



# THE ROYAL BANK OF CANADA MONTHLY LETTER

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## *Careers in Health Service*

IF THIS MONTHLY *Letter* had been written in 1865 rather than in 1965 a much smaller audience, just about fifty per cent, would have been around to read it.

About one in every five of those missing would have died in babyhood from colic, whooping cough, typhoid fever, or one of the host of other diseases common to infants in those days. About one out of ten would have died before adolescence, a victim of diphtheria, scarlet fever, smallpox, measles, nutritional deficiencies, or a number of infections. About one of every twelve who survived to maturity would have died before the age of thirty, from tetanus, diabetes, appendicitis, or some other disease for which there was no effective treatment at the time. About one of every six would have died before the age of fifty from pneumonia, tuberculosis, typhoid fever or some other disease.

Medicine and pharmacology have brought about the change. These professions existed since the dim past, but systematic research within them did not begin until about the mid-nineteenth century. Within these hundred years a revolution in health preservation and restoration has taken place.

However, it was pointed out by Harry J. Loynd, President of Parke, Davis and Co., in a Newcomen Society meeting a few years ago, "As we eliminate one serious disease as a major mortality factor, we prolong the life of the average person so that he is a statistical probability for some other disease or physical deterioration which was not a major problem in the past."

Canadians are becoming more and more aware of the possibilities of increasing their happiness by maintaining good health throughout their lives. This is evidenced in a material way by the amounts they expend on personal health care. In 1961, says *Canada Year Book*, the amount was \$1,652 million, equal to two and a quarter times the amount so spent in 1953.

### *Canada's needs*

Hippocrates, the Father of Medicine, who lived 2,400 years ago, put into words the culture of his time when he said that medicine's ultimate goal is the best possible health.

The best health service can be obtained only when there is a sufficient number of trained workers.

One of the tasks given the Royal Commission on Health Services upon its appointment in 1961 was to ascertain how Canada stands with regard to the personnel required during the next few decades. Its report, published in 1964 (available from the Queen's Printer, Ottawa) stresses the urgent need for recruitment and education. The Canadian Medical Association emphasized this in its brief to the Commission: "We would assign first priority to all measures designed to provide sufficient personnel of all categories with the best possible training."

It may be said that the current medical manpower situation is adequate under present conditions but that shortages will occur unless the output of medical schools is increased at once. The growth of population and the enhanced demand for health services necessitate an increase in the number of doctors relative to population, an increase in medical research, an increase in the number of qualified teachers, an increase in the financial assistance given to Canada's twelve medical schools, and an increase in the number of schools.

The existing schools are currently producing 850 physicians per year. The number of practitioners has been augmented by physicians from abroad, particularly from the United Kingdom, but, says the Royal Commission, "How long this country can expect other nations to pay for the education of physicians which we require is a matter which must concern us."

In 1961 Canada had just over 21,000 physicians, or one to every 857 of the population. To provide the health service Canadians will need in the future, there must be a net increase in the supply of physicians of at least 19,350 before 1991. The Canadian Medical Association has set as its goal for 1975 the training of 1,500 per year.

This presents a problem of national concern. Education in medicine cannot be given with excessive haste. It takes a minimum of seven years for the educational preparation of a physician. Unless expansion

of facilities and students takes place at once, Canada's proportion of physicians to population will deteriorate after 1971.

### *Choosing a career*

There are many reasons prompting students to consider medicine as a career. Possibly the greatest is an inherent desire to know more about science and its application to health, associated with a genuine interest in serving others.

The doctor has chosen a life of dedication to the prevention and treatment of illness and the rehabilitation of patients, a career of great personal satisfaction. He makes his contribution to medical science, and plays an important part in elevating health standards within his community. He contributes his intelligence and skills in public health and industrial medicine, and promotes health education.

This extraordinarily wide choice of activity gives an outlet for every ability and interest, ranging through general practice, a specialty, research, medical teaching, government medical service at home or abroad, and administration.

