

(17)

REPORT ON THE COAL FIELD IN THE NEIGHBOURHOOD OF RECHERCHE BAY.

(One Map.)

Government Geologist's Office,
Launceston, 1st May, 1902.

SIR,

I HAVE the honour to report that, agreeably to your instructions, I proceeded to Recherche Bay on the 18th March to select sites where the diamond drill can be advantageously used to bore for coal.

This time, I journeyed *via* Southport. On the coast south of *Ransom's Hotel* in Southport harbour, cliffs 70 or 80 feet high expose in their upper part 50 or 60 feet of soft buff sandstone, passing downwards into 10 feet of a laminated light-coloured variety of the same rock, and then into 10 feet of grey shale, the whole resting on black shale at water-level. The face of the cliff runs N. and S., and the apparent dip of the strata is between 5 and 10 degrees to the S.W. Whether any of the upper beds belong to the Mesozoic system or not is uncertain, but the shales contain impressions of thin, jointed, or branching stems, which Mr. R. M. Johnston refers to *Vertebraria*. The other plant recorded from these beds is *Pecopteris lunensis* (R.M.J.); and the shales would therefore seem to belong to our Lower Coal Measures (Permo-Carboniferous).

In July, 1893, a diamond drill bore was put down for the Southport Coal Prospecting Association to a depth of 612 feet 2 inches, at 70 chains north of the Narrows and 1 chain west of the beach, about 30 feet above sea-level. The strata passed through were as follows:—

	Thickness.		Total depth.	
	ft.	in.	ft.	in.
Surface shaft	18	0	18	0
Blue shale, with small sandstone bands	6	6	24	6
Grey argillaceous sandstone.....	9	0	33	6
Grey quartzose sandstone, with mica ...	24	0	57	6
Ditto, with a little coal	0	3	57	9
Blue shale	7	9	65	6
Grey sandstone and blue shale	28	8	94	2

	Thickness.		Total depth.	
	ft.	in.	ft.	in.
Black shale.....	0	10	95	0
Grey sandstone and black shale	5	1	100	1
Black shale, with plant impressions ...	10	6	110	7
Black shale and dark sandstone	5	0	115	7
Grey sandstone and fossiliferous black shale	19	1	134	8
Coal	0	3	134	11
Hard black shale, with plant impressions	5	11	140	10
Hard blue shale and grey sandstone ...	41	0	181	10
Hard grey sandstone and grit	38	11	220	9
Hard grey fine-grained sandstone	212	0	432	9
Coarse rubbly sandstone	0	6	433	3
Hard grey fine-grained sandstone	64	0	497	3
Hard conglomerate	10	1	507	4
Hard grey fine-grained sandstone, with pebbles, marine shells, and blue shale bands	104	10	612	2

At this depth the drill approached the limit of its working efficiency, and began to run heavily. Boring was accordingly suspended, without passing through the whole of the beds of the system.

Coal also occurs near Hastings. The locality was pointed out to me by Mr. Hay, but, as the works were under water, there was not much use in going up to visit them. From what I learned, the coal is fair, but mixed with band stuff, which requires separating. Mr. R. M. Johnston publishes an analysis of this coal in his *Geology of Tasmania*, page 191:—

Fixed carbon.	Volatile matter.	Ash.	Moisture lost at 212° F.
58 %	30·8	8·7	2·5

A strait, called The Narrows, leads from Southport Bay to the inner sheet of water, on the northern shore of which is Hastings, on the southern, Ida Bay.

Coal Measures also exist at Ida Bay. About a mile S.W. of the bay and 150 feet above sea-level, at the base of the hill called the Sugar Loaf, some work was done 10 years ago on a coal seam which runs north and south, and dips W. into the hill. A small tunnel has been driven on the dip. The inclination of the seam is steep, 40°, as measured at the entrance of the tunnel, but there may have been some recent movement of the earth at surface. At the entrance there is no roof visible, but pieces of loose sandstone were of a soft felspathic variety. I dug out some soft coal from below the soil, but nothing more is to be seen of the seam from

the outside. I gathered that a little coal had been used for household consumption, but no sales had taken place. Lower down the hill is another small seam of soft earthy coal.

