

Coal Resources of British Columbia

Details Concerning the Several Fields in Province that are Being Worked

The Crownest coal-field is the most important body of coal that is being mined in British Columbia. It includes an area of 230 square miles. The coal is a high grade bituminous, occasionally running into anthracite, averaging about 64 per cent fixed carbon. Much the greater portion of the coal is converted into coke, the remainder being sold as steam coal. There are 22 workable seams, with a total thickness of 216 feet, 100 feet of which is estimated as workable.

In addition to the Crownest field referred to above, areas of coal-bearing rocks are found at several points in southern British Columbia. The Princeton field includes an area of about 50 square miles. At Princeton, there is an 18½-foot seam of lignite carrying 42 per cent fixed carbon, 38 per cent volatile matter and 16 per cent moisture. At Nicola, seams 6 feet, 10 feet, 5 feet and 12 feet thick, respectively, have been mined. The Nicola coal is a sub-bituminous and analyzes about 47 per cent fixed carbon, 39 per cent volatile and 4 per cent moisture.

Coal has also been found at Tulameen, Kamloops, Hat creek and North Thompson rivers.

The total area in Vancouver island underlain by coal seams is about 600 square miles. These coal-fields contain some of the best steam coals on the Pacific coast.

The coal of the Comox field is coking bituminous and contains 57.2 per cent of fixed carbon, the highest carbon content of all the Vancouver Island coals. Three seams have been mined in this field.

The Nanaimo field has a productive area of 65 square miles, though the area underlain by coal seams is somewhat larger. The seams vary in thickness. Occasionally a seam containing from 2 to 3 feet of dirty coal carries 30 feet of clean coal at a point only 100 feet distant. Run-of-mine coals from this field run as high as 56 per cent fixed carbon and 43 per cent volatile combustible; commercial samples, 12,470 to 13,160 British thermal units.

The coal-fields of the Queen Charlotte islands are of Cretaceous and Tertiary age. The Cretaceous coals range from semi-anthracite to low-carbon bituminous. The Tertiary coals are lignites. In 1871, mines were opened in the semi-anthracite at Cowgitz, but the coal was so badly crushed that the enterprise was abandoned. This coal analyzed 83 per cent fixed carbon and 5 per cent volatile combustible; fuel ratio, 16.5.

Lignite is found at Alexandria, Quesnel and Prince George on the Fraser, on the Nazco river, Nechako river, Dean river and Lightning creek. Three seams of bituminous coal, possibly a coking coal, aggregating 20 feet in thickness, have been reported on a tributary of Morice river, and three seams on Goat river, a tributary of the Telkwa, aggregate 56 feet in thickness

The most important coals thus far discovered in the northern portion of British Columbia are the semi-anthracites and anthracites of the Groundhog Mountain area. An area of 170 square miles is assumed to be coal-bearing, and contains 8 seams, with an aggregate thickness of 30 feet.

The "actual" and "probable" reserves in British Columbia are: Semi-anthracite, 1.9 per cent; bituminous, 85.4 per cent; low-carbon bituminous, 3.3 per cent; cannel, 2.4 per cent; lignitic, 7.0 per cent.

Lignites have been discovered on Kispiox river, Sustut river, Peace river and Liard river. Bituminous coal has been found near Peace River canyon, and on the Taku river.

The coal production in British Columbia during the period, 1898-1917, was as follows:

Year	Tons	Value
1898	1,263,680	\$3,384,858
1899	1,431,101	3,833,307
1900	1,791,833	4,799,553
1901	1,919,488	5,141,487
1902	1,808,441	4,444,040
1903	1,676,581	4,890,844
1904	1,862,625	4,989,174
1905	1,945,452	5,211,030
1906	2,146,262	5,748,915
1907	2,364,898	7,390,306
1908	2,333,708	7,292,838
1909	2,606,127	8,144,147
1910	3,330,745	10,408,580
1911	2,542,532	7,945,413
1912	3,208,997	10,028,116
1913	2,714,420	8,482,562
1914	2,239,799	6,999,374
1915	2,065,613	6,455,041
1916	2,584,061	8,075,190
1917	2,433,888	8,235,716

James White in *Fuels of Western Canada*.

British Industrial Research

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with firms outside the organization. (4) It will have the right to ask for a specific piece of research to be undertaken for its sole benefit at cost price, and, if the governing Committee or Board approve, the research will be undertaken.

The method of assessing the subscription of each firm will be determined after consulting with each industry which may agree to combine, but it is probable that the firms will contribute according to their size.

The whole of the results obtained will remain the property of the Associations making them, but the Government, to safeguard its interests, will keep in its hands two additional powers which will in some measure limit this absolute ownership, namely, the right of veto in case any proposal is made by a Research Association to communicate any results of research to a foreign person or to a foreign corporation, and the right, after consultation with the Association concerned, of communicating the results of discoveries to other industries for their use on suitable terms. The Department will not, however, make any results obtained by a Research Association available to firms or individuals who are eligible for membership of that Association but have not joined.