The remuneration may appeal to some. The average annual income of doctors is somewhat above the Canadian professional average. It stood at \$16,323 in 1960, compared with engineers and architects \$15,670; lawyers and notaries \$14,597; dentists \$12,238, and accountants \$11,446.

No youth should enter upon the study of medicine with the thought of graduating to a life of ease. In its booklet called *Doctors of Tomorrow* the Canadian Medical Association warns, in the words of Sir William Osler, one of the great Canadian physicians of the century: "The master word in medicine is work".

### *Education in medicine*

No medical student in Canada may dash through his training in a year or two. The fundamental purpose of medical education is to produce fully qualified physicians. The graduate is not a technician, but a professional man, an artist, a humanitarian. The profession demands academic achievement of the top quality.

Every province has a medical act which sets up a licensing authority to make sure that the high standards are maintained.

Applicants for admission to Canadian faculties of medicine are not scarce. "We are," points out Dr. A. D. Kelly, General Secretary of the C.M.A., "in a phase of rapid expansion of the undergraduate population, and medicine currently gets its share. As a matter of fact there are probably three well qualified applicants for every place which exists in the existing expanded freshman classes."

The fact that more qualified young people are offering themselves for medical education than can be

accommodated in the existing schools is confirmed by statements made by medical leaders in September.

Medical and dental schools are so undermanned that qualified students must go to the United States or Europe; the University of Toronto turned down two of three qualified pre-medical students; Laval University's faculty of medicine had to refuse 275 qualified applicants in the 1964-65 term, and Dean Rosaire Gingras predicts that more than 3,000 will be refused admission in the next decade unless more money and badly-needed teaching structures are made available.

With these facts in mind, the Royal Commission reached the conclusion that the problem facing the Canadian people is not solely the financing of physician services, but the staffing of the full range of essential services — mental, medical, dental, hospital, pharmaceutical, nursing, prosthetic, home care, and optical. It proclaimed the need for expanded educational facilities in all health areas.

The Royal Commission suggested that government funds be provided for expansion to capacity of existing university schools of nursing and the establishment of ten additional schools; expansion and renovation of facilities of existing medical schools to the extent of fifty per cent of the cost, and half the cost of construction of new medical schools at seven additional universities; half the cost of facilities for new university hospitals or for the expansion of existing teaching hospitals to a maximum of ten beds per student; immediate provision of half the cost of constructing or renovating hospital out-patient departments; half the cost of expansion and renovation of five existing dental schools, and half the cost of construction of five new dental schools.

As to the aid to be given students, it is suggested by the Royal Commission that the professional training grant be increased to provide for an annual grant, on application, of \$2,000 to every Canadian medical student with satisfactory performance in his third and fourth medical years.

These recommendations are significant in that they suggest the provision of large amounts of federal funds for the support of education in the health professions, a departure from the traditional concept that education is almost exclusively a provincial responsibility. They reflect both the public interest in health and increasing awareness that the nation's health is of vital concern to Canada.

When he addressed the National Conference of Canadian Universities and Colleges in October, the Prime Minister said: "At the points where research and education touch there is an overlapping involvement of federal and provincial responsibilities, just as there is where responsibility for employment overlaps with responsibility for technical and vocational education. The latter is a case where we have, I think, developed satisfactory forms of federal-provincial co-operation. I hope we can have the same success in the areas of research and advanced studies."

## *Teamwork in health*

While the doctor is the most important part of health service, he is not alone in providing it. The care of the people's health is essentially a team undertaking.

As an example of the co-operative effort required from professional and expert people engaged in diverse activities, consider the many facets of our campaign against typhoid fever. Immunization, provided by physicians, gives protection to individuals; filtration of water, carried out by specially qualified engineers, removes disease-producing pollution; chlorination is the chemist's contribution toward destroying harmful germs, and pasteurization purifies milk.

But though the practitioner may call upon colleagues for advice and help, the ultimate responsibility for the patient is his. The nation cannot do without a large body of well-educated and competent general practitioners. It is upon them that the patients rely.

