CHAPTER TWO

The New Century

During the first 10 years of its existence the Agricultural Bureau became firmly established as part of South Australian rural life. The number of branches and members continued to rise in the following decades as more and more farmers realised the benefits of belonging to this association. Before the First World War began, new areas were opened up on Eyre Peninsula, Kangaroo Island, the Murray Mallee and in the South-East. The men taking up this land needed advice on how to farm under unfamiliar conditions. Others in areas that had been settled for some time noticed that some of their neighbours were farming more successfully than themselves and put it down to the progressive methods discussed at Bureau meetings. Competitions, field trials and shows continued to be a part of Bureau life; not only did they encourage a healthy rivalry amongst members and bring new technology to farmers, but they also brought non-members into contact with the work of the Bureau.

Many interesting and practical papers continued to be read by members at their meetings. Although wheat and wool were still the main products of South Australia, some farmers were turning to dairying and market gardening in suitable districts. Mr M. Jacobs read an instructive paper to the Mt Compass Branch at their March meeting in 1898.

Potato Cultivation:– The main crop of this district is, and will be for some years to come, the potato. Therefore it behoves us to study as much as possible the best method of keeping seed, planting, and cultivating. I favor keeping the seed in the open, spread as thinly as possible, with just enough covering to protect from frosts. For the size of sets I prefer one that will cut and make two, as the shoots seem to be of stronger growth. The first growth is better rubbed off, as they throw up more shoots with the second, and two or three shoots are more productive than one, although the tubers are not so large. You also get a more even crop, unless you take great care in saving your seed. Planting may be started here the beginning of November, and be continued until the end of January, but I think the best time is as near Christmas as possible. If the ground has been prepared for planting and no manure put in it, the best way is to draw out drills 2 ft apart and from 4 in to 6 in deep, place the sets in the trench from 8 in to 9 in apart, pressing them down firmly with the foot, which will make an inch difference to the depth of the trench and make a bed for the set; then put in the manure and pull the earth back with the rake, pressing firmly. My reason for putting the manure in the trench is that the plant gets the whole of it for use if required, but if sown on top and turned in with a spade a good proportion goes too deep and is lost. But the best way to plant is to turn the ground and plant at the same time, planting in the trench the same as when drills are drawn out. There is no need to walk over the ground. You are sure the sets are well covered, and it saves time. I have found the best manure to use in new ground is bonedust the first or even the second year, but after that the manure must be suited to the ground. I have obtained the best results this year from a mixture of ten parts bonedust, ten parts guano, one part potash. Using them separately, the bonedust is best. I find the potatoes most suited to our swamp are the Elephant and Early Rose, which seem to give good results, planted early or late. The plants should be hoed as soon as you can see the rows, and when banked care should be taken to pull the earth close around the plants to protect the tubers from the sun and grubs. When digging your crop cover the potatoes well and keep damp if possible, as the

moth will not go where it is damp. I prefer putting the potatoes in heaps and covering with earth, where they will keep three months, if wanted.

Members generally agreed with the paper, but some considered that the sets should be one foot apart between the rows. *(JBA,* April 1898, pp. 738-9.)

The North-West Amalgamated Bureau Field Trial Society was formed on 21 August 1897 with delegates from branches at Crystal Brook, Pt Pirie, Redhill, Narridy and Gladstone. The result was a trial of implements held at Crystal Brook on 6 April the following year. One hundred and fifty farmers turned out to inspect the seed and fertiliser drills as they were put through exhaustive tests. The awards were postponed until 30 April when the crops had come up and judges could see how even the sowing had been. The results –

1st . . Superior by Messrs Norman and Co.

2nd . . . Massey Harris

3rd . . . Farmers' Favourite

Many other ploughs and cultivators were also exhibited on the day, providing a very useful and instructive experience for local farmers, as well as a good day out.

In September 1898 the River Murray Branches of the Agricultural Bureau held a combined show at Bowhill. The Swan Reach, Forster, Pyap, Lyrup, Albert and Bowhill Branches organised a very successful day which was attended by 600-700 people. They decided to award certificates of merit for the exhibits rather than money prizes so that participants would be interested in the quality of products for its own sake, not the amount of money to be made out of the show. Trials of machinery were also held and awards were offered according to their practical utility. The show was to become an annual event in the district, and each year local people looked forward to inspecting the produce displays and seeing the latest machinery at work.

Other branches made efforts to encourage the enthusiasm of their members by introducing new events into the Bureau programme. The Nantawarra Branch held a crop inspection on 21 October 1898. The main concern of the 40 or so farmers taking part (including some visitors from the Balaklava Branch) was the effect of manuring. Predictably, the best overall results in the district were achieved by drilling seed with superphosphate.

The afternoon was spent in inspecting a number of the crops in the neighborhood. At the residence of the Hon. Secretary a field of wheat drilled in with 80 lb English super per acre, in which the binder was at work, was first noticed. Owing to the dry spell and hot winds the plant was rather short, some parts being blighted on top. It was estimated to be worth 1 ton of hay per acre. A paddock of Cape barley, also drilled, was manured with 1 cwt. super guano and 1 cwt of mixture of bonedust and English super. The latter looked the better, but taking cost into consideration it was difficult to say which was the more profitable. A crop of 99 acres Algerian oats looked well, and was considered worth four bags of grain or 1½ tons hay per acre, though showing very plainly the effects of the weather. The seed was drilled in with 100 lb English super and 20 lb wood ashes per acre. Some very interesting experiments carried on by Mr J. H. Frost were next inspected, English super promising better than any other manure. A splendid crop of Steinwedel wheat was seen; it had been manured with English super, and was thought to be worth four bags or 2 tons of hay per acre. A paddock of Early Para was almost as promising. At Belling Bros a nice crop of Steinwedel wheat, manured with 80 lb super per acre, was seen. On a portion where the soil was stiff clay lime had been drilled in, but the results do not compare with the other. At Mr Dall's some nice crops were inspected as well as the outbuildings, after which members adjourned for tea, *(JAI,* December 1898, p. 435.)

Other members discussed their results with fertilisers during the meeting which followed tea.

Interest in manuring and fertilisers was common to all branches of agriculture at this time. The Gumeracha Branch wrote to Prof. Lowrie requesting a comprehensive list of types and quantities of fertilisers necessary for the various crops grown in their district. They received the following reply:

There can be little satisfaction in adhering to any definite formula in the use of manures; soils vary so much and are impoverished so variously according to the character of the cropping to which they have [sic] submitted that the farmer must exercise his own judgement and read his fields carefully to be guided, both in regard to kinds and quantities of manure to apply.

Wheat. – (a) Phosphatic manure alone, about 2 cwt per acre The chief phosphatic manures are bonedust, superphosphates (bone or mineral), basic slag, and phosphatic guano.

(b) For land deficient in nitrogen: (1) 1½ cwt to 1¾ cwt super, and ½ cwt to 1 cwt sulphate of

ammonia; (2) 2 cwt basic slag and 1/2 cwt to 3/4 cwt. nitrate of soda; (3) 1 1/2 cwt to 2 cwt bonedust, and 1/2 cwt to 3/4 cwt nitrate of soda or sulphate of ammonia. Sour land may require quicklime, also light sand; apply this in dressings of 2 tons or thereabouts per acre. Occasionally light lands may also require potash and the mixture might be some such as 1 1/2 cwt super or bonedust, 1/2 cwt to 3/4 cwt sulphate of ammonia, and 3 cwt wood ashes or 1 1/2 cwt kainit. Lighter or heavier dressings may be made according to condition of the land.

Potatoes. – (a) Wood ashes in abundance or kainit or sulphate of potash. Muriate of potash is said to cause waxy potatoes; (b) 4 cwt to 5 cwt wood ashes and 3 cwt to 4 cwt or more of super or bonedust per acre *(see note re mixing ashes and super)*; (c) 4 cwt to 5 cwt wood ashes with 3 cwt bonedust and 1 cwt of nitrate of soda – this is a substantial dressing for colonial practice, but light compared with practice in older countries; (d) farmyard manure, and plenty of it, invariably enhances the yield greatly, but is said to make potatoes scabby.

Lucerne. – Bonedust in abundance – 4 cwt up to 10 cwt according to crop yielded – applied annually at the time the lucerne is cultivated in the winter. Gypsum also is useful, as is quicklime in good heavy dressings occasionally, not in hundredweights but in tons; 2 tons is generally little enough.

Swedes. – Superphosphate in abundance.

Mangolds. – Nitrogenous salts especially. A good dressing is, farmyard manure, 8 tons to 10 tons per acre, 1 1/2 cwt bonedust or super, and 1 cwt sulphate of ammonia or nitrate of soda, together with 2 cwt to 3 cwt common salt.

Incompatibles. – *(i.e. should not be mixed)*. (a) Nitrate of soda and super; (b) super and quicklime; (c) basic slag and sulphate of ammonia; (d) lime and sulphate of ammonia; (e) wood ashes and super should not be mixed long before application and are better applied separately. *(JAI,* August 1898, p. 57.)

The Mount Gambier Branch organised a farm inspection for members on 9 November to add some variety to their activities. Five farms were visited during the day, displaying a range of primary industries.

Mr J. Dyke's Farm – This member gives his attention chiefly to dairying, milking at present 35 cows; but later on will have a good many more, as they come in. His herd is mixed, but he had introduced a good deal of Jersey strain, which has improved the quality of the milk, which averages over 4 per cent of butter fats. One cow gave 4.9 at the show. The average butter product from the herd give 1 lb from a little less than 2 gall of milk. The dairy plant is very complete and is worked by steam. He has a nice lot of purebred poultry including Minorcas, Andalusians, Langshans, Dorkings, Indian Game. The land is light, and more suitable for grass than for cereals. Some barley and oats, soaked in 7 lb phosphates to the bushel and sown, looked remarkably healthy. There were a few good pigs in the yards. The homestead is snug, rather heavily sheltered by pine trees.

Mr W. Barrow's Farm is on the Penola Road. The homestead is quite up to date, dwelling house, barns, stabling, chaffhouse, shearing-sheds, shelters, garden, etc. all capacious and complete. Over 1,000 sheep are kept, a good herd of cows, pigs, poultry, a good area of land under wheat, barley, and potatoes. The homestead is well sheltered by trees and hedges. The orchard and flower garden are both well stocked and well kept. The visitors had a substantial lunch provided by Mr Barrows.

Mr J. C. Ruwoldt's Farm, at Square Mile, consists of over 100 acres of rich volcanic soil. A field of barley gave promise of over 60 bush. per acre, and other cereal crops were splendid. Potatoes were also showing well. The milking cows were in prime condition, and one cow gives 6 gall per day. Mr Ruwoldt runs a bonecrusher, which puts through about 6 cwt per hour. All the crops to which this manure has been applied show good results. The homestead and surroundings are fairly complete, and are constantly being improved. Mrs Ruwoldt and daughters control a well-kept flower garden, which is creditable to their industry.

Mr W. Mitchell's Farm consists of two sections, once part of the Caves Estate; he also owns a good deal of grazing land in the hundred of Riddoch and at Glencoe. The home farm is cropped with wheat, barley, oats, and potatoes, and generally gives good returns, the present season's prospects being quite up to the average. Included in his outbuildings is a well furnished workshop, where most of the repairs needed on the farm can be effected. A fine belt of pines gives the needed shelter to the buildings.

Mr J. Umpherston's Farm, The Caves, was the last on the list. Some fine crops of peas and barley were seen; the latter had been manured

at rate of 2 cwt phosphate per acre, and was exceedingly fine, being stronger in growth and of more vivid green than the strip left unmanured. The trees round the homestead not only beautify the place but add to its value. The fruit trees, of which there are a considerable number, look well. Some interesting discussions took place during the tour of inspection, and at the close the visitors were entertained by Mrs. Umpherston. (*JAI*, December 1898, pp. 451-52.)

The Millicent Grange continued to be well-supported by local women, and combined with the Men's Agricultural Bureau for a meeting on 21 June 1899. A display of local products was admired by those present, including Mr G. S. Thomson (Dairy Instructor) and Mr George Quinn (Fruit Inspector and Horticultural Instructor.) Mr Thomson gave an address on butter-making, emphasising the importance of cleanliness at all stages of preparation to ensure a first rate product at the end. Mr Quinn then spoke on fruitgrowing in the South-East.

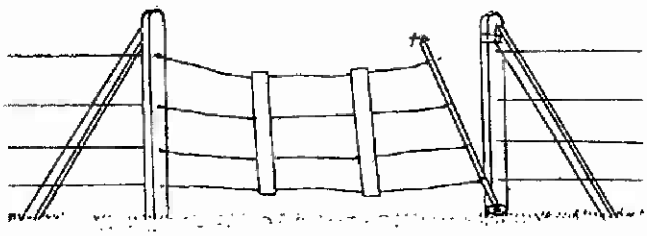
Homestead meetings were also very popular with the branches. They enabled members to see for themselves the results achieved by implementing the new theories discussed at meetings. At the February meeting of the One Tree Hill Branch in 1899, the Chairman, Mr J. Bowman, entertained the branch at his own home. Here he provided a practical demonstration of the method of removing combs from a bar-frame beehive and extracted the honey by means of a centrifugal separator. Some comb foundation was placed in a frame and returned to the hive for the bees to build on. He also showed his guests how to remove an embryo queen bee from her cell and place her in a queenless hive.

Although these sorts of events were well-attended, Bureau members were losing interest in the regional conferences. One by one the conferences were dropped until only three remained regular events, the Northern, South Eastern and Hills conferences.

Useful hints were passed on to farmers through the pages of the *Journal of Agriculture and Industry*. A simple, effective gate was described in the May issue of 1899.

Some helps for farmers

Slip panels are a great nuisance, and waste a lot of time, besides requiring some trouble to cut the slots in the posts for reception of rails. Several patterns for gates that are easy to make, and cannot sag down if made as directed, have been described and illustrated in this Journal; but there are still very few properly-made gates in use. Probably no cheaper, more effective or simple gate than we now illustrate could be made.



Two strong posts should be put in, say, at 12 ft apart. Brace them with struts, the lower ends of which should prop against the feet of the next adjacent posts. Strain the wires of the fence on either side to the posts, and fix them. Then fix the wires of the gate, as shown in the illustration, on to the wires of the fence, or to one of the posts. At the other end of the wires is a stout round piece of Mallee (marked x) or other wood, through which a hole is bored for each wire, and through those holes the ends of the wires are placed and fastened. Two or three strainer bars should be fixed to the wires of the gate. The lower end of the end piece (x) sets into a hole in short stump, as shown, and the other end is to be pulled over till it catches behind a short cleat fixed to the top end of the post. If the fence is rabbit-proofed it will not be difficult to attach wire-netting to the gate, but it would be desirable to affix one or two more bars as well.

This was to become known as a "Cockie's gate" and is still one of the most popular gates on South Australian farms.

The dry seasons experienced during the last years of the century put many farmers in a very difficult position. A Farmers' Relief Fund was organised to help those in need by providing seed wheat for the following season (or money to the value thereof). The Central Bureau put a suggestion to the branches – should they set up a Permanent Relief Fund to help their less fortunate brothers? A mixed reaction was returned; those criticising the idea felt that it was merely a means of keeping men on unsuitable farming land. It would be better in the long run to see these people move off and begin again on more fertile soil. The original idea for such a fund came from Mr J. von Bertouch of the Eudunda Branch. The idea was for farmers to contribute a bag of wheat, or not less than 10s for 100 bags reaped per annum. This would be kept in trust in a central fund for use in difficult times following droughts.

Some good did come from this run of dry seasons; farmers realised the need to continue experimenting with different varieties of wheat and new methods of sowing and reaping to obtain maximum yields from crops that did survive the droughts. They also wanted to make the most of the good years in the hope they would carry them over more difficult periods. As always, Richard Marshall of Hope Farm, Templers, was at the forefront of such experiments. In January 1899 he reported on a new wheat, Bartlett's Crossbred, which looked very promising, particularly as it ripened even earlier than Early Para which had previously been one of the most successful wheats. Sowing 1 bag of Bartlett's Crossbred on 6½ acres had resulted in an average yield of 24 bushels/acre. The main varieties used in South Australia at that time were Purple Straw, Steinwedel, King's Early, Dart's Imperial and Tuscan. Some were more rust-resistant than others, some better for hay than seed, and yet others ripened early to avoid the hot winds and storms later in the summer. None, however, were perfect, and so the experiments continued.