A shaft a little higher up was intended to cut the tunnel seam, but after sinking about 60 feet, a mishap in blasting is said to have blown the timber out, and work was then abandoned. Mr. Tyler, who kindly accompanied me to the spot, says another 10 feet of sinking would have reached the coal. He gave me the descending section in the shaft as follows:—

1. Yellow clay.....	10 or 15 feet
2. Mud shale, with fossil plants ...	30 "
3. Sandstone	8 "
4. Black shale.....	7 "

N.W. of the tunnel, and higher up, is another band of coal in these measures, called "Schäffner's," said to be 18 inches thick.

If the Sugar Loaf is crowned with diabase, as appears probable from the talus on the slope, the coal seams may probably be cut off when they approach the centre of the mountain, but there would appear to be plenty of undisturbed ground available, for the steep ridge is half a mile away from the works on these seams. The coal is in a kind of depression between two gentle spurs coming down from the mountain. The possibility of a backbone of eruptive rock existing in these spurs must not be overlooked when prospecting operations are undertaken.

The Ida Bay coal seams appear to be on a somewhat higher geological horizon than the Southport measures, as the shales contain leaves of the Cycadaceous plant *Zeugophyllites*. The beds are favourable for coal seams, but only thin ones have been found, so far. A heavy drill can be taken by tram to within half a mile of the outcrops, and then a track would have to be made over comparatively easy country. The *Ronnie*, s.s., goes up to the Ida Bay Jetty every week, where there is 6 feet 9 inches of water at high tide. The Jetty is 200 or 300 yards in length, and would need repairing and strengthening for heavy machinery.

The country between Ida Bay and D'Entrecasteaux River, four miles further south, is mostly diabase, with Mesozoic sandstones, and grits of probably Permo-Carboniferous age in the hollows of the undulating land. The ranges to the west are composed of the sedimentary rock for undetermined distances up their flank, when stones and boulders of diabase embedded in the soil point to the existence of that rock on the summit.

At the head of Recherche Bay is the small settlement of Leprena, which has clustered round the saw-mills, and half a mile south of this is Mr. Smith's land, upon which the Moss Glen Colliery Co. is working for coal. Operations are going on upon the 640-acre block, which borders the bay, in addition to which there is the Reward Claim of 201½ acres, 4561-93M. The seams Nos. 1, 2, and 3, described in the Company's prospectus of the 4th October, 1901, are occurrences on the Reward Claim, not being explored at present.

MOSS GLEN COAL FIELD.

On the Reward Claim there is a disused timber tramway, which leads up to a short distance of the outcrops, which I inspected by taking a turn-off through the scrub over fallen logs and vegetation, which greatly hampers and, for the most part, prevents examination of the ground. Mr. Smith discovered coal on this section 2½ years ago, and a little prospecting work has been done since, but of a purely preliminary nature.

The first indication of coal which was shown to me was at the base of a fallen tree, which had uprooted some coal and clay, evidently part of a seam. This had not been opened upon. The coal stuff is of a good black; the fireclay soft and extremely greasy.

A little further W. is the Lower Seam, which has been opened upon by a couple of pits, now two-thirds full of water. The small heap of coal lying at the mouth has been there for a couple of years, and is useless for assaying. It is dull in appearance, but has shining layers running through it. The sandstone is a soft white micaceous variety, different from that on the East Coast. I could not verify any section of the seam, as, owing to the water, none of the coal could be seen *in situ*. Mr. Herbert Smith told me that in 11 feet sinking there is 7 feet of coal, interspersed with numerous bands. Fossil leaves had been found at this place, but, unfortunately, were not preserved.

