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UNDER THE GRAMPIANS.

BY BRUNI.

RECLAIMING MARSHY LAND.

One of the most interesting railway trips in the Western district is from St Arnaud to Dunkeld. The railway runs through an undulating country, partly plain and partly open forest, and at a distance of from six to eight miles from the foot of the Grampians, formerly more appropriately named the Sierra Range. One gets fine views of this strange line of hills on the way, the most extensive being from the open country near Wickliffe-road station. I have heard people say who have travelled this road often that the view of the hills when the rugged eastern faces are lit up by the rising sun is remarkably beautiful. To the east and south of the railway line the country is a rolling down, extending away to the north-west end of the great western plain, one of the finest sheep-pastures in the world—the land that first produced the bright soft merino fleeces which made the wool of Australia famous all over the world. Towards the mountains the surface sinks into a somewhat wet flat, from which the hills appear to rise up abruptly. Dotted about the undulating country and the extensive flat are numerous depressions, some of which hold water all the year. In the open country they are clear lakelets, but towards the foot of the range they change in character, and in many instances are marshy flats that dry up towards the end of summer.

The great western plain has been familiar to me from boyhood, but I had never been through the extensive stretch of flat land that runs along the foot of the range. It was on a trip through a portion of this great flat that I left the train at Glen Thompson, and put myself under the guidance of Mr. J. Good, of Hudor. Like many a traveller on this line, I had often wondered why this place was called Glen Thompson, but, as Mr. Good remarked, you do not see the Glen till you get out of it. On the west of the little hamlet there is a low hill named Mount Aspinal, over which the road runs. From the top of this hill one sees that the railway here runs through a well-defined valley. The road we followed runs through somewhat similar country to that seen near Wickliffe-road, namely, open rolling downs with sheoaks thinly scattered over it.

To the south-west the timber was thicker, gum-trees being mingled with the sheoaks. In front of us was the flat country, and here the sheoaks ceased and the redgums grew thick enough to call it a forest country.

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The grass on these downs is short and fine and not so thick as further away from the hills. To judge it by the invariable bush man's standard it is about sheep to the acre country. I was surprised to see the pastures present such a burned-up appearance. There was not a trace of green visible in the paddocks; indeed, the country in the North-east district of Victoria is not nearly so dry, though the rainfall in both districts has been extremely scanty for the last four months.

My first halt was at the residence of Mr. G. Mirch, who has resided in this part of Victoria since the old squatting days. He owns a fairly-extensive pastoral property, partly in the timber and partly in the plain, on which he raises an excellent and very profitable description of comeback sheep. The house is situated on a sandy rise to the eastward of a good-sized lakelet, the water in which is quite salt. As Mr. Mirch has resided here for a good many years I was surprised to find the place so bare of anything like a flower garden. The explanation given is a peculiar one. Many years ago there was a very pretty garden round the house, but it became so infested with snakes that it was found necessary to do away with the garden in order that the house might be inhabitable. From what I saw and heard this neighbourhood should be a paradise for sportsmen. The marshes and lakelets are covered with all kinds of ducks and teal, while other aquatic birds and waders are in great variety. Snipe used to be very numerous, but they have been almost driven out of the country by pot-hunters. Wild turkeys are even yet fairly numerous, while at certain times myriads of birds flock down out of the mountains. That curse of Australia, the rabbit, has here a stronghold from which it has been found impossible to dislodge it. The work is carried on unceasingly by Mr. Mirch and his sons, wire netting is used to keep out the enemy, but as yet extermination of the rabbits seems as far off as ever.

As it was late in the day I accepted Mr. Mirch's invitation to remain with him that night, and go on to Mr. Good's place the next day. The sheep on Beulah are come backs of a pronounced merino character. The next change of sire will be to the long-wool. Though the pastures were so dried up the sheep were in excellent condition, and full of life. The wool grown in this country is of a most attractive character, being long in staple, lustrous, and extremely light in condition. It realises a high price in the London market, and is seldom surpassed by the merino clips of the West. The small lake in front of the house is a most attractive piece of water. It is a favourite haunt of wildfowl, which are here seldom disturbed. Mr. Mirch's sons are excellent shots, and they never return from a shooting excursion empty handed. Mr. Mirch has a peculiar plan

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of getting a pot-shot at ducks. He fixes a gun directed at a spot where the wildfowl are known to camp, the object aimed at being a small stake. A long string is attached to the trigger, and when the birds are clustered round the stake the gun is fired.