Even so, great changes had taken place in wheatgrowing over the years in South Australia, and Prof Lowrie summarised these in his annual report from Roseworthy.

1. Manuring
2. Bare-fallowing to gain access to moisture of previous season.
3. Avoiding working dry land.
4. Change of seed.
5. Use of varieties suitable to district.
6. Planting of fallow crops e.g. sorghum.
7. Rotation of crops e.g. peas, lucerne, where climate permits.

Drilling fertiliser and wheat in together was undoubtedly the most reliable method of seeding. In times when wheat prices were low due to a bumper crop in the Northern Hemisphere *(2s 3d – 2s 6d/bushel)* the Amyton Branch reported no profit from broadcast plots while drilled crops earned 5s/acre in profit. The importance of superphosphate fertilising cannot be understated. It was gradually becoming more and more common, largely through the efforts of the Agricultural Bureau publicising its effectiveness. Mr F. Coleman recalled this period at the Lower North Conference at Saddleworth 50 years later.

> A well known and respected farmer and District Councillor cautioned me as to the use of superphosphate. "Mon", he said, "It will knock the senses out o' the land". The Bureau reports of that time show that my friend was by no means alone in holding such opinion. Two or three years later this farmer stopped me in the street and asked, "What is the best brand of superphosphate to use?" (Conference of Lower North Branches, Saddleworth, 28 February 1951, p. 2.)

This change of attitude was general and eventually all cereal croppers fertilised with superphosphate.

It is interesting at this point to compare the farming practices in different areas of the State during this period. We can see how progressive farmers were adapting to the peculiar conditions of their area by this time.

Rhine Villa

> *How to Farm Successfully on the Murray Flats.* – Mr W. Farey read a paper to the following effect:–
>
> Owing to variation of rainfall and other conditions in different parts of Murray Flats the country might be divided into three sections, viz. – from the range to a distance of two and a half miles eastward; then another belt eastward two and a half miles wide; and thence still eastward to the Murray River. In the first division he considered the land worth no more than 30s per acre, and no farm should comprise less than 1,000 acres, divided into five or six paddocks. Of this 200 acres should be perpetually maintained in their natural grasses, etc., and this should be near the homestead. The rest of the land should be cropped only once during three years; fallowed during the June and July precedent to sowing for crop. The land should also be manured when both the crop and the stock which graze afterwards on the land will be benefited. Pigs of a good breed should be kept, and green feed grown as much as possible for all stock, especially cows. Fowls will thrive here, as there is but little frost, and sheep will be found profitable in keeping down weeds, as well as for wool, lambs, and mutton. Fruit will not pay to grow, but in winter vegetables can and should be grown for home use. Ducks, geese, and turkeys will not thrive as well here as in the hilly country, as they need green grass all the year through. More of the wheat and hay that is grown should be kept in reserve for dry seasons, as it is a great disadvantage to have to buy back and cart it over the range in dry seasons for ourselves and our stock. The area between two and a half and five miles from the range eastward has much less rainfall, though the soil is equal in quality. Its improved value is

not more than £1 to 30s per acre, and its rental should not be over 1s to 1s 6d per acre. Farms should not be less than 2,000 acres, contiguous, so that it can be worked economically from the home. This country is not well adapted for growing cereals, but sheep, cows, pigs and fowls can be reared profitably if good care is taken to provide during the seasons of plenty against periods of scarcity. A most important item is the storing of water. The soil is good for making reservoirs or dams, and there ought to be one of good capacity in each paddock. A well should be sunk near to the homestead. At present there is more labor entailed in carting water on to the land than is expended in carrying produce off, and this is useless and costly both to the individual and to the district council. The aggregate of loss in wear and tear of vehicles, harness, horses, men and roads must be very great in case of water carting. In the third class, commencing five miles eastward of the range to the river banks, the rainfall is still less. The farms should consist of not less than 3,000 acres in one block, and when cleared it is not worth more than 5s to 7s 6d per acre. This country is adapted chiefly for sheep; and cows, pigs, and fowls should only be kept for home use. No reliance can be placed on wheat crops, as thirty years' experience has shown that only once in five to seven years is there a chance of a crop being produced. Most of the country is too stony. If wheat is tried it must be only once during three years on any one spot, and the bushes must be destroyed. Farmers should be able to live in comfort on their land, even though it is poor, but should not sell everything off it and return nothing, as many do. They should live on the produce of their land, and be able to procure requisites that they cannot produce, and should not work sixteen, fourteen, or even eight hours a day. He should have plenty of leisure for improving his mind, and make a proper use of all the rights and privileges which Providence always designed for all men. (*JAI*, November 1900, p. 382.)

Kingscote

Farming on Kangaroo Island. – Mr Burgess read a paper on this subject. His experience was that the best time to sow wheat was during May and June, but the land must be well worked and free from weeds. Algerian oats will thrive where both wheat and oats will fail. He would sow oats in June. Barley needs a moderately rich soil, free from rubbish, and suffers more than wheat or oats if it gets a check. He thought bone super was the best manure for their district, as it kept the plant growing, and also improved the feed afterwards more than mineral super. On new land he used 1 cwt per acre, and on old land about double this if the soil is heavy as it pays well to give a good dressing. In pickling the seed he dissolved 1 lb bluestone in three gallons water, and sprinkled the seed on the floor, taking care that it is thoroughly moistened. To get the best results the land must be fallowed. The land should be ploughed in August or September, as by that time the weeds will have made good growth and can be buried. If any weeds appear later on they can be fed off with sheep before they go to seed. Considerable discussion ensued. Mr C. Bell thought oats should be sown earlier than June. Most members preferred to vary the manure used and not to apply the same manure each time the land was cropped.

Rabbits. – Mr Hawke raised the question of the possibility of rabbits being introduced to the island, which was now free of the pest. It was unanimously resolved that in the opinion of this Branch the law should be amended to make any person introducing rabbits to Kangaroo Island liable to seven years' imprisonment. (*JAI*, September 1905, p. 132.)

Meadows

Mr T. Usher read a paper on *Stock and Management of a Small Farm in the Hills*, as follows:–

It is well known that the small farmer of today must make the best use of his holding. He must not carry all his eggs in one basket, but should grow whatever will turn in most profit. Take, for instance, a farm of eighty acres. It should be well fenced and divided into three paddocks to be used in turn for grazing and cropping. Sufficient hay should be grown for the farm stock for at least eight months of the year, and the remainder of paddock could be put into peas, which usually pay well. On most farms in the South dairying is carried on, and there are flats and swamps that will grow potatoes, mangolds for pigs, and vegetables of all kinds; also green fodder for dairy cows. It will not pay, however, to grow fodder on good potato land, as potatoes at £4 10s per ton will pay better than growing fodder for dairy cows. Enough should be grown to keep stock in health during the summer months. Oaten hay cut on the green side will produce as much milk as maize or sorghum, and sufficient for twelve or fourteen dairy cows should be grown. It is better to let a little go to waste or manure than to keep too many cows and half starve the whole herd; but

of course the number to keep is simply a matter of judgment. In the favored parts of the district a herd of cows, well cared for and kept in good condition, with a little green fodder and hay or chaff during the summer and autumn months, and pastured on good grazing land with plenty of good clear water (have a trough if possible, as cows prefer spring water to running creek water), should make £8 10s or £9 per head per annum, with milk at 4d per gallon average for the year. Cows should be milked quickly and at regular hours, dividing the time as nearly as possible between each milking, and they should be treated gently. Cows can be milked to within two months of calving. When dry it is a great mistake to turn them away into back country and let them get low in condition. It is simply throwing away income for the next year. To keep up the herd the farmer will find it cheaper and better to raise stock on the farm than to go to the market for it. Keep a pure-bred bull of milking strain, and keep back two or three heifer calves every year to ensure against old age and accidents. Ten days after birth separator milk can be fed to the calves; if boiled and a little salt added the calf will fatten on it. It is necessary to keep good all-round horses to work the farm. The farmer must keep a few pigs also; three breeding sows would be enough, as it pays the small farmer best to fatten the young ones and sell them at five months old. In this way he can add to income from the dairy very much, as there is nothing that will fatten pigs quicker than milk and pollard. Young pigs weaned at eight weeks old and fed well to keep them growing until they are three months could then be put up and finished off for market. Raw mangolds fed to store pigs in autumn and winter, when other food is scarce, will keep them growing and put on condition. The best breed to keep is the pig that fattens quickest in winter and spring on milk and pollard. Twelve bushels of pollard fed with separator milk, and a little grain early in the morning, should make a well-doing pig ready for market. It is best to scald pollard in winter. In the cold weather pigs should be kept clean and have good dry beds. On a small farm it is also very profitable to keep a few head of poultry – especially geese and ducks – having them ready to sell at Christmas time, as they are got up and fatted very quickly when the corn is about at that time. (*JAI*, October 1901, pp. 284-5.)

At a meeting of the Mt Pleasant Branch Mr G. A. Vigar read a paper on *Practical Farming for Hills District*. He recommended keeping pigs, too, a cross between the Berkshire and Essex being the best. He added that

> Poultry afford a substantial source of income, which tends to reduce the store bill. For six months he got 580 dozen of eggs from common barndoor hens, but kept pure-bred roosters of Orpington, Wyandotte, Leghorn, and Dorking breed. They pay well for the grain eaten and the care bestowed on them. Every farmer ought to grow enough of fruit and vegetables to supply his own home. In the hills district, at least, nearly every farm includes a spot where water can be used to irrigate a small patch for this purpose. By utilising all the natural advantages of his locality, by devoting close attention to every detail, by adding his whole strength to the work of the farm, the practical man can gather the wherewithal to make both ends to meet, and put a little aside for a rainy day. (*JAI*, June 1902, p. 952.)

Arden Vale

Farming in the North. – Mr A. W. Fricker read a paper to the following effect:–

There are portions of the North to the northward of Goyder's rainfall line which are not subject to constant and complete failure; but there are other parts where no system of farming will ever make them productive, and the sooner that land is returned to grazing purposes the better for all concerned. Where failures are not constant, it is shown that the land that has been fallowed gives much better returns than that which has been cropped on the stubbles, the difference being as between 3 bushels to 4 bushels per acre on the latter, and 8 bushels to 20 bushels per acre on the former. The fields are getting dirty, and considerably more cultivation is now necessary than formerly to keep them in check. To attempt to grow wheat crops now on any but fallowed land will not pay. Good farming only will obtain the maximum returns and most farmers in this locality are using fallowed land only for cropping, and if the season proves favorable – as is sometimes the case – the returns recoup for the partial failures of the previous years. Phosphatic manures should pay for use on the limestone soils, but are not at present required on the timber lands. The greatest losses to farmers in this locality have been in regard to live stock, and it is imperative that large reserves of fodder should be made. All wheat chaff should be put under shelter from wet. It is not possible to save enough of hay to tide the stock over the periods of drought. Header straw will support horses, and they work well on it if a little good hay and

some wheat husks are added. As the fallowed crops usually produce a good lot of straw, a quantity of that should be stacked every year, with a certainty that in time it will be all [sic] wanted when drought occurs. Many farmers have most of the machinery and implements they require, but something might be done by cooperation where farms are small and certain machinery too costly for one to acquire.

The Chairman said if it were possible he would crop nothing but fallowed land, but that required a lot of strength and a very early start. Late fallowing is by no means to be recommended except when good rains have preceded. He placed much reliance upon the use of superphosphate. Mr Eckert has obtained heavy crops from fallowed land and very poor crops from stubble lands. Fallows should be well worked with the harrows and scarifier. Mr Williss had found it best to take off two successive crops, and then lay up in fallow, on account of the uncertainty of the seasons and the richness of the land. Mr Pearce would crop one year, rest it the next, and fallow the third year. Manuring will result in better crops than at present, and will be better for the pasturing of stock. (*JAI*, November 1901, pp. 383-4.)

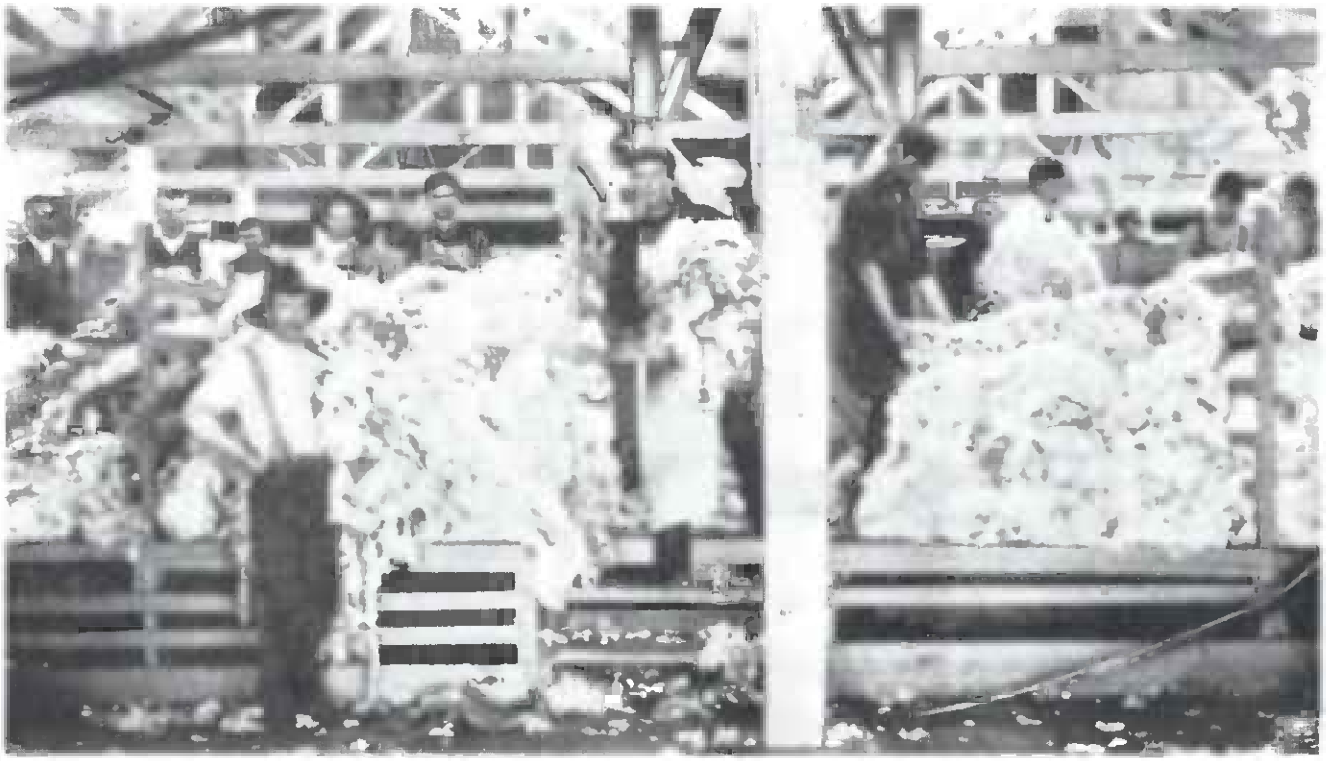
Quorn

Farming in the North. – Mr Rowe read a paper on this subject. It was recognised by all that it was impossible to grow cereals with insufficient moisture, but much could be done to make the fullest use of their limited rainfall by a proper system of fallowing. They must adopt better methods of farming, but to do this larger farms were required; in the Areas 1,000 acres at least, and north of Goyder's line of rainfall 5,000 acres were required to make the best use of the land. The farms must be large enough to combine grazing with wheat-growing. He thought the old method of preparing the land for seeding might be considerably improved. Generally they commence to plough during the hot weather of February, March, and April, which should be superseded by the proper method of fallowing in July, August, and September. By doing this the cost of production is lessened and the yield increased. Being ploughed up in winter the rain penetrates into the subsoil, and is conserved there, instead of running off in the watercourses. Experience has proved that in dry seasons especially the fallow land produces the best return. One crop only should be taken off, and never more than two in succession. The earliest maturing wheats should be grown to escape the effects of the hot drying winds of early summer. Change of seed is also desirable. Seeding should be finished by the end of May. With regard to ploughs he found a light steel three-furrow stump-jump plough very useful. A lad with smart team of six horses could turn over four acres a day, and with a four-furrow plough and eight horses five to six acres could be ploughed daily. To improve the ploughing the branches should organise ploughing matches to encourage the young men to pay attention to this branch of their work. Several branches could unite to hold such matches. Before commencing to fallow he would cart out all farmyard manure – not later than July – and spread it evenly and thinly over the ground. Ploughs should be in proper order, so as to do economical work. The depth to fallow would depend on the subsoil; 5 in to 6 in would be about the average. Scarify the fallow to keep it free from weeds. Sowing should be commenced in April, and an even and well prepared seed-bed was required to produce an even crop. He recommended Early Baart, King's Solid Straw, Steinwedel, Early Para, and Early Show as best for this district. The crop should be rolled while the ground is moist. This will conserve the moisture, break up clods, and prevent damage to the mower, which will last much longer and cut cleaner on an even surface. The paper was well discussed, members generally agreeing with Mr Rowe. Several members favored working the land during the summer. (*JAI*, May 1899, pp. 873-4.)