The next seam on this claim is the Upper one. A small shaft has been sunk upon it 17 feet, now two-thirds full of water, the shaft cutting through the seam at the head of a small open cut. On the heap are blocks of dull dense coal, bright here and there. It is referred to as anthracite in the prospectus, but this is an error. The prospectus states that 7 feet of coal are exposed. Mr. H. Smith gave me still higher figures, but nothing can be seen in the present state of the shaft. Much of what has been brought to surface looks clayey, and hardly to be called coal, though

glistening seams traverse it. What is necessary is to get well under cover and see what the seam really is.

These outcrops are about 200 feet above sea-level, and distant from the sea-shore $1\frac{1}{2}$ mile, or 2 miles if the Leprena tramway is used.

At present, having been untouched for a couple of years, and the coal outside being weathered, nothing much can be said beyond that coal seams undoubtedly exist and invite attention. They should be tested by further work. The land badly needs scrubbing, and its surface exposing to daylight.

Here and there a few boulders of diabase rock protrude from the mantle of vegetation which covers the ground. These must have come from a higher level, and have presumably rolled down from the crest of the mountain, 600 feet above the sea, though no bed-rock has been seen there, the top being covered with soil and timber, with boulders showing in places. A few hundred yards further up the tram, at a height of 250 feet above sea-level, I saw large boulders of Tertiary basalt lying in the scrub. The microscopic structure of this differs from that of our ordinary basalt. The rock largely consists of skeletal and embryonic crystals of felspar, and its structure generally points to it being a dyke rather than a lava sheet. It is nowhere known *in situ*.

The eruptive rock formations of this district accordingly comprise the Mesozoic diabase (dolerite, bluestone, greenstone, trap, &c.), called basalt locally, and the Tertiary basalt as just described. The sedimentary rocks of the eastern side of the range are the Mesozoic sandstones and shales which enclose the Upper Coal Seams. I regret that I could not find any well-defined plant remains on the Reward Claim, but the rather ill-preserved ribbed strap-like leaves which I saw in the shales seemed to me to be those of *Zeugophyllites*, a characteristic genus of our Mesozoic strata.

The Reward Claim, which comprises upwards of 200 acres, is a fair-sized block for exploration, and after the ground in the neighbourhood of the outcrops has been cleared, the lines of outcrop must be proved by trenching, and their seams prospected on their dip with the drill. If the soil is too deep for trenching, a hand-drill must be used for the purpose. Connecting lines should be made between these outcrops and those on the 640-acre block to the south, so as to prove their identity or otherwise with the latter, from which they are distant about half a mile.

The 640-acre property just mentioned is the block upon which active explorations were being carried on at the time of my visit. Mr. Hardwick, the Company's Mining Manager, was in charge of the operations, and gave me every possible assistance in my inspection.

The seam outcrops are situate just above or below a timber tramway about 200 feet above sea-level, along which logs are hauled to the sawmill at Leprena. The coastal range at the back of this block has a wide embayment here. The sandstone strata ascend the slope certainly for one mile inland (horizontal distance), and probably for one-and-a-half mile, but for the last half-mile unproved country is hidden below the scrub and surface soil. That they also extend eastwards below Recherche Bay for another three-quarters of a mile is shown by the coal seam on that side of the bay. The sandstones dip about 20° in a north-westerly direction, consequently, we may assume the minimum thickness of the beds as 3000 feet. I believe this thickness of Mesozoic strata is not known elsewhere in Tasmania, and it may be that the calculation is vitiated by upthrows in the strata as they approach the mountain. The first indication of coal in that direction was met with at a height of 91 feet and 36 chains W. of the bay in a horizontal line, where two small pits 5 and 8 feet deep show slack coal. Along this line for a distance of 41½ chains N. 52° W. from sea up to 107 feet, Mr. Hardwick has put down a series of shallow bores, the deepest, 30 feet, in which he has struck solid sandstone only.