What the family physician lacks in depth — the special knowledge which makes the specialist necessary for special cases — he more than makes up for in breadth. He deals ably with everything from the common ailments of children to the rheumatism afflicting aged people. He sees the patient as a person living under certain conditions, and not merely as a case in the appointment book. He judges the nature, cause and seriousness of the patient's illness, and either gives him the correct treatment or refers him to the appropriate specialist.

Medical science has become so diversified that medical practice has had to develop specialties, of which the Royal College of Physicians and Surgeons recognizes thirty.

In order to become a specialist it is necessary to spend from three to five years in intensive specialist training and practice before taking the qualifying examinations. This is not to say that the specialist narrows his interest to a small exclusive field. He cannot function effectively in medicine if all he brings to it is his specialty. Dr. Will Mayo, of the famous Mayo Clinic, insisted that specialization should go no further than the addition of a major interest to general practice.

Advances in knowledge and techniques demand wider and deeper knowledge every year. Take as an example the steadily lengthening span of human life and the consequent aging of the population. Fifty years ago Canada had 203,537 persons seventy years of age and over; at the latest census she had 904,052, an increase of 344 per cent. This, of course, poses new medical problems, and more and more physicians are studying it under the name geriatrics.

## *The medical and related specialties*

Within the broad categories of surgeon and physician there are many particular areas of professional endeavour. Psychiatrists specialize in diseases of the mind. Radiologists or radiotherapists are physicians specially trained in the diagnosis and treatment of diseases by

X-ray radiation. The ophthalmologist or oculist is a medical doctor who has taken post-graduate work in eye surgery and diseases.

Osteopathy, which has been practised in Canada since 1899, is a school of medicine which stresses the importance of physical structure and body mechanics in the cause, diagnosis, prevention and treatment of disease. Podiatry is a branch of medical science dealing with the care of the human foot.

Dentistry is one of the most populous specialties, and yet Canada had in 1961 only one dentist to every 3,037 persons compared with one to every 1,900 persons in the United States. Canadians put less than two cents per capita per year into dental research, but at the same time they spend about \$5 per capita on treatment, most of which goes to repair damage already done. The Royal Commission said there should be 14,420 dentists by 1991, and recommended expansion of present schools and the establishment of four new schools, with an increase of 624 teachers.

## *Many auxiliaries*

There are many auxiliary medical services for which well-educated and highly trained men and women are needed. They provide the physician, surgeon, and specialist with assistance that will release his own hands and his own time so that he may devote himself more fully to performing those professional services which specifically require his special skills and knowledge. A few examples will be given.

Dietitians plan daily menus and special diets containing the proper proportions of various food elements. Pharmacists are persons qualified to prepare and dispense medicines. The medical laboratory technologist performs diagnostic tests in a hospital or medical laboratory. The radiological technician prepares patients for X-ray examination or treatment and operates the equipment.

The physical therapist is concerned with the rehabilitation of the sick and injured, using electricity, massage, exercise, and other non-medicinal treatments. Occupational therapy is the administration of medically prescribed activities using creative, manual and industrial arts and techniques to assist in the restoration of disabled persons. Speech therapists and audiologists in Canada number only one to every 280,000 of population, whereas the desirable proportion would be one to 25,000 population. Prosthetists and orthotists deal respectively with the fitting of artificial limbs and the provision of supportive apparatus.

In twenty years the number of nurses registered in Canada increased by 50,000 to a total in 1961 of 78,340, but there is a serious shortage. Before 1971 the supply of qualified nurses must increase by more than 20,000 if present standards are maintained, and an increase of nearly 42,000 would be desirable if improved standards of patient care are provided.

Dental hygienists are graduates of approved courses in dental hygiene and are registered and licensed to

practise under the supervision of a dentist. A great demand exists in Canada, where there are only about seventy. Dental technicians are those who alter, repair or make artificial devices used by dentists.