Calca

Mr R. H. Squire read a paper upon *How to Farm Scrub Land on the West Coast:–*

As the winds are so strong on the West Coast do not fallow light soil, but put in the stiff soils first, and after the country has had a good soaking work the light soil. If the land is grassy scarify the seed in with the skim coulters, and then harrow it and kill the grass. A good many farmers try to put in more than they can with ease, and this does not pay. When there is strength only to put in 200 acres do not try to sow 500 acres. The seed will be thrown away. Commence sowing before May and finish in June, not later. Where the soils are liable to blow away leave strips of scrub about a chain wide to act as breakwinds at the tops of the hills until the grass or stubble can be got to cover the soil and hold it. There should be a narrow belt of scrub left around each field to protect the crops and soil from the wind. Only just cover the seed,



Wool classing students at Hill River Station, c. 1908.

> and never sow deeply, and in light sandy soil a good harrowing is all that is required – that is, once the way it was ploughed and then cross-harrowed. By doing this better returns will be secured and less seed and labor wanted. (*JAI*, November 1898, p. 370.)

Gradually farmers were changing their methods and crops to suit the individual nature of their land.

The South Australian wool clip for 1899 was approximately 70,000 bales and sold for only £19 per bale. Mr George Jeffrey, the Instructor in Wool-classing at the School of Mines, was in great demand for the valuable advice he had to offer. He agreed to give lessons in wool-classing at Burra and Pt Pirie. Over 20 men joined the class at Pt Pirie to take advantage of this opportunity. Then in 1901 a similar number of students assembled in the shearing shed of Mr P. L. Killicoat at Burra for 12 lessons. They learned how best to sort their wool and prepare sheepskins in order to receive the highest market value for their products.

Jeffrey also spoke at the 1900 Congress on the subject of wool-classing. He recommended Merino sheep as the best for South Australia and claimed that differences between their wool and the finer wools were negligible as far as prices realised. The significant difference in price, of wool sold for 10d/lb rather than 7d/lb, lay in presenting the buyer with a clean sample. He then went on to say that the stronger wools remained cleaner than the finer samples. By classing the wool carefully the producer could get the best prices offering, a very important consideration when prices were currently so low. Although prices began to pick up shortly after this, woolgrowers would have to wait until 1908 before the market was really favourable.

The 1900 Congress marked a significant moment in the life of the Agricultural Bureau. After repeated requests for nine years, Molineux finally secured free railway passes for delegates attending the Congress. This was particularly useful when farmers were experiencing difficult times and had very little spare cash to spend on travel. However, for those living at great distances from railway lines it was of little benefit, and they brought this to the Central Bureau's attention. It was not until 1912 that further concessions were made. New arrangements allowed two free rail fares/branch, or 1 steamer ticket/branch. Alternatively, coach fares would be refunded upon production of the receipt. Many years later a decision was made at the 1945 Congress to allow delegates travelling by air a reimbursement equivalent to the cheapest form of transport from their area.

1901 also saw the federation of all Australian colonies into one nation. Of course, farmers were

concerned about how these new political arrangements would affect their situation. On February 10 Mr R. Peters read a paper on the subject to the Mt Compass Branch.

> The accomplishment of federation means the abolition of border duties, which have to a certain extent protected us in the past from too acute competition by growers in the other colonies; consequently the locality best suited to the production of any particular product will be best fitted to compete in that line of production. The removal of duties will tend to equalise prices, which will be governed by the supply and demand ... They must ... study how to make the best possible use of the natural advantages of the district, as well as the best means of getting their produce to market. The swamp lands must be laid out and drained, so that horsepower instead of hand labour can be utilised. Put their produce in the hands of the consumer with as little expense for handling as possible. Co-operation was gaining ground in the district, and in the near future will play a more prominent part in this direction. To make the holding a greater success they must produce as great a variety as possible of profitable crops, so that there is at every period of the year something that can be turned into money. Wattles will do well on land not suitable for other crops, and he had no doubt it would be the means of a considerable revenue later on. Much of the second quality land was suitable for growing summer crops for cows, pigs, etc., all of which will be of assistance in meeting any temporary disadvantages brought about by the accomplishment of federation ... Federation would also directly benefit the producers in many ways. There was one thing they lacked, and that was permanent industries employing large numbers of men. The development of the mining industry would lead to largely increased consumption of their products, and even in their own immediate neighborhood there were indications that at no distant date they might expect to have a community of consumers engaged in mining and kindred industries. (*JAI*, March 1900, p. 717.)

The North Yorke Peninsula Field Trial Society experienced a major set-back in the first year of the new century. Despite the popularity of the field trials, the machinery manufacturers decided they would no longer exhibit their wares at any district trials. It had simply become too expensive for them to go around to all the shows and trials in the country areas, so they agreed to cease the practice altogether, much to the detriment of country people.

Botfly, that pest of horses, had recently appeared in the South-East and was reported to have arrived at Lobethal in January 1901. It was suggested that tansy tea might help to expel them from a horse's stomach, but the best way to deal with this nuisance was to rub the knees and mouth area with preparation such as kerosene. This way the flies would not settle on the horse in the first place, so the eggs could not be licked and swallowed by the horse, thus completing the life cycle of the pest.

To provide some entertainment as well as useful, practical knowledge, Mr J. A. G. Lauterbach gave an exhibition of colt-breaking at a meeting of the Wilmington Branch. This took place in the sale yards attached to the Beautiful Valley Hotel on 1 June 1901.

> For the purpose a large 5-year-old mare, from Mr Slee's run, was brought in. She had never before been handled, and was very obstinate and sulky. Mr Lauterbach had an assistant at first, and tried his usual practice of gently approaching the animal with a long light bamboo, with which he rubbed her back, intending to catch her by the mane; but, as darkness was approaching, he gave this up and lassoed her. Directly he caught her he mounted her back without saddle or bridle, and maintained his seat until she became quiet. Then he dismounted, with some assistance put on a saddle and bridle, and rode round the outskirts of the town for a time, until she became so quiet that a young son of Mr Slee's rode her a distance of three miles to his home. She has since been ridden several times, and has not given the slightest trouble. Mr Lauterbach said this was the most determined animal he had ever handled. (*JAI*, July 1901, p. 1008.)

Samuel Goode, one of the original members of the Central Bureau, died on 26 July 1901. The first of these gentlemen to pass away, his death was sadly lamented as a great loss to agriculture in South Australia. Later that year his position on the Central Bureau was taken up by Mr Richard Marshall who had already made a very significant contribution to the State through his experimental work on wheat varieties.

Further changes were to take place in the following year. Prof. Lowrie resigned from the position of Principal of Roseworthy College, and an American, Prof. J. D. Towar was appointed in his place. Then in May, the Minister for Agricul-

Molineux was presented with an album containing the signatures of all the members of the Agricultural Bureau on his retirement from the position of General Secretary in 1902. The frontispiece of the album (pictured here) was designed by E C May.

ture, The Hon. William Copley requested that the members of the Central Bureau resign from their position. He proposed to replace the Council of the Agricultural College, the Dairy Board and the Central Bureau with a single governing body, the Council of Agriculture. The Council was formed and the following men met for the first of their monthly meetings on 10 August 1902:

Mr John Murray, President of the Royal Agricultural and Horticultural Society.

Mr R. Caldwell *(To be elected the first chairman)*

Mr A. D. Bruce, President South Australia Vinegrowers Association

Mr J. W. Sandford of A. W. Sandford and Co.

John Miller and Richard Marshall of the Central Bureau.

A. M. Dawkins, Agricultural College Council.

G. R. Laffer and J. Rowell, fruitgrowers

B. Basedow of Messrs Cholmondeley and Bosanquet, Reynella.

In October Molineux and Krichauff were made life members of the Council of Agriculture in recognition of their contribution to agriculture in South Australia. The *Journal of Agriculture and Industry* was also reorganised at this time and Prof. Perkins appointed as the new editor.

During the 1902/1903 season the Saddleworth Branch held a 20 acre wheat contest. Prizes were offered by various firms–

Adelaide Chemical Works Co.–	gold and silver medals for best crops manured with their fertilisers.
Messrs Clutterbuck and Bros–	£5 5s. on behalf of Massey Harris for a) best crop put in with Massey Harris drill; b) best crop put in and taken off with Massey Harris implements.
Messrs George Wills and Co.–	£5 5s for best crop manured with United Alkali Co. superphosphate.

The Bureau itself also offered two prizes of £1 1s for best all-round crops. The season turned out to be a very good one, despite a storm in December. All the seed was pickled with bluestone and sown within a week of pickling. A series of questions were answered by each competitor as a reminder of the educational purpose of the contest. The first prize and both Massey Harris Prizes, went to Mr Fred Coleman for a crop of Hogben's Surprise and Purple Straw manured with 112 lb guano superphosphate. It reaped 68 lb seed per acre. Second Prize was awarded to Mr R. G. Townsend who also sowed Purple Straw with 111 lb minimum superphosphate. United Alkali Co.'s prize went to Mr J. H. Frost who reaped 50 lb of Collins Purple Straw per acre after fertilising with 88 lb minimum superphosphate. Adelaide Chemical Works offered a gold medal to Mr F. Plant's crop of Marshall's No. 3 manured with 75 lb of bone superphosphate, and a silver medal to Mr A. Klem for another crop of Marshall's No. 3, this time fertilised with 80 lb minimum super.

It was around this time that people began to talk of engines and the possible uses of motor power in agriculture. The first mention of it at a Bureau meeting seems to have been at the Amyton Branch on 18 July 1898. Mr Andrew Brooks read a paper before the branch discussing the advantages of traction engines in farmwork.

He was obviously a progressive thinker and rather ahead of his time, because the next discussion of motor power in connection with the Bureau did not occur for another five years.

Mr A. Miell of Crystal Brook read a paper entitled *The Automobile on the Farm* at the Northern Branches Conference on 13 February 1903. He reminded his audience of the difficulties in providing fodder for horses in dry seasons, a frequent event in South Australia. The market value of the feed consumed by his own horses in the past year amounted to nearly £500. In comparison, the Ivel agricultural motor cost much less to run – 8d/hour for petrol while reaping and a little more for ploughing at a rate of 4 miles/hour. The Ivel motor could do as much work in a day as two horse teams pulling similar ploughs. A further advantage lay in the fact that the motor cost nothing when not in use, but horses must be maintained in good condition all year round.

His paper was received with scepticism, the other Bureau members concerned about the risk of fire and the likelihood of a tractor getting bogged in the sandy soil of their area. Miell replied that the motor weighed approximately 17½ cwt distributed over three wide wheels, so this was not really a major problem. However, the Ivel motor received more enthusiastic support at a meeting of the Kanmantoo Branch in June, and the Pine Forest Branch was favourably impressed on inspecting a 5 horse-power engine used to drive a corn-crushing plant. Interest in the new engines spread and lively debates took place during meetings at Strathalbyn, Wilson, Wandearah, Saddleworth and Mannum.

1903 was a good year for most people on the land. Prices for everything were improving–

Wheat 5s 2d/60 lb bushel
Potatoes £8-9/2240 lb
Butter 1s/lb
Eggs 9d/loose dozen
Almond kernels 10d/lb.

Even wool prices were looking up. These figures are put into perspective when we consider the following wages for station employees in 1898 (remembering that inflation was not as high then as now). Shepherds – 15s/week, Boundary riders – 20s/week, Overseers – 25s/week. Rations were also supplied by the employer. At the same time, unskilled manual labourers were paid 7s 6d/day at Broken Hill, or £2 5s for a 6 day week.

On returning from Greece, Mr W. C. Grasby introduced South Australia to the practice of ringing grapevines which he had observed there. This procedure, also know as "annular incision", involves removing a narrow strip of bark from the stem, branches or rods of vines. Perkins discussed this subject in an article printed in the *Journal of Agriculture and Industry* on January 1903. He explained that it is particularly useful for Zante currant vines which are otherwise unreliable setters. It also has the added advantage of restricting growth so that vines can be planted

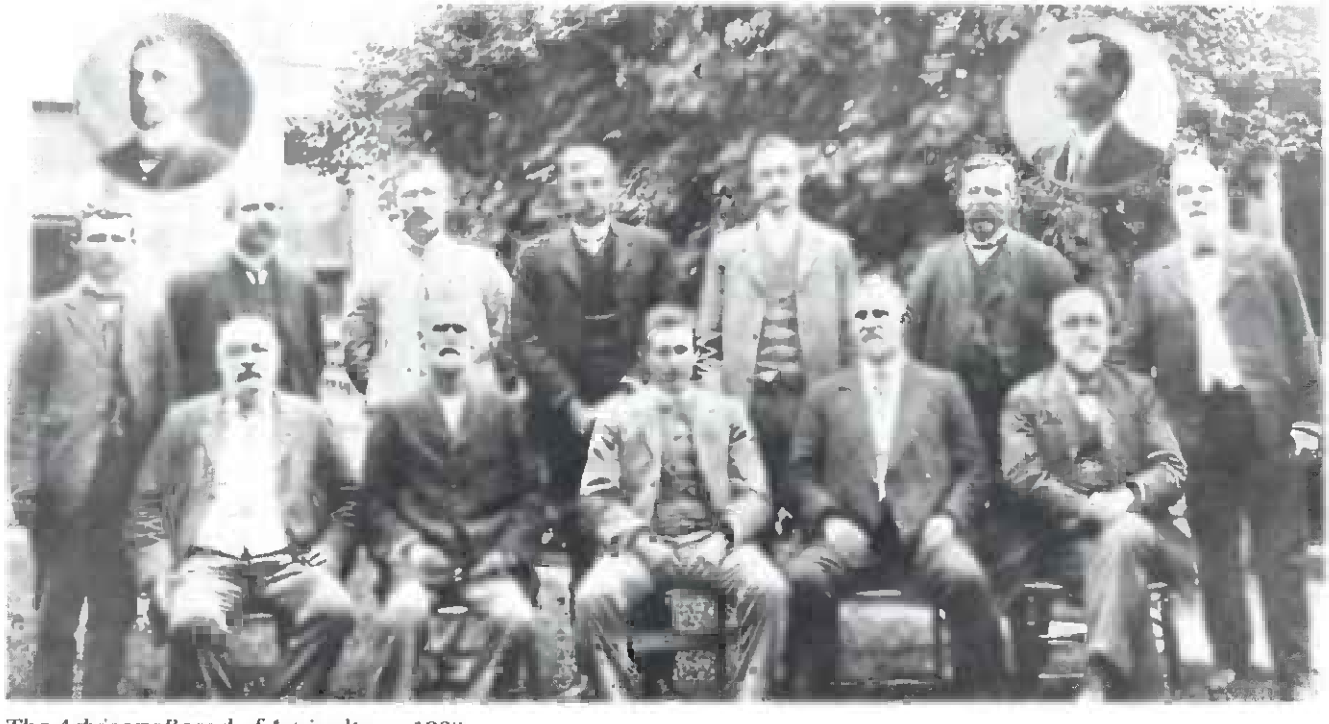
closer together (8-10 ft apart rather than 20-30 ft). Although it was thought that ringing vines would shorten their life, the increased production made it well worthwhile. Annular incision was to become a standard practice among vinegrowers in following years.

