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**AGRICULTURE IN VICTORIA
1872 - 1873**

By R. S A V A G E

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ROBERT SAVAGE – Inventor and Journalist

Robert Savage, 1818 – 1888; Agricultural writer and inventor, was born on the 24th March 1818 at Cork, Ireland, son of Francis Savage, Gentleman, and his wife Catherine, nee Dring.

He sailed in the “**London**” for Hobart Town arriving 3rd of April 1839. In December of that year, he took sheep across Bass Strait to Portland and in 1840 to 1845 he occupied Nangeela and Glenelg River Stations north of Casterton, with H.E.P. Dana as a sleeping partner.

In the late 1850's he moved to Melbourne and was agricultural writer for the Argus newspaper. His first wife, Ann (nee, Wrentmore), whom he had married in Launceston, and by whom he had a son, also born in Launceston, died at Hawthorn, in Melbourne on the 19th July 1860. After his (second) marriage to Annie Sarah Dyer on the 9th June 1864 he lived at St Kilda. About 1869, he took up farming at Darabin (East Preston), but lost money in a mining speculation in 1872 and was in financial difficulties. He is listed as an agricultural writer and inventor. In 1872 He had a small shop in Bourke Street, Melbourne where he is recorded as working with Frederick Wolseley on his very first attempts to create an effective shearing machine..

In August 1874 Savage became inspector of Stock and was made a commissioner of the Supreme Court for the Moama district. By October he had moved to Echuca, where he was still living in September 1876.

Savage's main interest lay in inventing. In December 1846 his reaping machine, similar to Ridley's had been displayed in Melbourne. In March 1857 he invented improvements for stone breaking machinery. He also invented a stone breaking machine while at Nangeela Valley in Western Victoria and a mode of working compound levers applicable to crushing, stamping, punching and other purposes.

In 1858 he patented advances in methods of puddling and washing earth containing gold or other metals and in October 1865 new types of cement and paint. In 1872 with J. Hicks he applied for a patent on a better sewing machine and next year for “improvements in reaping and binding machines.

From about 1874 he was working with Frederick York Wolseley in Melbourne and two years later he was at Walgett with Wolseley and claimed a share in the invention of his shearing machine. Savage tested it with Wolseley in Walgett in 1876 and the two took out a patent in March 1877, but the machine failed and Wolseley continued to work on it without Savage.

In 1881 Savage invented a torpedo which he hoped to sell to the Italian Government.

(taken predominately from Australian Dictionary of Biographies)

AGRICULTURE

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Before treating of the agricultural capabilities of Victoria, it will be well to direct attention to the change in the relative number of employers and employed during the ten years prior to the taking of the last census. Thus, in 1861 there were 17,343 farmers, farmers' wives, market gardeners, &c, and 23,875 farm labourers, farm servants, and garden labourers; while in 1871, the number of employers was 26,557, and of employed only 27,731, or an increase of 9214 in the former class, against 3856 in the latter.

This was caused by the facilities offered for taking up small allotments on easy terms under the Amended Land Acts of 1865 and 1869, and accounts in a great measure for the change now being brought about in the system of farming.

There has always been a complaint of labour being scarce and dear, but the opportunity of becoming their own masters was not offered to the farm labourers in vain, and their ranks have not since been supplied in proportion to the increased number of employers. Nor are they likely to be while the same attraction is still offered to every industrious man who can save enough of his wages or earnings otherwise, to build a hut, fence in a piece of land, and provide food for his family until he can gather in his first crop.

Even so much is not always required, for many industrious men have taken up land with only money enough to pay the first half-year's rent and provide materials for a hut in which to leave their families while they worked for the settlers around, and thus earned enough to pay their way.

The first result of this sort of settlement has been to supply the stock-owners with all the extra labour they require at shearing-time from their immediate neighbourhood, except in the wildest parts of the colony; while many families have been provided with homes on land soon to become their own property. Men who settle in this way also

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seldom made of the value of the agricultural produce. This, however is now large. At the average selling rates of last year the wheat was worth £1,350,238; the oats £494,983; the barley, £67 101; the maize, £4624 ; the peas, rye, and other grains, and pulse, of which small quantities are grown, £32,011; the potatoes, £377,523; the roots, -such as turnips, mangolds, and sugar-beet, £48,540 ; the hay, £-578,549 ; green fodder, sold as such, £66,504; the grapes, sold as fruit, £15,448; die wine made, £71,358; amounting, with the straw and other things not specially enumerated, to a total of £3,072,877, from the 937,220 acres of land actually tilled. The line is still attempted to be drawn by the Registrar-General, and the more strictly agricultural portion of the class is returned as on holdings unconnected with stations, these occupying about 7,787,097 acres in all. On this are kept nearly all the milch cows, the great majority of the horses, almost the whole of the pigs, and about two-fifths of the sheep in the colony.

