000 lb. of butter in central factories and 2,666,000 lb. on farms, or a gross total of 8,462,000 lb. The appreciable proportion of farm-made butter is obvious.

Two hundred and twenty-one producers of cheese used 1,911,000 gal. of milk in the manufacture of 1,910,000 lb. of cheese.

The exports were 1,159,255 lb. butter valued at £49,517, and 11,358 lb. cheese worth £250.

Co-operative Factory Movement

The earliest dairy factories were all owned by proprietary companies or private individuals. Although some of the creameries were co-operatively owned by the producing suppliers, they forwarded the cream to proprietary butter companies.

A co-operative factory at Lanefield had 50 suppliers in 1892. In 1894, four factories and one creamery were co-operatives, while the total numbers were 16 factories and 13 creameries.

A co-operative butter and cheese factory was established at Tiaro in 1890 and found a ready market for its products in Gympie, which was then a flourishing gold mining town. However, this factory apparently was short-lived as a co-operative and closed in 1892. It was acquired by, and operated as a branch butter factory of, the Lowood Creamery Co. Ltd., for an advertisement by that company in 1902 included the Tiaro factory among its factories. Its other branch butter factories were at Boonah, Beaudesert and Toowoomba, and it owned a cheese factory at Yangan.

The co-operative movement in the sphere of dairy products manufacturers began to displace proprietary interests in the early 1900's. The Queensland Farmers' Co-operative Association was formed in 1900 and in May, 1901, commenced to manufacture butter at a factory established at Booval. Its production for the year ended

April 30, 1902, was 1,094,906 lb. butter. Thereafter, co-operative dairy associations soon gained ascendancy.

The Maryborough Co-operative Dairy Association's annual reports indicate that it was also in existance in 1901; 33,309 lb. of butter were made for the year ended June 30, 1901.

The Downs Co-operative Dairy Association, Toowoomba, was founded in 1902 and the Port Curtis Co-operative Dairy Association in 1904. This company's annual reports show manufacturing data for the year ended June 30, 1906, when 8,038 lb. of butter were made: There were only 32 suppliers to the Association for that year.

These four pioneer co-operative dairy companies are now the largest dairy companies in the State.

Nowadays, Queensland dairy farmers, through their co-operative factories, largely control the manufacture into butter and cheese of the milk and cream produced by them. In recent years in most parts of the State, the co-operatives have also engaged in the pasteurised milk trade. In 1958, only one of the 48 butter factories, five of the 24 cheese factories, and four of the 18 pasteurised milk factories in the State were not conducted by co-operative associations.

The First Legislation

The Meat and Dairy Produce Encouragement Act of 1894 was the first statute passed with the object of fostering the dairy industry. It provided for loans to be made available by the Department of Agriculture for the building and equipping of dairy factories.

The Dairy Produce Act was originally passed in 1904 and came into effect on April 1, 1905. It was the first Act governing the manufacturing side of the dairy industry in Australia, although a Dairy Supervision Act was passed in New South Wales in 1901 to deal with control of milk and cream production on farms. This Act was repealed by the 1920 Act to which many amendments have been made in the meantime.

A Government Dairy Expert (Mr. G. Sutherland Thomson) was appointed to the Department of Agriculture and Stock in March, 1904, and in that year Queensland was the first State to enforce butter grading. The compulsory grading of cream was introduced on August 1, 1908.

A Margarine Act was passed in 1910.

The Co-operative Agricultural Production and Advances to Farmers Act, 1914-1919, superseded the Meat and Dairy Produce Encouragement Act, but limited loans to co-operative associations. It also assisted farmers to purchase dairy stock. This Act was repealed in 1923, but additional facilities then became available for co-operative dairy companies and dairy farmers under the Agricultural Bank Act of 1923.

Subsidy for Bulls

A scheme for payment of a £ for £ subsidy to purchasers of purebred dairy bulls which were the progeny of a cow entitled to registration in the advanced register of Dairy Cattle Breed Societies was introduced in 1925. This scheme was amended in 1932 by limiting the Government's contribution to a refund of rail freight and in that year the Dairy Cattle Improvement Act was passed.

A main provision of this Act was the registration of dairy bulls, but, due to intense opposition by farmers, the bull registration scheme was never implemented.

The Primary Producers' Organisation and Marketing Act was passed in 1926. It was considered the most progressive legislation of its kind in any country at that time, and provided for the organised control of the marketing of primary products by boards constituted of representatives of the producers of the various commodities. A board was only formed after a poll of producers indicated their wish to engage in such a form of controlled marketing.

Marketing Boards

The butter and cheese sections of the dairy industry, which had previously set up marketing boards, were among the first to form boards under the new legislation.

Provision was made under an amendment of the Dairy Produce Acts in 1935 for the organised control of the transport of milk and cream to factories by the gazettal of milk and cream routes to factories and the licensing of milk and cream carriers.

Action was first taken to gazette routes in 1937. This amendment was designed to assist in quality improvement by ensuring that milk and cream supplies generally were forwarded to the nearest factory, to avoid uneconomic competition by factories for supplies, and to prevent undesirable practices, such as improper cream grading and subsidising transport costs.

During the war years of 1939-45, action was taken to eliminate some overlapping which existed in the cream routes originally gazetted to the factories. A committee was appointed in 1940 to examine the practicability of zoning cream supplies for butter factories, but, after submission of its report, no action was taken to implement a factory-supply zoning scheme.

In 1939, the Margarine Act of 1910 was amended. It defined table margarine and provided for quotas to be determined for its manufacture. Quotas aggregating 645 tons yearly were allotted to three firms in 1941. However, due to the difficulty of obtaining raw materials, the quotas were not attained until 1947-48. Subsequent amendments of quotas were 1,600 tons in October, 1951, 6,860 tons in May, 1953, and 4,236 tons in July, 1954.

The Act was repealed in 1958 and a consolidated Act passed. It provided for two specific types of margarine—cooking and table—and the packages containing same to have printed on them the type of margarine within the wrapper.

A Filled Milk Act was also passed in 1958 to prevent the production and sale in Queensland of any imitation milk made from non-fat milk solids and vegetable oils as a replacement of butterfat.

(TO BE CONTINUED)

100 Years of Queensland Dairying—II.

Progress With Breeds And Production

By E. B. RICE,
Director of Dairying.

The system of herd-book registration of dairy cattle began in this State with the foundation of the Queensland Dairy Herd Book Society, the first such society in Australia, in 1900. It catered for all dairy breeds and in its first volume issued in 1900 there were registered 34 bulls and 69 cows of the Jersey breed, 12 bulls and 49 cows of the Ayrshire breed, 1 bull and 1 cow of the Guernsey breed, 1 bull and 1 cow of the Holstein breed.