This is a good plan to employ on the shore of a bare piece of water where there is no cover for the shooter. Though the water in the lakelet is salt, I noticed the cattle standing in the water and every now and again putting down their heads as if to drink. On watching them closely I saw that they put their heads deep into the water to crop the weeds that grow underneath the surface. In this way they get the only green feed available towards the end of summer.

A mile or so from Beulah brings us to the boundary of Mr. Good's property, and here a sudden change takes place in the appearance of the country. The sandy banks are covered with fern, and honeysuckles have replaced the sheoak. Between the rises are extensive flats that are swamps for three parts of the year. In these swamps the water is quite fresh, and as it dries up in summer there is a strong growth of weeds, while aquatic plants are plentiful where the water is permanent. On these plants and weeds the stock feed, and they thrive well on them. The great objection to this country was that the swampy surface was in too great a proportion to the dry land. Where the land has been purchased attempts have been made to drain the low-lying land; but hitherto no general scheme of drainage has been employed. Unfortunately the only places where an outlet could be made are private property, and hitherto the owners of three places have been opposed to draining the swamps.

When Mr. Good came to Hudor, about four years ago, the place must have presented a most unpromising appearance. The flats were deeply covered with water in winter, and as there was no get-away it was late in the year before the greater portion of them became available for stock pasturing. The homestead is situated on a low sandy bank running into a swampy flat containing 200 acres. The soil when dry is of an excellent description, being a free, almost black, loam. Undeterred by the difficulties in the way, Mr. Good commenced the almost hopeless task of draining the land. Unfortunately he did not own the whole of the flat, and he was thus put to the expense of banking out the portion that does not belong to him. The plough and scoop are used in the work, a wide drain being formed on the outside of the bank to carry off the flood water, with a smaller drain on the inside to take away the rainfall. The work has been a long one, and Mr. Good has had only himself to rely on, but his enterprise and energy are beginning to meet with their reward. There is now every prospect that he will succeed in the work he has pursued so unremittingly, and thoroughly reclaim

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the flat near his house, the soil of which is of the highest fertility.

Mr. Good has already made an extensive drain to run the water off the 200-acre flat. Near the home there is a slight fall, and here he has erected a most ingenious and effective machine to take the surface water off the land from which the flood water is banked out. Across the large drain he has erected a broad paddle-wheel, which is turned by the stream. This works a wheel set in the small drain' inside the embankment, which as it revolves takes up water and runs it into the larger drain. This water-lifter is a circular box divided into five compartments, and at each revolution it lifts a ton of water. It was planned and constructed by Mr. Good, and from the first trial has acted most effectually. With this wheel in full work, Mr. Good is satisfied he can rapidly drain off all the rainwater that falls on the flat, even in the wettest seasons. The most important work is to make the embankment large enough to keep out the flood that runs through this flat country every winter.

Below the house is another and larger swamp, which in turn is connected with a series of large flats extending for several miles along the foot of the range in the direction of Mount Sturgeon, the extreme southern point of the range. Into this large swamp Mr. Good has run his main drain for a considerable distance, and the result has been highly satisfactory, the pasture being greatly improved for some distance back from the drain.

I was greatly taken with the soil in the drained swamp near Mr. Good's house. When worked it breaks up as fine as garden mould. From experiments made it is admirably fitted for growing roots of all kinds, peas, beans, and eventually oats and barley. A trial crop of peas planted here some time ago met with a curious fate. A heavy fall of rain occurred just as the peas were reaching their full growth. The embankment was not then made up to its present height, and the land was flooded. With the water came a great flock of black swans that cleared up all the peas. Trials with rape have been very successful. The plant thrives well in this deep, rich soil, and gives a large quantity of fodder. This season Mr. Good has sown a considerable area of the swamp with rape, which is coming on well. Mr. Good usually grows a large quantity of fodder for his stock in the autumn, which is here the worst time of the year. This season, owing to the cold late spring and the extremely dry summer, the maize crop is a comparative failure.

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and yet he has managed to become remarkably proficient as a blacksmith and carpenter. All the woodwork and most of the ironwork on the place has been designed and made with his own hands. He built the dwelling house, and a neat job he has made of it.

The outhouses were put up by him, and he has made some experiments in pise work. No matter what goes wrong, he seems to be able to put it right, and his skill as a designer is shown in the water-wheel. Water is supplied to the steading from a shallow well at the foot of a sandy bank close by the house. As the locality is scarcely ever free from wind, and the winds are often very strong, he has a plan for providing an ample water supply for the steading, and for irrigating a good-sized garden.

