

THE OIL SHALES OF TASMANIA.

It has become a trite saying that the basis of economic development to-day is an adequate supply of oil. Australian supplies of this indispensable commodity are drawn wholly from foreign sources yet her requirements are, in proportion to population, greater than any country.

The search for well oil not having been successful, renewed attention has of late been given to our known sources of supply, namely the oil shales of Tasmania and New South Wales. In these shales is locked up an abundance of oil, sufficient to meet the requirements of Australia for a generation at least.

It is our duty to set the oil free and make ourselves independent in time of necessity. Moreover, it is believed that under existing economic conditions, the distillation of oil from shales can now be developed into successful commercial enterprises.

The history of the oil shale industry in Tasmania can conveniently be written under the following chapters:-

1. Nature of the Shales,
2. Exploration of our Resources,
3. Geographic position in relation to transport and settlement,
4. Testing, Mining, Crushing, Retorting and Refining,
5. Marketing the oils.

Nature of the Shales:-

Tasmanite shale, like Kerogenite and humic Kerogenite coals (the so-called kerosene shale and cannel of commerce) is not an oil-bearing, but an oil-producing substance, that is to say; there is no free oil in the material. The source of the oil is an organic substance called "Kerogen" with which the shale is impregnated. This organic material is of vegetable origin and may be regarded as a concrete fixed oil. When the shale is placed in a retort and subjected to heat the organic component is progressively decomposed into permanent gases and ores vapors of various kinds, the latter of which can be easily condensed into crude shale oil. This shale oil unlike all others known to the writer, is of asphaltic base, and therefore requires a specially modified design of plant for its treatment.

Exploration of our Resources:-

The Tasmanite seam is 5 to 6 feet thick and lies at or about the horizon of the coal bed in contiguous areas. Only one seam of shale and only one seam of coal are known where the two are closely associated. It has been established that the seam of Tasmanite was deposited along the shore lines or in estuaries of the Permo-Carboniferous areas. These inlets have been traced from Latrobe to Quamby Bluff, a distance of 30 miles, but the seam has not been explored throughout that distance. However, sufficient exploratory work has been performed to prove a very large reserve of the shale. In all the explored areas sufficient data are available to accurately determine the quantity. There are, however, certain partly tested

and untested areas in addition which are regarded as potential stores of shale, and, therefore, deserve attention. The total tonnage of shale in the several areas is estimated as follows:-

Actual Reserve	Probable Reserve	Possible Reserve
17,000,000	27,000,000	45,000,000

The Average content is 40 gallons per ton.

Geographic Position in Relation to Transport and Settlement:-

All the shale fields of this district are well served by roads and railways which converge upon Devonport, the chief shipping centre of the wonderfully fertile tract bordering the North Coast. The port is capable of accommodating vessels of 10,000 tons gross, and provides a safe anchorage in any weather. North-Western Railway passes through the fields to Devonport. Electric Power on a large scale has been made available by the Hydro-Electric Department. The fields are contiguous to closely settled agricultural areas in which are numerous villages and townships.

Testing, Mining, Crushing, and Retorting and Refining:-

A great deal of information has been gained from the work of the early operators as regards these subjects. Late-comers in the shale industry are now in the position to profit by the mistakes of others. These lessons should be kept in mind, because it does not follow that processes suitable for the treatment of shales in general are suitable for Tasmania. The only operations difficult to overcome are those of retorting and refining. The knowledge gained from the working of several types of retort enables a design to be made to suit the peculiarities of this shale.

Marketing:-

The products of the shale are in the first place, gas crude, oil, asphaltum, and ash. The first mentioned can be used on the spot, the second can be sold as fuel oil or it can be cracked into gasoline, the third finds a ready market as a road dressing, and the fourth is sold as a soil improver.

In several of the States of America and Canada, Norway and Sweden, and Germany oil shale deposits are being explored and developed with the single idea of making their people independent of oil importation. In Esthonia the oil shale deposits form the main national wealth. In our own country the deposits of New South Wales and Tasmania contain enormous deposits, the full extent of which have not been determined. These deposits are certainly of very great economic value, and the time for their development is fast approaching.

It is interesting to note that the use of raw coal as a fuel is now regarded as wasteful and uneconomical in handling and unnecessary. In England and Germany the price of coal has reached such a high figure that there is a strong widespread movement to turn the raw coal into gasoline and oil by low temperature distillation. The use of raw coal as a fuel except under extraordinary conditions is coming to an end. Oil is and will continue

to be the chief raw fuel. It is not suggested that shale oil will supplant well oil, but owing to the very great falling-off of well oil in Mexico and the United States of America, it is safe to predict that shale will supplement it and make up the deficiency.

This is a project of dealing with a large tonnage; of provision of large capital, and generally of large-scale operations. It is a project of so scientific a character that the technical and organising ability in order to carry it through successfully must be of the highest order.

The essentials to success are thorough investigation, organisation, and sufficient initial capital.

A. McIntosh Reid
DIRECTOR OF MINES

Department of Mines,
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