A Jersey Cattle Society was formed in Queensland in November, 1906, and issued its first herd book in 1907 in which were also included all Jersey cattle previously recorded in the Jersey section of the Queensland Dairy Herd Book. The total Jersey registrations then were 157 bulls and 378 cows. A reference to an advanced register of dairy stock is found in volume 8 of the Society's herd book issued in 1918. Testing of cows for entry to this register commenced in 1916. The requirements for entry were for cows under 3 years to produce in 48 hours at least 2 lb. commercial butter, cows under 4 years 2½ lb. and cows over 4 years 3 lb. A bull was eligible for A.R. rating if four of his daughters had so qualified. The cows were tested by officers of the Department of Agriculture and Stock.

The Ayrshire Cattle Society of Queensland, which was founded in 1912, issued its first herd book in 1915. There were 321 bulls and 758 cows in this first volume. This Society believed it was the first Australian herd book to contain an advanced register, provision for which was made in August, 1914. For entry to this register a cow had to produce 2 lb. butter in 2 days if under four years of age and 2½ lb. if over four. A bull which had sired four A.R. cows qualified for the register.

The Holstein-Friesian Cattle Club of Australia, which was formed at a meeting held in Toowoomba in April, 1914, published its first herd book in 1917. The Society's name was changed in August, 1918, to the Friesian Cattle Club of Australia. The first herd book contained 28 bulls, 23 of which were in Queensland, and five in New South Wales. There were 143 cows, of which 94 were in New South Wales, 48 in Queensland and one in South Australia. This herd book also contained four appendices (which were closed on 30th April, 1919) in which were 34 cows. Female progeny of these cows if sired by a registered bull were subsequently entered in the herd book, the number of upgradings by a purebred sire depending

on the section of the appendix in which the cow was entered.

The advanced register is referred to in Volumes 1 and 2 of this Society's herd book published in 1920. The minimum yield to entitle a cow to advanced register entry was 3½ lb. commercial butter in 48 hours for a cow five years or older, an allowance of .01 lb. being made for every 7 days under 5 years, with a minimum yield of 2 lb. for the 48 hours.

The foundation volume of the Illawarra Dairy Cattle Association of Queensland was published in 1918. There were 29 bulls and 559 cows entered in this volume. A condition of entry in this Society's herd book was that a cow must pass a butterfat test on the following standards:—

2 permanent teeth, 2 to 2½ years, 7 lb. a week.

2 to 4 permanent teeth, 2½ to 3 years, 8 lb. week.

4 to 6 permanent teeth, 3 to 4 years, 9 lb. week.

Full mouth, over 4 years, 10 lb. week.

The weekly yield was calculated on a 48 hours' test by an officer of the Department of Agriculture and Stock.

A bull was eligible for registration if four of his daughters had qualified for registration.

An Advanced Register was begun in January, 1918. The qualification for entry of cows was that they had been tested twice (48 hours' test) during a lactation period and had produced the following calculated yields of commercial butter in 7 days:—

Age	After Freshening	Not less than Six months after Calving in the Same Lactation Period
	lb.	lb.
2 to 2½ years ..	11	6
2½ to 3 years ..	12	7
3 to 4 years ..	13	8
Over 4 years ..	14	9

If four of his daughters had qualified for the Advanced Register, a bull was also eligible for this rating.

There were at least two purebred Guernsey cattle in Queensland in 1900, as Volume 1 of the Queensland Herd Book Society contains the names of one bull and one cow of this breed, both being owned by the Agricultural College at Gatton. A Queensland branch of the Guernsey Cattle Society was not formed until 1928. However, in Volume 5 of the Herd Book of the Australian Society, issued in 1923, there were the names of three Queensland breeders who owned three bulls and 28 cows which were in the register.

Table 1 gives the membership of Dairy Cattle Breed Societies in May, 1959, and the herds recorded under the Purebred Recording Scheme. It will be seen that only 10 per cent. of registered stud breeders have their herd production recorded.

Progress in Farm Practices

The standards of dairy buildings and of hygiene were causing concern at the beginning of the present century. There was stated to be a need for instruction and legislation

TABLE 1

MEMBERSHIP OF BREED SOCIETIES
MAY, 1959

Herd Book Society	Membership	Herds Tested	Percentage
A.I.S. ..	390	48	12
Ayrshire ..	46	5	11
Friesian ..	60	12	20
Guernsey	86	12	14
Jersey ..	580	43	7
Total	1,162	120	10

to overcome the ignorance and carelessness which were evident in production methods on dairy farms.

What appear to have been the first model dairy farms in the State were at Talgai West. The Scottish Investment Company had five dairy farms on its property, four of which were occupied by tenants on a share-farming system. There was a total of 410 cows on the farms. The farming practices there in 1901 were in strong contrast with the general methods of the times. The cowsheds had concrete floors and were effectively drained, milk was cooled and strained, the dairy utensils were steamed and there was an adequate supply of water, pumped from a windmill, at the shed. Fodder crops were grown for the herd to supplement the paddock grazing of the indigenous grasses and silage was made from maize. These farms would almost certainly have been the first in Queensland on which systematic records of production of cows were kept. Daily milk yields were recorded of all cows and butterfat tests were also made at intervals. The production records were used for breeding and culling.

The invention of the milking machine and its possibilities were mentioned in 1904, but it was only in the 1920's that real headway was made in installation on farms. Machine-milking made rapid progress after 1945, and in 1957 there were 16,482 milking units (sets of teatcups), installed on Queensland farms. In some of the major dairying districts, 98 per cent. of the cows are now milked by machine.

The inadequacy of fodder reserves on dairy farms and the desirability for more attention to fodder conservation has been pointed out from time to time in various reports right from the latter years of the last century. This has often been highlighted by quoting the ravages of the periodically recurring droughts. It was estimated that the 1915 drought caused losses of £2,316,000, of which £1,356,000 was due to decreased quantities of dairy products and £960,000 was through stock losses. Butter production in 1927-28 was 19 per cent. below that of the preceding year, and in 1936-37 it was also 25 per cent. lower than in 1935-36. In the 1946-47 drought, the estimated losses were £2,500,000 for dairy products and £1,000,000 for stock and in 1951-52 they were £10,G00,000 and £5,000,000, respectively.

