

In response to a request by the Associated Pulp and Paper Mills Limited, the Lignite, Brown Coal, deposits of the Smithton area were examined during the week ended 26th April.

The first official records of the coal deposits appeared in the year 1934 when a detailed Geological Survey of the Smithton district was made by the Staff of the Geological Survey Department. The work then done was published as Geological Survey Bulletin No. 41, "The Smithton District." In the section of that publication titled Economic Geology, the occurrence of both Lignite and Peat is recorded.

Lignite. (Brown Coal)

Brown Coal is recorded as occurring at two localities described under the headings (1) Myrtle Hill (II) Edith Creek.

It is with the Myrtle Hill coal deposit that this report deals.

From Bulletin 41 p. 85 the following reference is quoted :-

"This occurrence is situated on Myrtle Hill, 50 chains south-east of Irishtown, in 19⁴ acres 3 roods 1 perch of land purchased by R.W. John, and a block of 30 acres and 3⁴ perches alienated to A. Wood."

"Brown Coal of Tertiary age is here exposed in the steep heads of two small creeks running northerly to join Serpentine Creek.

The coal or lignite is brittle, and bright and shining in appearance, with^a nearly black colour. In places wood structure is discernible and after breaking, the coal disintegrates rapidly.

The following is an analysis of a sample of the best looking material :-

<u>Constituents.</u>	<u>Reg. No. 1585</u> <u>Sample No. S140</u>
Moisture	9.9%
Vol. Combustible Matter	51.00%
Fixed Carbon	29.90%
Ash	9.20%
Sulphur	3.61%

Some prospecting had taken place prior to 1934 but the workings had, even then, collapsed and detailed examinations were not possible. It was then correctly assumed that the coal was interbedded with sandstones with which it was deposited between two successive flows of basaltic lava.

The coal has been exposed at two points on Myrtle Hill on a property now held by Mr. A.W. Rawlings. The exposures are about half a mile apart and occur at approximately the same altitude.

At the more southern of the two positions the coal has been exposed by two small open cut workings situated about 3 chains north-west from the position of the original workings referred to in Bulletin No. 41. The overburden is basaltic soil and the country is unsettled. The upper and lower sections of the seam are badly weathered and contaminated by sand from the enclosing sandstones. The intermediate section of the seam is of typical brown coal. A thickness of up to 7 feet of coal is exposed with the following cross section :-

3 feet dirty coal contaminated with sand.

3 feet coal (sampled).

1 foot coal waterlogged and dirty.

The coal seam is dipping towards the south-east at a low angle which may be the result of minor faulting.

It was stated that a parcel of coal, forwarded to Burnie, was taken from the intermediate section at the above exposure.

A sample taken over a width of 3 feet was analysed by the Chief Chemist and Metallurgist with the following results :-

Moisture at 105°C.	6.7 %
V.C.M.	35.5 %
Fixed Carbon	23.9 %
Ash	33.9 %
Sulphur	6.6 %
Calorific Value	6030 approx. B.T.U.

Immediately above the coal seam a badly weathered sandstone occurs. Above the sandstone there is a considerable thickness of basaltic soil. Except for boulders no basalt was observed in situ. The summit of the hill would be at least 250 feet greater in altitude than the coal seam.

The workings on the more northern exposure of coal consist of an adit driven in a southerly direction for a distance of 98 feet. At the present working face the coal seam has narrowed till only one foot of coal is showing near the roof of the adit. A distinct roll in the underlying sandstone has almost completely excluded the coal. Two minor faults occur at 9 feet and 49 feet from the portal of the adit, but there has been no serious displacement of the coal. The faults dip in a northerly direction at about 60 degrees.

The coal seam varies considerably in thickness. At 16 feet from the portal, the coal occupies the whole of the adit and is not less than 7 feet in thickness. At 24 feet from the portal the section is as follows:-

Sandstone roof.
26 ins. sandy coal.
34 ins. coal (sampled).
Poor coal to floor.

The upper 26 ins. of coal have been contaminated with sand from the overlying sandstones whilst the lowest section is in a waterlogged condition. The middle section of 34 ins. appears to be of average grade and was sampled. The Chief Chemist and Metallurgist reports as follows:-

Moisture at 105°C.	5.1%
V.C.M.	26.8%
Fixed Carbon	16.2%
Ash.	51.9%
Sulphur	6.6%
Calorific Value	N.D.

It is to be expected that variations in the thickness of the seam will take place and that the quality of the coal will improve as development proceeds. The quality as shown by the recent analyses is such, that it is doubtful whether further operations are warranted.

To test the area by boring would require the use of a diamond drilling plant, for, although the overburden at the sites where the coal is now exposed is basaltic soil, it is certain that at greater depths of seam the overburden would in part be basalt which could not be cheaply bored.

Should further testing be decided upon, the existing adit should be extended to determine whether or not within the next 100 feet any material change in the quality or size of the seam takes place. From the result of that development, future operations would then be guided.

Peat.

Whilst in the Smithton district, attention was drawn to the occurrence of a deposit of peat. This deposit is situated between the Irishtown road and a line of hills which separate the flat from Deep Creek. The flat is locally referred to as Deep Creek flat.

Two exposures of peat were examined.

On a property of Mr. L. Francombe, peat was revealed in drainage channels dug to depths of 3 feet. A prospect hole dug to a depth of six feet showed peat throughout, with the lower layers becoming more sandy in nature. A sample was taken, over a depth of 40 inches, which on analysis yielded the following :-

Moisture at 105°	4.0%
V.C.M.	23.6%
Fixed Carbon	8.9%
Ash	63.5%
Sulphur	0.37%
Calorific Value.	N.D.

The surface of the flat is of little value agriculturally and is at present the subject of experiment to determine its reaction to different methods of ploughing and

fertilisation. The holder, Francombe, asserts that a considerable portion of the surface has been lost by fire during dry seasons, and at present fires which are started during the dryer months of the year, continue burning till extinguished by the winter rains.

A second occurrence of peat was examined on W. Geale's property in the vicinity of the disused Smithton Rifle Range about a mile from Smithton.

Although several holes have been sunk in the deposit none could be examined as all were full of water. The holes varied in depth to 11 feet and it was stated by Mr. A.R. Reed that peat occurred throughout the full depth of the hole.

It is possible that the peat deposit is continuous from Geale's to Francombe's properties although no peat was observed at the position where the Smithton - Forest Road crosses the area. It has been established that in each position examined the deposit exceeds a quarter of a mile in width and a length of half a mile. It is certain that a considerable deposit of peat is available in the district and is, therefore, worthy of testing.

Two methods of testing the deposits suggest themselves:-

(1) Pit Sinking.

The fact that the existing pits were full of water at the time of this visit suggests that baling would be necessary to keep the holes dry during sinking although when completed, the pits would have yielded bulk samples of the product.

(2) Boring.

The use of an auger of about 3 inches diameter would provide a rapid method of testing the deposit.

It is anticipated that casing would not be necessary and good cores should be obtained with the auger. By grid-boring the area and depth of peat would be determined and the quantity available could be calculated. The cores would serve as representative samples of the peat for analysis.

Despite the low grade of the products as revealed by the sample taken, it is considered that the peat deposit is worthy of testing by boring. With reliable results it is felt at least portion of the deposit would prove to be of economic value.

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