

# Dalhousie University

HALIFAX

Nova Scotia

DALHOUSIE UNIVERSITY  
DEPARTMENT OF PEDIATRIC  
& COMMUNITY DENTISTRY



BRIEF TO ROYAL COMMISSION

ON

HEALTH SERVICES

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# ***BRIEF***

TO THE

**ROYAL COMMISSION  
ON HEALTH SERVICES**

FROM

**DALHOUSIE UNIVERSITY**

HALIFAX, NOVA SCOTIA  
OCTOBER, 1961

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**BRIEF**  
**TO THE ROYAL COMMISSION ON HEALTH SERVICES**  
from  
**DALHOUSIE UNIVERSITY**  
**HALIFAX, NOVA SCOTIA**  
**October, 1961**

Mr. Chairman and Members of the Royal Commission on Health Services:

1. **Introduction** Dalhousie University is pleased to have the opportunity of presenting a brief to the Royal Commission on Health Services. Our staff has a natural interest in the health and welfare of these Atlantic Provinces. The University's activities in numerous fields are closely related to those of the community. However, our main responsibility, so far as it touches upon the interests of your Commission, lies in the field of medical and dental education and research, and the training of health personnel in other related professions and vocations. Dalhousie University has the only Faculties of Medicine and Dentistry, the only School of Nursing which gives training in Public Health Nursing, the only School of Pharmacy in the four Atlantic Provinces and other developments are also under consideration. It is natural that these professional faculties should have associated with them a number of other educational and research activities relating to health. In addition, programmes of education and research in the Departments of Political Science, Sociology, the Institute of Public Affairs, and several other departments touch upon various aspects of the health and welfare of the community.

2. **Founding of Dalhousie** Dalhousie University was founded in 1818 of the idea that a college should be open to all, regardless of class or creed. In an age when denominational preference still dominated higher education in Nova Scotia, this was a novel concept, but one which Lord Dalhousie was confident would produce a great institution in succeeding years. It was intended that Dalhousie University would develop in imitation of the University of Edinburgh as a centre of knowledge relating itself directly to the affairs and needs of the developing community. Although the primary function of the University has been to produce educated young men and women who would be useful servants of society, efforts have

been made to enlarge this public service in several respects, in spite of the financial limitations of a private institution.

### **Establishment of Professional Faculties**

3. The Faculty of Medicine was established in 1868, fifty years after the founding of the University itself. This was the fifth Canadian Medical School, having been preceded by McGill, Queens, Toronto and Laval. It was replaced for a time by the independent Halifax Medical College, but since 1911 has been a Faculty of Dalhousie University.

4. The Faculty of Dentistry originated as the Maritime Dental College, established by the Nova Scotia Dental Association in 1908. Shortly afterwards, arrangements were made between the Association and the University whereby the Maritime Dental College became the Faculty of Dentistry, in time for the first class of graduates to receive their degrees from Dalhousie University in 1912. This arrangement marked the foundation of the first University Faculty of Dentistry in Canada, although not the first dental school.

5. The Maritime College of Pharmacy was founded in 1911, and given quarters in the University. Although it was affiliated with Dalhousie University, the College operated under its independent Board of Governors, of which the President of Dalhousie was Chairman. During the past year, the Governors of the Maritime College of Pharmacy requested incorporation of the College within the University, and accordingly, in 1961, it became the College of Pharmacy of Dalhousie University.

6. The University extended its role as an educational centre for other health personnel when, in 1948, a request was made to the Governments of the four Atlantic Provinces for support in the establishment of training programmes in public health nursing, psychiatry and clinical psychology. With assistance from grants by each of the Governments, the training of public health nurses, psychiatrists and clinical psychologists was begun. The University has also recognized the shortage of training facilities for physiotherapists and occupational therapists in the four Atlantic Provinces, and the Board of Governors has approved a recommendation from the Faculty of Medicine that a School of Physiotherapy and Occupational Therapy be established as soon as space and financial support can be obtained.