Below the tramway a short tunnel has been driven 21 feet N.W. on a seam of coal at 190 feet above sea-level. This drive was cleared of water while I was there, and I brought away a bag of the coal freshly broken from the end. This has been assayed by the Government Analyst, Mr. W. F. Ward, with the following result:—

Fixed carbon.	Gases and moisture.	Ash.
54 %	26.2 %	19.8

The coal did not form a coke. It corresponds in constitution with a good deal of the East Coast coal. The ash is somewhat high, but ash is an inert, not a deleterious ingredient; it means a certain amount of dead-weight to be handled for each ton of coal, and an equal loss in fuel. In this assay it means 3½ cwts. per ton of coal. This coal burns freely on the open fire, and throws out a good heat. There is no doubt that it will answer as a domestic coal, and if the ash is free from iron, which would make it fusible and apt to accumulate as clinker on the bars, it might be used for steam

purposes, though not a first-rate coal for that. The best steaming coals have a high proportion of carbon, little ash and sulphur, and enough gas for quick combustion.

No bulk trials of the Moss Glen coal have been published yet, and I am unaware whether any have been made. It would be desirable to have some trials at an early date, to see what the coal will be most suited for. The descending section of the seam is:—

Coaly and shaly matter at surface—

	ft.	ins.	ft.	ins.
Clay	1	6	to	2 0
Coal			1 0
Clay band			0 5
Coal			2 6
Band			0 2
Coal			2 0
TOTAL			<u>6 1</u>

of which 5 feet 6 inches are coal.

The seam is dipping strongly to the N.W. at 20° from the horizontal, and is evidently subject to faults, for a bore from surface only 6 or 7 feet ahead of the end has failed to strike coal.

Above the tramway and to the N. of the tunnel I was shown the outcrop of an upper seam, about 4½ feet of coal, with a couple of feet of shale. Further south along the tramway, a shaft has been sunk 13 or 14 feet. This is now full of water, but stony and earthy coal and bands of clay are said to have been cut all the way down. This shaft, continued deeper, would intersect the tunnel seam in perhaps 50 or 60 feet. A deep bore near here, 36 feet down, is stated to have struck coal 10 feet from surface, and to have passed through coal and bands for 25 feet.

Further along the tramway, 4 chains 60 links from this bore, another bore-hole was being put down over 31 feet without touching any coal, which would seem to point to some faulting. Until the coal has been picked up again, matters are unsatisfactory. The seam ought to have been struck at about 20 feet in the bore.

A line of shallow bores has been put down also on the level outcrop of the tunnel seam, with a view to defining its course, and this has been done in a very satisfactory way. The right course is being pursued by the Manager in testing, as far as he can, the seam on its dip before launching out into work at the tunnel. Faulting may be expected in the

measures as they near the mountain ridge, which begins to rise very steeply on the other side of the tramway. The non-discovery of the seam in the 31-foot bore is certainly disconcerting, but it will have to be sought by further bores, for there is no use extending the tunnel if the seam has been thrown up or down to any extent. From the probable axis of diabase or greenstone rock at no great distance to the west, I am inclined to think that the dislocations met with will be upthrows on the west side, in which case the faulted seams will be found higher up the hill. Considering the depth of overburden on the mountain side, additional rods for the boring plant would be advantageous.

It would be difficult to get a heavy diamond drill plant high up above the tramway, which is a very convenient means of bringing it from the coast. But a little above the line west of the old shaft, or above the 36-foot bore, would be a comparatively easy site, and suitable for testing the strata down as far as the drill will go. It cannot reach the strata which crop out at the beach, for these plunge 2000 feet below the tramway.

To gain a knowledge of the beds, I would recommend one bore to be put down above the tramway as far up as the drill can be got, and another hole on the flat ground marked on the accompanying map close to the shore N. of Mr. Smith's garden, near available water. There are indications of coal in the greenish soft sandstones on the beach to the north of this. It is impossible, without boring, to know what may be concealed below. Pieces of coal are sometimes found on the beach, and probably outcrops exist in the bed of the bay. The bore need not go down to a depth beyond which a seam would be workable from shafts, for there would be no other way of exploiting any seam which might be discovered.