The dairy produce from these animals was worth about £1,005,000, the wool about £1,714,804, which sums, with the value of the increase sold, would amount to £4,187,944, or a total of £7,860,821 from the extent of land before mentioned and returned as being held by persons unconnected with stations. The extent of land occupied by persons returned as station-holders was 30,286,005 acres, and the value of the produce from this was £3,607,580, or a total of £11,468,401 from the agricultural and pastoral land together. This is a large amount to be annually yielded by a class not numerically very much stronger than the miners. The value of the agricultural produce is overlooked, because it does not, like the wool, go in any one special direction, or pass through the hands of persons engaged in any one branch of business, but is disposed of through many channels. It constitutes, however, the great bulk of the people's food, and that forms the most costly item in the annual expenditure of every community.

The capital invested in these pursuits is correspondingly huge. The improvements on the land unconnected with stations, excepting the cost of clearing or cropping, for which nothing is allowed, were valued at .£8,547.270, and the implements and machinery at £1,373,872. The horned cattle, horses, sheep, and pigs, were worth about £4,99-5,100, making with the foregoing £14,016,320. To this must be added £11,680,645 for 7,787,097 acres of land, purchased ;{. an average of 30s. per acre, making a total of £26,596,965. The improvements on -stations were valued at £1,784,923, and the implements and machinery at £78,329, making £1,863,252. The stock was worth about £3,685,077, and the land purchased 2,313,582 acres, at 20s. an acre, .£2,313,582 ; in all, £7,862,811 of capital invested in the pastoral branch The persons directly dependent on these pursuits for employment

or raw material—such as millers, meat-preservers, fellmongers, implement makers, &c.—returned the capital expended by them as amounting to .£1,304,329; and this must be increasing fast as manufactures extend. Thus the capital invested in agricultural and pastoral pursuits is made to amount to £34,464,105 ; and in this is not included the floating capital expended in clearing the land or putting in the crop of the year, a rather considerable amount.

These figures will appear startling to many who are accustomed to look upon the mining as the most important interest here; but they are either taken from the official returns, emanating from the Registrar-General or the Custom-House, or are calculated on prices very moderate for an average of years. They may, therefore, be received as correct in the main, and all apply to 1871, although, as the agricultural year ends with March, the crops may be spoken of as those of 1872.

The unusual quantity of rain this summer has given extra trouble in harvesting the crops, but these will yield more than the average of late years. Statistics show that the yield of wheat has, within twenty years, come down from 22 or 23 bushels an acre to 13 or 14 in a moderate season. The lowest yield has been 9 bushels, but that was in such an exceptionally bad year as we are not likely to have again. This year perhaps the average will be 18 or 19, although yields of from 30 to 40 bushels to the acre are announced as having been secured in some districts, and those usually more remarkable for light than for heavy crops.

The land has been exhausted by sowing it year after year with grain, allowing neither manure nor rest, but this ruinous system will not be followed much longer. The cost of labour is too high to leave any profit on a poor crop, and manure can be only applied to a very moderate extent. There is now little or no chance of labour becoming more abundant or cheaper, so the farmers are beginning to see the necessity for allowing a rest to such of their land as has been in any material degree impoverished. The yield of oats has not been so much reduced, because, in the first place, this grain does not exhaust the land so much as wheat, and whenever a field of oats shows symptoms of failure in regard to grain it is at once cut for hay. Nor has there been much alteration in the yield of barley, but this has never been grown to any extent, and will not become a favourite crop with the farmer until a kind is found capable of resisting the attacks of the caterpillar. A variety introduced from California is said to have this property, but it has not been widely proved here as yet; and until some such insect-proof variety is generally known, we will have to import a large proportion of the malt our brewers use, for barley is now the most uncertain crop that can be grown. It was thought that when we