August 1904 saw more changes in the Department of Agriculture. Prof. Perkins was appointed Principal of Roseworthy College on the resignation of Prof. Towar. Mr W. L. Summers took on the position of editor of the Journal and Chief Clerk of the Department now that Perkins would no longer have time for those duties. There was still a need for someone to act as Professor of Agriculture, and this position was filled by William Angus in October of that year. Further sad losses occurred during the next couple of years. Krichauff died at the age of 79 on 29 September 1904, Sandford in December 1905 and Sir Samuel Davenport in September 1906. South Australia would forever be indebted to these men for their tireless efforts to advance the interests of agriculture in this State.

Frequent discussions had taken place over the years with regard to the limited membership of the Agricultural Bureau. Several increases had been agreed, raising the numbers from 9 to 12 to 15 members per branch. At the 1904 Congress, a decision was made to remove this limit altogether and allow as many people as desired to become full members of the Agricultural Bureau. However, a further stipulation was made – a third of the members must retire each year, although they were eligible for renomination. This third was to comprise those members with the poorest record of attendance for the past year. At the same Congress, Richard Marshall was presented with a special award in recognition of the substantial benefits enjoyed by the State originating from his experimental work with rust-resistant wheat varieties. Even on his retirement to Adelaide, Marshall continued to have wheat plots in his back yard.

Many useful hints were supplied by Bureau members for the benefit of other farmers. They discussed many small issues on the farm as well as the major questions concerning cropping, dairying, sheep and fruit tree and vine cultivation. The Millicent branch passed on the information offered by Mr Harris the Chairman. He mentioned that he had heard of people in Baltimore, USA using bluestone (copper sulphate) to purify tankwater. The recommended quantity was ½lb in 5,000 gallons. This is standard practice today to keep open tanks free from algae.

In February 1905 the *Journal of Agriculture and Industry* was converted to the *Journal of Agriculture of South Australia*. It was published as the official organ of the Department of Agriculture. Then on 19 August the Council of Agriculture was changed to the Advisory Board of Agriculture, by which name it is known today. The committee consisted of



The Advisory Board of Agriculture, 1909.

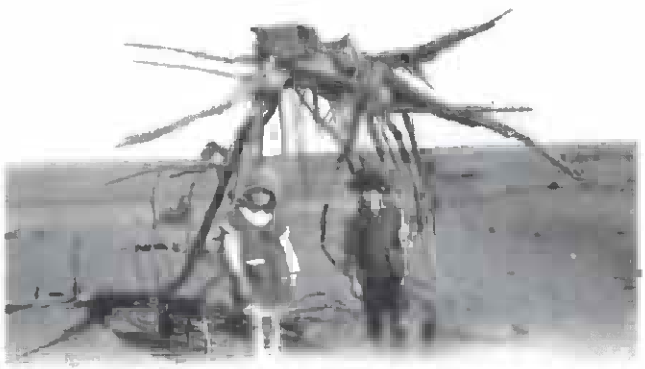
John Miller, Chairman
Colonel Rowell, Vice-Chairman

A. M. Dawkins	J. Sandford
G. R. Laffer	A. Molineux
C. Willcox	C. J. Tuckwell

W.C. Grasby (who was to resign in September that year)
J. Hill, President Royal Agricultural and Horticultural Society.
G. F. Cleland, President Vinegrower's Association
Prof. Angus as an advisory member.

Many of these men were already involved with the Council of Agriculture, so they were familiar with the duties expected of them. However, the new name was chosen because the knowledge of these men was to be made available to the Minister for Agriculture whom they were to advise on matters pertaining to their experience.

Towards the end of the 19th century, South Australian farmers had realised that their enthusiastic clearance of the land was causing erosion problems. Farmers learned that their responsibilities lay in the "conservation of the soil and a maintenance of its proper condition", if they were to continue to make a living off the land. In June 1898 Mr T. B. Wicks had read a paper entitled *Over-cropping and Overstocking* to the Arthurton Branch. He was aware that the land could not go on forever producing without replenishment from some source. Sandy ground was beginning to drift, and it became necessary to establish new growth in these areas. Marram grass proved to be one of the most useful introduced species to hold down these sandhills. There was also concern with regard to timber supplies. For many years the native trees had been chopped down with no thought of the length of time needed to replace them. Walter Gill, the Conservator of Forests, wrote regular articles for the Journal urging farmers to plant windbreaks. He recommended using trees that would later be suitable for building and fencing timber; if nothing of this sort did well in the area, then he advised planting anything to help control the erosion caused by winds sweeping across the countryside unhindered. Stock also must have some shelter from the wind and rain. Unfortunately, his suggestions were not sufficiently heeded, and today we have implemented a "Greening Australia" scheme in the hope of rectifying the damage done by previous generations.



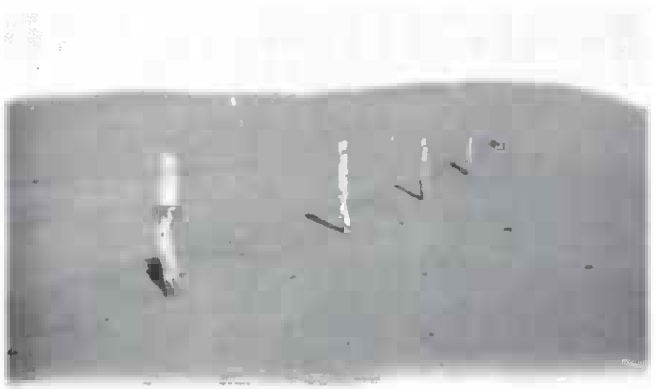
Children standing beside a stump showing the amount of topsoil which has been blown away.

By 1905, farmers were facing some serious drifting problems after a run of bad seasons. Mr A. F. Noll explained how he had reclaimed drift land at a meeting of the Quorn Branch.

> He obtained a seeder, and fixed it to a four-furrow plough. As soon as seeding was finished he shifted out to this desert area, and with two teams of six horses each tackled the job in front of him. In addition to the plough with the seedbox attached, they also sowed the wheat broadcast ahead of a good cultivator. Taking lands about 100 yards in width, they ploughed up strips about four yards wide, going round and round, so that if the wheat was worth it they could strip the same way as the land was ploughed. In this way about 60 bags of wheat were sown, and when this was done they went on ploughing strips through the paddocks to give the seeds of the natural herbage a chance to get established. In all about 2,000 acres were treated, and now they had about 1,500 acres between the strips of wheat which were worth stripping, on which there was a fair amount of herbage. (*JAI*, January 1905, p. 330.)

Similar experiments were conducted in the Woolundunga area with a certain amount of success.

The Coorong was also facing problems of drifting sand around this time. The dangerous



A severe case of soil erosion.

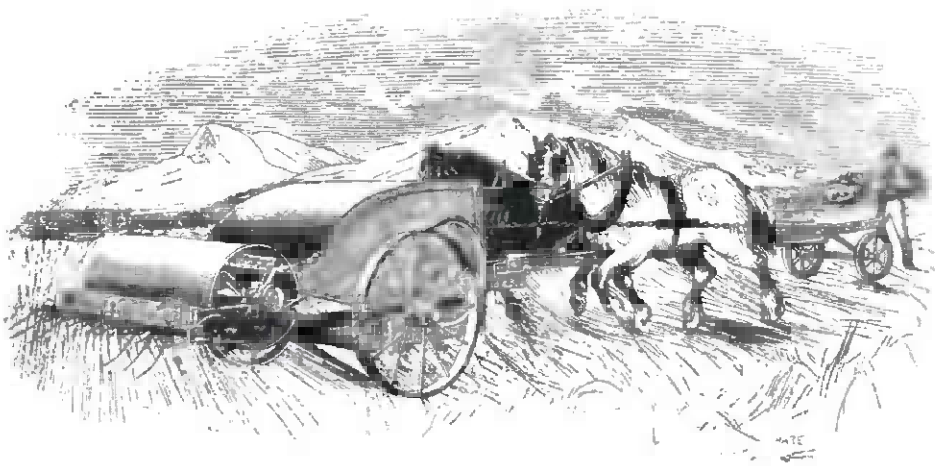
situation in this area was brought to the attention of the Advisory Board of Agriculture, which appointed a committee of Messrs Rowell, Molineux and Laffer to inspect the damage caused by over-stocking. Molineux in particular was concerned and urged people in the area to take measures to slow the gradual silting up of the Coorong.

The harvest for 1905/06 was very good and farmers began to take heart once again. Perhaps there really were ways of growing good cereal crops in even the dry parts of South Australia. Undoubtedly manuring was partly responsible for the improved fortunes of wheatgrowers. Fertilising had increased from 60,000 acres in 1897 to 1,265,000 in 1905; 3,000 tons used in 1897 had increased to 56,500 tons by 1905. A great deal of interest was generated by the Campbell system of dry land farming, based on theories developed in America. The Hon. T. Pascoe explained the system at the 1906 Congress. The main aim of Campbell's method was to conserve moisture in the soil by ploughing at certain times. "Not only does cultivated land hold the moisture better, but it absorbs moisture quicker than land that is not cultivated." (*Journal of Agriculture of South Australia*, October 1906, p. 119, hereafter referred to as *JASA*). The land should be worked with a disc harrow first to thoroughly pulverise the soil, then plough and turn the soil to break it down to a fine consistency. The next step is to go over the ground with a "subpacker" to firm down the soil. Finally the ground is harrowed to break up the surface before it sets hard.

In March 1907 it was decided to commemorate the contribution to the state by Mr John Ridley, inventor of the stripper, by erecting a memorial to him at Roseworthy College. Donations were sought from the branches of the Agricultural Bureau to help fund this project. Ridley had arrived in South Australia in 1840, bringing with him the first steam-engine introduced to the State. Labour was particularly scarce in those days, and finding enough manpower to reap by hand a serious problem. His reaping machine was tested in 1843 and won the approval of those concerned. It could strip an acre of wheat per hour. The memorial took the form of a marble bust of John Ridley and was finally unveiled at the Roseworthy Speech Day on 14 March 1913.

Beekeeping was encouraged through the *Journal of Agriculture*. It could be a well-paid sideline if a market could be found for Australian honey. To this purpose, the Commercial Agent in London, Mr Norton, arranged a trial run in 1907 with a Mr Sainsbury, the owner of several well-

Bust of John Ridley outside Roseworthy Agricultural College.



The original Ridley Stripper.

established stores. One pound jars were sold for 6d each. Today Sainsbury's is a huge supermarket chainstore across Britain, and Australian honey is still stocked on the shelves.

The fruit industry was not so lucky at this time. The price of sugar had risen considerably in recent months due to a new duty and excise which had been placed upon it. This in turn restricted the demand for jam and fruit canned in syrup. Consumers were not prepared to pay very much for what they considered to be luxuries. The fresh fruit market was still fairly limited, both locally and overseas. Further difficulties were experienced due to the appearance of "Bitter Pit" in apples, reportedly second only to codlin moth in the damage it caused.

However, in 1907 the future looked very rosy for South Australian woolgrowers. Stock numbers had built up at last after the devastating droughts at the end of the last century, and the wool clip was as big as it had been in 1891. Even better, buyers matched the record prices of 1899, so that bales of greasy wool were selling at an average of £12 10s 10d each. By February 1908, South Australia had produced wheat and wool to the value of £6.5m in the past year, or the equivalent of £17 for every man, woman and child in the State. Unfortunately, the market would not hold forever, and by July a slump in wool prices was reported. Nevertheless, a country land boom was reported the following year. Prices had generally doubled in the past four or five years in the mid-north, and markedly increased throughout the Barossa Valley and Yorke Peninsula.

> All these high prices are indicative of solid agricultural prosperity, but it is probable that in some instances buyers have gone beyond the values which are justified from a strictly commercial point of view. (*JASA*, April 1909, p. 738.)

Similar things were said when prices of farming land escalated in the early 1980s.

Around this time Mr Kelly of the Narridy Branch submitted an estimation of the cost of setting up a 750 acre farm in his district.

> Twelve working horses and one trap horse would be required. These would be worth £370. One hundred and forty sheep would cost £100; while a couple of cows and a few pigs and poultry would mean an extra £20, bringing the value of the live stock up to £490. Implements and machinery would involve an outlay of £278. This includes ploughs, harvester, harrows, cultivator, chaffcutter, and horseworks, etc. Harness, chains, swings, etc., will cost £78; wagon and dray, £70; blacksmith's tools, £12; sundries, £10; making a total outlay of £938. In this estimate he had included everything necessary to stock the farm on up-to-date lines. (*JASA*, April 1908, p. 887.)

For some time, Mr D F Laurie, the Department of Agriculture Poultry Expert, had been doing all he could to encourage the egg industry in South Australia. Regular egg-laying competitions were held to establish the most profitable breeds of hens to keep. By 1907, birds laying 200 eggs per year were becoming commonplace. Many farmers

Bagging wheat was a time-consuming operation.

carried more fowls than were necessary for their own consumption, but had difficulty in disposing of the excess eggs. The export market could only be developed if large consignments of eggs of a regular size were available. The Bureau became a useful instrument for organising poultry owners. By the middle of 1909 egg circles were appearing. Instead of individuals sending eggs to market, groups of poultry owners banded together to market their product together.

Bulk handling of grain had first been mentioned in connection with the Agricultural Bureau in 1900. News had reached Australia of the new way of dealing with grain in America, a country recognised for its innovative farming practices.

> The question of the advantages of the American system of handling wheat in bulk over the bag system adopted in Australasia has been receiving considerable attention in the adjacent colonies, and has been touched on in this colony. It would appear to us that the advocates of the elevator system of handling wheat overlook the fact that while its adoption would cost many thousands for fitting central elevators, receiving stations, farm wagons, railway trucks, etc., the total wheat exported from any one port in Australia is too small to profitably employ a single large elevator for more than a few weeks. In America the elevator system has been adopted with the result of reducing the cost of handling wheat to a low margin, but it must be remembered that the United States produces about one-fourth of the wheat grown in the whole world. Australasia scarcely produces one-twentieth of the wheat that is grown in the United States, and only a portion of this is exported; consequently the interest alone on the outlay involved in building elevators, etc., would amount to a serious charge per ton of wheat handled, to say nothing of the cost of labor, etc. (*JAI*, May 1900, p. 811.)