If the Company would undertake an intermediate bore about half way along the line connecting the two sites just mentioned, the intervening strata could also be tested. True, the same beds, as regards the upper strata, crop out nearer the beach, supposing no faulting to have taken place, which is just the thing which cannot be taken for granted.

The surface soil is heavy, and this, combined with the quantity of fallen timber everywhere, makes trenching a difficult matter. Apart from a few deep bores with the diamond drill, a good deal of inexpensive and useful prospecting can be done with the hand drill, and the work now being carried out with that can be extended with advantage.

Assuming payable seams to be opened out, the position with regard to shipment is that the coal will be brought down by tram for about a mile to a part of Recherche Bay, where deep water can be got by building a jetty out for some distance. The middle of the bay, opposite Mr. Herbert Smith's house, is 24 feet deep, according to the Admiralty chart, and it is said that a jetty 300 yards long would extend into 15 feet of water. With a seam of coal of the thickness seen in the tunnel, I estimate the coal ought to be delivered into store at Hobart for a total cost of 14s. or 15s. per ton.

The property has excited great hopes, and it is well that attention should be directed to it, as a coal mine in this part of the country means a great deal. No efforts should be neglected in the way of proving a field so near to the capital. Some definite result from the prospecting now going on will, however, have to be obtained before money is spent in working the seams at the observed outcrops. If the result is satisfactory, and any of the seams are shown to be continuous and maintain fair size and quality, the undertaking may be pushed on vigorously, for the conditions of work are favourable.

CATAMARAN.

I was glad to have another opportunity of looking at this field, which I examined but cursorily on the previous occasion.

The seam, where opened upon in the main shaft, is situated $1\frac{1}{2}$ miles S. 17° E. of the Moss Glen tunnel, and is separated from it by a high spur, put down on the Admiralty chart as rising to 950 feet. The spur consists of sandstone on the slopes, with loose boulders of diabase rock higher up, which leads to the inference that the crest or axis is diabasic, though no solid rock can be seen, owing to the overburden of soil and the heavy timber.

South of Mr. Herbert Smith's, the solid diabase (dolerite) emerges at sea-level and continues south to the mouth of the Catamaran River and beyond, with the exception, perhaps, of some sandstone at Deep Creek, where the beach is sandy. The Catamaran River for two miles, or, at any rate, as far as the tramway bridge runs in diabase, and the flat ground to the immediate north of the river is probably diabase also, though concealed by soil and drift-sand. Mr. J. M'Dougall told me that he had bored 30 feet into the alluvial without touching the bed-rock. He was

then stopped by water, but I imagine that the foundation-rock had nearly been reached, as that would be about sea-level. On the western part of the flat I should recommend a trial to prove what the bed-rock is, and, if it be sandstone, then a bore-hole might be put down to test the measures, which would be geologically lower than the seams already tapped.

I saw, on this occasion, what I did not see on my previous visit, viz., a line of pits on outcrops further west from the main shaft, most of them showing coal. The first of these was along the tramway, about 10 chains W. of the shaft, and sunk for 10 feet through clay, striking sandstone at bottom, when work was stopped.

The next shaft, a few hundred yards further west, and now half filled with water, is deeper than the previous one, and has struck coal which resembles in appearance that of the main shaft, but if my reading of the strike of the former be correct, I do not see how this can be the same seam.

A few chains further along the north side of the tramway a tree has uprooted some good coal, which appears to be another outcrop of the seam struck in the previous shaft. In fact, about every hundred yards along the tram there are indications of coal.

The most westerly shaft is, perhaps, half a mile from the first. It goes down into boulders of blue shale, and then into a seam of good coal.

It is impossible to establish the mutual relations of these outcrops without clearing out the shafts and doing a little work in order to ascertain the direction of the strike or dip of the seams and strata. The only place where the inclination of the beds is seen is in the main shaft, and that is not sufficient for the determination of the true strike. According to that shaft, the apparent dip is to the N.W., and the strike, consequently, would be N.E. and S.W., but as we cannot tell whether the inclination observed is at right angles to the true strike uncertainty exists as to the precise directions of both strike and dip, as well as to the amount of the latter. This uncertainty cannot be cleared up without a little preliminary work, and the very best site for deep boring could be confidently selected only after such work.