Grade herd recording began in Queensland in 1910, but for some years farmers' herds were only recorded when an officer was in their particular district. Many herds in these years would have been recorded only once during a lactation. The system was known as the farmer's-sample system, whereby the farmer weighed and sampled the milk from each cow in his herd during the four milkings in two days and took the samples of milk to an officer who visited the district to carry out the butterfat tests. In 1925, the rules governing herd recording were altered to require a

farmer to have at least four tests made at approximately two-monthly intervals during a lactation period. He weighed and sampled the milk of each cow during the 24 hours' test periods, and the fat tests were done in the Brisbane testing room or at factories. All records were compiled for the farmer by the Department.

The group herd recording scheme under which a herd tester is appointed to visit each farm in a group of 20 once monthly to weigh, sample and test the fat content of each cow in the herd was inaugurated in 1948. From eight groups in 1948, the numbers were extended to 83 groups in 1958.

Testing of purebred dairy cattle for a 273 days' lactation period was commenced in Queensland in 1921, but owners then entered only selected cows. Five tests, each over a 24 hours' period, were made in a lactation, the animal being stripped out under the supervision of the Departmental testing officer at the milking preceding each test.

From 1st July, 1923, the official Registered Purebred Dairy Cattle Production Recording Scheme commenced. In a stud herd entered under this scheme, at least 25 per cent. of the registered purebred cows were required to be submitted for testing. The prescribed production standards for entry to the advanced register of Dairy Cattle Breed Societies ranged from 200 lb. for junior two-year-olds to 350 lb. for mature cows, the increments being of 25 lb. for each increase of six months of age. From 1st July, 1930, the junior two-year-old standard was lifted to 230 lb., and the other age standards remained as before, but the increments then became 20 lb. for each successive age group.

In 1948, the rules of the Department of Agriculture and Stock were amended to require not less than one-third of the registered purebred cows in a herd, including all cows during their first lactation, to be recorded. This was to enable sire surveys to be made. From 1st July, 1958, all registered cows were required to be recorded in every herd entered under this scheme.

The appointment of a Pasture Improvement Committee in 1930 was indicative of an awakening of interest in the need for improved pasture management in dairying districts.

Refrigeration for cooling and holding cream on farms was pioneered in the Roma district in 1936 due to the initiative of Mr. R. S. Beresford, Manager of the Roma Co-operative Dairy Association. By 1941, there were about 100 refrigerators in dairy sheds in various parts of South Queensland, mainly in the Roma district. The Queensland Butter Marketing Board commenced to make farm refrigerators in 1946 and due to an arrangement with the Agricultural Bank for their purchase by farmers on a low deposit and monthly instalments deductable from the farmer's pay cheque from the factory he supplied, farm refrigeration then made steady progress. This year there were 2,500 farm refrigerators in the State.

In 1939, steam sterilization for milking machines and farm dairy utensils was introduced, the initial installations of low-pressure steam sterilizers being made on a number of farms on the Darling Downs. However, as electricity began to be reticulated rather extensively in rural areas after 1945, farmers generally preferred to install electric

hot water boilers, which were more convenient than the steam sterilizers which depended on wood or kerosene fuel.

A dairy shed, known as the combined dairy building, was designed in 1939 to enable all milking shed operations and storage of milk and cream to be done in a single building. Previously, the milk and cream were required to be stored and the utensils washed and kept between milkings in a dairy at least 30 ft. away from the milking shed. The extension of machine-milking, and refrigeration, necessitated all operations being centralised in one dairy building.

The Queensland Dairymen's Organisation, which was formed as an organisation to represent the views of Queensland dairy farmers before Governments and so on, started as a voluntary organisation in April, 1940, and in 1946 was given statutory authority under the Primary Producers' Organisation and Marketing Acts.

Some important developments in dairy farming in Queensland took place in the years after the 1939-45 war. The reticulation of electricity to rural areas led to its rapid use in dairy sheds for motive power and heating water supplies; there are now 5,635 electric water heaters in dairy sheds, whereas their numbers were negligible in 1939. Machine-stripping of cows began to displace hand-stripping, about 30 per cent. of farmers having ceased to hand-strip by 1958. Interest in dryland pasture improvement and management has now become widespread through the dairying districts, and irrigated pastures, which scarcely existed in dairying districts in 1945, are being established at a rapidly increasing rate on farms where irrigation is practicable.

The buckrake and forage harvester are leading to a growing adoption of silage-making, and the chisel plough is assisting in the establishment of improved pastures. Advances in earth-moving machinery are creating interest in water-harvesting, although only a few farms have so far adopted this method of conserving water for irrigation of pastures or fodder crops. Artificial breeding schemes are in operation in the Nambour and Atherton Tableland districts.

Progress and Statistics

The statistics in Table 2 show the development of the Queensland dairy industry since the beginning of this century:—

TABLE 2

Year	Dairy Cattle	Total Milk Production (000 gals.)	Butter (000 lb.)	Cheese (000 lb.)	Condensed Milk (000 lb.)
1900–01	136,000	23,825*	9,742	2,437	..
1910–11	357,095	71,770	27,859	3,718	6,228
1920–21	554,208	151,081	60,923	15,201	15,169
1930–31	775,301	224,085	95,719	13,648	..
1940–41	1,446,731	279,267	119,940	11,733	..
1950–51	1,440,198	278,111	106,281	19,430	..
1957–58	1,269,969	207,753	72,308	11,590	(drought year)

* Milk used in butter and cheese only.

In 1902, the investment in dairy factories was stated to be £51,000 on machinery and plant and £48,000 on land and premises. In 1905, the dairying industry was making the most progress of all sections of Queensland agriculture. By 1920 the capitalised value of dairy products produced in Queensland was estimated to be between £7,000,000 and £8,000,000. The peak values were recorded in 1952-53, when the estimated total value of milk for consumption (ex farm), milk products (ex factory), and by-products (for animal feeding) was £36,000,000.

Capital investment in the dairy industry was estimated to be £35,000,000 in 1930.

A rapid expansion phase of dairying in Queensland was between 1927 and 1937, when the total number of dairy cattle rose by nearly 50 per cent. Several new areas which had been opened for dairying just before, and during, this decade, and the collapse of prices for other primary products, which was even more severe than for dairy products during the depression years of the 1930's were responsible for this expansion.

The record year for total milk production and butter was 1938-39, when 347,000,000 gal. of milk and 154,378,000 lb. of butter were produced. The average milk yield of 361 gal. per cow was also the highest ever attained. However, the record year for the dairy cattle population was not until 1943, when 1,574,000 dairy cattle were in Queensland. Cheese production reached its highest level of 28,501,000 lb. in 1942-43. The special request of the British Government during wartime resulted in a temporary changeover to supplying milk for cheese factories by many former cream suppliers whose farms were conveniently situated for assisting to expand cheese production.