Notwithstanding the swampy nature of much of the country about here, I learned, to my surprise, that the sheep are free from fluke, and but little troubled with footrot. This will be altered, I fancy, when the swamps are thoroughly drained and covered with a heavy sward of grass. It is almost certain that footrot will then be greatly on the increase. When this occurs, however, the pastures will be so much improved that fattening sheep will pay better than breeding them. Near the well is a small pig-proof paddock, in which I found a number of breeding sows. Mr. Good is a believer in pigs as a farm stock, and his annual output is about 80 head. From what I saw of the work undertaken by Mr. Good, I feel satisfied that his efforts to reclaim this country will be crowned with success, and that he will transform what was naturally an inferior grazing country into one of the best agricultural and grazing properties in this part of Victoria.

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(*note the Wannon River is incorrectly referred to as the Loddon
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UNDER THE GRAMPIANS.

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A MARSHY LAND.

On either side of the railway line between Maroona and Glen Thompson there are numerous hollows in the surface, in most of which there are lakelets. The water in these depressions is invariably salt in the plain country and in the open forest nearer the hills. About five miles from the foot of the range there is a pronounced change in the appearance of the country. The hard clay of the plains gives way to a cold white loam, with fern-clad sandbanks here and there. In the open forest the timber is mostly sheoak, but nearer the hills redgums and honeysuckle are the prevailing trees. Scattered through this forest country are numerous marshes, which differ greatly from the lakelets met with nearer the plains. The water in them is invariably fresh, they are of considerable extent, and the soil is of a most fertile description. On the plains the lakelets are isolated pieces of water with basin banks, and generally have neither inlet nor outlet. Under the hills the marshes have no banks save on the eastern side, and they are all connected, in winter time, by broad sluggish streams.

The swamp at the Hudor steading, the drainage of which Mr. J. Good has undertaken, is one of a series that extends for about a dozen miles along the foot of the range. In starting on a trip through this marshy country we travelled for a few miles towards the hills, and on the way passed through a low-lying piece of poor land, on which some good-sized redgums are growing. Some years back there was a deal of undergrowth on this land, the removal of which has greatly improved the grazing. Much of this country is so slightly raised above the level of the swamp that it must be very wet in seasons of heavy rainfall, and yet I learned that the sheep were very little troubled with footrot and fluke is unknown. The road on which we travelled seemed to be a dead level, but as the Wannon* emerges from the hills near here it was naturally thought that the fall would be towards the river. Some years ago a surveyor undertook, from looking at the map, to drain the road on to a small marsh, and then carry the drain on to the river. On taking the levels he found that there was a considerable fall for some miles out from the river. A drain was made to carry off the storm-water, but the fall is to the eastward.

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On emerging from the hills the Wannon runs along the foot of the range towards Mount Abrupt, the most southern point of the Grampians. The debris brought out of the range has raised the bed of the river, which now flows several feet above the level of the country towards the plains. The bed of the stream has become encumbered with logs, and the free course of the water has been still further impeded by a thick growth of scrub. The result is that when there is a strong freshet in the river it overflows its banks, inundates the country to the eastward, and fills the marshes. These marshes hold water till well into the summer, and are extremely useful to the stock owners who have the grazing on them, by providing an abundance of green feed when it is most wanted.

Before reaching the Wannon we turned in the direction of Mount Sturgeon, and passed by a piece of low land covered with scrub, down which a portion of the flood-water from the river finds its way to the swamps. I believe some attempt has been made to remedy this flooding by erecting a small dyke along the eastern bank of the river. The first of the series of flats we reached is known as Brady's Swamp. It is of large extent, being over two miles across. The soil in this swamp is of an excellent description, and it could be easily drained as there is a sudden fall in the river near its west end, so that a rapid outlet for any quantity of water could easily be obtained. A very large portion of the swamp is, I believe, Government land. It would pay well for draining, and a deep water-channel through it would be necessary for thorough draining of the chain of marshes that extend in a curved line up to Mr. Good's steading. Along the eastern side of the swamp is a high bank of sand, which is evidently wind-blown, and has been formed by the western gales during those periods when the swamp has been completely dried up. The same feature is noticed in all the marshes along the foot of the range.

