

THE OONAH TASMANITE OIL-SHALE FIELD.Introduction -

As no specific data regarding the commercial possibilities of the unprospected Oonah Tasmanite area, discovered in 1923, were available in Departmental records, it was decided that a preliminary examination of the deposit be made in order to assess the amount of prospecting required to establish the extent, seam thickness and oil yield.

Mr. D.H. Dickinson, Extension Officer, and the writer were engaged upon the preliminary investigation from the 14th to 16th September, 1944, inclusive, and obtained outcrop samples which, upon analysis in the Departmental laboratory, Launceston, indicated that the oil yield would be at least of the order of the general average of the Latrobe shale (26 gallons per ton). As it was not possible to obtain reliable information regarding seam thickness and grade, owing to the complete lack of any developmental work and the paucity of outcrops, it was further decided that shaft sinking in the vicinity of the known outcrops was necessary.

The only reference to this area contained in official publications of the Geological Survey is in "Report of the Tasmanian Shale Oil Investigation Committee" Mineral Resources No. 8, Vol. 11, p.103, Area XIV (Oonah)

Location and Access -

This shale area is situated in the Oonah district, 15 miles south of Wynyard and approximately one mile north-east of the Oonah State School.

With the exception of a small area of crown land, all the known shale area occurs on private land charted in the following names - William Cross 79 acres; E. Hodgetts 198 acres; J. Martin 150 acres; M. Chawwa 65 acres; Agricultural Bank 95 acres; E. F. Miles 157 acres; portion of F.R.C. Hays 263 acres; and 130 acres of crownland (previously charted in the name of H.H. Lennox). Apart from Hodgetts' property the area has been abandoned as a farming centre and is fast returning to wilderness. These blocks with the exception of that of William Cross comprise a tract of country near Oonah, while that of William Cross forms a small outlying area in the valley of the Cam River near the Eastern Branch of the river, some three miles to the north-east.

The area is one of high relief, being portion of the deeply dissected, basalt covered upland of the north-west. Many destructional forms exist in the shape of fault scarps, with a general east-west trend, one at least 400 feet high.

Access to the actual shale area is provided by Hodgetts' access road which turns north from the Oonah State School and drops down a steep grade nearly six hundred feet to Jackson's boundary where the metalled road ends. All other access roads are overgrown and practically impassable for motor traffic.

General Geology -

The Tasmanite shale seam is interbedded with the rocks of the Permo-Carboniferous and occurs at a horizon between the Lower and Upper Marine Series. Generally, this horizon is represented by fresh water sediments containing seams of coal or carbonaceous shale, but the Tasmanite seams occur under marine conditions.

As a result of large intrusions of dolerite, with associated faulting, combined with subsequent denudation of the overlying rocks and sometimes the shale seam, the Permo-Carboniferous rocks occur in a number of more or less separate blocks at different altitudes, the blocks being separated and bounded by dolerite intrusions and faults respectively.

Although the Mesozoic dolerites do not outcrop in the immediate vicinity of the shale outcrops, they can be observed on the main Waratah Highway about one mile south of the Oonah settlement.

There is an exposed thickness of approximately 400 feet of pebbly mudstone overlain by at least 300 feet of basalt. It is apparent from the disposition of the known outcrops that considerable block faulting has taken place so that no idea of the stratigraphic thickness exposed can be obtained without detailed mapping.

The highest shale outcrop occurs about 250 feet below the base of the basalt, and the most northerly another 100 feet lower,

The deep soil cover and heavy growth of bracken render the matter of tracing the shale outcrop very difficult particularly in the vicinity of the edge of the basalt where large slump areas have developed.

Although it has been established that the shale horizon occurs about 600 feet above the basal conglomerate series in the Latrobe area, the relative position of the seam in relation to the basal conglomerate series so well developed in the Hellyer Gorge just south of the Oonah area was not established during the preliminary investigation and owing to the disappointing results obtained in shaft sinking, the matter of the southerly extension of the shale below the basalt was not investigated further.

Economic Geology -

The shale seam outcrops in a small creek flowing in a northerly direction through the above land blocks. Dip readings suggest a southerly dip of about eight degrees; therefore, if the shale seam persists in a northerly direction without serious faulting then a considerable area of the seam would be denuded away, but it is known that some block faulting has taken place although the actual amount of displacement is unknown.

Four grab samples taken from outcrop material, No. 1 sample being the only one actually broken from an outcrop, during the preliminary investigation, indicated that oil-shale of average grade could be anticipated. The following results show the indicated oil yield obtained when the samples were examined in the Department of Mines Laboratory, Launceston:

<u>Sample No.</u>	<u>Registered No.</u>	<u>Ash</u>	<u>Oil Yield</u>	<u>Remarks</u>
1.	403	81.4 per cent	equivalent to 21 gals. per ton	Outcrop material
2.	404	91.4 " "	equivalent to 5 gals. per ton	loose matter
3.	405	82.7 " "	equivalent to 19 gals. per ton	loose matter
4.	406	86.5 " "	equivalent to 13 gals. per ton	loose matter

The Extension Officer, Mr. D.R. Dickinson advises that the following results were obtained when the shale seam was prospected for the purpose of obtaining reliable figures of seam thickness and oil yield.

"The outcrops were explored with the object of determining the thickness of the seam.

The first trench revealed a lens of shale ten feet long with a maximum thickness of 12 inches. This was sampled with the following result - No. 412. Ash 91.2% equivalent to 6 gallons of oil per ton. Another cut showed 18 inches of shale and a shaft a similar amount of shale assaying, No. 413. Ash 84.5% equivalent to 16 gallons of oil per ton.

It is, therefore, evident that the seam exposed at the known outcrops is too thin and too poor to be of commercial importance. It is underlain by from one to two feet of oil spore mudstone, under which is the basal blue pebbly mudstone.

It is possible that another band of shale could occur above the one investigated but there is no outcrop evidence of this. There has not been sufficient exploration over the whole area for any definite statement to be made in the matter, but in the portion that has been closely examined, there is little continuity in the outcrop and it is quite probable that only one thin seam is represented".

Conclusions

The limits of this basin are very indefinite, and in view of the paucity of information no attempt should be made to indicate possible reserves.

As it had not been demonstrated that the Oonah oil-shale field did not possess features that might render its commercial possibilities more attractive than any other known Tasmanite oil-shale field some prospecting was justified, but the results of the recent prospecting operations have proved beyond doubt that the oil-shale seam is too thin and the oil-yield too low to anticipate any productive possibility on a commercial scale.

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