My interpretation of the bearing of the country-rock, formed nevertheless under these disadvantages, is that the strata strike east of north and west of south, and the dip is to the west of north. The run of the beds is, therefore, similar to that on the Moss Glen property, and if the diabase

of the northern spur does not intercept, the country is continuous from one property to the other.

Under the above conditions the best direction for deep bores will be a little to the west of north of the original main shaft. The ground slopes in that direction to a flat before rising again on the north side. The flat is about 30 feet below the shaft-collar, or 18 feet below where the seam was cut in the shaft, and, as the seam dips apparently 8° in that direction, a test bore in the flat at a horizontal distance of 10 chains from the shaft should pierce the seam at a depth of 75 feet. The ground does not rise for nearly half-a-mile north of shaft, consequently, another bore at the base of the hill would strike coal at about 300 feet. This is assuming the apparent and true dip to be identical in amount, which is highly improbable. If the real dip is increased to say 17° instead of 8° , the depth at which the seam would be struck at the base of the hill would be 790 feet. A medium distance might advantageously be taken, say 20 chains from shaft, at which the depth, with 8° dip, will be 170 feet, and with 17° dip, 385 feet. To make a complete piece of work, I should recommend two further bores right and left, *i.e.*, E. and W., say at a moderate distance, 300 yards W. and 300 yards E. of the first bore, so as to prove the continuation of the seam in each direction. If the seam is thus proved to be continuous, it will give a high value to the property, and, in fact, until this necessary preliminary work is done, the exploitation cannot be safely undertaken. If the coal seam is shown to be unbroken over the area comprised within the bore sites and the shaft, it means that the existence for that area of 60,000 tons of coal for every foot thickness of seam may be reckoned upon.

The speed of boring in these beds with the diamond drill will average about 100 feet per week. The tramway to the shaft will assist in getting the drill to the mine, but to transport it to the flat a track will have to be made through the scrub.

At the main shaft an attempt might be made to confirm the existence of an alleged 7-foot seam below the clay floor, for, as far as I can learn at present, the statement is an unverified one. The drill-cores will show whether a second seam occurs below the upper one, but, if a fair quantity could be raised from the shaft, its quality could be tested in a more satisfactory way.

I may add that the sites for bores given above are approximate ones, and may be varied a little to suit convenience of transport of machinery and nearness of water for working.

This time I went to see the northern shaft on the lease. I found that it was not over the crest of the hill, as I had supposed, but on the southern flank, and it cannot be much more than half-a-mile N.N.E. of the main shaft, at a height of about 130 feet above sea-level. The disused northern branch tramway runs to within a few hundred yards east of it, and the remainder of the way is a foot-track through the bush. The hill is heavily timbered. This shaft was sunk 18 months ago, and is said to have gone down 33 feet, and, judging from the stuff at surface, through clay and a friable grey sandstone till it touched the coal, when the increasing water caused work to be discontinued. I could get no information as to size of the seam, its direction or dip, nor any data which would serve to connect it with the seam on the south side of the valley. As the tramway is in fairly good condition, a heavy drill could be brought to this spot without much trouble, and at first I was inclined to select a site for a bore-hole here, W. of the shaft, but all things considered, I think that the bores already recommended will answer requirements for the present. I am inclined to think that by clearing away the scrub, and trenching, the outcrop of this seam might be found lower down the hill, and driven upon.

SOUTH OF CATAMARAN RIVER.

I did not confine my visit to the sections already taken up for coal, but examined also the ground in the neighbourhood.

South of and adjoining the Catamaran River, about two miles from its mouth, is a 38-acre section in the name of W. McDougall. On this land a shaft has been sunk some 30 feet deep down to a small seam of coal. White sandstone was first sunk through, then shale, and at last nearly 5 inches of soft coal. The direction of dip appeared to be northerly. The shale yielded distinct impressions of the fossil fern *Thinnfeldia odontopteroides*, belonging to the Upper Coal Measures. There is little doubt that these strata are continuations of those north of the Catamaran.