From the top of the long sand-hill I saw close by another large marsh, which differs from Brady's Swamp in being covered with rushes. This is known as the Heifer Station Swamp. I passed round the southern end of this marsh, but did not have an opportunity of examining the soil any distance in from the edge, but I was informed it is of a highly fertile description. On the way we passed by the outlet, where there is a fall of several feet in a short distance. At one time a dam was put across this outlet, and the result was that a large area of land was flooded. This flooding led to serious trouble, and a lawsuit was the result, but no settlement was arrived at. A rush of flood-water carried away the dam, and it has not been built up again. The distance from the outlet of this marsh to Brady's Swamp is not half a mile, and

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From the top of the long sand-hill I saw close by another large marsh, which differs from Brady's Swamp in being covered with rushes. This is known as the Heifer Station Swamp. I passed round the southern end of this marsh, but did not have an opportunity of examining the soil any distance in from the edge, but I was informed it is of a highly fertile description. On the way we passed by the outlet, where there is a fall of several feet in a short distance. At one time a dam was put across this outlet, and the result was that a large area of land was flooded. This flooding led to serious trouble, and a lawsuit was the result, but no settlement was arrived at. A rush of flood-water carried away the dam, and it has not been built up again. The distance from the outlet of this marsh to Brady's Swamp is not half a mile, and

there is a difference of fully 15ft. in the level of the two marshes. This outlet is, I believe, on private property, and this has hitherto prevented a systematic attempt being made to convert these marshes into the finest arable and pastoral land in Victoria. At present they can be utilised only towards the end of summer, when they support a large number of sheep and cattle.

Driving along the eastern side of the Heifer Station Swamp we passed by the residence of Mr. A. Cameron, which is protected from the keen west wind by a splendid plantation of bluegums and pines. Mr. Cameron used to cultivate a large area of land; he farmed well and was rewarded with good crops. Latterly he has gradually let his land out to pasture. A short distance beyond this is a marsh of moderate size, which has been partly drained. The work was not difficult to do, as it lies above the level of the rushy marsh. A portion of this flat has been cultivated, but it did not give me the idea that the soil in it is equal to that in the large marshes. The Heifer Station Swamp is connected with the large marsh below Mr. Good's homestead—indeed, it may be said to be one marsh all the way, with narrow portions in which there is a defined run of water. In this marshy country there is a considerable area of Government land, which, when thoroughly drained, would realise a considerable sum per acre. Mr. Good has proved that the swamp land, when drained, will produce large crops of rape, peas, potatoes, turnips and mangels. As it is freed from flooding, oats and rye can be grown, while as a pasture land when laid down with a mixture of European grasses, it gives promise of being equal to any grazing land in Victoria.

The drainage of these marshes is a subject that would well repay the attention of the Government. If the right to cut a drain through the land between the Heifer Station and Brady's swamps could be obtained the work would be a very simple one, as there is a fine fall at the outlet of the lastnamed marsh into the Wannon. In order to protect the low lying land from being flooded by the freshets in the Wannon it would be necessary to clear the course of the river of logs and scrub, and probably to erect a dyke along the east side of the river at places where the outbreaks occur. The work I have sketched would make a complete transformation in the appearance of the country. Where now many thousands of acres are covered with water for two-thirds of the year one would see cultivated fields and pastures of the finest description. Mr. Good has shown what can be done in the way of drainage, but his work is confined to the 200 acres of marsh near his house. Below that there is no outfall for his drains, and, therefore, thorough drainage is hopeless until a main channel is cut through the whole series of marshes to the outfall from Brady's Swamp into the Wannon.

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The drainage of these marshes is a subject that would well repay the attention of the Government. If the right to cut a drain through the land between the Heifer Station and Brady's swamps could be obtained the work would be a very simple one, as there is a fine fall at the outlet of the lastnamed marsh into the Loddon. In order to protect the low lying land from being flooded by the freshets in the Loddon it would be necessary to clear the course of the river of logs and scrub, and probably to erect a dyke along the east side of the river at places where the outbreaks occur. The work I have sketched would make a complete transformation in the appearance of the country. Where now many thousands of acres are covered with water for two-thirds of the year one would see cultivated fields and pastures of the finest description. Mr. Good has shown what can be done in the way of drainage, but his work is confined to the 200 acres of marsh near his house. Below that there is no outfall for his drains, and, therefore, thorough drainage is hopeless until a main channel is cut through the whole series of marshes to the outfall from Brady's Swamp into the Loddon.