had reached the point of supplying our own consumption with wheat, we should begin to export rather largely in favourable seasons, but this will scarcely be the case. A large proportion of the 23,000,000 acres of second-class land is excellent for wheat-growing, but a large surplus for export means very low prices, and these will not afford high wages. Besides, we have immediately adjoining us South Australia, a colony which has been exporting largely to our market both wheat and flour, whenever prices rise high enough to allow of this being done. This has, of course, tended to keep prices lower than they otherwise would have been, and by so much rendered the farmers less inclined to extend the area of wheat. What quantity of land has been devoted to this crop during the past year we have no means of exactly ascertaining as yet, but the 334,600 acres thus sown last year would, in a favourable season, grow enough for the consumption of the present population, and this area is not likely to have been much exceeded. The increase under wheat the year before was 49,500 acres, but rather more of the old land was laid down to grass last year, while there was probably no proportionately greater extent of new land brought under tillage. This change, as it were, of old land for new, is one of the beneficial effects of free selection, and will help materially to raise our average yields of grain again. The selectors being mostly men of limited means, can only get their holdings fenced and cropped by degrees, but every year for some time they will have new land under crop, and so rather more than make up for the quantity in other places withdrawn from the area under tillage. Thus we may expect that the extent of land under cultivation will not vary much either way for some years to come.

When export prices have to be calculated on, there is usually a rather narrow margin of profit, and it becomes necessary to inquire closely into the returns to be expected from each possible product. Many of our farmers have had to calculate very closely of late, and to practise the strictest economy, to meet high wages, and in many cases high rents also; and the result is that sheep have been found to pay better than inferior crops of grain; therefore all who have the means have been procuring flocks of sheep or increasing these. But few of the fences round tilled land were sheep-proof, so a serious difficulty had, at the very outset, to be overcome. Only a small proportion of the farmers had any capital to spare, and sheep-proof fences are expensive—too much so, indeed, to be erected on rented land. The landlords are not inclined to spend money on improvements, so that, as a rule, our tenant, farmers can do but little towards improving their practise or their incomes in the way suggested. Our most substantial

farmers, however, occupy their own lands, so they are, to a man, making provisions for the keeping of as many sheep as their land will carry. The fences are rendered sheep-proof, where not so before, and all of the land, excepting what is free from weeds and in good heart, is being laid down by degrees with English grasses. The sheep give a good return at once, with little outlay for labour, and the land under grass will in a few years recover much of its original fertility. The gain to the country at large, as well as to individuals, from the extensive adoption of this system, will become apparent from the fact that, in the year before referred to, all the agricultural produce was raised from, and 636,587 head of cattle, 161,075 horses, 171,684 pigs, as well as 3,814,698 sheep, were kept on the 7,787,097 acres, embracing the area in tillage, and unconnected with stations; while the 30,286,005 acres occupied as stations maintained only 152,920 head of cattle, 20,568 horses, 5763 pigs, and 6,187,083 sheep. This is a great difference, and, be it remembered, of this latter extent 2,313,582 acres were purchased, and may be therefore supposed to be of good quality, and to have been well improved by fencing and otherwise. Of course the land in the first section is nearly all of superior quality; but this alone will not account for its far greater feeding capacity. The only secret is the old one long ago found out by the farmers of England, that if you want land to produce largely you must keep stock to help the plough, and keep the plough going to help the stock.

This mixed system of farming has only been carried to the extreme of profit in one limited district as yet, and the full value of the land there was not discovered until all the tillage farmers on it were ruined. What is generally known as the Tower Hill district, west of Warnambool, is the one referred to. The land was so rich that the first occupiers, all working men without capital, sowed grain year after year, until a succession of low prices, the pressure of old debts, and mercantile difficulties on the part of the owner of a large property on which was most of the land first cultivated in the neighbourhood, caused the tenants to leave this, and the land to remain unemployed. Of course weeds grew plentifully at first, but with them sprung up white clover, which soon took possession of the ground, to the exclusion of everything else. The first year of rest from the plough left such a mass of feed that the owner determined to try if he could not make something of the land by grazing, and to his astonishment found that he could fatten off fifteen sheep to the acre, and two or three such lots in succession. Here was an unsuspected mine of wealth, and it has been worked to great advantage ever since. The land was all laid down with rye-grass, as this was found to give more feed