In 1952-53, butter production (ex factory) reached the highest monetary value recorded of £23,672,000 of which £4,166,000 was Commonwealth Government subsidy.

Cheese production also attained its record monetary value of £2,378,000, including £269,000 as subsidy, in 1952-53. Capital investment in the industry in 1958 was estimated to be £200,000,000.

[TO BE CONTINUED]

Spear Grass For Hay

"R.B.", of Bowen, has inquired about the suitability of spear grass for hay production.

Answer: It is generally considered that pure stands of spear grass are not particularly good for hay production. In a native pasture mixture, however, a small percentage of spear grass is permissible. This will not spoil the quality of hay produced, provided the mixture is cut in the very early flowering stage of the spear grass. Spear grass loses protein content rapidly after flowering and at the same time there is a considerable increase in the crude fibre percentage.

Mr. E. B. RICE

100 Years of Queensland Dairying—III

Butter, Cheese, and Market Milk

By E. B. RICE, Director of Dairying

The early phases of the change-over from farm butter-making to factory production were discussed in the first part of this article, which dealt with the pioneering stage of the Queensland dairy industry between 1859 and 1900.

The earliest record shows that pasteurisation was adopted in Queensland in the dairy at Gatton Agricultural College in 1898-99. All the cream manufactured into butter at the dairy during that year was pasteurised and this treatment was

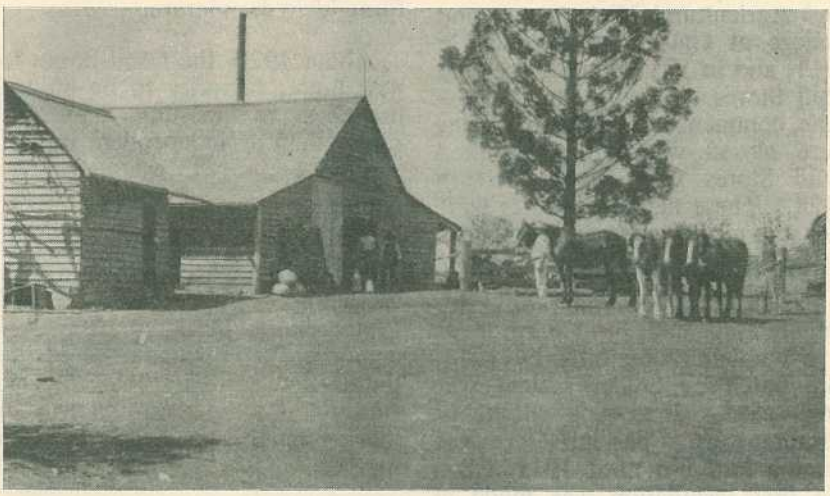

Plate 1

Purga Butter Factory, Which Operated From 1901 to 1914. The factory was situated nine miles from Ipswich and received cream from about a dozen suppliers. This photograph was kindly lent by Mr. M. H. Dick, of Purga.

continued thereafter. However, it is not recorded what type of pasteuriser was used.

The prevalence of a fishy flavour in our butter was mentioned in the early 1900's. It was not present in the butter immediately after manufacture but manifested itself in export butter by the time it reached England. The cause was baffling those connected with the butter industry in Australia and England, but was finally established in 1920 as the contamination of cream by traces of copper and iron. These traces came from the farm and factory dairy utensils and equipment.

In those early years, farmers' indiscriminate addition of preservatives to milk and cream was also a matter of concern. The quality of the cream reaching the factories was low; it was common for the cream to be so fermented as to ooze over the rim of the can.

Hamilton Cold Stores

The dairy factory at the Queensland Agricultural High School and College at Gatton was opened in 1911, and in 1912 the Government Cold Stores at Roma Street, Brisbane, commenced operations. They were closed when the Hamilton Cold Stores were constructed in 1924. These new cold stores were then the most modern and spacious in the Southern Hemisphere.

Pasteurisation of cream for butter manufacture had been introduced in a number of factories by 1914. The batch or holder system was first used, dome-type flash or instantaneous pasteurisers not coming into use until 1911, when the first installation was made at Warwick factory. Neutralisation of cream also began in this period.

In 1925, all butter factories had been equipped with pasteurisers. The export of choice or first grade butter was prohibited by Commonwealth Government legislation from August, 1924, unless it was made from pasteurised cream. This had the effect of compelling all factories to install pasteurisers for the treatment of all cream from that date.

Systems for deodorising cream used in butter manufacture were introduced in the mid 1920's, but the original systems have now been entirely displaced by modern vacuum pasteurisation techniques. The first vacreator was installed in Kingston factory in 1934 and the first Creamery Treatment Unit, in which a cream-steam counter flow principle is employed, was installed in Booval factory in 1955.

Wood taint and mould growth were common defects of Queensland butters in the 1920's; neither defect occurs now. The wood taint imparted by butter boxes made of Queensland hoop pine was overcome in 1930 by spraying the boxes of export butter with a casein-formaldehyde mixture.

About 1920, the trend began for new butter factories to be built as branches of existing companies rather than as independent units.

Organised Marketing

Organised co-operative marketing of butter was initiated in 1921 when a Queensland–New South Wales Butter Pool was formed to equalize the prices received for butter by each factory whether it sold on the more profitable local market or the lower-priced export market.

The Queensland Butter Marketing Board which now has statutory authority to control the marketing of butter sold intra-State, was constituted in February, 1925. It was

not until 1936 that the Board established its own patting factory in Brisbane and displaced private butter packing firms. However, the Board has continued to allow wholesalers to distribute butter to retail sellers.

In 1955, the Board moved to a new factory which is considered the most modernly constructed and equipped butter packing and blending factory in the world.

The Gympie factory of the Wide Bay Co-operative Dairy Association, which was rebuilt in 1925, then had the highest butter production of any factory in Australia. Its output in 1925-26 was 3,547,949 lb.

In the early history of Queensland dairying, milk and cream were conveyed from the farms to the separating depots and factories by horsedrawn vehicles. A report in 1925 referred to motor transport gradually superseding horse-drawn vehicles for conveying cream to butter factories and two rail motors for conveying cream were constructed by the Railway Department.