Westward from here is a plain of marshy ground covered with Manuka, about a mile square. The Catamaran River north of it flows between sandstone banks, which may be seen at three miles from its mouth, where Mr. J. McDougall has a stationary engine hauling logs to his tram. It is safe to infer that the sandstones continue beneath the marsh, and it is easy to see that a prolongation of them south-west for three or four miles would reach the coast at South Cape

Bay, where coal sections are held by Messrs. Rathbun and Morrison. It is evidently one and the same run of country right through from Moss Glen (with a possible diabasic interruption under the northern spur), so that there is here really a wide area of coal measures sandstone which is well worth attention. The Manuka plain offers ideal sites for boring. It is Crown land, and I recommend a Government bore being put down close to the tramway a little east of the hauling engine, and where water can be got. This is at the western end of the plain. Anywhere along the tramway on the plain is suitable geologically. From the position of the marsh in relation to the shaft on W. McDougall's land, I conclude that the strata below it are Upper Mesozoic, and consider that there is a fair chance of meeting with coal seams, seeing that they occur in similar beds both north and south. I should also like to see a second bore put down in the eastern portion of the plain (also along the tramway), so as to pierce such of the lower strata as might not be reached with the bore further west. A good tramway, along which 12-ton logs are being transported to the saw-mill, will be of great use in conveying the drill to the actual spot. It would probably be desirable to put these bores down first, as the tramway is in good order, and in the meantime the old tram-road could be repaired, and the bush-track constructed to the sites north of the river.

To recapitulate, the bores which I have recommended are as follows:—

A.—*On the Moss Glen property:*

1. Above the tramway, near the shaft or 36-foot bore, 200 feet above sea-level;
2. At sea-level on shore of Recherche Bay, north of Mr. Herbert Smith's garden.

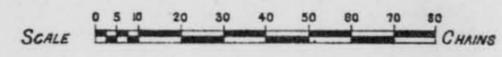
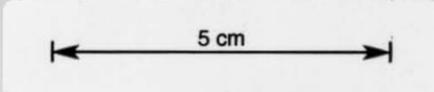
B.—*On Mr. L. Hood's section at Catamaran:*

3. About 20 chains N.N.W. of main coal shaft in the valley at the base of the hill-range to the N.;
4. At 300 yards to the E. of No. 3;
5. At 300 yards to the W. of No. 3.