Mr F. J. Brooks discussed bulk-handling in a paper given at the Elbow Hill and Boothby Conference on 10 July 1900. Bag sizes for cereals had been reduced from 240 to 200 lbs, adding extra costs to the growers, not only for more bags, but also to employ someone to sew them up. The main criticism of bulk-handling was the prohibitive cost of constructing elevators and the lack of facilities at British ports to deal with unbagged grain. The question was again raised in May 1908 during a meeting of the Whyte-Yarcowie Branch

> *Wheatsacks versus the Grain Elevator.* – Mr F. Lock read a paper on this subject, to the following effect:– "We all know the conveniences and inconveniences of the wheatsack, its costs, etc., yet perhaps we have not thought much about the handling of wheat by other means, not considered the fact that wheat can be handled in the same way as water, for, like water, it will run, can be poured or pumped. Therefore, we must admit that our present method of handling, as far as labour is concerned, is not the most economical. He would try to throw some light on the elevator system, as it is being worked in other parts of the world, and for most of the information he was indebted to Mr Cobb, of the New South Wales Agricultural Department who had spent considerable time in America and elsewhere investigating the subject for his Department ...
>
> (1) The climate and wheat of Australia do not place any marked difficulties in the way of handling wheat in bulk; (2) that in connection with flourmills the elevator is in Australia, as everywhere else, a marked success; (3) that the insurance charged here on wooden elevators is not exorbitant; (4) that colonial timber is, to a certain extent, suitable for the construction of elevators, (5) that the cost of construction is not prohibitive." The following are some of the objections raised to the system, and answered by Mr Cobb:– (1) That we should have to alter our methods of harvesting, and our harvesting machinery. No change is necessary, as wheat could either be bagged and delivered, or transferred to the box-wagon, or a change could be made by having the elevator deliver into box-wagon; with the combined harvester it would appear necessary to bag as usual. (2) That we have not sufficient grain. From comparisons between New South Wales and the State of Texas, U.S.A., Mr Cobb claims that if the necessary rolling stock be provided the elevator-system can be profitably applied to an annual production of from nine to fifteen million bushels, or an area equal to and populated like that of New South Wales, and says that in conversation with the manager of a large Liverpool storage and elevator Company he was told that, no matter what was ultimately to be done with even so small a quantity as a single cargo of bagged wheat received in Liverpool, the best thing to do first is to bulk it. Wheat, for instance, from Australia is unbagged at the ship's side and shot into punts, is elevated, weighed, examined, and graded, no matter if it is to be sold again in bags next day, as sometimes occurs. (3) That our distance from market is too great. Mr Cobb admits that if England were the only market, the shipping of wheat in bulk

might not be successful; this, of course, could be settled by trial shipments. But there is the colonial trade, which requires a large amount, and trade with China and Japan may be opened up, and this would do away with the distance difficulty. (4) That we have no suitable ships. This objection rests on misinformation, as there are Companies trading with Australia which carry grain in bulk in the Atlantic, and they would divert some of their ships to meet Australian requirements. (5) That Company-monopoly in grain freight will be encouraged. If there were no competition in shipping bulk, wheat could be bagged for shipment at the elevator, and done more cheaply than the producer could do it. (6) That the grain would heat, rot, mould, shrink, and get weevilly, and be attacked by rats and mice, etc. Grain in bags is equally subject to these evils, not so much from heating, but more from vermin. (*JASA*, May 1908, pp. 984-6.).

For many years the Department of Agriculture had done all it could to promote the dairy industry in South Australia. One of their main aims was to improve the quality of the dairy herds kept by farmers. In order to accomplish this, they had encouraged the purchase of pure-bred bulls by branches of the Agricultural Bureau for communal use. In 1900 the Department agreed to subsidise £1 for £1 (up to £12 10s) the amounts raised by branches for this purpose, hoping that even better quality bulls would be introduced this way. However, to receive this financial assistance, the following conditions had to be met:

1. Bulls to be purchased subject to approval of some person representing the Department of Agriculture.
2. Bulls purchased with the assistance of the department to be available for reasonable use by the public, at a fee of [sic] not exceeding 5s for service, preference to be given to pure-bred cows and good milkers.
3. Bulls purchased with the assistance of the department not to be removed from any district, or disposed of, without the consent of the Minister of Agriculture, within three years of date of purchase.
4. Records to be kept of cows served, and results of service, and reports of same to be furnished half-yearly to the Central Agricultural Bureau. (*JAI*, August 1900, p. 5.)

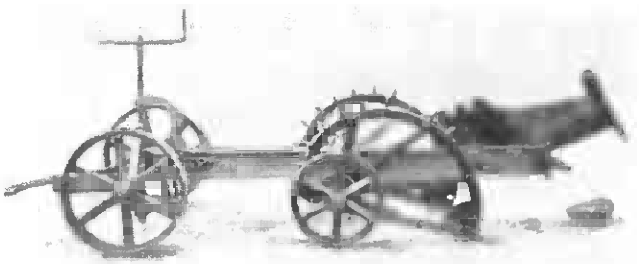
Then in 1908 the Government decided to establish an experimental dairy farm at Turretfield. One thousand six hundred acres were bought from a Mr Lillecrapp at 10 guineas/acre, 7-800 acres of that to be run by Mr P. H. Suter and the rest leased out. The farm was stocked mainly with Shorthorns, plus a few Jerseys, Red Polls, Ayrshires and Guernseys. A few pigs were also kept to make use of the skim milk and other products. That year dairy products commanded high prices, due to a shortage in the eastern states, generating a lot of interest in this new project. Beef cattle were also very profitable at this time, fetching £12-13 a head on the Adelaide market. It was reported that "Mr Kidman sends down from his stations about 200 head every week for the local market, and the 'Cattle King' dispatches a rather larger number each week to Melbourne, where they have been fetching over £14 a piece". (*JASA*, September 1908, p. 100.)

Albert Molineux died on 6 June 1909, marking the end of an era in the Agricultural Bureau. He attended his last meeting of the Advisory Board of Agriculture on 12 May, working to the end for his vision of well-educated farmers sharing their knowledge for mutual benefit. It was his enthusiasm and organisation that had put the Agricultural Bureau on its feet and kept it running smoothly for the 21 years of its existence, and now it was sufficiently established to continue on its own. Since first publishing the *Garden and Field* at 35 years of age, he had possibly contributed more than any other individual to the advancement of agriculture in South Australia. From the beginning he realised the necessity of caring for the land in order to maintain its productive capacity for future generations; he understood it was in nobody's interest to rob the land of its natural fertility and protection. In memory of his work, a fund of £150 was collected and used to frame photographs of Molineux and Krichauff. These were hung at Roseworthy Agriculture College. The remainder of the money was invested and the interest used to buy books for the Albert Molineux Memorial Prize to be offered each year to the best student of Roseworthy. The Hundred of Molineux (south of the Tailem Bend-Brown's Well Railway line) was also named in honour of this gentleman.

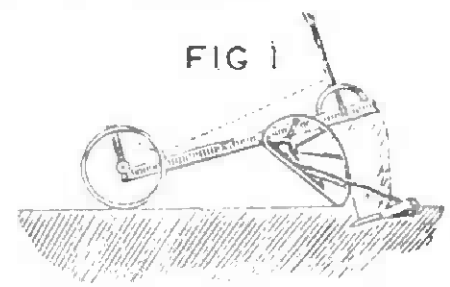
Potato blight, which had struck fear into the hearts of the Irish in previous years, appeared in Tasmania in the winter of 1909. In order to combat this fungal disease, the Department of Agriculture recommended spraying plants with Bordeaux mixture made up to a strength of 4 lb bluestone and 4-6 lb lime in 50 gallons of water. This was sufficient to check the blight when it appeared on potatoes in the South-East towards the end of the year. Thus, farmers in South Australia were

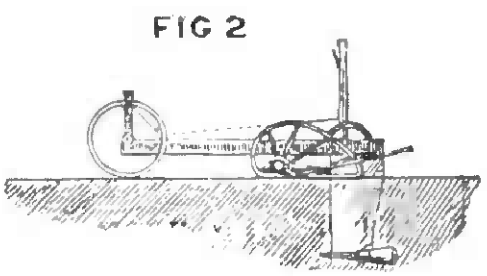
fortunate enough to save their crops from what could otherwise have been a disaster.

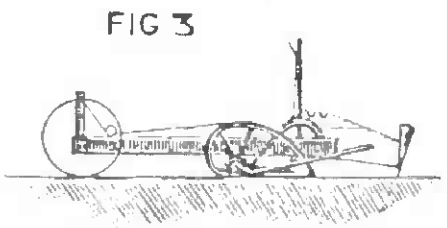
Another useful innovation at this time came from New Zealand. Prof. Angus brought back a mole-drain plough to test in the South-East. The name was derived from the hole made by the implement which resembled the burrow of a mole. The plough was to be worked by a 10 or 12 horse team or a tractor and was claimed to be the cheapest method for laying drains at an estimated cost of 1d/chain or less. The following explanation of how to use this plough appeared in the November 1909 issue of the *Journal of Agriculture of South Australia*.



The Carlyle Mole-drain Plough.







In fig. 1 the rear end of the plough has been raised on the wings by the forward motion of the team high enough to allow the sheath to drop into its working position, where it is locked by a cross-latch, and the point is now entering the ground. In fig. 2 it has taken the ground, and is working at the desired depth. In fig. 3 the latch has been thrown out, and the sheath has risen to the surface, in which position the plough is drawn back to a fresh starting point. A slight pressure on the starting lever by the driver suffices to bring the wings into action when required, and the plough into fig. 1 position again. The sheath can be set to work at any desired depth, and the level can be altered a few inches up or down while the plough is in motion. The plugs are of oval shape, and are supplied in various sizes.

The drains have been known to last for almost 30 years. The idea is to drain about 2 ft. deep, and at intervals of about 30 ft. (*JASA*, November 1909, pp. 306-7.)

More changes were to occur in the South-East that year. Mr Walter J. Colebatch was appointed to the position of Superintendent and Instructor in Agriculture in the area, and Manager of the Kybybolite Experimental Farm. He had been a star pupil at Roseworthy College, then continued his studies in Scotland before going to New Zealand as a lecturer in Veterinary Science and Entomology. He was then appointed to the Victorian Department of Agriculture. He came to South Australia with glowing references and praise for his talents and abilities. In the next years he became well known in the South-East, often speaking at Bureau meetings in the area and making the Kybybolite Farm available for Field Days and inspections.

The life of the man on the land was not wholly unrelieved from problems and worry. There were moments of respite, as this report of a homestead meeting shows. The Kingscote Branch visited the property of Mr John Wright at Cygnet River, near Duck Lagoon. The members inspected six acres of orchard, then after dinner –

> An adjournment was made once more to the shade of the gums where the ordinary Bureau business was transacted out in the pure fresh air, to the accompaniment of a choir of magpies and an occasional hoarse chuckle from a venerable "laughing jack", which perched in a tree overhead . . . (the) proceedings terminated with a drive home in the cool of the evening. (*Kangaroo Island Courier*, 12 February 1910, p. 5.)

One thing that many South Australian farmers longed for was something in the way of stone gathering machines. Surely there was some easier way of performing this back breaking task. The government offered a reward of £100 to the person

Members of the Kybybolite Branch 1912. Back row: Messrs A H Bradley, E Schnickel, W J Colebatch, A Tucker, L Smith, C Hahn, H M Kath, E Duffield.
Front row: Messrs D Pettit, A Bradley (Chairman), C Scholtz (Secretary), G Hahn and F Lacey.

who invented an efficient stone and stump gathering machine. The machine must be able "to remove or gather into convenient rows all stones and stumps of not less than 4 inches across their longest axis, and not exceeding 56 lb in weight". (*JASA*, May 1907, p. 648.) It was also important that a minimum of soil be collected in the process. The first trial was held on 25 February 1908 at Paskeville and organised by the Agricultural Bureau Branch there. Three machines were entered in the contest, one each by Mr J. von Bertouch of Kapunda, Mr Clarence H. Smith of Ardrossan, and Mr J. F. G. Kernich of Cotton. None of them were considered to meet the judges' requirements. The trial was repeated on 3 September 1909, and again the machines entered failed to come up to the desired standards. Finally, a third trial was conducted on 16 March 1910. This time a machine entered by J. & R. Forgans was found to perform an acceptable job. It consisted of attachments to a standard V-shaped stump-jump cultivator with rakes to gather stones into rows seven feet apart which were then easily collected by hand.

The winning machine entered by Messrs J & R Forgan, Pt Pirie.

Machine shearing was becoming a possibility by this time. There was some debate as to the relative qualities of hand and machine shearing, but the main factor preventing woolgrowers from converting was the cost of buying the machinery. To overcome this problem, farmers considered co-operative shearing, especially those who only ran a few sheep as a sideline. Of course, it was also necessary for them to be running fairly small farms so that the distance of each farmer from the shed was not too great; there would be no advantage in a co-operative machine if it took too long to drive the sheep to it to be shorn.

The search for profitable means of farming led Agricultural Bureau members to consider the cost of growing various crops. In July 1910 Mr Hanna provided the following figures for discussion at a meeting of the Gumeracha Branch. (*JASA*, August 1910, p. 94.)

Wheat or Hay	20s-25s/acre
Peas	£2 9s 4d/acre
Rape	14s-15s/acre

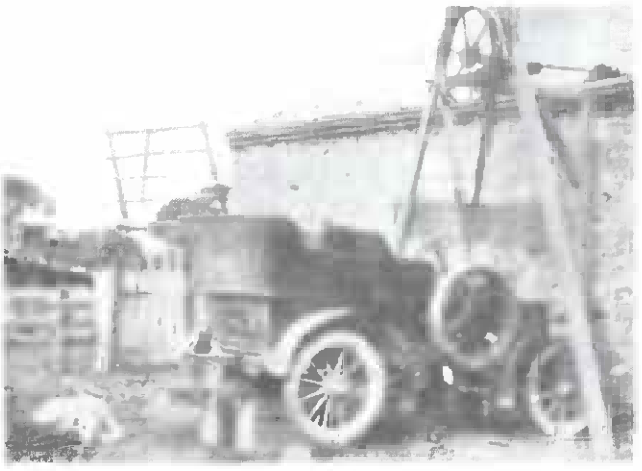
Mangolds	£5 15s/acre
Planting an Orchard	£24 15s/acre

These prices included the cost of paying an employee to help with the work. The general opinion of the meeting was that it was not a paying proposition for farmers in their area to cut hay for sale, nor to grow rape or peas in their area, since costs were so high.

By 1910 most farmers had put aside their suspicions of motor power, recognising it as a boon to farming. Mr F. East spoke on motor traction for farms at a meeting of the Mallala Branch in July. He pointed out that "Horses worth anything from £300 to £600 could only plough, in many parts, six acres a day. This amount invested in a tractor would buy a machine of about 50 horse-power, capable of hauling more than four times as much as the horses."

Mr C. Venning also read a paper on the subject before the Utera Plains Branch.

> Whereas a few years ago, he said, horses were employed to cut chaff and to do various kinds of stationary work, motors of different types had now largely replaced horsepower for that class of work. With a motor work could be done much more quickly and the horses could be used to better effect in other farm work. Recently with a motor-power winnower he had cleaned 2,500 bags of wheat with no trouble whatever. Four men could clean 200 bags of grain per day comfortably, but to get the most out of the plant and keep everything going in full swing six men were needed. With the same engine – one of five horse-power – all the chaff-cutting and corn-crushing for the farm was done. This engine easily worked a No. 4 cutter with a twenty-foot elevator, and put through a ton of chaff per hour ... A six horsepower engine and a No. 4 chaff-cutter cost about £120 and if properly cared for would last a long time. The petrol engine could be started from cold in a few minutes, and this he considered a great advantage over oil and steam engines ... He had for some time past driven a motor buggy and preferred it to a horse buggy, especially for long journeys. It was easy to average from 12 miles to 20 miles per hour on anything like a fair road, and cost from 8s to 10s per 100 miles for petrol and oil. The buggy was fitted with solid rubber tires, and these were better than the motor-car tires for stumpy roads. With the advent of motor-propelled vehicles it was becoming dangerous for drivers to sleep when travelling with a team of horses, and they would do well to keep on the right side of the road if there was a motor vehicle in the vicinity.



A motorcar being used as a chaffcutter.

> Members generally agreed as to the value of motors for farm work and thought it a very important aspect of the matter that the horses were saved work and could be spared to do other profitable work. (*JASA*, May 1910, p. 907.)

The 1910 Congress included a paper on *Motor Traction on the Farm*. Mr W. Hunt of Whyte-Yarcowie listed the advantages and disadvantages, of steam, oil and horse power.

> Although the steam engine has achieved success it is hampered by many inherent difficulties. In the first place it requires a large force of men and horses to keep it in operation and to supply it with fuel and water. It is not uncommon to hear of steam-ploughing outfits at work where three four-horse teams are required to keep them supplied with fuel and water. Localities seem to be unknown where two teams are not required for this purpose. The engines stand idle at least 20 per cent. of the time taking in coal and water. The steam-ploughing engine is also hampered by its excessive weight. Such engines, whose working weights are 36,000 lb to 40,000 lb, being not uncommon [sic]. There are large areas of territory where such weight cannot be transported over the fields without driving wheels of excessive width, which makes it difficult for the engines to turn and manoeuvre. They are too risky to use in the harvest fields in this State on account of the danger of fire. The power plant is very flexible and gives off power very steadily.
>
> The oil tractors compared with the steam engines of the same rating are much more substantially constructed, but weigh much less. They use cheap kerosine and petrol for fuel, and the supply tank generally holds enough fuel for a whole day's run. They are safe to use

in the harvest field, being free from the danger of fire, and also from danger of an explosion, unless a light happens to get in contact with the petrol. The oil tractor can go on the land earlier than the steam engine after a rain, but they cannot go on as early as horses can. The petrol tractor can start work as soon as the engine is started; whereas a steam engine has to wait a considerable time to get up steam. Only one man is necessary to operate an oil tractor, and the engine can be run a whole day without stopping providing it has an efficient radiator.