The skunk is not only a valuable fur-bearer, but also one of the farmer's best friends, for it destroys quan-

Closer Utilization of Household Refuse

Means Suggested for Obtaining the Co-operation of Householders

Refuse collection and disposal have always been difficult problems for large urban centres. In primitive times waste materials of all sorts were simply carried to the outskirts of the town and thrown in piles. When the piles became sufficiently large to threaten to bury the community, the litter moved to other sites and the operation was repeated. But sanitary engineering is now an exact science and the "kitchen midden" of the ancients has been replaced by various forms of destructors, while complex systems of refuse collection are organized in every town and city. Many changes in these methods have been suggested by the war. Closer utilization of hitherto waste products has been found to yield important profits while also helping to conserve basic materials. To accomplish this, refuse of all kinds must be fully classified, and each variety kept by itself until it is delivered at the utilization plants. It is to this at least two, and better, three refuse cans should be used in every house. Much, therefore, depends upon the individual householder. In a recent issue of the *Journal of the Royal Sanitary Institute* there appears the Henry Saxon Snell prize essay for 1918. The subject is peculiarly timely: "Suggestions for Improvements in Apparatus and Appliances for Dealing with House Refuse". The writer of the essay, Mr. James Jackson, of Birmingham, England, submits a specimen printed card which he suggests should be placed in every kitchen as a constant reminder as to how the householder could cooperate with the local authorities. Below is a copy of the card, an adaptation of which could be used with profit in every Canadian town and city:

CITY OF SPOTLESSTOWN Salvage Department

Housewives are asked for their hearty and sympathetic co-operation in preventing waste matter from unnecessarily finding its way into the bins, when it at once becomes a charge on the rates.

WHAT YOU CAN DO.

REDUCE the quantity of refuse to be removed.

DON'T put water or any liquid into either bin—it is not fair to the dustman.

DON'T put unridled ashes into your bins—reduce your coal bill and your rates.

DON'T put garden refuse into either bin. Burn it in your garden, or, better still, bury it; the ashes are a valuable manure. In either case your garden will benefit.

DON'T put vegetable refuse into either bin. It is a valuable food for pigs and poultry. If not used thus, it should be buried in your garden or burnt on the kitchen fire.

THE ASHES BIN is for ridled ashes and sweepings only.

Prevent the spread of harmful insects that would otherwise do enormous damage to crops.—*Fur News*.

The SALVAGE BIN is for: Waste Paper, Rags, Tins and Cans.

The Corporation have power to enforce the observance of these instructions.

HOUSEWIVES! Here is a unique opportunity to help yourselves, your town, and your country, by your co-operation in seeing that these simple rules are observed.

Won't You Assist?

JOHN BULL,
General Manager

Salvage Department,
City Hall.

Getting Full Value of Farmyard Manure

When They Can Be Used, Manure Spreaders Save Time, Money and Effort

Soil mining, or "gypsy" farming has always been too common in Canada. The followers of that industry obtain possession of lands and then proceed to systematically rob them of their fertility. They neglect intelligent rotation of crops and they fail to apply sufficient fertilizer to keep the soil from losing its productive power. Many virgin areas in Eastern Canada have been seriously depleted in this way, but, during recent years, the prairies have been the chief scene of operations for this class of marauders. Thousands of acres of excellent farm lands have been literally laid waste by them and the wasters have moved on to repeat their depredations elsewhere. They are interested only in an impersonal sort of way, in making "two blades grow where but one grew before". They may have heard of "the rights of posterity" but, if they have, they treat the subject as too academic for them to worry over.

Fortunately, however, there are thousands of the other class of farmers, the farmers who endeavour to maintain and to increase the fertility of their farms. During the war, many commercial fertilizers were so scarce and so high in price that more attention was paid to the production, care, and utilization of farmyard manure. Experiments carried out by experts at many of the leading Agricultural Experiment stations have demonstrated that farmyard manure is one of the most important factors in better farming. Only farmers who can afford to burn money can afford to burn or waste their farmyard manure, and the benefit to be derived from it is in direct proportion to the intelligence and care with which it is used.

Mr. C. E. Thorne, Director of the Ohio Experiment Station states, according to a recent issue of *Hoard's Dairyman*, that "eight loads of manure put on with a spreader are worth as much as twelve loads put on by hand". That is the assertion of a recognized authority on the subject. As the *Dairyman* points out, it is easy to estimate "what the loss of one-third of the manure on your farm means, manure being valued at \$5.50 per ton according to commercial value of its fertility content".

These estimates should be of great interest to every Canadian farmer who stores his farm yard manure throughout the winter and spreads it on his fields during the summer months only.—A. D.