during the summer and autumn than the clover; and as potatoes are a certain crop on good land near the coast, portions were let from time to time, for the season of eight months, at the rate of £5 and £6 an acre. Potatoes have been low in price for the last three years, and so much is not now obtained, but £3 or £4-an acre are still given for the best potato-land. The system is to allow the land remain under grass for three years, and then take one or two crops of potatoes off it, according to its quality. When the planting season comes round, tenders are invited for portions of a certain field, and the plots are marked off as tenders are accepted. The successful tenderers are the working tradesmen of the neighbourhood, who make this out-door occupation a part of their year's business. They have their own implements and horses, and know the capabilities of every field. The growing crop is carefully tended and kept very clean, the produce in a good season realising from eight to fifteen tons to the acre.

The strongest land is required to yield two crops before it is laid down again, but the lighter land is sown down after one crop, both together keeping from ten to fifteen sheep to the acre, as soon as the grass has had time to become well established. No tillage pays like this, but it is only on very good ground near the coast, and consequently enjoying a rather moist climate, that the feed is so abundant throughout the year. There is plenty of land elsewhere capable of growing as much feed, so long as moisture remains in the ground; but up the country the ground usually becomes too dry to allow of any growth for three or four months, or from harvest time until the first autumn rains fall.

The keeping of cows has been fully tried in connection with tillage, and on land laid down with English grasses, but the point of home consumption having been reached, prices are very uncertain, and for the most part low. Butter is made during the spring and early summer in too great quantity to allow of its being all used fresh; and at few of our dairies are there the means of allowing it to be preserved in good order for keeping. For some months the maker does not get much more than 4d. a pound, and such a price is anything but encouraging.

Seeing the great difference of price here and in England, speculators on a small scale have bought up butter as it came to market, salted it down, and shipped it; but it scarcely ever arrived in even moderately good condition. And this is not to be wondered at, for really good fresh butter is the exception rather than the rule, and one tainted or badly got-up pat would be enough to spoil the whole cask. Australian butter must not be judged by what has been shipped, for speculators of this sort usually buy the cheapest that is offered, and little of this can be good, for dairy-women of established character have never to offer their products in the

open market, butter of known excellence being always in demand. Nor have tentative of another kind succeeded much better. Several individual farmers, as well as some of the societies, have sent home a few casks for experiment, to try if, with due care, an outlet might not be found for our occasional surplus but the results have been in nearly every case disappointing. Excellent butter can be, and is, made here, but the climate is against preserving it so as to stand a voyage in a wool ship more especially when the dairy itself is not well calculated to counteract extreme changes of temperature outside.

In the manufacture of cheese there has been great improvement of late years, and much of very good quality is made, not equal as yet to either Stilton or double Gloucester, but quite fit for general use. In quantity also there has been a great increase, and the price has fallen until little profit is left for the maker of it either. But profit is often spoken of in comparison with former high prices, and many things continue to be produced although it is said they do not pay. The old high prices for butter often return in the winter, when bad management leaves the supply short.

The feeding of pigs was very profitable for some time in connection with dairy work, but they have reached the point of consumption also, and prices have fallen lately. Great numbers are imported from some of the coast settlements of New South Wales, where they are reared for little or nothing on swampy or inferior land, and fed for a few weeks on maize when large enough for shipment to this market or Sydney. Pigs so raised can be sold at almost any price, putting competition on the part of the farmers, with high rents or wages to pay, entirely out of the question.

Thus, it is not for want of trying what can be made of other kinds of stock, that sheep are now in the ascendant. Dairy cows and pigs are useful adjuncts, under certain circumstances, but the limit has been overstepped at which they are highly profitable.

The followers of different occupations are becoming once again fairly adjusted as to numbers, after the disturbing influence of the gold discoveries; and the tendency of thirty years' experience, with many extreme changes during that period, goes far to prove that for the future the colonial method, at least in Victoria, must be a mixed system of sheep-farming and tillage. Let us imagine, for instance, a free selector taking up a section of 640 acres of second-rate bush land, or such as is still to be had in many eligible situations. After building a hut to live in, his first care would be to get a sheep-proof fence round the whole of his allotment. If the land bore timber enough the fence would be constructed wholly or in a great part, of logs and brush. This would be the cheapest sort of fence; but when timber is not available, the cost of stone walls, or split stuff and wire fencing, would have to be

incurred. This fence having been completed, a flock of sheep, say three or four hundred ewes, according to the feeding capacity of the land, would be provided. Then the corner of the allotment fittest for cultivation would be fenced off into a paddock of about 100 acres, and cropped. In the course of the first year, after so much was done, a second paddock of 100 acres could be fenced in, and in the following or next year but one, a third paddock of similar size would complete the necessary fencing. As a rule no more than 100 acres of such an allotment should be under crop each year, and not more than two white crops in succession should be taken off second rate land. But with the three paddocks to be used in turn, the land could be kept clean and in improving condition.