C.—*On Crown land N. of Catamaran River:*

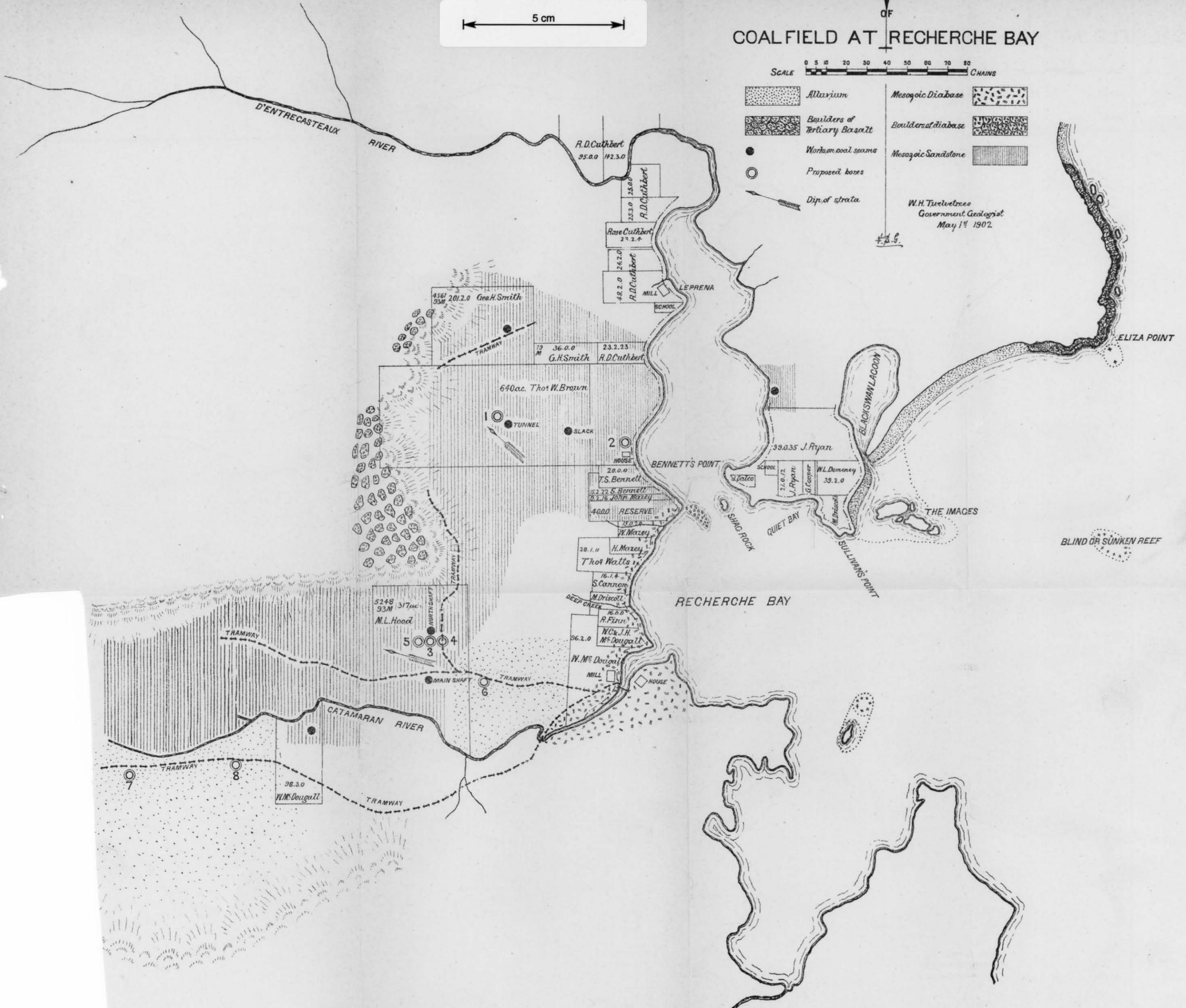
6. On the flat along disused tramway to the E. of Mr. L. Hood's east side-line, provided that preliminary work shows the bed-rock to be sandstone and not eruptive rock, well away from the side-line, as the dip will carry seams into the adjacent property.

COALFIELD AT RECHERCHE BAY



- Alluvium
- Boulders of Tertiary Basalt
- Mesozoic Diabase
- Boulders of diabase
- Mesozoic Sandstone
- Works or coal seams
- Proposed bore
- Dip of strata

W.H. Tuttle
Government Geologist
May 1st 1902



D.—*On Crown land S. of Catamaran River:*

7 & 8. On the Manuka Plain, 3 miles from the mouth of the Catamaran River, along J. McDougall's working tramway. One bore in the eastern part of the plain, and another in the western.

These bores form a prospecting programme, which ought to prove any seams over a wide area of the extreme southern coal fields. To complete it, a bore would have to be put down at Ida Bay, near the mine works there, but there does not seem to be much interest taken in those seams, and the means of taking the drill there would have to be considered, more especially with respect to the landing-place.

I have to thank Mr. McDougall of Catamaran, Messrs. Herbert Smith and Hardwick of Glen Moss, and Mr. Tyler of Ida Bay for their kindness in furnishing me much help and information.

I have the honour to be,

Sir,

Your obedient Servant,

W. H. TWELVETREES,
Government Geologist.

W. H. WALLACE, *Esq.*,
Secretary for Mines, Hobart.