

Of this quantity of oil, approximately 50,000,000 gallons were used on the railroads; 30,000,000 gallons for steamships, and the remainder, 210,000,000 gallons, was used for lighting and heating, in the form of kerosene and, to a large extent, in the form of gasolene, for power purposes.

This is a general statement of the extent of our dependency on the United States for these essential commodities.

An analysis of our fuel resources, their location and extent, will reveal the reason for the necessity of these excessive imports.

The Fuel Resources of Canada

The fuel resources of Canada exist in the vast coal fields of the extreme eastern and western portions of Canada; the lignite fields of the western provinces; the natural gas fields of Western Canada, and the province of Ontario; the petroleum fields of Ontario; the oil shales of New Brunswick, Nova Scotia, and elsewhere; the standing forests, and, last, but not by any means the least important, the great areas of peat bogs. This is a truly formidable array of resources. Now, let us enquire into their extent, quality, and location, since these are the most important factors concerning their exploitation.

The following is an estimate of the actual coal reserves of Canada, based on actual thickness and known extent. The location and approximate classification of the coals are also designated:—

Nova Scotia	2,137	million tons of bituminous coal.
	50	" " cannel coal.
Saskatchewan ..	2,412	" " lignite.
Alberta	382,500	" " lignite or sub-bituminous.
	1,197	" " low carbon bituminous coal
	•	" " "
	2,026	" " anthracite and bituminous.
	669	" " semi-anthracite.
British Columbia	23,653	" " semi-anthracite & bituminous.
	118	" " low carbon bituminous coal.
	60	" " lignite.

In addition to these admittedly great reserves, we have in this country 37,000 square miles covered with peat bogs. The total estimated tonnage of fuel represented in this area is 28,000 million tons of 25 per cent. moisture peat fuel, equivalent, on the basis of actual heating value, to about 16,000 million tons of good coal. Of this total area, however, only a portion is favorably situated with respect to economic development. Twelve thousand square miles of peat bogs are distributed throughout the central provinces: Manitoba, Ontario, Quebec, and New Brunswick, and the estimated tonnage of peat in this area is 16,000 million tons, equivalent, on the basis of actual heating value, to 9,000 million tons of coal.

No estimate can be made of the forests of Canada which are available for firewood, and natural gas has a special value only in those districts which can be economically served with this fuel. Natural gas is of great value when it can be obtained in large quantities in well populated and industrial communities, but it possesses the disadvantage of being an uncertain source of heat.

Of petroleum, all that I shall say, at the present time, is that Canada is manifestly not a petroleum-producing country.

The principal fuel resources, then, which we have to consider are the bituminous and anthracite coals, the lignites, and peat. Oil shales and other sources of oils will be considered later.

The statement of the distribution of our fuel resources discloses the fact, that the true coals are situated in the extreme east and west, and the western part of Alberta; the lignite coals are situated in the provinces of Alberta and Saskatchewan, but lying between the limits of these deposits is a great stretch of territory devoid of coal measure of economic value. The 12,000 square miles of peat bogs are situated in this area.

The country naturally lends itself to a division into four parts or districts, and each district has an abundance of fuel peculiar to its own area. The first district embraces that portion of Western Canada which can be economically supplied with bituminous and anthracite coals; the second district, that area which can be supplied with lignite; the fourth area, that portion of Canada which can enjoy the full advantages of Nova Scotia coal. The third district cannot be economically supplied with any of the above coals. This area must either render itself independent of foreign fuel sources by developing and utilizing its excellent peat bogs, or remain, to a large extent, dependent on the United States. A large portion of the province of Ontario is principally affected in this manner.

To supply certain of these areas with fuel of the desired quantity and of a quality suitable for various purposes, constitutes a problem which must be satisfactorily solved before we can improve our fuel situation.

The bituminous coals of Canada are similar to those of the United States, and include large quantities of excellent coking coal. Their utilization for general industrial purposes presents no difficulties whatever, but for domestic purposes bituminous coal, in its raw state, is far inferior to anthracite, which is the fuel almost entirely used for these purposes in Canada. A most excellent fuel, practically the equal of anthracite, can, however, be produced from bituminous coal by a special process consisting of carbonization at low temperature and briquetting. This process is in actual operation to-day turning out briquettes of this description, entirely satisfactory for domestic purposes.

With lignite and peat, however, the situation is totally different. In their raw state, peat and a large portion of the lignite are not suitable for use. These fuels must be submitted to some preliminary treatment before they can be utilized for general fuel purposes.

When the peat deposits of the central provinces, and the lignites of Saskatchewan and Alberta are rendered into forms convenient and suitable for domestic and industrial purposes, the fuel situation, so far as Canada is concerned, will have been greatly improved.

Before treating these two fuels in detail, it is necessary to draw your attention to the fact that the transcontinental railways traversing the western provinces are prohibited by an order of the Railway Commission from burning lignite in the locomotives during the summer months. These railways, on their west-bound trips, are consequently compelled to burn imported coal to that point in the western coal fields where they can again replenish their tenders with native bituminous coal. The same thing takes place on that portion of the eastbound trip traversing the province of Ontario.

Apart from this order issued by the Railway Commission, the railways would much prefer to haul and burn imported coal, inasmuch as lignites—at least certain of them—are not suitable for locomotive use.