The paddock to be ploughed next might be used as the bedding-place of the main flock, previously to its being broken up, and would be thus well manured, while there would be a spare paddock for horses or cows, or for a small draft of sheep or lambs. Each piece of land would thus have four years of rest and manuring for every two years under the plough, and would, under such treatment, rapidly improve in grain-bearing and grass-growing capabilities, especially in respect to the latter, if a little grass seed and clover were to be sown with the second crop.

The work of such a farm would be well distributed over the year; and a man with a growing family would have to expend little on hired labour to get through with it.

From the time of his first shearing he would have ft sufficient income to support his family in comfort and carry on his improvements, even though his grain realized a low price. With wool and two or three sorts of grain to depend on, a farmer cannot suffer much, however prices may vary. And land treated in this way will carry an increased quantity of stock each yea.

Until meat advances in value here, stall-feeding of any kind will not pay; but the feeding capacity of land, with a part in tillage, can be vastly increased by the growth of green fodder and roots. A few acres of maize or mangolds would help a flock of sheep through the autumn, when grass is scarcest, and in winter the straw would be it great assistance in maintaining condition, and would be all converted into manure. After a few years of such a system, a section of land, which at first would only feed one sheep to every two acres, would carry two sheep to the acre, and yield 100 acres of grain in the year besides,

This is, plainly, to be the general mode of colonial farming, with modifications, of course, according to the peculiarities of each farm or allotment; and its advantages are so apparent that the area allowed for selection must be soon enlarged to 640 acres. Half a section of second-rate land will not carry sheep enough at first to support a family, or allow any hope of future independence.

Experience is teaching us also what kind of sheep should be kept in these limited flocks. The Merino has been fully tried in competition with the Lincoln and Leicester; and the crosses with these breeds and the coarse-woolled sheep are found to be most profitable. The Lincoln, especially, answers well here; its fleece loses nothing in weight or brightness of staple, and the cross with the Merino produces a wool highly valued by manufacturers. Whether it is of the first, second, or third cross, appears to make little difference in the price per pound ; so of course the object is to get the fleece as heavy as possible, and Lincoln rams are in great demand. Pure sheep, of moderate quality, have been selling at from £30 to £35 each, and young rams, not quite pure, at from £10 to £15. Some of the Leicester's have tolerably bright wool, but their fleeces are lighter than those of the Lincolns, so we are inclined to disregard the recommendation of the Bradford Chamber of Commerce to use the former in preference.

It may appear presumptuous to say so, but the Bradford Chamber is plainly behind the times. The Lincoln is spoken of as too violent a cross for the Merino, being, it is said, a very large-framed, ill-made, heavy-headed animal; but we have been importing Lincolns for the last fifteen years, and have received no such antiquies.

The sheep sent us have not differed very much in shape from the Leicester, or been very much larger or bigger in the bone, but they have carried double the weight of fleece, and have been in fact the improved Lincoln. We have proved them now for the period stated, and they have risen steadily in general estimation, having, with the Merino, produced a sheep most profitable for farmers and well-grassed pastures.

The farmers used to favour a cross with the Cotswold, or even with the Southdown, but the wool was dry and harsh, and the wool is of more importance than the carcass, although this is now becoming of more value than it used to be. With the Lincoln we can have both; and brightness of staple is a quality which ought to be specially cultivated here. The climate or herbage, or both together, tend to preserve or even to produce it, and for a long time it is likely to be the most valuable quality wool can possess.

The wool of Merinos bred in certain parts of Australia, in the southern parts especially, becomes more bright and silky than was that of their progenitors; and if wool from animals famous for producing lustre fleeces elsewhere does not improve, it certainly does not deteriorate in this respect. The fine Australian combing wool has already established its character, and will be produced in greater quantity each year from the natural pastures; and for the future we shall be sending home, from the cultivated and partially tilled lands, a lustre wool of coarser staple, likely to be in equal, if not greater, demand with manufacturers.