Equalization

In 1926, the Kangaroo brand was introduced for butter exported to Britain. The Paterson scheme also introduced then, was the forerunner of the voluntary Australia-wide equalization scheme which came into effect in 1934. The Paterson scheme provided for a levy to be imposed on all butter and cheese produced within Australia, and bonus payments on exports. Under the Equalization Scheme, the returns to manufacturers of butter and cheese are equalized, irrespective of whether the produce is sold on export markets or within Australia.

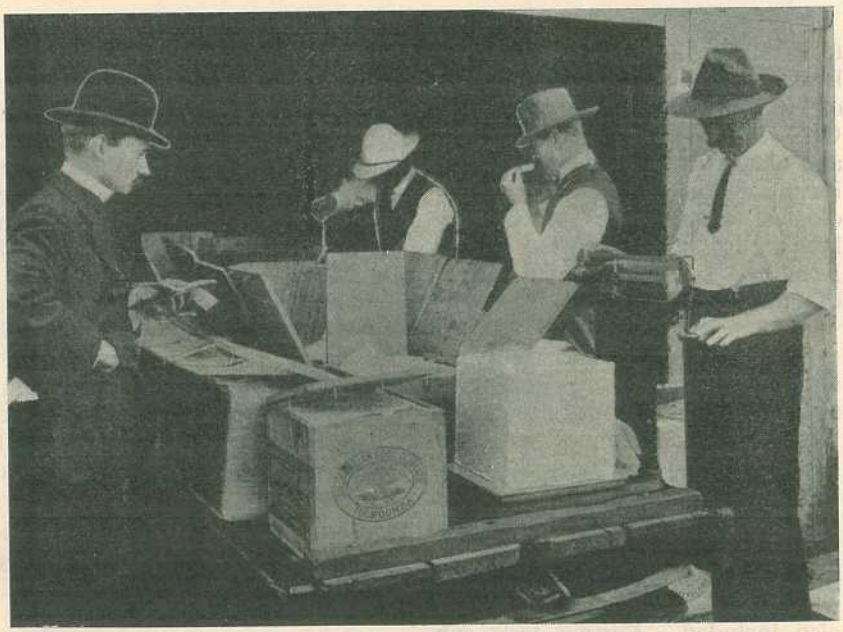

Plate 2

Grading Butter At Brisbane about 1907. On the left is Mr. G. S. THOMSON, Queensland's first butter expert. Two of the men with him are Mr. R. WINKS and Mr. J. WILSON.

Experiments in producing unpreservatised butter were commenced in 1924. All butter exported up to that time was preservatised with boric acid. In 1927, the British Ministry of Health prohibited the use of preservatives in butter and they have since then been forbidden under the provisions of the Dairy Produce Acts.

In 1926-27 the official quality gradings of Queensland butter were 35 per cent. choice, 42 per cent. first, 15 per cent. second and 8 per cent. third grade.

In the earlier years, most factories were constructed of wood, but a change to brick construction became evident between 1920 and 1930 and all factories have since then been required to be of brick or concrete.

Dairy Research

The nucleus of a scientific staff to specialize in dairy industry problems was the appointment in 1930 of a University graduate (Mr. O. St. J. Kent) to carry out chemical and bacteriological examinations. Results of the first detailed bacteriological examinations of Queensland butters were reported by Mr. Kent in the 1932 Annual Report of the Department.

A Dairy Research Laboratory was established in 1935. A scheme to assist factories to control the moisture and salt contents of butter was introduced by the Dairy Research Laboratory in 1937. This was called the Butter Standardization Scheme, which was changed in 1939 to the Butter Improvement Service whereby bacteriological tests were also included. Further tests subsequently embraced in the scheme were pH, microscopic examination for thoroughness of moisture incorporation and extraneous matter.

Differentials in prices of cream paid to suppliers of butter factories were introduced by a regulation under the Dairy Produce Acts in 1936. Choice grade cream was paid for at ½d. a lb. commercial butter over first grade and first grade was 1d. a lb above second grade. All previous regulations under the Acts were revoked in this year and new regulations, based on changes in the industry were substituted.

In 1939, a churn with a capacity of 100 boxes of butter was installed in Malanda factory. The first metal churn was installed in Laidley factory in 1942, but this type was unsuitable for Queensland conditions and was discarded after a couple of years. Suitable types have since been developed and there are now 22 metal churns in Queensland factories. The first installation was made at Kingston factory in 1956.

THE CHEESE INDUSTRY

At the National Agricultural and Industrial Association of Queensland exhibition in 1891, a special prize was awarded to Daly Brothers, Quinalow, for the best Queensland-made cheese. This certificate is now possessed by Mr. M. Daly, Woodford.

A co-operative cheese factory was opened at Pittsworth in 1896. The Pittsworth Co-operative Dairy Association soon became the highest cheese-producing company in the State, and retained this position until displaced in 1945-46 by the Downs Co-operative Association which built a large central cheese factory in Toowoomba.

The contrast between the scale of manufacture in cheese factories at the beginning of the century and present-day factories is reflected by

a reference in 1902 to the Pittsworth factory, then the largest in the State, receiving 1,200 gallons of milk daily.

In 1914, Queensland became the highest cheese-producing State and retained this position until 1935-36, when it was displaced by Victoria. Pasteurisation of milk in cheese factories began about 1914, but inability to import pasteurisers during the first world war hindered progress.

In 1942-43, Queensland again achieved the position of premier cheese-producing State. However, its ranking was short-lived as Victoria again overtook Queensland production in 1943-44 and has continued to be the leading State. South Australia now ranks second and Queensland third.

There were 94 cheese factories in 1920, the highest number ever in the State. Prior to this year, there was no uniformity of size of cheese produced for the export trade, but in that year a standard 80 lb. size was adopted by all factories for such cheese.

A Cheese Pool Act was proclaimed in 1921 to provide for the formation of a Cheese Board and equalization of returns to factories whether their cheese was sold locally or exported. But even in 1910, a Downs Co-operative Cheese Factories Association had been formed, mainly to deal with the high prices then charged for cheese crates and in 1913 a Queensland Cheese Manufacturers Association was formed, which in 1914 fixed prices for cheese sold locally.

A mammoth cheese, weighing 1½ tons, was made at Pittsworth factory in 1923 and sent to the Wembley Exhibition in London.

Plate 3

Dairy Cattle at Talgai West in 1912.

The need for refrigerated holding rooms at cheese factories and the fact that none was then in existence was mentioned in 1926. The first refrigerated cheese holding room was provided at the Malling factory in 1930. In 1958, 18 out of 24 factories had refrigerated storage rooms.

In 1930, only about half of the cheese produced in the State was made in factories which had milk pasteurisers installed. In 1958, all cheese factories, excepting two with small outputs, manufactured cheese from pasteurised milk.