In the public health field, whose ramifications require a book to describe (*The Federal and Provincial Health Services in Canada*, published by the Canadian Public Health Association, Toronto, in 1959), there are food and drug inspectors, sanitary inspectors, the radiation protection division, and many other professionally and technically trained men and women.

### *Research and education*

Anyone employed in one of these many health services must keep up with the advancing front of medicine, participate in research, and pass along his knowledge to those who will succeed him.

In hospitals, universities, institutes and foundations, men and women are pushing back the curtain of the unknown, uncovering new knowledge and applying things already known to new purposes of healing.

But there is not enough research being done. The C.M.A. told the Royal Commission: "Of all the short-ages that impede the expansion of research activity in Canada, the greatest and the most difficult to solve is the shortage of individuals with the necessary ambition, temperament and education to undertake medical research."

The support and training of devoted enthusiasts is of the greatest importance in medical schools for the new knowledge acquired, for the future supply of teachers and for the quality of medical care.

Medical research is not something remote from everyday life. How else than by the research of interested and capable men and women could it have been learned that antitoxin is effective in treating those who have diphtheria, that toxoid can immunize persons against diphtheria, and that the Schick test tells whether or not a person is susceptible to diphtheria? Forty years ago the deaths were 1,281 out of 9,033 cases of diphtheria: in 1962 there were only nine deaths and the number of cases per 100,000 of population was too small to record.

Research that brings about so great improvement as that — and it has been repeated in many other areas of disease such as smallpox, tuberculosis, diabetes, whooping cough and scarlet fever — should not be allowed to lag. Canada's expenditure on medical research through the Medical Research Council in 1964-65 is \$6.9 million. On the basis of gross national product, compared relatively with the United States, it would be \$90 million, and on the basis of relative population it would be \$126 million.

Even if Canada were to decide that pure research can be left to scientists abroad, it is still necessary to have research-trained groups in every field of medicine at Canadian medical schools so that the knowledge acquired from other countries can be apprehended,

evaluated, and conveyed to Canadian practitioners by way of medical education.

It is observable, says the C.M.A., that where research is neglected the level of medical services is likely to be low. "In a few years," said Edward Dunlop, Executive Director of the Canadian Arthritis and Rheumatism Society, "unless the Canadian government changes its philosophy regarding support for medical research . . . our medical schools would be staffed by second-class teaching and second-class graduates. These graduates would be capable of practising only second-class medicine and the Canadian people would receive only second-class medical care."

### *The challenge of today*

The physician has three important functions: to provide medical care to ailing patients, to teach, and to carry out medical research. "These," says the Canadian Medical Association, "are a trinity: unique, interdependent and indivisible."

It goes without saying that the first obligation of the physician is to his patient, but there is a tradition in medicine that whenever possible physicians should devote part of their time to teaching. In Canada today much of the teaching in medical schools is undertaken by part-time faculty members who are practising in the community.

That research of many sorts is of pre-eminent importance was recognized by a Canadian Medical Association conference. It recommended that the Medical Research Council be broadened to include all fields of health research and renamed the Health Sciences Research Council. This Council would be the Government's principal adviser in the planning and support of health research and the allocation of research funds. Its services would be available to provincial governments, voluntary health associations and universities.

If Canada is to meet her requirements she needs in her universities an average, per year for seven years, of forty new basic science teachers and seventy full-time clinical teachers, as well as replacements for members of the faculties who may emigrate, retire or die. Without an adequate supply of teachers in our medical schools, said the Royal Commission, any proposals for the expansion of medical care services in Canada face serious obstacles.

Canadians today desire the best health it is possible for them to enjoy. In this they are merely following the yearning of mankind since time immemorial, but science has fashioned an environment in which it is possible for them to make their wishes come true.

To attain that goal, health service still has rivers to cross and mountains to climb. We have progressed a long way from the healing art of primitive peoples, but who is to say when the end of progress may be? The challenge of today is for individuals to make the most effective use of what we have and know, and for our institutions to provide the necessities of what may be.