Wheat, oats, barley, potatoes, and hay, have always been the standard crops here, and besides these, no great extent of any one thing is grown. Of maize there were only 30,833 bushels produced last year, although the grain is largely imported for horse feed, and the plant is used extensively for fodder. In New South Wales the large varieties are mostly preferred, and they will only ripen in a small portion of this colony. But the small varieties, or ninety-day corn, ripen everywhere, and must be widely cultivated when better known. Only those who have tried them can understand "why Cobbett was so enthusiastic about introducing this sort of maize to England. It yields abundantly with little trouble, and is good at one or other stage of its growth for all kinds of stock. When green it makes the best of fodder for cows and horses; and when half-ripe it is excellent food for pigs as well; but when ripe its full value is displayed. It is then admirable for stock of every kind, and a small patch of it will keep the whole stock of the farm-yard in good condition, if a load of the plants, as they are pulled from the ground, be thrown to them once or twice a day. Cows, horses, pigs, and poultry, help themselves, and soon give evidence of the possible abundance of most excellent food for man, wherever maize can be grown and ripened. The true ninety-day maize is not always to be procured as yet, but when better known no farm will be without it. Rye is sown to some extent, as affording the earliest fodder in winter, but only enough grain is saved for next year's sowing. The quantity of land under peas and beans was doubled last year, the increase being mostly in peas, as these are found so useful for destroying some kinds of weeds. Little progress has been made in the growth of tobacco, although it promised at first to be such a profitable crop. It is easily raised, and grows freely in good land, but it requires constant attention to preserve it from caterpillars, and the curing of the leaf is a business in itself which few of the growers would take the trouble to learn. Thus, instead of the £100 an acre which they were told to expect, the marketable portion of the crops fetched little money, and only 299 acres were under tobacco last year. Some of the mountain gullies facing the south, and certain tracts of country sheltered from the hot winds, are found to be very suitable for the growth of hops. The plant comes into bearing early, and has been as yet free from the attacks of injurious insects. The experiments of the year before almost wholly failed, for want of skill in the drying; but last year the aid of a few practical men was obtained, and some very excellent samples were saved in Gipp's Land, and even in warmer parts of the country. The profit was large too, so that the hop gardens will be rapidly extended, and before many years are over enough will be grown for our own use. Tasmania sends a con-

considerable quantity to Melbourne every year, and the industry is progressing steadily there. Irrigation is deemed necessary in most of the Tasmanian hop-gardens, and, if required, water can be rendered available for this purpose in many of the mountain gullies here, or on the small plains of rich land at the foot of these. Parliament has deemed it advisable to try and stimulate the growth of flax once again, and premiums are to be offered for the most marketable samples of fibre. Information and seed are also to be supplied gratuitously by the newly-formed Department of Agriculture. Flax grows readily enough, producing a fibre of good quality, too, but the cost of labour has caused cultivation to be abandoned at every attempt. The seed ought to pay the whole cost of the crop, but few farmers will take the trouble of dressing the fibre for market; and to render it a profitable crop for them there should be oil-mills at work to obtain the full value of the seed, and flax-dressers to purchase the straw in its rough state. With this division of labour, and means of extracting the full value" from every portion of the crop, it may, perhaps, be rendered profitable after a few years of nursing and encouragement.

As it is very desirable that the beet-root husbandry of Europe should be engrafted on our colonial system of farming, if possible. Parliament voted £5000 last year to be given as a bonus to any individual or company producing within the season 500 tons of sugar from beet, grown within the precincts of Victoria. The roots were grown, and a company was formed; but, owing to various unforeseen delays, work was not commenced in time; the company got into difficulties and the bonus was not claimed. A small quantity of sugar was, however, made, and sold at very satisfactory prices, proving that this branch of industry may possibly be established here under better management. The company was formed to carry out the diffusion process patented by them, but this is not likely to be the best for the country. Roots are now growing for next seasons work, and money enough has been advanced to the company to give it another chance of retrieving its losses, and proving the statement in its report, that the cost of making the sugar left a fair margin of profit. If such was actually the case with roots injured by too long keeping, as those operated on were, there can be little doubt of this branch of industry succeeding. Seed of the best varieties has been introduced and the beet may be readily grown over several wide tracts of good land in the cooler parts of the colony. But one disadvantage exists here, and that is, the difficulty of turning the pulp to profit for feeding purposes. Stall-feeding need not be attempted, and what is to be done with a large quantity of pulp collected at one place, as at a factory? Thus, the great benefit

derived in Europe from this addition to the old list of crops, that of enriching the land by the manure of cattle fed on the pulp, can scarcely be expected here under the same course of treatment. Instead of factories taking the roots at a certain price, and completing the process of manufacturing the sugar, we want a simple mode of converting the juice into a marketable commodity, capable of being carted to some distance. This is likely to be offered by the concreting process, or by that of converting the saccharine matter into sucrate of lime.

