

1884.

PARLIAMENT OF TASMANIA.

NEW TOWN COAL DEPOSITS:

REPORT BY F. W. KRAUSÈ, F.G.S.

Presented to both Houses of Parliament by His Excellency's Command.

(No. 59.)

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Office of Mines, Hobart, 31st December, 1883.

In compliance with your verbal instructions of the 20th instant, to examine into the character of the New Town Coal deposits as a field for the advantageous employment of the diamond drill, I have the honor to state that I have made a geological examination of about sixteen square miles of country around New Town, and I beg to enclose herewith my Report thereon, with plan and section.

I have the honor to be, Sir,

Your obedient Servant, F. W. KRAUSÈ.

The Hon. N. J. BROWN, Minister of Lands, &c., Hobart.

GEOLOGICAL SURVEYOR'S Report on the New Town Carbonaceous Deposits.

 $M \star$ instructions to advise the Hon. the Minister of Lands on the expediency or otherwise of employing the diamond drill in search of workable coal seams at New Town, necessarily conditioned the examination of a somewhat more extended area than that occupied by the so-called New Town coal basin, the very limits of which could not, indeed, be determined without proper enquiry into the disposition of the bordering rocks. The result of this enquiry is laid down on the accompanying geological plan and section and the descriptive notes there inserted. I may therefore in this place confine myself to state the practical outcome of the enquiry.

At the outset, it should be stated that so far no seam of true coal has been discovered at New Town. The material raised and sold as such is a carbonaceous shale. The better sample is finely laminar, and some of its laminæ, often less than $\frac{1}{100}$ part of an inch in thickness, are made up of a non-bituminous coal (anthracite and mineral charcoal), the amount of which, however, rarely exceeds 5 per cent. of the bulk of the material.*

For the purpose of this enquiry it is sufficient to speak of the shales, sandstones, and intercalated carbon beds as "coal measures," without implying a relationship with the carboniferous beds of Europe. On the contrary, the pecopteris and zamites shales, as well as the lithological character of the whole of the upper beds, bear a marked resemblance to the oolitic coal-bearing rocks of Western Port and Cape Otway in Victoria, while the lower fenestella beds are of upper palæozoic (permian?) type.

The thickness of these upper coal measures does not exceed 435 feet, and the area occupied by them is somewhat under three-quarters of a square mile (420 acres). There are six "coal" seams known to exist, having an aggregate thickness of 11 feet 8 inches. The greater number of these seams extends over portion of the field only. Assuming that no faulting or thinning out interfere with the observed dimensions, the total quantity of "coal" at New Town, including what has been already raised, will amount to about 3,800,000 cube yards, equal to about 4,000,000 tons of coal shale. This is the utmost capacity of the field, and there is no prospect whatever of true coal (either anthracite or bituminous) being found at a reasonable depth.

• The term anthracite for the New Town fuel is quite inappropriate. Anthracite implies the existence of coal which at a later stage was deprived of its bitumen. But in this case the material originally deposited was not a coal, but a bituminous shale which plutonic action deprived of its hydro-carbons and converted into carbon-shale.

SIR.

A shaft on the Government farm would strike Parson's seam at a shallow depth; beyond that depth no workable seam will be met with, unless it be the faulted portion of Dr. Benjafield's seam, which is, however, problematical. The whole field is so well laid open by natural and artificial sections that a bore sunk on the basset of the highest beds,—say the upper adit near the south-east corner of the Orphan Asylum reserve,—might be sunk to a depth of 2380 feet without disclosing features other than what can be "read" on the surface and in existing pits. Supposing all the members of the series to be represented, the following would be a section of the rocks bored through :—

| | | Depth of Strata. | | Depth of Bore. | | |
|-----------------------------|--|----------------------|--|----------------------|-------------|---|
| | | , | " | , | , | • |
| • | Carbonaceous shale (crops out at upper adit on Bedford's land, No. 1 seam) Shale and sandstone | 1 21 | 0 0 | $1 \\ 22$ | 0 0 | |
| UPPER COAL MEASURES. | Clay shale and sandstone Clay shale and sandstone Carbon shale ("Rosetta," or No. 3 seam) | 1 78 3 | 6 0, 0 | 23 101 104 | 6 6 6 | |
| | Clay shale Sandstone, with nodules of pyrite, and fern impressions Carbon shale (part of No. 4 seam) Clay shale replete with pecopteris (two species), zamites. | 1 98 1 | 9 0 6 | 106 204 205 | 3 3 9 | |
| | &c Carbon shale (part of No. 4 seam) Shale and sandstone Carbon shale (worked in Parson's shaft) | $1 \\ 1 \\ 215 \\ 1$ | $ \begin{array}{c} 3 \\ 0 \\ 0 \\ 10 \end{array} $ | 207 208 423 | 0 0 0 | |
| • • | Blue and grey shale and sandstone | 10 | 2 | 435 | 0 | |
| GREY AND YELLOW POST. | False-bedded sandstone with fern impressions; also thin shale layers | 850 155 350 | 0 0 0 | 1285 1440 1790 | 0 0 0 | |
| CLAY ROCK. | Light grey inducated clay shale Breccia and conglomerate of fragments of quartz, quartzite, granite, and slate in a claystone base | 300 10 | 0 0 | 2090 2100 | 0 0 | |
| FOSSILIFEROUS LIMESTONE. | Sandy limestone and calcareous shales and sandstones, containing an abundance of marine shells and coralloids (spirifer, three species, productus, fragments and casts of univalves, and numerous fenestellidæ.) The beds become nearly horizontal with increasing depth | 280 | 0 | 2380 | 0 | |

I have already stated that no coal of reasonably good quality need be expected in the upper coal measures. Similarly the grey and yellow post, the clay rock, and the fossiliferous limestone have all proved barren of coal and coal shale, and it therefore remains but to explore the rocks' which lie beneath the latter. I have been unable to find an exposed section to aid the enquiry beyond a certain point, as the lower beds abut everywhere against the diabase. It is here, then, that the drill must be resorted to, and the only prospect of meeting with workable coal deposits is by boring below the lowest outcropping fenestella beds.

I recommend as such a site the upper part of the western branch of M'Robie's Gully, or a corresponding position in Guy Fawkes Rivulet; and I am of opinion that this mode of exploitation, besides being of the highest scientific interest, must practically decide the question whether or not this and other parts of the Island of similar physical and geological structure are destined to become economically important coal fields.

Office of Mines, Hobart, 31st December, 1883.

F. W. KRAUSÈ.

WILLIAM THOMAS STRUTT, GOVERNMENT PRINTER, TASMANIA.







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