

**University Research.**—In eight of the ten Canadian provinces there is at least one major university with graduate-school facilities for training in research. In Ontario there are four; in Quebec, three. In addition, a large number of universities and colleges provide first-class undergraduate training, or training in special fields. Thus, Canadian universities provide adequate training up to the doctorate level in practically all fields of science.

In the main, research in Canadian universities has followed the traditional pattern found in the graduate schools of the British Commonwealth. It has been largely fundamental but, in certain schools, a great deal of research has been done on basic local problems. The universities co-operate with Federal Government departments, provincial government departments, and the National Research Council in researches on most of the natural resources. One such co-operative project has been established at the University of Toronto in the form of a computation centre. This is operated by the University and financially supported by the Defence Research Board and the National Research Council, with the object of developing computation equipment and of training competent operators in this new and complex field of work.

**Industrial Research.**—In the past, many small industries and some large ones in Canada have been unaware of the value of research to their industries and to the country, partly because many Canadian companies are subsidiaries of companies in the United Kingdom and the United States, and partly because small companies find it impossible to finance their own research. This general problem is well recognized in Canada, but cognizance should be taken of Canada's vast areas, absence of concentration of similar industries, and proximity to the relatively vast research facilities of the United States.

What Canada has done about industrial research, in the face of these rather formidable difficulties, has been partly covered above: in one way or another Canadian universities, provincial institutions and federal organizations have aided Canadian industry.

This picture is changing very quickly. To-day, Canadian industries are rapidly becoming aware of the value of research and many industries now possess research facilities—some of them quite extensive. A survey made by the Canadian Manufacturers' Association a few years ago showed that over 360 of their member companies maintained laboratories in which more than 3,100 persons were employed in research, testing or control. Examples of Canadian industries with powerful research organizations are: Aluminum Laboratories Limited at Kingston, Ont.; Consolidated Mining and Smelting Company at Trail, B.C.; and Ayerst, McKenna and Harrison Limited at Montreal, Que.

Aluminum Laboratories Limited undertakes both fundamental and applied research; its divisions include an industrial group to bridge the gap between scientific development and commercial application, plus mechanical testing, metallography, electro-metallurgy, physics, chemical-metallurgy, analysis and documents. Experimental alloys are constantly being produced and tested for such properties as hardness and resistance to corrosion.

The Consolidated Mining and Smelting Company maintains a large Research and Development Division. It has special laboratories equipped for study in ore-dressing, electrolysis, gas reactions, metallographic and petrographic work, X-ray