

NOTES ON THE MINERAL FUEL SUPPLY OF CANADA

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In discussing the question of mineral fuels, a number of substances other than coal proper must be considered. The coals themselves include several varieties, such as anthracite, which is found along the eastern flank of the Rocky Mountains, and to some extent on one of the Queen Charlotte group of islands in the Northern Pacific Ocean; the true or bituminous coals with their resulting coke, and the lignitic coals and lignites which are not capable of being coked, and which vary from brown to black and in quality from a fuel nearly equal to many of the true coals to others not far removed from peat. In addition to these, the minerals anthraxolite, oil shale, albertite and petroleum and natural gas must all be regarded as forms of fuel. They are often found in large quantities and at many widely separated points; while the immense stores of peat are bound to become valuable in a few years.

At points where the distance from coal fields is great, peat must become locally valuable. This is true of Quebec, Ontario and Eastern Manitoba.

The geological horizons of the several coal deposits found in Canada extend from the Devonian upward into the Tertiary. Of the other fuels, some of them range downward to our lowest rocks, anthraxolite, which is a form of carbon, being found in those of Huronian and Cambrian age. The geological horizons of the workable coals are, however, rather more limited, although even here the early ideas that the economic deposits of coal belonged especially to the Carboniferous time have long been set aside, by the fact that many of the highest grade coals of the West belong to comparatively recent rocks and extend through the Cretaceous to the middle Tertiary. These Western coals present several varieties in the same field, the difference being due apparently to various degrees of alteration of the original deposit of carbonaceous matter.

Anthraxolite is more closely related to the rock oils or petroleum than to the true coals. It is found in widely separated horizons. In its mode of occurrence it differs entirely from coal, in that it is always found in the form of veins which traverse strata of different ages instead of occurring as bedded deposits. From its presence in the rocks of the Laurentian and Huronian systems, as well as in the Cambrian and Silurian formations, it would, on the hypothesis that all bituminous substances are of organic origin, indicate that life in some form existed in the remotest periods of the earth's history.

Anthraxolite is the oldest mineral fuel. In Labrador it has been found in veins some inches wide, traversing the Cambrian rocks; in Quebec, along the St. Lawrence, near Point Levis, and on the Island of Orleans, it occurs in pockety masses in slates and sand stones of upper Cambrian age. It is also found in Ontario in black Cambrian slates; in granite as veins of very pure quality; and in limestone in association with veins of barite. Anthraxolite has no economic importance as a fuel.

Closely allied to anthraxolite in composition are petroleum and asphalt, as also to some extent the peculiar form albertite, which was at one time largely mined in New Brunswick, and which also was exceptionally free from ash. As a class these minerals are

quite distinct from the several varieties of coal proper, in composition and in origin.

In some areas where oil wells occur the oil has come to the surface and become thickened, forming what are known as gum-beds. This material was found in large masses in the Petrolia oil fields prior to the discovery of the oil itself in quantity. But in the case of the albertite of the Albert mines in New Brunswick, this thickening of the natural oils must have recurred through some cause other than exposure, since this mineral filled a fissure in bituminous slates to a depth of 1,500 feet, with a length of over half a mile.

In the matter of hard coal or anthracite, the people of Eastern Canada are to a large extent dependent upon the immense deposits which occur in the eastern portion of the United States; but in all other varieties it will be found that Canada has an unlimited supply, much of which is readily accessible. Anthracite, also, of excellent quality and of great extent, is found along the eastern slopes of the Rocky Mountains.

The existence of coal fields in Southwestern Newfoundland has been known for many years. These may possibly represent the extension eastward of the Sydney coal basin. The actual extent and value of these coal basins have never been definitely ascertained.

In Nova Scotia the coals are for the most part confined to the Carboniferous formation and the largest workable seams belong to the middle portion, or what is usually styled the productive coal measures. This formation is found at Sydney, on the eastern coast of Cape Breton, and in Richmond and Inverness, on the west side of the island; at Pictou, in the eastern part of Nova Scotia proper; and at Springhill and the Joggins in the northwest of the Province.

Seams of considerable size are found in the underlying portion of the Carboniferous, otherwise known as the millstone-grit formation, and occasionally the mineral occurs in the upper Carboniferous or Permian, where coals of no great thickness have been recognized in that part of the Counties of Colchester and Pictou.

All the coals at present worked in the Province are of the bituminous variety. Associated with the Pictou coals are occasional seams of rich bituminous oil shale, known as stellarite, from which oil can be distilled.

In the southern half of Nova Scotia, which is occupied by great areas of granite, slates, quartzite, etc., no trace of coal is found.

The Sydney coal field extends along the eastern shore from Mira Bay on the southeast to Cape Dauphin at the entrance of Bras D'Or Lake. Mr. Hugh Fletcher estimates the area of the basin as about 200 square miles. The aggregate thickness of coal in the several workable seams varies from 13 1-2 feet in the Dauphin area to 44 1-2 feet in Sydney Harbor, the seams ranging from 3 to 9 feet in thickness. The dip is generally at a low angle seaward.

On the west side of the island of Cape Breton, in Inverness and Richmond Counties, large and important coal basins are located, the seams being thick and of good quality.

On the mainland the thick seams of the Pictou basin have been producers of coal for more than eighty years. In this area are comprised some of the largest seams