Rehabilitation

The cheese industry in 1937 had reached a stage where factory buildings and equipment were generally in an unsatisfactory condition and cheese quality was poor. The industry and the government agreed that rehabilitating action was necessary. In attempting to meet competition for milk supplies from butter factories, cheese factories had for some years paid as high a price as possible for these supplies with the result that maintenance of factory buildings and equipment had been seriously neglected and cheese quality was causing much concern.

A scheme was implemented by the Department of Agriculture and Stock in 1938 whereby cheese manufacturers were required to make a gradual but effective improvement in rebuilding or renovating factories and installing more efficient equipment. At the same time, they were given more technical help from Departmental officers with a view to raising the general quality of Queensland cheese production.

A travelling dairy laboratory, with the author in charge, commenced operations among Downs cheese factories in 1938. This had for its purpose the giving of greater technical help in the industry's problems. The work at first was concentrated on carrying out tests for milk quality, advising farmers on quality milk production and introducing improved methods of control of starters in factories.

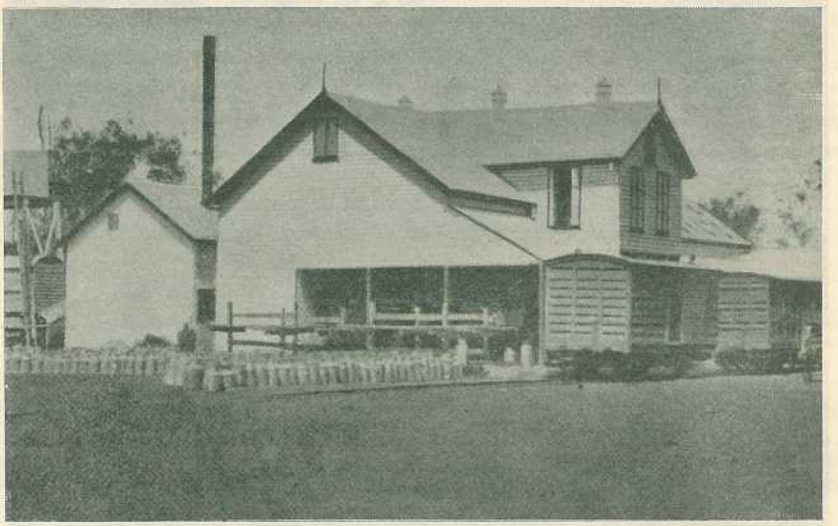

Plate 4

The South Burnett Co-operative Butter Factory at Murgon in 1914.

Quite a number of small cheese factories were closed during the early phase of the cheese industry rehabilitation scheme, the supplies being diverted to larger central factories. Up to this time, most cheese factory suppliers lived not more than two to three miles from their factory, but organized transport of milk supplies to cheese factories was then introduced by several associations in conjunction with this centralized manufacturing development.

Organized motor lorry pickup of milk supplies for cheese factories enabled milk supplies to be drawn from more distant farms and nowadays few suppliers convey their own milk to a cheese factory.

Although, since 1904, some grading of cheese had been carried out, it was not until 1940 that systematic grading of cheese for local sale and processing in Brisbane was instituted.

Expansion Scheme

About two years after the cheese rehabilitation scheme was commenced, a further development had a market effect on the cheese industry. In 1940, the British Government was concerned about the cold storage position for butter in the event of enemy bombing of British cold stores and requested the Australian Government to reduce butter exports but at the same time increase cheese exports. A scheme known as the Cheese Production Expansion Scheme was implemented.

Fifteen new cheese factories were established and 35 existing factories were enlarged and provided additional equipment to handle greater milk supplies. This scheme culminated in the State's record cheese production of 28,501,000 lb. in 1942-43; its monetary value exceeded £1,000,000 for the first time!

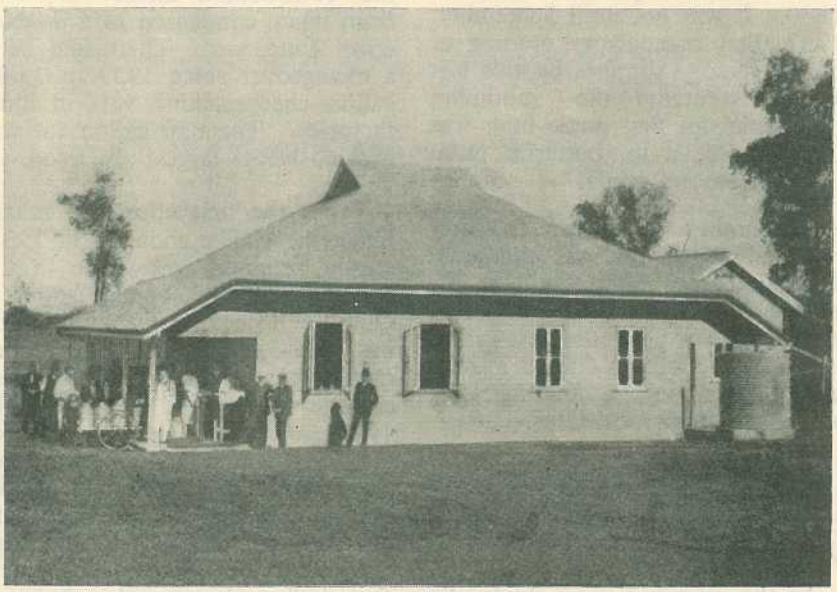

Plate 5

The New Dairy at Queensland Agricultural College, Gatton, in 1912.

Plate 6
Farmers Arriving With Milk at Cambooya Cheese Factory in 1919.

Cheese production then commenced to fall, due to a reversion of some suppliers to producing cream for butter manufacture.

The payment to suppliers of price differentials, according to the methylene blue test for milk quality, was introduced by two factories in 1940. It was not until September, 1957, that compulsory grading of cheese factory supplies by this test was instituted; the minimum differential for first grade milk was fixed at 2d. a lb. butterfat more than for second grade.

A number of cheese factories had commenced to wax cheese in 1939, but as waxing of cheese for export to Britain was prohibited during the war years, interest in this method of covering cheese lapsed, excepting among a few factories which had large local sales.

Whey separators were in use in three cheese factories in 1945, and thereafter were installed in all of the larger factories.