7. In 1961 the University established a Faculty of the Health Professions to include the School of Nursing, the Maritime College of Pharmacy, the School of Physiotherapy and Occupational Therapy when established and other training programmes in fields relating to human health, which may later be approved by the Senate and Board of Governors for inclusion in the University programme. A Committee of the Faculty of Medicine is at present investigating the feasibility and desirability of a University training programme for medical laboratory technicians. The Faculty of Dentistry has established this year a School for the training of dental hygienists.

8. Dalhousie University, therefore, feels justified in making the claim that it is the central unit for the education of health personnel in the four Atlantic Provinces, and that it has been making progress in meeting new needs as rapidly as existing facilities and very limited financial support will permit.

9. Recommendations will be made in each section where relevant. Most of the information and recommendations relate to the following sections of the Commission's terms of reference: (d) present and future requirements of health personnel, (e) methods of providing such personnel, with the best possible training and qualifications, (f) present physical facilities (with reference to educational facilities), (j) medical research and (k) priorities.

10. Information will be presented in separate sections on the Faculty of Medicine, the Faculty of Dentistry and the Faculty of Health Professions. These sections will be discussed by my colleagues, Dr. C. B. Stewart, Dean of Medicine, Dr. J. D. MacLean, Dean of Dentistry and Dr. Henry D. Hicks, Vice-President of Dalhousie and Dean pro tem of the Faculty of Health Professions.

11. On behalf of Dalhousie University, may we express sincere thanks to the Royal Commission on Health Services for your consideration of our presentation, and extend best wishes to you for success in your very important task.

## FACULTY OF MEDICINE

12. **Founding of the Faculty** After its founding by the University in 1868, the Faculty of Medicine soon encountered the problem which has not yet been solved almost a hundred years later, financial stringency. Difficulties soon arose in the financing of the small Medical School. An approach was made to the Provincial Government to obtain financial assistance. For some reason it seemed difficult for the Government to provide a grant to Dalhousie University, but they could provide aid to an independent body. In 1874, therefore, the Halifax Medical College was incorporated by an act of the Legislature, received a grant of \$800 per year and functioned as an independent School until 1885. It then became affiliated with Dalhousie University but was in fact a proprietary medical school operated by physicians of Halifax.

13. **Flexner Survey** Like several other medical schools in Canada, the Halifax Medical College received a rude jolt when the Carnegie Foundation for the Advancement of Teaching, published the famous Flexner Report in 1910. As a result, the Halifax Medical College went out of existence and the University re-assumed full responsibility for the Faculty of Medicine in 1911. During the next ten years, a few full-time staff members were appointed in some of the Medical Science Departments, but the clinical teaching was continued by the practitioners of Halifax.

14. **Endowment, Buildings and Accreditation** In a crucial effort to meet the standards for accreditation based on the Flexner Report, Dalhousie University sought and obtained support from the Rockefeller and Carnegie Foundations in 1920. The University received one million dollars for the Medical School, which made possible the erection of the Medical Sciences Building and the Public Health Clinic, and provided a certain amount for equipment and the endowment of the medical science departments in which both medical and dental students receive instruction. These gifts from the Rockefeller and Carnegie Foundations brought the Medical School through its first major crisis. It received accreditation as a Grade A school, a position which it has since retained.

15. **Post War Problems** At the end of the Second World War, a second major crisis occurred. The endowments of the Faculty were greatly reduced in value because of inflation, the

cost of salaries and other expenditures rose rapidly, there was need for replacement of staff members who had reached retirement age, and for an expansion of staff to take care of the large enrolment of veterans. Until 1940, Dalhousie University had functioned as a privately endowed institution dependent solely upon the tuition fees of the students and income from private endowments or gifts. It is not surprising, therefore, that the Faculty had failed to progress as rapidly as it should have during the depression years of the thirties, and the War period up to 1945. It then faced the tremendous task of recruiting staff at a time when almost all universities were in the same difficulty. The Faculty of Dentistry had similar problems. Partly under the stimulus of War, there had also been a tremendous upsurge of knowledge in the medical sciences and in the practice of both medicine and dentistry. The modern university had to provide much more elaborate facilities, not only for teaching, but for research, if it was to obtain suitable staff. It became quite apparent to the University that it must look for substantial government support if the Faculties were to maintain standards sufficient to continue as accredited institutions of professional education.