No tractors can be successfully used for ploughing on swampy, marshy ground and on hilly ground their effective power decreases.

The horse has a few rather serious disadvantages. In the first place he cannot work very long without getting tired, and in the second place he must be fed, whether he is idle or at work; whereas the tractor is tireless and can work day and night. One great advantage the horses have over the tractor is that they can be worked in teams of any number to suit the work to be done. A tractor, unless it is working at nearly full load, can seldom be profitably used. The horse can be got on the land after a rain earlier than a tractor, but the tractor will completely outdo the horse under hot and dry conditions. Experience seems to have proved that the traction engine can do any work that the horse can do, providing that the conditions are favorable. They seem to be able to do it as cheaply. They can do better work and do it in a shorter time than horses can. It is risky to prophesy, but if before another decade has elapsed the horse has not been largely replaced by oil power on large farms the writer will be much surprised. (*JASA*, October 1910, pp. 282-3.)

Motor power for conveying produce to market was a topic of discussion at the Hills Conference the following year. Mr Johnson from the Uraidla Branch believed the motor trolley would soon take over from horse wagons. The initial cost of a motor trolly (approximately £600) was about twice that of four or five good horses. However, petrol for one year would cost about £11 in comparison with approximately £125 for feeding four or five horses for that time. He also thought the time saved by motors was worth considering – from his area it took about seven hours to drive horses to and from the market, whereas a motor trolley would take only 2½ – 3 hours.

The question of labour was also addressed by Mr H. Towill in his paper read before the Forster Branch in 1911. Since labour was so scarce at that time, farmers were obliged to procure labour-saving devices of every description. In fact, this shortage of farm workers was to lead to a new immigration scheme the following year.

The Department of Agriculture was constantly expanding and required someone to direct its proceedings. After some consideration a decision was made to invite Prof. Lowrie back to South Australia. At that time he was Director of the Department of Agriculture in Western Australia, so had all the experience necessary for such a position in South Australia. He accepted with pleasure, and took up his new appointment on 1 March 1911. In September of that year, an anonymous donor offered £500 to the Department of Agriculture to be used for a scholarship in honour of Lowrie. The eligible candidates would be involved in postgraduate work in agriculture at Adelaide University.

The West Coast Branches held their first conference at Tumby Bay on 25 March 1911. The branches represented were Lipson, Shannon, Koppio, Yallunda, Green Patch, Butler and Mitchell. Among a number of visitors present were Mr George Jeffrey of the Advisory Board of Agriculture, Mr A. E. V. Richardson (Assistant Director of Agriculture) and Mr J. F. McEachran (Government Veterinary Surgeon) in their official capacities. After the Chairman, Mr E. Provis of the Lipson Branch, convened the meeting, Mr Jeffrey formally opened the proceedings. The first paper was given by Mr J. J. Cronin, Shannon Branch, on the destruction of Mallee shoots, a constant problem faced by settlers clearing new land.

The most economical and effective method of destroying the shoots, he said, was to burn them three or four times with the stubble. A 12 bushel or 14 bushel crop would leave stubble enough if rolled down to secure a good fire. Where the stubble was light, however, it was best to use a fire rake. An 18 ft rake could be made for about £6 10s, and a pair of plough wheels would carry it. With such a rake drawn by two horses about 35 acres per day could be burned by one man, and 90 per cent of the shoots would be killed. It was advisable to knock the stubble down beforehand, however, and he had found a piece of heavy anchor chain, about 20 ft long, spread with a piece of mallee, and pulled by one horse, would do 40 acres in a day. It was not quite as effective as a roller, but as it was so quickly done was preferred by most who had tried it. Shoots should be cut at least once a year, and the deeper the ground was ploughed the more

quickly they would die. He thought it advisable to crop land for three years in succession at first – the first two years with wheat, and the third with oats for hay. After that the land would be fallowed, and the stubble from the succeeding crop again burned. Shoots were more difficult to deal with in heavy than in the lighter soils. It was a very great mistake to cultivate larger areas than could be properly attended to, and so let the shoots get the upper hand. (*JASA*, May 1911, pp. 954-5.)

Then followed a paper on *Summer Fodders* by Mr G. Howard. He recommended lucerne, planted in May to be well-established for the heat of summer, and mangolds on the salty ground near Tumby Bay.

The afternoon session was opened by Mr S. F. Potter, Lipson Branch, with a paper on manures for the area. He had learned from his own experiments, carried out on behalf of the Department of Agriculture, that the first crop on new land produced a reasonable yield with 70 lb of superphosphate per acre, but thereafter 112 lb per acre secured the greatest improvement at an economical rate.

Mr Sinclair of Green Patch followed with a short address on mixed farming. He pointed out that the Port Lincoln district was admirably suited to dairying, growing summer fodders and fattening lambs and pigs. The climate was ideal for growing fruit trees and vegetables. He also mentioned that farmers in all areas of the Peninsula should plant timber trees (pines and sugar gums could be grown anywhere).

The afternoon finished with a post-mortem examination of a mare carried out by Mr McEachran. He explained the digestive, respiratory, circulating and urinary systems to his audience, and answered their many questions.

Mr Jeffrey spoke about *Sheep on the West Coast* at the beginning of the evening session.

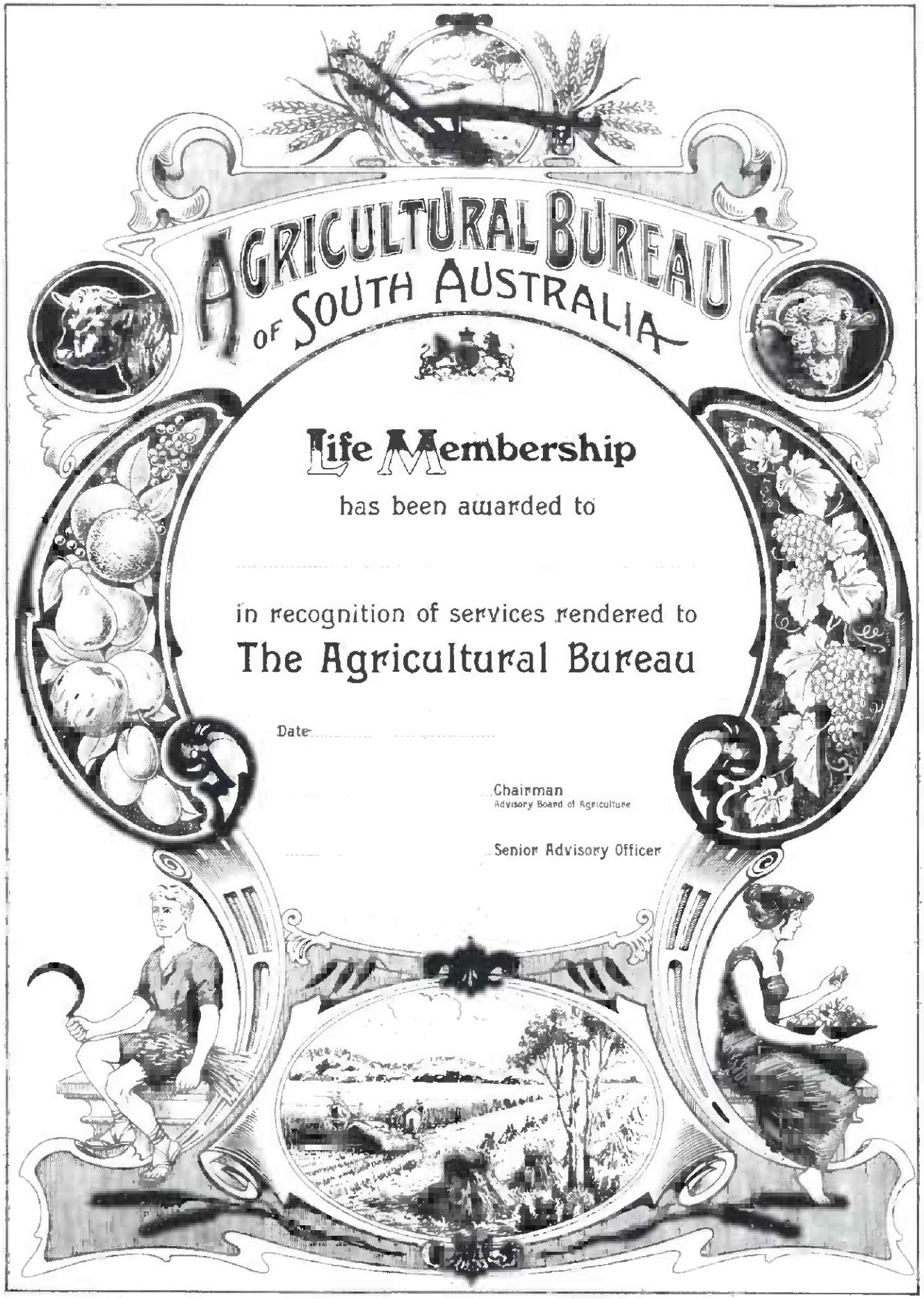
> As a means of augmenting their incomes Mr Jeffrey advised farmers to associate wheat-farming with the raising of sheep. That would necessitate adequate fencing and the outlay of a little money, but the farmers would be handsomely compensated for the labor and expense. He recommended beginners to procure their ewes from the local stations, and to buy big-framed rams from the studs on the mainland. After a while they would be able to breed their own ewes, but for many years to come the rams should be selected from outside. The characteristics of the big-framed Merino were constitution and a lengthy, robust fleece. The district would always keep the quality fine. Mr Jeffrey was emphatic in denouncing the practice of leaving the bellies on the fleeces, and stated that though lately there had been considerable improvement in this respect, nevertheless many of the West Coast clips were marketed in the objectionable fashion referred to, and were discounted accordingly. As they grew a high-quality wool they ought to give it every chance to sell to the best advantage. (*JASA*, May 1911, pp. 956-7.)

This was followed by an address from Mr Richardson in which he spoke in general terms of farming in scrub country. He too urged wheat-growers to keep livestock, especially sheep. The two would combine well, since sheep did not need a lot of attention during the busy seasons of sowing and harvest, and could graze on paddocks during their rest years.

The conference closed with a lecture on common ailments of horses, accompanied by lantern slides, delivered by Mr McEachran. Many problems could be avoided by ensuring clean food and water for the animals at all times, and not providing too much dry food whilst horses were not working.

During the Northern Branches Conference at Crystal Brook in 1912, the Honourable T. Pascoe (the current Minister for Agriculture) recommended that the Agricultural Bureau award life membership to those men who had contributed generously to the organisation. In June of that year, the *Journal of Agriculture of South Australia* recorded the first life member – Mr E. M. Sage of Green Patch, Pt Lincoln, who had previously been a member of the Balaklava Branch. From then on a flood of recommendations were put before the ABA, all requesting that Bureau members be awarded life membership in recognition of services rendered to the Bureau and agriculture in this State.

Once again conferences were beginning to gain popularity, particularly in the newly settled areas. On 2 August 1912 a new conference was convened, this time at Cowell for the Agricultural Bureau branches in the Franklin Harbour district. Delegates came from branches at Miltalie, Yabmana, Utera Plains, Yadnarie, and Franklin Harbour. Also present were Prof. Lowrie, Mr F. E. Plase and Mr G. G. Nicholls (Secretary of the ABA). Altogether a crowd of about 60 took part in the proceedings. *Farm Fencing* was introduced by Mr P. H. Sinclair, Utera Plains Branch, who stressed the need for vermin-proof fencing in this area.



Life Membership Certificate

This was followed by two practical papers on sheep by Mr M. R. Frost, Yabmana, and Mr C. Mowat (a visitor). Both recommended keeping Merinos, and the latter estimated the return on a mob of 200 sheep.

> Wool cut, about 9 lb or 10 lb each, would bring £60 clear; and 100 lambs should sell at 7s each, making £35. A total of approximately £100 per annum, and from such a small expenditure in time and labor, is a handsome return. There is also to be considered the saving in the provision of mutton for the house. It is hard to put a definite value on the work done by the sheep in cleaning and manuring that follow, but as work saved means money gained, that must be put to the credit of the sheep. A farmer who is not keeping sheep is not getting as good a return from his land as he should. (*JASA*, September 1912, p. 177.)

Mr A.M. Wilson, Miltalie Branch, then read a paper entitled *Agriculture as a Profession*. He claimed "the day had gone by when 'any fool' could be a successful farmer. Not only did the farmer need brains but educated brains." (*JASA*, September 1912, p. 177.) The more a farmer understood about the chemistry of soil, genetics in breeding and mechanics, the greater his success. Of course, bone, muscle and enthusiasm were still essential ingredients.

This was followed by a discussion of weeds and their destruction by Mr G. B. Kobelt, Yadnarie. Scotch thistle, turnip weed, dandelion and stinkwort were spreading fast in their district. The best way of freeing cropping land from such weeds was by fallowing when newly burned. A discussion of the value of field trials took place before the group broke off for lunch.

Mr F. E. Place provided a veterinary demonstration after lunch, and answered the questions put by his audience. He discussed Lockjaw (or tetanus), the effect of worm powders on mares in foal, and botfly.

A paper suggesting improvements in Bureau meetings was read by Mr Jacobs of the Miltalie Branch, and further comments were added by a Mr Searle and Mr G. G. Nicholls. The final topic of discussion, rabbit destruction, was introduced by Mr G. F. Wake of Elbow Hill Branch. He found that poisoning (with phosphorised pollard placed in each burrow) was the most effective way of dealing with this pest.

The first conference of branches in the Pinnaroo district also took place in 1912. On 23 and 24 August delegates met in Lameroo to discuss agriculture in their area. They represented the Pinnaroo, Parrakie, Moorlands, Wilkawatt, Lameroo, Parilla Well and Clanfield Branches. The meeting was honoured by the presence of the Hon. T. Pascoe (Minister of Agriculture), Prof. Lowrie (Director of Agriculture), Mr H. J. Finnis (Department of Agriculture), Mr F. E. Place (Veterinary Surgeon), and Messrs A. M. Dawkins and F. Coleman of the ABA. The Minister began by congratulating the local residents on the advances they had made in the area since it was settled.

Mr F. E. Place gave a lecture on *Sand in Horses*. He described the symptoms of this problem and suggested cures.

> The symptoms arising from the introduction of sand into the stomach and bowels of the horse included loss of condition, falling in of the flanks, sagging of the belly with a bulging on the right-hand side, paleness of the eyes, casual griping pains, voiding with the dung. The action of the sand was to choke the glands in the stomach and bowels, to choke the glands of the pancreas, interfering with the flow of bile from the pancreas, and cause the silting up of the blind gut, better known as the paunch, which ordinarily should have from 7 gall to 7½ gall of very liquid contents, which had to leave by an opening higher up than that by which it entered. The clogging action of the sand, which induced the glands to greater activity to remove the obstruction, was often followed by a weakness of the organs, and the settling of a sediment of sand on the lining of the various membranes.
>
> The time to be concerned about a horse was when it was turned out on sandy pastures, as it was certain to get sand into its system. Over the border, many people recommended the administration of strong coffee, and its value was due to its stimulation of the nervous action which enabled the organs to break the settled sand and assist in its ejection. It was a wise plan now and again to give the horses a good dose of coffee (¼lb) mixed with their feed, or to administer as a drench. Other home remedies included honey and milk, and both were scientifically sound. The honey had a stimulating effect upon the working of the small bowel, and hastened the sand through in a loosened condition to the larger bowel, whence it was passed out more easily. New milk coagulated in the stomach and gave off gas which broke up the cementy condition of sand in the intestines, thus giving the bowels a chance to expel the matter. (*JASA*, September 1912, p. 184.)