In the post-war years, hydraulic cheese presses, whey separators, water-seal lids for bulk starter cans, mechanical curd stirrers, automatic temperature and humidity control systems for cheese holding rooms, and *all-stainless steel* plate type pasteurisers, cheese vats and other equipment were features of progress in cheese factories. Whey powder was made by the roller process in the Toowoomba factory in 1949 from whey condensed in a double-effect condenser. There had been a changeover since 1939 to 1,000 gallon cheesemaking vats in most factories. The 650 gallon vat was previously the largest size used.

From the first efforts to rehabilitate the cheese industry in 1938, steady progress was made in the improvement of cheese quality. Only 36·8 per cent. was first grade in 1937-38, but in the record quality year of 1957-58, the percentage so classified was 88·2. In 1955, with the development of plastic-type film for the covering of cheese instead of the conventional cheese bandage, the Queensland industry commenced to package cheese for local sale in consumer-size, rindless cheese packs. Associated with this development, which has been quite rapid, a marked

improvement in the presentation of cheese on the local market has been a creditable achievement of the cheese industry. From January 1, 1959, all cheese exported to England was waxed. This action was taken voluntarily by the Australian cheese industry.

Since 1955, several cheese factories have diversified the types of cheese made. Among the varieties produced are Gouda, Edam, Taffel, Carraway seed, smoked and clove cheeses. Gruyere and Roman cheese have been made at the Malling factory for many years.

THE MARKET MILK INDUSTRY

From the inception of settlement in the State until the turn of the present century, all milk consumed in Brisbane was produced on nearby suburban dairy farms.

Early records indicate that in 1902, milk was first brought to Brisbane by rail from outlying areas such as Bald Hills and Strathpine and later from Rosewood, Lowood and Caboolture. This was brine cooled, stored in cans in cold rooms and distributed by retail vendors.

The retail distribution method was to place the milk in a can fitted with a tap. The vendor poured out the quantity purchased by the householder into a measure, placed this milk in another vessel and transferred the milk into a jug or billycan left by the consumer on his doorstep.

Bottled, chilled raw milk was distributed from two small establishments in Brisbane in 1912. Pasteurisation of milk for city consumers was first commenced in 1919 in a factory at North Quay in Brisbane owned by Brisbane Milk and Ice Co. and at a factory in Ipswich owned by Pommer Bros.

The railway strike in 1927 led to the abandonment of rail transport for bringing country milk supplies into Brisbane and since that year all country supplies have been sent to Brisbane by road transport. However, in the early stages the milk was simply conveyed in milk cans and mostly was not even chilled before commencing its journey.

In 1928, about 1,000 gallons (5 per cent.) of bottled pasteurised milk were sold daily in Brisbane,

Plate 7

The Southern Queensland Dairy Company's Butter Factory at Kingston, Which Was Established in 1906 and Rebuilt in 1932.

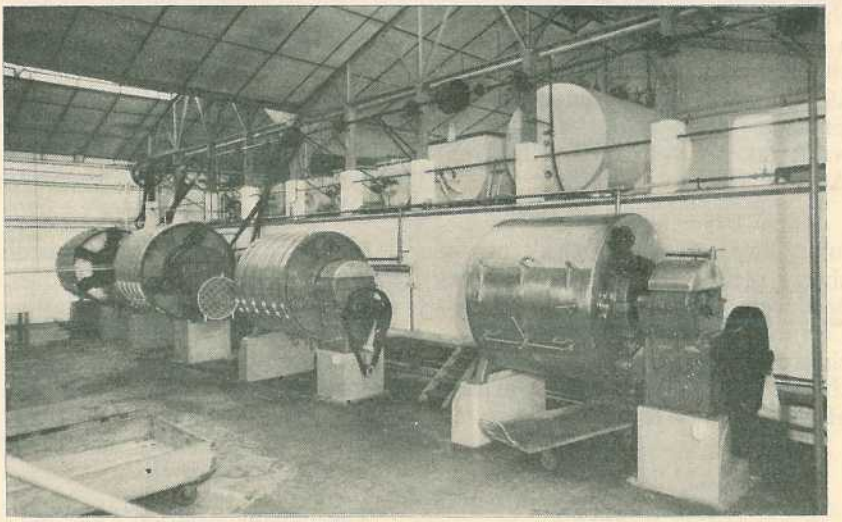

Plate 8

Kingston Butter Factory's Churn Room After Installation of Stainless Steel Churn in 1956.

3,000 gallons (17 per cent.) of pasteurised milk (unbottled), and 14,000 gallons (78 per cent.) of raw milk.

The market milk industry was in a chaotic condition during and just after the depression years of 1930's. This was due to cut-throat competition on the Brisbane market through supplies being brought into the city from additional country areas. A Milk Supply Act, which was passed in 1938, provided for the formation of the Brisbane Milk Board and the organised marketing of Brisbane milk supplies. It also provided for approval to be given for companies outside Brisbane to be given the exclusive right to supply pasteurised milk for a period of years within a defined area. This Act was repealed by the Milk Supply Act of 1952, which provided additional powers for the organised marketing of milk.

During 1938, about 4,000 gallons (20 per cent.) of milk were sold daily in Brisbane as bottled pasteurised milk, 6,000 gallons (30 per cent.) as heat-treated, unbottled milk, and 10,000 gallons (50 per cent.) as so-called "warm" milk (suburban producer-vended milk), or chilled milk (which was milk received from country centres, brine-cooled, but not pasteurised, on arrival in Brisbane).

A systematic laboratory control service as well as a programme of investigational work was commenced in the Dairy Research Branch in 1939.

In 1944-45 the quantities of milk distributed in Brisbane were 41 per cent. as bottled pasteurised milk, 38 per cent as pasteurised but not bottled (mainly shop and hotel trade) and 21 per cent. as chilled or warm milk.

Road Tankers

Another development was the receival of bulk supplies of milk cooled at country factories, placed

in insulated road milk tankers and conveyed to Brisbane milk factories for pasteurisation. This system commenced in 1947 and in 1958 supplies were received from 13 country factories, representing 62·4 per cent. of milk receivals by pasteurisation factories in Brisbane.

In 1952, a road milk tanker commenced to convey milk from Malanda to Townsville, a haul of 234 miles; some of this milk was then sent by railway a further 603 miles to Mt. Isa. A milk bottling plant was erected in that town in 1958.

The high-temperature, short time method of pasteurisation (162 deg. F. for 15 sec.) was approved under the Health Act in 1946. Before that year, the holder or batch system (145 deg. F. for 30 min.) was the only officially approved method of pasteurisation of market milk. By 1956, all Queensland milk pasteurisation factories were using the HT-ST method.

