

briquetting of the lignites, and the Department of Mines, which did most of the experimental work, some of it years ago, will have been of great help in providing local fuel for the Prairie Provinces.

An objectionable feature of the publicity in connection with this experiment has been the failure to give proper consideration to the coals of western Alberta. Judging by newspaper comments, the continual comparing of lignite of Saskatchewan with coals from the Eastern United States has led the public to believe that there is not in Western Canada any satisfactory substitute for the American coals now imported. It cannot be too often emphasized that the main reason that so little of the high grade coal of Alberta has been sold in Manitoba is that the railways charge a much higher freight rate on Canadian coal coming east than on American coal going west. The preference given to American coal by the railways is a natural result of the heavy movement of grain to the east, and it may be that the rate is a reasonable one. The matter of freight rates needs investigation. Any proposal to substitute Canadian coal for American coal in Manitoba should include careful consideration of the fact that there is plenty of good coal in Alberta. We are not satisfied that Alberta coal is being properly utilized in the Prairie Provinces.

The lignites of Saskatchewan may be utilized to better advantage than at present by carbonizing and briquetting them, as will be done at Estevan; but it will be regrettable if the Government considers that this experimental work on briquetting lignites relieves it from the necessity of inquiring into the reasons why our better grade fuels are not utilized.

The Advisory Council has also interested itself in certain investigations into the use of tar fog and some time ago engaged the services of a gentleman who has been making special researches. Important results are said to have been obtained. This may prove to be an important contribution to our coal distillation and metallurgical industries.

Investigations which may prove of value to industries other than mining include: utilization of heat and light from waste straw; fog signalling; sulphite liquor waste; rust-resisting wheat, etc.

Of interest to all industries are the activities of the Council towards providing better facilities for, and greater interest in, industrial and scientific research. The chairman, Dr. A. B. Macallum, says:

"This question is one of paramount importance to Canada in view of the intensified application of science to industry which elsewhere will be fostered after the war by the State and also through private enterprise. It has been ascertained that not two per cent. of Canadian industrial concerns have research laboratories, and only about ten per cent. have routing laboratories, chiefly for the elementary testing of materials.

"The provision for research, either in pure science or in science applied to industry, has been and is utterly inadequate to our needs, and unless vigorous action be taken, and soon, to re-organize our industries on scien-

tific lines wherever possible, Canada will face a very serious industrial crisis in the years following the war. The annual budget of the Massachusetts Institute of Technology exceeds the total of the annual expenditure of all the Faculties of Applied Science in Canada."

In connection with the proposal to establish a Central Research Institute, Dr. Macallum says:

"The work of the proposed institute would powerfully aid the development of scientific industrial research in Canada by stimulating the Canadian universities to increase their resources and facilities for research and thereby to direct into the ranks of science the ablest of their young graduates desirous of qualifying for a career, whether in pure science or in science applied to Canadian industry. It would place at the service of Canadian industry a factor which would insure its success in the strenuous international trade competition which is near at hand. It would, above all, enable the nation to direct its energy towards the economic and right utilization of its untouched stores of national wealth, in order that it may bear, with some degree of ease, in this and the next generation, the almost Atlantean financial burden it is assuming as a result of its playing its part in the present world struggle."

This statement of the work of the proposed institute should attract the attention of men in all our industries. Such an institute would undoubtedly be of great value to the mining and metallurgical industries of this country, and those engaged in these industries will do well to interest themselves in the proposals of the Advisory Council. We have not yet seen a copy of the complete report; but we understand that it is proposed to have, in connection with the Institute, laboratories at the disposal of associations which may be founded by the various industries, so that there may be co-operation in investigating problems that individual companies do not feel justified in tackling. Such laboratories would undoubtedly be an assistance in solving some of our problems.

From the report of the Advisory Council, we judge that it is recognized that we need researchers even more than we need laboratories and institutes. This is undoubtedly true. May we, however, be allowed to suggest that our industries are not yet using to advantage the research material that is available. There have been more embryo researchers turned out by Canadian institutions than have been absorbed by Canadian industries. The reason is obvious; the opportunities of making a decent living by scientific work in Canada have been too few. Our Government and our industries have now in their employ more highly qualified scientific men than they deserve to have. Inadequate salaries for scientific work are the rule in this country, and the consequence is that many, though, fortunately, not so many as might be expected, scientifically trained men go into other work or to other countries. In granting inadequate salaries to scientifically trained men, our Governments lead the way. Is it to be wondered at that researchers are scarce in this country, when we