Prof. Lowrie addressed the evening session of the conference. He took *Wheatgrowing* as his

Haymaking on Smith Brothers' Farm at Verran, Eyre Peninsula, 1932.

subject. He recommended settlers clearing only as much of their blocks as they could cope with; there was plenty of time for expansion once they were established. To clear more land than they could use at first would only result in greater costs when mallee shoots grew faster than they could deal with. He also advised early fallowing, particularly in the heavier soils of the area. Heavier dressings of manure were called for – 100 lb of superphosphate per acre produced much better results than the 40-60 lb which had become popular.

The second day began with a paper by Mr F. W. Eime (Lameroo Branch) on *Hay-growing in Mallee Districts*. It was virtually impossible to farm in the area without horses, so keeping those horses in prime condition was a major consideration for farmers. Providing adequate feed, especially with the threat of a drought year always present, was a major responsibility. Wheat and oats proved the best cereals for hay, and the addition of superphosphate was well worth the expense. It was cheaper than trying to buy hay when it was most in demand.

The last paper of the conference was given by Mr W. J. Mitchell of the Geranium Branch. He described the process of farming in the Pinnaroo district. Cutting a block out of mallee land was hard work, and the most efficient method of clearing was desirable.

> New mallee land required to be cropped twice to assist in the killing of the shoots, and after the two crops had been taken off, it should be left out for fallow. In all mallee country it was necessary during the first few years to adopt methods of farming that were somewhat loose; when the land was free of shoots and stumps more systematic working would be necessary. Occasionally a farmer was met with who drilled in the seed after a burn, without first working the land. This practice was to be severely deprecated. The skim plough could be used with advantage with the first two crops. This implement would destroy any selfsown wheat or weeds on the land. If harrows and skim-ploughs were used more in this country, and the cultivators used less, better results would be obtained. In the majority of cases where land was left out for the first fallowing, it was worked with the plough or a disc, and then left until seeding. A disc or other light implement was then put over it. Results of from 12 bush. to 20 bush. to the acre were secured from land treated in this way during the past season. Well-worked country held the moisture, and there was not a farm in the district which was well worked last year that did not yield a good crop. When it came to fallowing, it was better to work a small area well than to carelessly treat a large stretch of country. (*JASA*, September 1912, pp. 191-2.)

The scarcity of veterinary surgeons in country districts caused a lot of concern. Even in the more closely settled areas it was far too expensive to employ vets on a permanent basis. To help farmers become more self-reliant, a series of veterinary lessons was held, dealing with the more common ailments and cures encountered in livestock. The first of these lessons took place at Riverton on 4 September 1912. Classes were also held at Blyth, Lyndoch and Angaston, each time in a series of four lectures and demonstrations.

These lessons were followed up in 1914 by a series of lectures given by Mr Place, Veterinary Lecturer at Roseworthy Agricultural College. He arranged courses of four lectures each which were delivered to 25 branches of the Agricultural Bureau. Practical demonstrations were also given. Many owners of livestock took advantage of the

course, particularly pleased to have vast amounts of information condensed into a manageable form.

1912 also marked the introduction of a large pruning competition organised by the Clare Branch. It was such a success that it became an annual event. By the second year it was agreed that the quality of pruning had already improved.

Apples, pears, peaches, wine grapes, sultanas and currants were all included in the competition. A juvenile class was also organised to prune currants.

From 1910 many agriculturists had experienced the difficulties accompanying the shortage of farm labourers. The Secretary of the ABA, Mr W. L. Summers, discussed this problem at the Congress that year.

> There is no doubt that it is cheaper to pay a good man good wages than to be dependent upon indifferent workers. It must not be forgotten that a competent farm laborer is a skilled worker, and expects to be paid as such. One of the difficulties we have to overcome is due to the great demand for harvest labor extending over a relatively short period. Good workmen are naturally not satisfied to remain as "casual farm hands", and anything that can be done to make employment on the farm more constant will help to solve the problem we are discussing ... By marketing a large proportion of the farm crops in the form of meat, butter, &c., the labor would be distributed over a greater period, with the result that the rural workers would be more settled, and there would consequently be a large number of lads used to farm work available throughout the State. There are two suggestions to which I would particularly invite attention and discussion. The first comes from Shannon Branch, and it is that the Agricultural Bureau should work in co-operation with the Labor Bureau in regard to requirements of farmers for labor ... The other suggestion I refer to is the establishment of training farms for boys ... The general idea is to give lads from the cities sufficient practical training in the use of the usual farm implements and in the handling and feeding of stock to make their services of value to farmers and other producers. In doing this two purposes will be served – meeting a demand for labor, and removing to healthier conditions a proportion of the coming generation which would otherwise remain in city [sic] under conditions not so good from either sanitary or moral standpoint. (*JASA*, October 1910, pp. 285-7.)

The question was raised again at a meeting of the Miltalie Branch. This time, Mr A. M. Wilson recommended conditions that should be provided for farm workers.

> To the farmer without a family the question of labour is an important one. To work his farm properly and profitably he must hire assistance. If the employer were to show more consideration, however, he would experience less difficulty in obtaining this. Hands should be paid the ruling rate of wages. The quarters should be roomy and weatherproof. If the man is hired permanently he should be allowed a fortnight's holiday every year on full pay, and also an occasional half-day. If the labourer is married, it will pay the farmer to build a four-roomed house, and allow his man to keep a cow and poultry. It might be advisable to give the labourer a share in the crop, as the responsibility and interest created would cause him to work in a more thorough and painstaking manner. (*JASA*, September 1912, p. 221.)

The situation became worse, and the Immigration Department took action in 1912.

> The Government have appointed Mr J. B. Tothill, a South Australian farmer, at present in India, to select from the ranks of time-expired soldiers in that country, men suitable for farm labour in South Australia. It is proposed that the men, who will be about 30 years of age, should be drawn from the cavalry and artillery regiments and from regiments recruited in the country districts of the United Kingdom, and it is expected that they will soon adapt themselves to farm work in this State. The fact that they are trained in discipline should compensate for their lack of experience in our condition of farming. (*JASA*, October 1912, p. 259.)

A scheme to encourage the immigration of young lads from the United Kingdom was also introduced by the Government.

> The proposal is to introduce lads of from 15 to 19 years of age and place them with farmers, who will provide, in addition to food and clothing, a weekly wage and undertake to give the lads a training in farm work, so as to fit them to become settlers. It is believed that this scheme is superior in many respects to adult immigration. The lads would have nothing to unlearn, and would arrive at an age when they would be able to adapt themselves to South Australian conditions, and in course of time would constitute a body of young men from whom we would be able to draw many of our best settlers ... The boys, on arrival, would be

treated as wards of the Immigration Department, and the Immigration Officer would be empowered to enter into agreements with the farmers on their behalf. Forms of application are being distributed, and the farmers will be asked to state thereon the conditions under which the lads will be employed.

They would be expected to pay them a minimum wage, to be decided after full inquiry. The rates suggested were a week on engagement; from 7s 6d to 10s a week after three months; from 10s to 15s a week for the second year, and the current rate of wages for the third year. It is suggested that the boys should be paid double rates during harvesting period.

An apprenticeship would be arranged for three years, so as to ensure the farmer the benefit of the training he had given the boy, and he would not feel that, by taking extra trouble in teaching him, he would be likely to lose his services in the immediate future ... the farmers will be expected to, as far as possible, make the conditions homelike for the boys.

It is proposed that the apprenticeship agreement should contain a provision for a boy to be removed at a request of the employer should he be guilty of such misconduct as would lawfully justify a master in dismissing a servant. The Immigration Department would also be authorised to terminate the agreement without redress should the employer not abide by any of its terms or not treat the employee properly. (*JASA*, October 1912, pp. 260-1.)

The first group arrived in 1913, and proved to be a great success. The programme continued for many years. Later they were to become known as the "Barwell Boys" since many came out under the Barwell Government. Although they were obliged to work extremely hard, for many of the boys it was their only opportunity to escape from the slums of industrial Britain.

It was on 3 October 1913 that Mr Peter Waite made a very significant offer to the Government. He suggested donating his home, known as *Urrbrae*, to the Government and Adelaide University. Even then the property was estimated to be worth £40 – 50,000. His beneficence was accepted with great pleasure. Today the land is still used for the Waite Agricultural Research Institute (which is world renowned for its academic work) and Urrbrae Agricultural High School. Ever since the Waite Institute was established, it has maintained a strong link with the Advisory Board of Agriculture. Today, the Director of Waite Institute, Professor Jim Quirk, is a member of the ABA and periodically the Board holds meetings there.

In July 1914 Lowrie resigned from his position as Director of Agriculture. Perkins was appointed in his place. This required a re-shuffle of other experts; Mr W. J. Colebatch became the Principal of Roseworthy, and Mr W. J. Spafford took up the newly-created position of Superintendent of Agricultural Experimental Work.

1914 proved to be a very severe drought year all over the State. Some crops planted that year did not germinate until opening rains fell the following season. The soil was so dry, the grain did not even rot. Coupled with this disaster was the outbreak of war in Europe which was to have a big effect on agriculture in South Australia, especially with regard to the availability of farm labourers, and European markets for South Australian produce.

Food supplies for British and allied troops were a major concern at this time, and particularly affected primary producers. Canned meat was considered a priority. Since large agricultural areas of Europe were undoubtedly to be destroyed in the wake of war, Australia could expect to be called upon to supply this shortfall of primary products. Thus the acreage of wheat should be increased to meet the anticipated demand. "If, as is quite possible, the war be prolonged for a year or more, the pressure on food supplies is likely to become acute." (*JASA*, October 1914, p. 225. Recommendation of Federal Royal Commission on Food Supplies.) Little did they know at that stage that the hostilities would continue for five more years.

A Drought Relief Act was passed in Parliament towards the end of 1914 to facilitate this increase in production. It was available to

any person holding land in a freehold estate under a lease registered in the Lands Titles Office or under any lease or agreement under the Crown Lands Act or any other Act as a result of the drought now prevailing in the State, in need of such assistance. Assistance may also be granted to share-farmers but in such cases the application for relief must be made and the liability for repayment accepted by the landholder, who has entered into the agreement with the sharefarmer. In administering the Act, relief will be given to settlers who are unable to provide or procure money for their requirements. (*JASA*, December 1914, p. 414.)

The commodities to be supplied under this Act were seed wheat, implements, stock, fodder and finance for superphosphate. Provision was also

Homestead meeting – Hartley Branch, 1915. Both men and women took part in these events.

made for flour and other necessities in the direst circumstances. The Advances to Settlers Act provided loans to those whose land was unencumbered by any mortgage. Such loans were to be free of interest until 1 February 1916.

Other concessions were made to this faraway war by the Department of Agriculture and the Bureau. The *Journal of Agriculture of South Australia* was obliged to limit its size due to the shortage of paper. In order to achieve this, the reports from Branches of the Agricultural Bureau were abbreviated. The annual Congress was cancelled in 1915 in a further effort to economise. This saved the cost of farmers travelling long distances from all corners of the State, as well as the cost of staging such an event. The decision was generally applauded; it was necessary to know they were doing everything possible to assist the war effort.

Despite having many problems of their own, South Australian farmers responded generously to appeals from the Belgian Relief Fund in 1915. The general plan was to donate the produce of three acres from each farm or the value of such in cash. Approximately 80 branches of the Agricultural Bureau made significant contributions, the highest total from a single branch being the equivalent of produce from 71 acres.

September saw the death of Mr C. J. Valentine, formerly the Chief Inspector of Stock in South Australia. He had been a member of the ABA up until the time of his last illness. From the time of his arrival in South Australia in 1853 he had devoted his time to serving the public interest, holding the positions of Chief Inspector of Sheep from 1865, Valuator of Runs (in the pastoral districts) and Inspector of Brands.

The first Conference of Murray River Branches was held in 1915. Delegates from the Berri, Waikerie, Kingston and Murray Bridge Branches met at Renmark on 22 November. They were joined by Mr S. McIntosh (Direcor of Irrigation), Mr W. L. Summers (Secretary to Minister of Agriculture), Mr George Quinn (Horticultural Inspector), Mr D. F. Laurie (Poultry Expert), Mr P. H. Suter (Dairy Expert) and Mr H. J. Finnis (Assistant Secretary to ABA). They began by visiting various holdings at the settlement, starting with the homestead of Mr H. Showell. Here great interest was evoked by the drying ground where he had the latest form of loose trays and a very advanced drying rack "consisting of two tiers of netting, with a narrow alleyway between, and covered with one roof". (*JASA*, December 1915, p. 484.) The next stop was Mr C. R. Rose's orangery, then Mr Cole's property, the No. 3 pumping station and the pear orchard of Messrs Basey and Howie.

The conference was officially opened by Mr W. L. Summers, followed by an address by George Quinn. He discussed the diseases and defects affecting fruit trees and grape vines, dividing his topic into four categories – a) insects, b) fungi, c) bacteria and d) physiological troubles not attributable to any particular organism. To combat these problems, three courses of action were open to them.

> (1) prevention, involving the avoidance of introduction of material, and the removal of all refuse which might encourage the development of the pest; (2) circumvention, involving such matters as the introduction of blight proof stock, etc.; and (3) artificial destruction by means of sprays, liquid and powder, and gaseous compounds. (*JASA*, December 1915, p. 488.)

Horticulturists were most directly concerned with this last, but only so far as dealing with insect pests which chewed the plant. Those feeding through a sucking technique would be unaffected. Sulphur powder was recommended for dealing with fungal diseases such as peach curl, and fumigation with hydrocyanic acid gas against black and brown scale. The best remedy for red spider mite was a spray of some heavy emulsion in winter followed up with a lime sulphur wash in summer.

The evening session was taken up with a discussion of fodders and dairying. The first was introduced by Mr S. McIntosh who presented lucerne as the most useful fodder. He recommended irrigation every three or four weeks, and annual applications of 1 cwt super per acre. Berseem clover was also discussed as a useful winter fodder, but only did well on strong, rich soil. Cape Barley and Cape Algerian Oats were alternative greenfeeds. Summer crops were then suggested:

> The fodders mentioned above could be followed by sowing from October to December the following summer crops:– Maize (Stowell's and Hickory King), at the rate of 1½ bush. to 2 bush. per acre; Japanese Millet, or Panicum crysgalli, sown on strong and badly drained soil only, at the rate of 10 lb per acre; Sorghum Saccharatum and Early Amber Cane, at the rate of 20 lb to 40 lb per acre; Pearl Millet, 15 lb to 20 lb; Soudanese Millets and Dhouras; mangold, and beet.
>
> It was not advisable to go in too extensively for Chou Moellier, rape, and kale, as there was generally trouble with the aphis. (*JASA*, December 1915, pp. 493-4.)

The Murray was ideal for dairying, according to Mr P. H. Suter. However, it was important to ensure dairy cows received an adequate supply of all the nutrients necessary for a good milk yield, and to this end he felt it important to remove the emphasis from lucerne. A balanced diet with variety was the answer to a successful dairy herd. He recommended herd testing as a means of ensuring the cows were yielding good quality milk, and reminded his listeners of the importance of using well-bred bulls for breeding. Slides were incorporated into the discussion as an aid to explaining the significant characteristics of various breeds.

The next day began with another discussion of fodders by Mr McIntosh, this time dealing with how to handle and feed the varieties suggested in his discussion the previous day. He went further, describing the treatment of irrigation areas in relation to stock.

Dairy cow enjoying a fodder crop of lucerne.

Drying fruit at Renmark.

Then a paper contributed by a member of the Waikerie Branch, Mr A. E. Ross, was read. He began by claiming that "The chief product of our River fruit-growing area will probably be dried fruits in some shape or form". (*JASA*, December 1915, p. 495.) The marketing of these products was already well-organised, but more attention should be paid to fresh fruit. Bad packing and haphazard methods of distribution had done nothing to improve the public image of their produce. Since the River Murray Valley produced excellent stone fruits, citrus fruits and grapes, there was good reason to improve their marketing practices in order to establish a lively demand for fresh fruit.

Mr F. Cole of the Renmark Branch later gave an address on the *Drainage of Vineyards and Orchards*. He maintained that drainage was an essential consideration when irrigating.