### Beginning of Provincial Grants

16. The first provincial grant to support the Faculties of Medicine and Dentistry was made by the Government of Nova Scotia in 1939-40. Newfoundland made its first grant in 1943, but it was not until 1947 that the other two Atlantic Provinces provided any assistance. On representation from Dalhousie University in that year, the first grant was obtained from the Province of New Brunswick, amounting to \$20,000, and from the Government of Prince Edward Island, amounting to \$5,000 per annum. The grants from Newfoundland and Nova Scotia were increased to \$10,000 and \$80,000 respectively. The total grants amounted to \$115,000.

17. These grants represented a de facto recognition of the position of the two Faculties as the regional Medical and Dental Schools, but no procedure was developed to ensure joint action by the Provinces in assessing the requirements and apportioning the costs.

18. The results of the numerous approaches to the four Governments in search of financial help will be elaborated upon in a later section dealing with finances, following the section on Dentistry (Paragraphs 201 to 217).

## Educational Programmes of the Faculty

19. The Dalhousie Faculty of Medicine has several functions in addition to the education of undergraduate medical students, and these must all be considered in making future plans. These several functions, in the order of priority approved by the Faculty of Medicine, are:

- (a) The education of undergraduate medical students in the medical sciences and clinical subjects.
- (b) The development of medical research in as many fields as possible, within the areas of interest and competence of Faculty members.
- (c) The education of undergraduate dental students in the medical sciences, in collaboration with the Faculty of Dentistry.
- (d) The education of science graduate students (M.Sc., Ph.D.) in the Medical Science Departments, in collaboration with the Faculty of Graduate Studies.
- (e) A limited number of courses for junior or senior science students in the Medical Science Departments e.g. biochemistry, bacteriology, human physiology, in collaboration with the Faculty of Arts & Science.
- (f) Aid to the affiliated hospitals in the education of post-graduate medical students in the various clinical specialties, leading to certification or fellowship in the Royal College of Physicians and Surgeons of Canada.
- (g) Continuing medical education for general practitioners and clinical specialists in the four Atlantic Provinces.
- (h) Education and training of other professional and technical personnel, e.g. undergraduate nurses, graduate nurses, physiotherapists, medical laboratory technicians, pharmacists, dental hygienists, etc. in collaboration with other Faculties and agencies.

## Recent Developments and Plans

20. The lines along which the Faculty of Medicine should develop have been given much thought during the past five years. A recent report to the University Senate outlined the requirements of the Faculty for the next five-year period, 1961-1965. In the period just completed, 1956-1961, the first problem to receive attention had been the recruitment of well-qualified staff. Only a bare minimum of remodelling was done to the existing physical plant. The emphasis was on "men"

rather than "bricks and mortar". During this period the annual expenditures for operation increased from \$349,524 to \$721,854 and almost all of this amount went towards enlarging the staff and paying better salaries. The increase was made possible through greater financial grants from the four Atlantic Provinces, several grants from Foundations and higher tuition fees. In the same period, research funds from outside agencies grew fourfold to \$320,000 per annum. The cost of remodelling space vacated by the Faculty of Dentistry and the Maritime College of Pharmacy was covered by the Medical Alumni Campaign Fund. Since 1954 the full-time staff of the Medical Science Departments increased from sixteen to thirty-one, but there are still several vacancies. The full-time staff of the Clinical Departments increased from two to twelve, and the part-time staff to 127.

21. **Present Facilities** The Faculty of Medicine has no single home, but operates in a number of University buildings as well as the Provincial Pathology Institute and the affiliated teaching hospitals. Appendix A shows the ground plan of the medical campus and its relation to the hospitals and other institutions. Appendix B contains a brief description of each of the Medical School buildings, its functions and future needs. The size of the affiliated teaching hospitals is also discussed. The salient features are summarized here:

- (a) The facilities available to the Medical Science Departments are grossly inadequate to provide for the increasing enrolment of students and the rapidly growing research programme of the staff. Except for the Medical-Dental Library built in 1940, the other Medical School buildings date back to 1923 or, in the case of the Forrest Building, to 1886. The teaching laboratories designed for sixty medical and dental students now house eighty-five in those two Faculties as well as students in science and the para-medical professions. Offices and research facilities were originally provided in these buildings for one professor in each of the five departments but the staff now numbers eighteen, with three additional vacancies to be filled. Also requiring space are graduate students in science, research technicians and other staff. There is also a need for larger library facilities and research laboratories for the clinical departments.
- (b) The Board of Governors of the University has recognized these needs and has approved the construction of a



new Medical Building if the necessary funds, estimated at four and a half million dollars, can be obtained. The present Forrest Building and Medical Sciences Building will be required for the Department of Biology, the Institute of Oceanography and the Faculty of Health Professions.

