

with routine examination or analysis, but, in many cases, research was undertaken. The research activities of the Government departments have, however, been inadequate to meet the needs of the situation. Less than five years ago, it was estimated that the amount expended annually by Government laboratories for investigations of all kinds was less than \$325,000, of which less than \$100,000 was actually expended for research in Government laboratories.

Twenty years ago the value of research was not appreciated by Canadian industries. A number of firms had routine testing or assay laboratories, but until 1905 there were none which employed research for the improvement of their manufacturing processes or of their products. The example of foreign firms has to some extent altered public opinion in Canada on this question, but the number of Canadian firms which apply research to their industrial problems is still very small. In 1917 the Research Council of Canada issued a questionnaire to the industries. Replies received from 2,400 of the leading firms in Canada showed that of this number only 37, with as many directors and 124 assistants, had laboratories for research. Eighty-three firms employed as many investigators and 276 assistants, but the great majority of these were engaged only in routine examinations. Apart from salaries, the total amount expended in 1916 for research by all firms listed, did not exceed \$135,000.

The Research Council of Canada.

The great war brought home to the British Empire the national importance of scientific research. When trade relations were broken by the outbreak of war, there followed almost immediately a scarcity of many essential materials, and, owing to the lack of scientific knowledge regarding satisfactory substitutes and the processes involved in key industries, confusion and paralysis ensued, and the extent to which the Empire had become dependent upon foreign monopolies was at once apparent. Steps were immediately taken to meet this situation. A committee of the Imperial Privy Council was appointed and, under it, an Advisory Council for Scientific and Industrial Research was established early in 1915 by the British Government to deal with the development of scientific and industrial research and its application to the problems of war and of peace. The British Dominions were invited to establish similar organizations, in order to bring about co-operation of effort and co-ordination of research throughout the Empire. Acting upon this suggestion, the Government of Canada appointed, in 1916, a Sub-Committee of the Privy Council to devise and carry out measures to promote scientific and industrial research, in order that Canadian industries might be in a position to supply Canadian needs and to extend Canadian trade abroad.

Under this Sub-Committee of the Privy Council, there was constituted, late in 1916, the Honorary Advisory Council for Scientific and Industrial Research, composed of eleven men distinguished in the scientific and industrial world. To this Advisory Council, more commonly known as the Research Council of Canada, were assigned the following duties:

- (a) To ascertain and tabulate the various research agencies in Canada.
- (b) To note and schedule the researches and investigations.
- (c) To co-ordinate all research agencies, so as to prevent overlapping.
- (d) To tabulate the technical and scientific problems that confront Canadian industries.
- (e) To study the unused natural resources of Canada and the by-products of all basic industries.
- (f) To increase the number of trained research men.
- (g) To stimulate the public mind in regard to the importance and utility of scientific research.