> Waterlogged land usually occurs in sandy slopes, with marly limestone subsoil, underlaid by blue clay. The clay does not always run parallel with the surface slope, being very often undulating, thus forming pockets for the accumulation of water. This class of country often deceives the inexperienced, as seeing such a slope one would be forgiven for supposing the drainage to be good – herein lies the danger. Irrigation, when practised on such land, usually saturates the top nearest the channel, goes down to the subsoil, is arrested there by hard pan or blue clay, shoots out about half-way down the slope, and the trouble starts. In these cases the injurious salts are brought to the surface and deposited there, the trees or vines then start to go off, and, if left, will soon die out. Where the salt has come to the surface on these sandy slopes, no amount of drainage will be effective, until means have been found to flood the land, in order to dissolve the salt, and carry it away through the drainage system. To do this the land will have to be terraced on the contour principle. The way to prepare the land is, first take a level 1 chain from the top of the patch; start in the highest corner, take a level. Say it reads 4 ft; take the next level 1 chain away, keeping around the contour until it reads 4 ft 1 in. Keep on taking a level at every chain, falling 1 inch in every chain, until one gets to the end, when the last two levels should read level; leave a peg at each level. Now go back and start as before, but coming down the hill 6 in. When the whole of the land is contoured, run a plough around each row of pegs, then start buckscraping the banks, terracing the land. One inch in a chain just gives enough fall to flood sandy land quickly, the idea being to dissolve the surface salt, and not put too much water in the land. (*JASA*, January 1916, pp. 568-9.)

The poultry expert, Mr D. F. Laurie, gave the last paper of the conference. He recommended

Plymouth Rocks, Orpingtons, Wyandottes and Rhode Island Reds for the farmer, since these breeds were not only good table birds, but also reliable layers (though not as good for eggs as the White Leghorns). He generally advised permanent housing for poultry, though portable yards could be valuable for use in orchards to eradicate grubs and insect pests. He then went on to discuss three alternative methods of feeding.

> 1. Morning, wet mash, per bird average 1 oz; midday, greenfeed, average 2 oz; evening, grain, average 2 oz. 2. Dry mash fed in hoppers available at all times; green food morning and noon; grain evening. 3. Grain only – no mash; animal food twice a week; green feed daily ad lib. Clean water in a clean vessel should always be available. That should be well shaded and kept in a draught in hot weather. An excellent water vessel could be made from a kerosine tin, cutting out about 6 in from the bottom, at the back and from a hole 7 in or 8 in square, and turning the sharp edges downward and outward. That water vessel could be easily cleansed and the water was kept cool. All tins, whether kerosine or petrol, should be first cleansed with boiling water and washing soda. Petrol was poisonous to fowls. Water vessels might be sterilised with strong solution of either bluestone (copper sulphate) or permanganate of potassium (so-called Condy's crystals). (*JASA*, January 1916, p. 574.)

Wet mash could be made with 1 part bran and 2 parts pollard with an equal bulk of finely chaffed green food. The bran should be scalded with hot water, not separated milk, meatmeal soup or rabbit soup to soften before mixing with the other ingredients. He suggested three different mixtures for dry mash.

> 1. Bran 1 part, pollard 2 parts, meat meal 5 per cent. 2. Bran 1 part, barley meal 2 parts, meat meal 5 per cent., pea meal 1/2 part (1/4 bulk of barley meal). 3. Bran 2 parts, finely ground wheat, oats, and barley 1 part each, pea meal 1/2 part, meat meal 5 per cent. (*JASA*, January 1916, pp. 574-5.)

Shell-grit should also be provided for the fowls.

Difficulties associated with the war in Europe continued to concern farmers in South Australia. The 1915 Hills Conference was addressed by Mr Laffer, M.P., who discussed the problems they were facing in transporting Australian produce to Europe.

> As to the European market this year, on account of the disorganisation which existed there, it was very questionable whether any quantity of fruit could be absorbed. The German market, of course, was closed; the Russian market was practically so. In addition, the French railway services were being utilised for military purposes. That left the English market only for them, and they must realise that, on account of the war, and the necessity for economy which was being urged on the people, there would not be such a great demand for fruit, which was still regarded much as a luxury. Further than this, there was the difficulty which existed on

The Gumeracha Branch visiting Roseworthy Agricultural College, 1917. Photographed in front of Mr Albert Cornish's solid tyre Republic Truck.

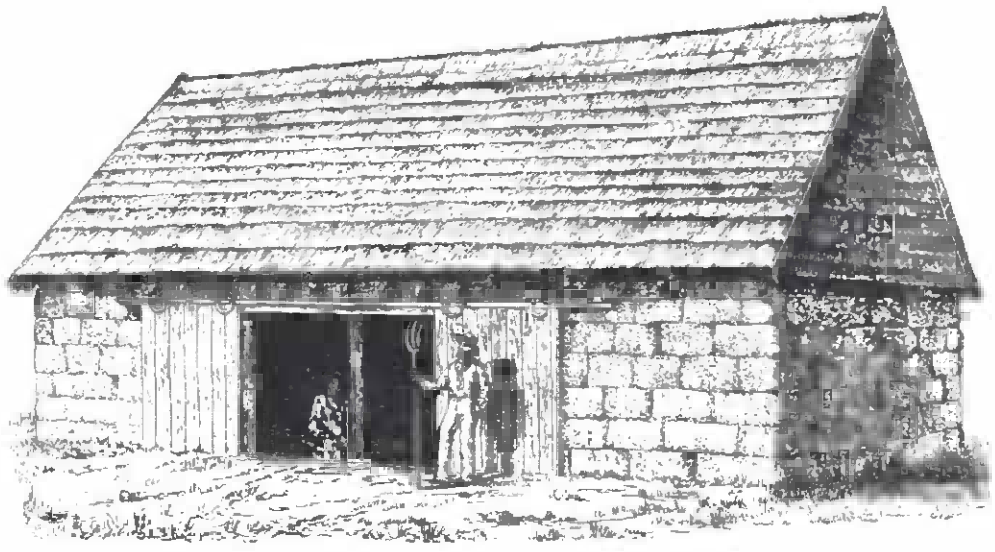
account of the congestion at the ports, which practically made it impossible to market perishable produce. He had urged the wisdom of calling a conference of representatives from each of the States, with a view to regulating the quantity of fruit that should be sent to this market, for he felt that if too great a quantity were supplied to the home market, the result would be chaos. He had also urged the wisdom of sending a representative to the United States with the idea of determining the extent to which Australian Fruit should be absorbed. He was satisfied that if the market there were properly organised it would be capable of taking 1,000,000 cases of fruit annually . . . The matter was one of urgency; he was of the opinion that they would have more fruit this year in South Australia than they had ever before had in the history of the State. Plums, apricots, and pears were very heavy, and he opined that there would be a least half a million cases of apples and pears to dispose of. (*JASA*, November 1915, p. 394.)

Further evidence of this occurred in May 1918 when woolgrowers were urged to pack their bales as tightly as possible in order to reduce the shipping space used.

The concern was not wholly for themselves; though. Farmers wished to do whatever they could to improve the lot of their fellow countrymen fighting the war. The Longwood Branch made the practical offer of 100 cases of apples for soldiers at the front, provided the Government would make arrangements to get them there. This was followed by an offer of 300 cases from the Clare Branch. It is easy to imagine the pleasure this gesture would create; not only the taste of the fresh fruit after weeks of tinned and dehydrated food, but also the knowledge that their fellow Australians at home had not forgotten the soldiers in the battlefields of Europe.

The Government announced its scheme for marketing Australian wheat from the 1915/16 harvest. The main difficulty faced at this time was procuring shipping space to send produce to the United Kingdom market. To this end, legislative provision was made whereby the Government could take control of all wheat (apart from that portion necessary for the next year's seed) and sell it to best advantage on the world market. Farmers were to receive payment of 3s/bushel on delivery to Pt. Adelaide. A further payment of 9d-1s/bushel was anticipated in June. The final

Cultivating between rows of fruit trees in an orchard at Blackwood.



Baled hay was another possible building material. This building was seen in America in the late 19th Century and reported in the Journal of Agriculture and Industry.

payment would be due after the last shipment of wheat had been sold. At this time farmers were not compelled to make use of the wheat pool, but it was later made compulsory. A handling charge of 3½d/bushel was criticised by many, but the need to store the grain for a longer period than usual necessitated this increase. The scheme was aimed at preventing panic selling of a record crop, and ensuring Australian farmers received London parity prices for their wheat. This scheme continued for some years. In January 1919 there were complaints that unripe, damp wheat had been forwarded to the wheat pool. Farmers were reminded that it should not be reaped until it was quite dry. Today silos cannot accept wheat with a moisture content above 12 per cent.

One of the effects of war was to increase prices of all sorts of things. Building materials soon became very expensive, and also very scarce. With fewer men in the workforce to produce these commodities, and the requirements of troops having priority, there was little left for civilian use. Men on the land were forced to become more inventive if their own needs were to be met. An interesting paper was read before the Coorabie Branch of the Agricultural Bureau by Mr E. J. Stretton, who claimed that straw and bush buildings were the answer. Red Mallee and long mallee forks were best for uprights, and wire netting stretched over the roof could be covered with brushwood. He favoured light "whip-stick" ti-tree over mallee for brush on the sides of buildings, since it was not so inclined to sag, and packed closely to provide good protection from rain and dust. The other Bureau members at the meeting expressed their opinions on his talk. Mr C. T. Giles felt it was best to avoid erecting new buildings until suitable materials were available; Mr D. Riddle, on the other hand, preferred a brush and straw roof at any time, because it provided better insulation from summer heat and winter cold than galvanised iron.

The shortage of building timber and galvanised iron continued for several years. Even in 1920 alternatives were still being discussed by the Willowie Branch. Mr S. G. McCallum suggested using reinforced concrete for barns, chaffhouses, tanks and even fenceposts. Concrete, it seems, was readily available, and became a very popular building material. Another solution to the problem of galvanised iron shortages was observed by a member of the Mt. Gambier Branch who reported seeing a shed roofed with stone.

1917 saw a major addition to the Agricultural Bureau – after much interest had been expressed, the Women's Agricultural Bureau was formed. Many rural women had found themselves becoming more involved in agriculture than ever before, mainly due to the shortage of labour accompanying the state of war. They consequently developed a greater interest in the running of the farm, especially the dairy and poultry industries. It was suggested in 1916 that some sort of Women's Country Clubs be formed; the Millicent Branch had already experimented with a "Grange" which had proved quite successful. In February 1917 the ABA received requests from the Naracoorte and Sherlock Branches to allow women to become members of the Bureau. The Naracoorte Branch had nominated a woman for membership, and the Sherlock Branch declared that "women should be allowed to join all Branches on the same footing as men, Branches to be allowed to make their own arrangements as to when joint or separate meetings should be held". (*JASA*, March 1917, p. 649.) The Board rejected these requests,

The members of the first Women's Agricultural Bureau formed at Riverton in 1917. President, Mrs R Wakeham, Vice President, Mrs T Longbottom; Hon Secretary, Mrs E M Gray. The members were: Mesdames W B Davis, F G Hannaford, M E Bowden, R J James, W Legoe, W Hannaford, J P Schulz, W Lock, F Kschenka, A W Bowden, R H Cooper, T Camac, J Hassel, A E Rowe, A H Castine, F Phillips, A L Aland, J Potter, A S Gillingham, Misses Dobbin, Hall, Longbottom and D Wakeham.

but it seems that in January 1916 they had approved a Mrs M. M. Feddern as a member of the newly formed KiKi Branch. However, they appointed a committee of the Director of Agriculture, Mr Laffer, and the Secretary to look into the question. They came up with the following proposal.

> The earlier Branches should be formed in the immediate neighborhood of existing Branches of the Agricultural Bureau, and as much as possible with the concurrence and help of members of these Branches. In this connection your committee submits for your approval the following recommendations:–
>
> 1. The association of the women of South Australia interested in agricultural matters, under the auspices of the Advisory Board of Agriculture, wherever conditions permit of it.
> 2. The adoption of the name of Women's Branches of the Agricultural Bureau in preference to Women's Clubs.
> 3. The membership of Women's Branches of the Agricultural Bureau to be confined to women alone.
> 4. By mutual consent, and for a common purpose, joint meetings of both women's and men's Branches of the Agricultural Bureau may be held in the same locality.
> 5. Women's Branches of the Agricultural Bureau would be governed by the same rules as the men's Branches, and would participate in the same privileges.
> 6. As soon as a sufficient number of Women's Branches have been formed, it is recommended that the Minister of Agriculture be asked to direct that the columns of the Journal of Agriculture be thrown open to questions of domestic economy and matters in which women are specially interested. (*JASA*, April 1917, pp. 733-4.)

The first Women's Agricultural Bureau was formed at Riverton on 19 October 1917.

The WAB grew slowly at first – in the first 10 years only eight branches were formed. It would be many years before they were a big enough group to require their own organiser. For the time being the ABA administered their affairs along with the Men's Agricultural Bureau. But the women who did join were very enthusiastic, interested in the Men's Bureau as well as their own activities. The Riverton WAB attended the Lower Northern Conference in 1918, and Mrs

Delegates at the 1918 Congress (Note: WAB representatives in Centre Front).

Wakeham and Mrs Longbottom (the President and Vice-President respectively) were both present at the 29th Congress that year.

Despite the social and economic upheavals experienced by a nation at war, life continued. The members of the Agricultural Bureau who stayed at home searched for a way to increase the value of their work. The Naracoorte Branch arranged a farm competition in 1916/17 that was to become an annual event. Twenty-two entries were received in the first year of the contest. Mr W. H. Smith, who had been responsible for their initial organisation of the competition as Branch Secretary, distributed the prizes. The following is a list of the winners for each section:

> Best-kept farm, over 500 acres – First, Mr J. M. Wray; second, Mr R. A. Miles, Best-kept farm, under 500 acres – First, Mr T. Waugh; second, Mr Scholz. Best crop of wheat – First Mr A. Bradley; second, Mr R. A. Miles. Fallow – First, Mr W. Loller; second, Mr Schinckel. Crop of oats – First Mr R. A. Miles; second, Messrs D. Kay and Miles. *(JASA,* July 1917, p. 995.)

Organised tours of the South-East were conducted for the Agricultural Bureau members and officers of the Agricultural Department. It was hoped that by doing this, closer contact could be established between the farmers and scientific experts The tours encompassed Naracoorte, Kybybolite, Mt Gambier, Tantanoola, Glencoe, Penola and Coonawarra. They lasted for several years, and were both entertaining and educational.

The Butler Branch decided to conduct a wheat competition in the 1918/19 season. Entries were confined to members of the branch and a prize was offered for the highest yield off 10 acres. Of the 11 competitors, Mr F. R. Parker won with a yield of 21 bushels 43 lb by sowing 60 lb Marshall's with 2½ cwt of super per acre. The second prize was awarded to Mr S. M. Bawden for a crop of three varieties (Gluyas, Queen Fan and Belgian) which returned 18 bushels 45 lb from a seeding rate of 60 lb wheat and 100 lb fertilizer/acre.

The first peacetime Congress for five years was held in September 1919. A spirit of unity prevailed as all the members gathered realised they must pull together to restore Australia to prosperity. One of the main speakers was the Hon. E. A. Anstey, the Minister of Repatriation. He discussed the proposed plans for land settlement by returned soldiers. The Government intended to buy land which could then be bought (at very favourable rates) by returned soldiers intending to become farmers. Large areas of land had been abandoned by settlers in the mallee as they drifted towards the city. It was hoped that this land could be resettled profitably. In the end, approximately 4,600 soldiers were assisted in one way or another. Of these, about 700 passed through the Government training farms at Pompoota and Melrose where they were paid a living allowance as they learned how to farm in those areas. (John Love, *The Measure of the Land, Department of Lands,* Adelaide, 1986, *p. 25.)*

The Soldier Resettlement Scheme would bring a large number of new people to the rural areas of South Australia. In turn, this would provoke a renewed interest in the work of the Agricultural Bureau, as many men learned to farm the land they had taken up. The history of the Agricultural Bureau entered on a new phase in the post-war era along with the State as a whole.