Either process is easily learned, and requires no more complicated or expensive machinery than could be erected in any district, for the use of three or four adjoining farms. While the roots will not pay for carting a distance of more than four or five miles, the concrete or sucrate would be valuable enough to cover the cost of carting or shipping any moderate distance to the refiner, and the pulp would remain in small quantities to be consumed by the grower's own sheep or cattle, and would thus help materially in enabling him to keep his land fully stocked.

If we are ever to enjoy the full advantage of beet-root husbandry, it must be in some such way as this. Owing to the impossibility of stall-feeding, roots have never held a prominent place in any attempted system of cropping here. Mangolds are grown in limited quantities by cow-keepers and farmers near the markets, for sale in town, and they grow well, as does the sugar-beet, which is gradually establishing its character for feeding purposes alone; but unless sugar-making can be made to pay, green fodder will be the main dependence where aid to the grass land is required. Roots require more hand labour and better farming than the majority of our farmers can afford them, while maize stands the summer heat far better, and gives a heavy return under the roughest treatment, provided the land be rich enough.

Then, for the winter, spring, and early summer, we have rye and vetches, Cape barley, and green oats or wheat. With the plants named, and prairie grass and Lucerne, any farmer of moderate prudence and foresight can have green fodder all the year round, so that the stock need not suffer, even though sugar-beet husbandry does not succeed here.

In addition to the ordinary farm plants, the wide range of climate in Victoria will admit of many others being grown, some of them the basis of important rural industries in the south of Europe; and elsewhere. This was one of the subjects specially inquired into by the late Royal Commission on Foreign Industries, and in their last report the list of plants named was a long one.

Thus, for the warm parts of the colony were recommended—the mulberry, olive, almond, fig, orange, ricinus, or castor-oil plant, some of the varieties of the maranta and other plants for arrowroot, ginger, sorghum, indigo, and the sorts of vine suitable for

producing currants and raisins. For the medium climate—the mulberry, olive, orange, lemon, almond, %, raisin vines, prune peach, apricot, apple pear, jujube-tree, ricinus, sunflower, niltot tobacco, flax, hemp, New Zealand phormimn, Bcvhmeria nivea rape for oil, poppy for opium, and the seed for oil, the willow for okeff the cork oak, the hop, sumach, cinchona, walnut, Spanish chestnut tea plant, sugar beet, chicory, caper, liquorice, Turkey and Chinese rhubarb, various species of acacia for bark and tannic acid inad.lcr, the snulax for sarsaparilla, and some others of loss importance. For the cooler parts of the colony again are recommended the mulberry, olive, lemon, almond, apples for cider, pears for perry, the cork oak, Spanish chestnut, sugar beet, opium poppy millet, Hax, hemp, phormium, tobacco, hop, tea plant, and the pea nut. together with certain seeds for oil. And it is not on chance or by guess-work these are recommended, for all have been proved, and are now growing here so freely as to show that they may be cultivated to any extent desirable. Three varieties of the white mulberry, fittest for silkworms—the common ttlba, nurrettiarni, and multiotidis—are established in all parts of the colony, and grow from cuttings as freely as willows. It is the same with the olive; and several samples of excellent oil were furnished to the Commission. The lemon always thrives well, and, contrary to expectation, oranges are found to succeed admirably where the soil has been properly selected or prepared for them. All the other fruit-trees mentioned are easily raised, and come early into bearing, so that after a little time the preparation of dried fruits is likely to become a rather important feature in our rural industry. Several of the most valuable fibre plants too are grown with the greatest facility, and as the manufacture of rope twine and paper extends, the demand becomes more pressing. Flower fanning will become an important branch of industry some day, as the climate is most favourable for the growth of oranges, bergamot roses, jessamines, acacias, tube roses, violets, and all flowers most prized by the perfumer. But the mass of the people have yet to be trained to these minor industries, and taught the money value of the products resulting there from. The Government will have to do this, by setting 7m example at the Industrial Schools, where hundreds of children are now supported in a state of almost absolute idleness. It would be a vast benefit to the country, as well an to the children themselves, to have them occupied at silkworm tending, olive-oil making, flower gathering, herb drying, flax dressing, and surli employment* M are suited to their strength, the heavier part of the work being done by prisoners. The cost of hired labour has hitherto prevented these occupations from being tested on a sufficiently large scale to show whether they can be made to pay or not but every day the number of children able to work

