

RESEARCH COUNCIL'S FIRST ANNUAL REPORT

THE first annual report of Dr. A. B. Macallum, administrative chairman of the Honorary Advisory Council for Scientific and Industrial Research, has been published in a forty-page pamphlet. What the Council has already accomplished, and the problems it is now at work upon, are summarized. Apart from the work of the Council in connection with the development of the lignite deposits in Western Canada, to which publicity has already been given, the special problems investigated with good practical results may be briefly enumerated as follows:—

A special study was made of the commercial use of tar fog, as applied to plants in Canada engaged in the distillation of coal, wood, the liquid products resulting from the manufacture of producer gas, etc. A new process has been found which will be utilized by several distillation plants in Canada in the near future.

An investigation was made into the commercial feasibility of utilizing for heat and light on the farms of the Prairie Provinces the enormous quantities of straw, estimated at twenty million tons, now annually burned. It is expected as the result of experiments now being conducted that retorts and distilling apparatus of very simple design and automatic in operation can be supplied to the farmers at a cost of about five hundred dollars each, with the full equipment necessary for heating and lighting their buildings from waste straw.

Results of Experiments

The results of fog signalling experiments undertaken at the instance of the Council forecast a new type of signal for use in the St. Lawrence River and the Gulf, thus making an important contribution to the safety of St. Lawrence Navigation.

Studies and experiments on the composition of sulphite liquor waste in Canadian pulp mills, enormous in quantity and destructive of fish life in streams, have given results which point the way to the commercial utilization of at least the sugar it contains to furnish alcohol for industrial purposes.

Experiments are also being conducted in regard to the production of a rust-resisting wheat, the necessity for which is seen from the fact that annually more than twenty million dollars is lost through rusted grain in the Prairie Provinces.

These are but some of the problems which the Council has been working on for the past year. The brief mention of all the subjects on which it has been asked to make special inquiry covers two full pages of the report and includes some seventy problems of applied science.

Briquetting of Lignite

In regard to the utilization of the undeveloped lignite products in the Prairie Provinces, an illuminative chapter is given in the report. Largely as a result of the work of the Council, the first briquetting plant is now being erected near Estevan under a joint arrangement of the Federal Government and the Provincial Governments of Manitoba and Saskatchewan. Owing to the delay in adopting the recommendations of the Council as made last year, the plant will not be producing until next year, but there is every reason to believe, the report says, that "it will blaze the path to the utilization not only of the fifty-seven billions of tons of lignites of Saskatchewan, but also of the vastly greater quantity of the better grades of this fuel in Alberta."

The report further notes in this connection that the success of the initial plant "will induce private capital" to go into this enterprise, and eventually several plants may be erected which will supply the half a million tons that will be required to replace the anthracite hitherto imported into Manitoba and Saskatchewan from Pennsylvania, thus retaining in the country about five million dollars now annually spent abroad for the supply of this fuel.

Steps have been taken by the Council to determine the equipment and man-power for research in Canada, now sadly deficient as compared with other countries, and to create permanent organizations for research by industrial groups, by the aid of which Canadian industries may be assisted to develop, by the application to that end of the most advanced scientific processes, and thereby enabled not only to meet the needs of the home market, but also to compete with their rivals abroad. In this connection Dr. Macallum says:—

Of Paramount Importance

"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 reorganize our industries on scientific 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."

Research Institute Recommended

Dr. Macallum recommends the establishment at Ottawa or some other centre of a Research Institute, having the function of the Bureau of Standards at Washington, or of the National Physical Laboratory of Great Britain. Attached to the institute, it is suggested, should be laboratories that may be at the disposal of guilds or associations for research which may be founded by the various Canadian industries, each in its own line or the companies which are unable individually of undertaking experimental investigation with the object of improving their manufacturing processes.

The report goes at some length into the detail of establishing such an institute and the formation of trade guilds for research into common problems. It may be noted in this connection that splendid results have already been achieved in England since the war began through government-assisted industrial research. The British Parliament has voted one million pounds sterling for a five-year budget for this purpose. In Canada, the Parliamentary appropriation to assist the work of the Council for Scientific and Industrial Research is comparatively absurdly small.

In Dr. Macallum's summing up of the argument for the creation of a Central Research Institute, he 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