A further development in the market milk section of the industry was the railing of milk from Toowoomba to Charleville and Cunnamulla in 1955. It was bottled on arrival and then distributed to consumers. This was a step to enable an increased availability of milk in western Queensland towns, where winter shortages are common. In 1958, a service was provided by the Port Curtis Co-operative Dairy Association for towns on the Central Western railway. The milk was forwarded from Rockhampton in refrigerated railway waggons and placed in cold rooms in the towns before distribution.

In 1956-57, the quantity of bottled pasteurised milk sold in Brisbane averaged 42,600 gal. daily; warm milk had completely disappeared as a type of milk, but raw milk sales averaged 1,850 gal. daily; and the quantity of non-bottled pasteurised milk sold (mainly for cafes, hotels, etc.) averaged 4,500 gal. daily. Unpasteurised milk thus represented less than 4 per cent. of sales.

Pasteurisation of milk has been extended to most of the larger towns and their environs through the establishment of milk pasteurisation plants of which there were 15 in country centres in 1958. The first country town to be catered for by a pasteurised milk supply was Southport in 1937. The next country town in which a milk pasteurisation factory was established was Toowoomba, in 1940.

The school milk scheme, whereby each school child is given a one-third pint bottle of pasteurised milk, was commenced in 1952-53 and has been extended to all areas where bottled pasteurised milk is available.

[TO BE CONTINUED]

David Brown 900 D Tractor

The technical report on the David Brown 900 D tractor, made following a test by the Australian Tractor Testing Committee in January, is now available. Copies may be obtained free of charge on application to the Department of Agriculture and Stock, William Street, Brisbane.

100 Years of Queensland Dairying—IV

When Milk Was ½d. a Gallon

By E. B. RICE, Director, Division of Dairying

The first condensed milk factory was established in Queensland in 1904 and there were six condenseries in 1908. Records indicate that some earlier butter factories had equipment and made small quantities of condensed milk. A condensed milk factory at Toogoolawah continued operations until 1930, but condensed milk has not since then been produced in this State.

The South Coast Co-operative Dairy Company, Southport, made roller process skim-milk powder in 1947. Pauls Milk and Ice Cream Company, Brisbane, commenced to manufacture spray-process skim-milk powder in 1953.

A factory considered to be the most modern in design and equipment in the southern hemisphere erected by Nestles at Gympie commenced to manufacture spray-process wholemilk powder in 1955. By 1958, the number of factories which had equipment for roller drying of buttermilk was 10. The powder is sold mainly for stock feeding purposes, but two factories manufacture buttermilk powder which is sold for use in various food industries.

Farmers' Returns

In 1892, the prices paid to suppliers to a factory at Lanefield fluctuated from ½d. to 4d. for a gallon of milk. The Maleny factory which was opened in December, 1904, paid farmers 3½d. a lb. for cream of 40 per cent. fat test, with slight differentials for cream of higher or lower test. From 1900 to 1914 the price paid to farmers for cream supplies was about 9d. a lb. commercial butter and then from 1915 to 1930 the price was fairly constant from 1s. 1½d. to 1s. 3d., though in some years it rose to 1s. 5d. and in 1920 to 1s. 10d. During the depression years from 1933 to 1936 it fell as low as 8½d. During 1938 to 1942 it was fairly stable at about 1s. 2d.

The outbreak of war in 1939 marked the beginning of changes in relation to marketing and prices of dairy products. The Commonwealth and British Governments entered into a contract for the sale to Britain from November, 1939, of the exportable surplus of Australian butter and cheese. An equalisation price of 72s. 6d. a cwt. received by butter factories during 1939-40 was the highest received for 10 years, and the average payout to suppliers to butter factories for cream was 1s. 1½d. a lb. commercial butter.

In 1942, a Dairy Industry Assistance Act was passed by the Commonwealth Government under which subsidies were paid for the first time, commencing on October 1, 1942. In 1942-43 the Commonwealth contributed £604,433 as subsidy and the average payout to suppliers to butter factories in Queensland was 1s. 4d. a lb. commercial butter. The subsidy was altered from April 1, 1944, to

provide a higher differential of 2d. a lb. commercial butter as an incentive for farmers to increase cream production in the eight non-flush season months. This system continued to June 30, 1946, after which the subsidy reverted to a flat monthly rate.

By 1945-46, the payouts to butter factory suppliers had risen to 1s. 8d. a lb. commercial butter.

In 1946-47, a Joint Industry Investigation Committee appointed by the Commonwealth Government ascertained the cost of farm production based on 1,050 random-chosen farms in Australia, including 375 in Queensland. Of the total, costs of 692 farms were finally taken to determine the average cost of production, which was estimated to be 1s. 7½d. a lb. commercial butter.

In 1947, the Commonwealth Government agreed to a five years guaranteed price scheme. All suppliers of milk or cream for manufactured dairy products were guaranteed a price equivalent to 2s. a lb. commercial butter from April 1, 1947, and the price was to be reviewed annually according to movement in cost factors. Returns to farmers rose steadily from 2s. 1½d. in 1948 to 3s. 6d. a lb. commercial butter in 1951-52.

In 1952, a new five years guaranted prices scheme was approved. Variations from the previous scheme were that it was limited to efficient cost of production for supplies of milk and cream for butter or cheese manufacture, the subsidy would be a fixed amount determined each year and the guaranteed price related only to butter and cheese consumed within Australia, plus not more than one-fifth thereof. For 1952-53 the price of efficient production was fixed at 4s. 1.29d. a lb. commercial butter, but due to exports exceeding one-fifth of Australian domestic consumption, farmers' prices averaged 3s. 11d. a lb. commercial butter.

Price control and rationing of dairy produce was abolished in Britain on May 8, 1954, after 15 years of such controls.

Average payouts per lb. commercial butter to Queensland suppliers reached the highest level of 4s. 1d. in 1953-54, declining to 3s. 9d. in 1956-57 and in July, 1958, due to a sharp decline in butter prices on a heavily oversupplied British market, the interim equalised price was 3s. 1d. However, realisations in London soon improved and the average payout to farmers for 1957-58 was 3s. 7½d. a lb. commercial butter.

The Commonwealth's stabilization scheme was renewed for five years from July 1, 1957, only minor changes being made to the conditions provided in the preceding scheme.

Acknowledgments: In the preparation of this article the writer has obtained information from various reports and data in the Division of Dairying, the annual reports of the Department, "Dairying in Australia," published by the *Queenslander* in 1902, and the report of the Committee appointed in 1923 by the Queensland Council of Agriculture to examine the position of the dairy industry. His own knowledge of developments over the past 25 years has also been included.

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