in increasing throughout the country, and the employment* are needed for them.

From the foregoing it will be judged that the tendency of farming in this country is to throw the work more and more into the hands of independent families occupying their own land. Tenant farmers have exhausted, or are exhausting, the runted lands, because they cannot afford to do otherwise, and landlords will not aid in carrying out any restorative treatment. The large properties hitherto tilled are being, therefore, laid down in grass, and the former tenants are becoming self-sufficient on their own account. Then they will do more and more if the area allowed to each family is extended, for now a family with any means* cannot get a piece of enough land in one block without evading the law. Formerly, the possession of two or three acres, without other capital, was supposed to entitle a man to take, at a high rent, an ox and a plough—debt* increasing while the crops were growing. So long as rents were high, money could be raised in this way, at the expense of the land, but experience has shown that both land and tenant would come together now. As a rule, tenant farmers* never had much capital; and now that the tax has become independent, the tax will disappear, at least from land* in tillage. The owner of an allotment, fully stocked with stock, and having only a small proportion under grain each year, can undoubtedly tell the farmer, with rent to pay, that his land is becoming more and more fertile each year. Under what method* of farming, and more fully become, the method of farming here, wheat could be grown at a profit for exportation; but, fortunately, it is better, for the export of wheat in large quantities is better, lustre and certain cultivation of the land on which it is grown. On the contrary, growing little more grain than enough to meet our own consumption, and increasing the number of sheep, our land will become more fertile every year, and more capable of supplying the wants of a larger population. What is called high farming in our country where the farmer in a mixed system, by alternating the grazing and the use of wheel* for the fattening of cattle, will be highly profitable, and will admit of excellent management with a comparatively small outlay for labour. With the natural advantage* for the production of wool* of the most valuable kind, sheep will soon be the first object on a farm of five or six hundred acres, six well as on those of twenty or thirty thousand. And by degrees will be the profit* of many minor industries, such as the raising of the most valuable kind of wool* if the farmer is on his own under such a climate. Agriculture* has a fair prospect* of improvement with the most intelligent and industrious farmer.

But the capital of our farming class has always been insufficient, and this will prevent the future progress being so rapid as it otherwise would now that the facilities for becoming possessed of land so great, and are likely to become greater.

Still, the indomitable industry, begotten of a knowledge that the land is one's own—that the worker himself or his children is certain to enjoy the full value of every stick erected or tree planted—will effect wonders, and the savings of a few years will provide the required capital.

And there is this great advantage for the sheep-farmer beginning in a small way, that as soon as he has his land fenced he can easily get from one of the neighbouring stock owners a small flock of ewes on terms if he have not the money to buy them.

Two or three years increase will leave him a flock of his own. Altogether the future of agriculture is very hopeful.

As with all great changes those engaged in it extensively and with heavy liabilities to meet are suffering under serious difficulties not by any means reduced by the competition of the new class of free selectors; but they, the old class of farmers must bend before the storm or use their experience in getting into a more secure position than they ever held before.

What is manifestly to be the Victorian system will give us the large profits of sheep-farming, with, on smaller holdings, many of the advantages resulting from the care and industry of the petite culture of Europe. All these benefits cannot be expected at once but a commencement has been made, and the privileges of free selection must be extended until its utmost capabilities have been thoroughly realised.

Under it will grow up a race of independent and industrious settlers, enjoying the full returns of ordinary farming together with the exceptional profits and home luxuries of a country growing freely, the mulberry, the vine, the olive, the orange, the almond and the fig. These and their products are only vouchsafed to the inhabitants of a highly-favoured, though narrow belt of the old world, but they can all be had here in perfection as well as the fruits and products of the best managed English farm.