

Fuel Supply of Prairies

Briquetting of Lignite Required to Permit of its Economical Use

One of the most important problems in Canada at the present time is the provision of an adequate supply of cheap fuel for the population of our Prairie Provinces. Very large areas of these provinces are underlain by beds of sub-bituminous coal and lignite, which are estimated to contain 100,000,000,000 tons of these fuels. As yet, however, practically all the fuel used in that portion of the plains east of Brandon is imported from the United States, while that used in the country west of Brandon is brought chiefly from the coal-fields of the Rocky mountains. This entails a long and expensive haul, which results in a high-priced fuel, and any temporary interruption of the supply gives rise to a coal famine.

The reason why the mineral fuels of the plains have not been utilized is that they are expensive to mine, owing to the absence of supplies of mine timber on the treeless prairies; they are also of a lower grade than the coal from the Rocky mountains, containing a large percentage of moisture. They thus have a lower heating value than the fuels from the mountains, and furthermore when they are exposed to the atmosphere after being mined, they dry out to a certain extent, and in so doing crumble to pieces or even fall to powder, so that they cannot be readily handled and will not bear transportation. Such being the case, if these fuels are to be made available for household use, they must be briquetted, or if they are to be used for manufacturing purposes, they must be either briquetted or used in gas producers.

A series of trials of Canadian fuels, recently carried out by Dr. J. B. Porter and Prof. Durlay of McGill University for the Mines Branch of the Department of Mines at Ottawa, show that these fuels of the plains are excellently adapted for use in the gas producer and are thus well suited for the production of power. The question as to whether they can be briquetted, when necessary, at a sufficiently low cost to make the enterprise commercially profitable, has not yet been established. Fuels of this general type are briquetted in Germany on an enormous scale, and the United States Bureau of Mines is now investigating the possibility of briquetting the lignites of North Dakota. Any lignite can, of course, be briquetted if a suitable binding material is employed. This, however, entails additional expense, but many of the German lignites and some of those occurring in North Dakota can be briquetted without the addition of any binding material. It is thus very im-

portant that an investigation should at once be made into the question as to whether there are not, among the great deposits of fuel underlying the Canadian plains and outcropping on their surface, some at least which can be worked for the production of a cheap briquetted fuel which will stand transportation, and thus supply a need ever more insistent as the population of the Prairie Provinces increases.—Dr. Frank D. Adams, at 1915 Annual Meeting of Commission of Conservation.

Forest Fires Along Railways

Settlers' Clearing Fires Responsible for Numerous Losses

The latest report of the Fire Inspection Department of the Railway Commission shows that during

ways, on the whole, handled their fires efficiently, showing great improvement over the situation which existed before the Railway Commission issued its revised fire regulations in 1912. In many sections of the country, the railways are undoubtedly handling their portion of the forest fire protection problem in a more efficient way than are the respective governmental agencies. The latter are more or less hampered by lack of funds and by the patronage system of appointments. The private owners only too frequently afford little or no protection to their forest lands. In particular, the problem of regulating settlers' clearing fires is still in an unsatisfactory condition throughout a considerable portion of Canada, due either to the lack of proper legislation or to the difficulty in securing satisfactory observance of such laws as have been enacted.—C.L.

At the request of boards of trade, municipal councils and other public bodies interested in the subject, the Commission of Conservation has decided to undertake an investigation into the fire waste in Canada, with a view to suggesting means to overcome the heavy annual fire losses. The inquiry will be conducted under the direction of Mr. J. Grove Smith, B.A., B.Sc., head of the statistical department of the Canadian Fire Underwriters Association. An exhaustive study of both cause and effect of Canada's fire loss will be carried out, and a report embodying the result will be published by the Commission as soon as this work can be completed.

In 1914 a total of 1,346 fires were reported as having started in forest sections, within 300 feet of the railway track, on lines under the Board's jurisdiction throughout Canada. These do not include Government railways or lines under provincial charter, comprising about 15 per cent of the railway mileage of the Dominion, for which no fire statistics are available.

The report states that the 1,346 fires burned over a total area of 191,770 acres, of which 49,326 acres, or 25.72 per cent, was young forest growth and 107,496 acres, or 65.05 per cent, merchantable timber. The balance of the area burned over was grass or cultivated land and slashing, or old burn not restocking. The total value of property destroyed by the fires was \$433,442 of which \$202,987 was for merchantable timber and \$59,024 the estimated value of young forest growth destroyed. Of the above 1,346 fires, 904, or 67.16 per cent, were reported as having been caused by railway agencies; 137 fires as due to tramps, camp fires, etc., 62 fires as due to settlers clearing land, and 16 to other known causes. There were 27 fires reported as of unknown origin.

While the fire season of 1914 was one of the worst in years, the rail-

There is already a law in the province of Quebec which requires settlers to secure a permit from a forest officer before setting fire to their clearings, during the spring and autumn periods. British Columbia has a similar provision, applicable to the period between May 1 and October 1 of each year. The regulations for Dominion forest reserves, located in the three prairie provinces and the railway belt of British Columbia, similarly require a permit for settlers' clearing fires between April 15 and October 31 of each year.

Past experience has shown conclusively that the permit system, wherever adequately enforced, reduces to a minimum the damage from the spread of settlers' fires, which have cost the country millions of dollars in the past, in addition to considerable loss of life. Ontario is the only great forest province in which no action along this line has been taken. The Ontario Act does not forbid the setting of clearing fires at any time. It merely prescribes that, where such fires are started, the settler shall exercise and observe every reasonable care and precaution in the setting out or starting of such fires and in the managing of and caring for them after they have been started, in order to prevent them from spreading. Experience all over Canada, and particularly in Ontario, proves that such provisions are not adequate, and that legislation is necessary to prevent altogether, or at least to regulate, the setting of clearing fires during periods of the year when there is a possibility of such fires spreading and doing damage. It is in the interests of the Province of Ontario to follow the progressive lead of the other provinces in this matter, which is of the greatest importance from the point of view of forest conservation.—C.L.

Fire Permits Required

Results have Shown this Method Necessary to Control Settlers' Fires

During the early summer of 1915, serious fires, causing loss of property amounting to several hundred thousand dollars, occurred in the vicinity of the International railway of New Brunswick, now a part of the Government railways system. These fires were due to the slash-burning operations of settlers during a period of drought. Following investigations by the chief fire and game guardian of the province, the Minister of Lands and Mines, on July 10, promulgated a regulation covering the situation in the region particularly affected by settlers' fires. This regulation provides that before any brush piles or slash, resulting from clearing lands, can be burned in the Hazen and Grimmer settlements, in the county of Restigouche, or on lands adjacent thereto, a permit in writing must first be obtained from the caretaker of said settlements, and due notice must be served on the adjacent land owner or occupier in accordance with sub-section 2 of section 3 of Chapter 94, C.S. 1908, under a penalty of not less than \$20 and not more than \$200.

The chairman of the Cape Town Chamber of Commerce, in an address to that body, said that 80 per cent of South Africa's exports consisted of gold, diamonds, and articles of luxury; that only five per cent of the land of the country was fit for cultivation; that the mines were a wasting asset; and that it behooves South Africa to turn its attention to agricultural and pastoral pursuits.

It is notable that many of the foremost advancements in hydraulic engineering have found their application and also their inspiration in Canada. Several very large power plants have been constructed and the many hydraulic plants approaching two million horse-power in aggregate capacity, have permanently established markets, while over eight times this amount is within reasonable zones of commercially economic development. The large cities of Canada are fortunate in being liberally endowed with adjacent water-power sources.