

students who work to higher degrees. With few exceptions departments designed for undergraduate instruction are active in research; a majority provide graduate instruction as well, in which the students are maintained on research fellowships or grants.

Notable contributions to medical knowledge are made every year by Canadian scientists, but space permits the mention of only a few fields: studies on epilepsy at the Montreal Neurological Institute; functions and interrelations of areas in the brain and brain stem and studies in neurophysiology and neurochemistry at McGill University, the University of Ottawa and the University of Western Ontario; endocrine and metabolic studies at McGill University and the Universities of Montreal, Toronto, Western Ontario and Manitoba; anticoagulants at the University of Saskatchewan; atherosclerosis and hypertension at McGill and Queen's Universities and the Universities of Western Ontario and British Columbia; hypothermia at the University of Toronto; surgery of heart and blood-vessels at McGill University and the Universities of Toronto and Montreal, and the Montreal Institute of Cardiology; tuberculosis at Dalhousie University, the Institute of Microbiology, Montreal, and the Connaught Medical Research Laboratories, Toronto; mental health studies at the Department of Health, Nova Scotia, the Allan Memorial Institute at McGill University, the University of Toronto, Regina General Hospital and the University of British Columbia; virology, including poliomyelitis, at the Institute of Microbiology, Montreal, the Sick Children's Hospital, Toronto, and the Connaught Medical Research Laboratories; bacteriology, immunity and hypersensitivity at McGill University, the University of Montreal, Queen's University, the University of Western Ontario and the University of Toronto; cancer in all the medical schools.

At present there are more than 4,300 students enrolled in postgraduate courses in Canadian universities, not counting those in theology. Most of these receive some training in research, more than half of them in one or other of the fields of science.

Some idea of the relative importance of pure and applied science can be obtained from a study of problems undertaken by graduate students. In 1952, 64 p.c. of candidates selected problems in pure and applied science in the ratio of two to one, respectively; the remaining 36 p.c. were about evenly divided between the humanities and social sciences. Emphasis has always been largely on fundamental research reflecting a desire to know more about natural phenomena but with the realization that practical applications may follow. A wide variety of work is at present being undertaken in pure research in fields as divergent as pure mathematics, nuclear physics, electrical communication, isotopes, the cobalt bomb, and the functioning of glands and the brain, to mention but a few.

At the same time practical applications of research are being undertaken in most of these fields and many others. Practical research in the universities is not only influenced by the industrial life of the people around it but by problems associated with world and local conditions such as world wars, economic depressions and increased exploration of natural resources. It includes problems of general interest in such fields as medical research, community planning, industrial mining, meteorology, industrial research and others too numerous to mention; and local problems related to such industries as fishing on the coasts, mining in central Canada and agriculture in the Prairie Provinces. At present the greatest emphasis is found on primary agriculture, industry, mines, lands and forests and atomic energy.

Most of the research now being undertaken by the universities has been made possible through grants, scholarships and fellowships from the federal and provincial governments, foundations, industrial organizations and individuals. Some of these are available to university staff members, to complete specific projects; others are scholarships available to students who, by the terms of certain of the scholarships, must select a problem in a specified field such as pipeline problems, cellular chemistry, public health engineering or forest entomology.

A few units of the larger universities (medical laboratories for example) have paid their way through selling the products of their research. There is some indication that these will expand, as will concerted research undertaken by the university with other research organizations, business and industry, in such undertakings as continuing study of the atom, and installing and using electronic computers.