

To the...
MARITIME MINING RECORD

Vol. 11, No. 24. Stellarton, N. S., JUNE 23 1909. New Series

THE OIL SHALES OF NOVA SCOTIA.

In view of the growing belief that the distillation of oil from shales may soon become one of the industries of the Province we give below information in reference to the mineral taken from "How's Mineralogy of Nova Scotia". This work must be considered reliable as it is frequently referred to by members of the Geological Survey:

OIL COAL OF PICTOU COUNTY.

I believe this material was first examined and described by myself in a paper published in 1860 soon after it had been opened upon by Mr. Fraser. It has been called the Stellar coal from the fact of "stars of fire" dropping from it when it has been held to a flame and removed. The seam in which it is found is called the Stellar seam. As the well known minerals analogous to it in the leading property of furnishing much oil have been distinguished from coals by the special names Torbanite and Albertite this might be designated Stelliarite. It occurs with bituminous coal in a seam 5 feet thick of which 1 foot 10 inches are Stelliarite, 1 foot 4 inches bituminous coal and 1 foot 10 inches bituminous shale; the composition of the three bands is shown by my analysis to be as follows:—

	Coal	Stellarite	Shale
Volatile matters.....	33.58	66.56	30.65
Fixed carbon.....	62.09	25.23	10.88
Ash.....	4.33	8.21	58.47
	100.00	100.00	100.00
Moisture.....		.23	
Specific gravity.....		1.103	

The oil-coal or stellarite has been examined abroad with quite analogous results, the mineral improves in quality towards the east while the overlying M'Gregor coal deteriorates in that direction. Other analysis have given the following results, the No. 2 is probably the shale:—

The shale:—	No. 1		No. 2	
	Penny.	Wallace.	Penny.	Wallace.
Moisture	20.20	32	80	60
Volatile combust. matter ..	67.26	68.38	34.16	38.69
Fixed carbon	24.02	22.35	12.80	8.26
Sulphur	11	.05	.74	.25
Ash	8.40	8.90	52.00	52.00
	100.00	100.00	100.00	100.00
Specific Gravity.....	1.069	1.079	1.612	1.568

Having, on account of my former connection with the British Admiralty Coal Enquiry, been one of those engaged to furnish chemical evidence in the famous first trial in Edinburgh of the question whether the

mineral known as 'Bighead Coal' found at Torbane Hill, Linlithgowshire, should properly be called a coal. I was naturally much interested on the discovery of the stellar oil coal and got ultimate analysis made of it and of the 'Albert coal,' also subject of a trial on the ground that it had been improperly called coal. These analysis were very kindly made for me through Prof. Anderson of Glasgow who generously met my deficiency in the necessary apparatus which I had not brought out with me. The results were most interesting, especially when compared with those obtained from bituminous and cannel coals. As to the former I selected, from those I had made in the Admiralty Enquiry, analysis of English, Scotch, and Welsh bituminous coals, and, as to the latter, analysis of English and Scotch cannels made by other chemists.

In the paper, the question is printed out that the true content of volatile matter in co-substrate minerals, while partly indicated by the relative amounts of volatile matter and fixed carbon, is only truly shown when account is taken of the oxygen, which is sometimes large in quantity, and is reckoned as volatile matter to the credit of the mineral while its real effect is reduction of value. I showed that when the hydrogen equal to the oxygen present is deducted, taking only those cases where there is an apparent equality in the ratio of carbon to hydrogen, the three minerals Torbanite, Alberite and Stellanite, stand apart from the rest: thus

Stellarite, standard apart from the rest	100 to 5.65
Cannel coal from Wigan	100 to 8.71
" " " Lesmahagow	100 " 10.05
" " " Capfedne	100 " 12.43
Torbanite " Scotland	100 " 10.85
Alberite " New Brunswick	100 " 12.43
Stellarite " Nova Scotia	100 " 12.43

and that theoretically they should be excellent oil coals' as is abundantly shown by experience. For the following amounts of oil yielded by various materials I am indebted in part to Mr Poole, formerly manager of the Fraser Oil-coal Works where the stellarite was used and in part to Mr Hoyt, I have myself tried none of them for the production of oil.

	Grade oil per ton
Union Oil coal of West Virginia affords	32 gals.
Elk River " " " " " " " " " " " "	54 gals.
Kanawha " " " " " " " " " " " "	88 gals.
Lemahagow Cannel, Scotland " " " " " " " " " " " "	40 gals.
Alberitite, New Brunswick " " " " " " " " " " " "	92 to 100 gals.
Torbanite, Scotland " " " " " " " " " " " "	116 to 125 gals.
Stellarite, or 'Stellar Coal' " " " " " " " " " " " "	53 gals.
" " " " " " No. 2.....	60½, 63, 65, 74 gals.
" " " " " " No. 1.....	123 to 126 gals.
" " " " " " Picked samples gave	

Some of these are the amounts yielded by careful experiments on the small scale. When oil was made