- (c) The Departments of Pathology and Bacteriology have excellent new facilities, adequate for an enrolment of 100 medical and dental students and for the staff required to teach them. These quarters were provided in 1961 by the Province of Nova Scotia in the enlarged Pathology Institute.
- (d) One of the striking features, upon which visitors to Dalhousie comment favourably, is the very convenient geographic location of the Medical School buildings in relation to most of the affiliated hospitals, the Victoria General, Grace Maternity, Children's, Halifax Convalescent and the Nova Scotia Rehabilitation Centre. The Halifax Infirmary is only a few blocks east and Camp Hill Hospital about the same distance north. The Armed Forces Hospital in the northern part of the City is also associated with the Medical School. As a group, they provide convenience in medical teaching facilities which is difficult to equal.
- (e) Most of the hospitals in Halifax have recently enlarged or are now planning to enlarge their facilities. The total capacity of all of these institutions will reach approximately 2600 beds by 1965, if present plans are carried out. The teaching units in these hospitals, where all patients are under the direct care of University teachers, will have a capacity of 750 beds. These units will be adequate to permit the training of 75 medical students in the senior year. The Association of Canadian Medical Colleges recommends a minimum of 10 beds per senior student in the general teaching hospitals, excluding those for military and D.V.A. patients.
- (f) It is vitally important that these teaching units be maintained under any new or expanded plan for medical services insurance.
- (g) The present Public Health Clinic will provide adequate research facilities for the clinical departments when

the out-patient services in obstetrics and paediatrics move to the new Grace Maternity and Children's Hospitals. The cardio-pulmonary research unit alone will cost more than \$100,000 and the total for remodelling and equipping this building is estimated at \$250,000.

### **Undergraduate Medical Education**

- 22. The curriculum of Dalhousie Medical School has been thoroughly reviewed by the Faculty on several occasions in recent years and it is fully in line with modern trends in education which the Faculty consider to be sound.
- 23. The first two undergraduate years at Dalhousie are devoted to the pre-clinical sciences with only an introduction to clinical studies. The third and fourth years are almost wholly devoted to the clinical subjects and in the fourth year the student spends most of his time in the teaching units of the hospitals as a clinical clerk. Except for a few details, the programme is similar to the more or less standard plan followed by most accredited Canadian and American medical schools.
- 24. One major difference is that Dalhousie requires only three years of pre-medical education in an Arts & Science Faculty (after junior matriculation) before admission to Medicine. Some universities in Canada and many in the U.S.A. require a Bachelor's degree, or four years from junior matriculation.
- 25. The second difference is that Dalhousie does not grant the M.D. degree until students have completed an internship in a University-selected hospital or hospitals. Most other Canadian medical schools, except two in the Province of Quebec, grant the degree at the end of four years in the Medical School, but the licensure regulations require an internship before the graduate is professionally qualified. The Dalhousie graduate obtains the degree and license at the same time. The duration of the medical training is therefore the same as in other Canadian schools. The Faculty considers it a University responsibility to retain general supervision over the internship in order to ensure that every student obtains a balanced rotation including Medicine, Surgery, Obstetrics and Paediatrics. Graduates from other medical schools who seek their own internship cannot be assured of such a complete rotation even in hospitals approved for internship by the Canadian Medical Association. Dalhousie University intends to continue its system of granting the medical degree after the internship.

We would request the Royal Commission to ensure that any of its recommendations relating to medical education take into account the fact that Dalhousie and two other Canadian Universities have a five-year medical course, including internship, while others have a four-year course, excluding internship. In the past the phrasing of regulations as though the four-year pattern was the only one, has resulted in problems for this University and for our graduates.

26. Reference has been made to the teaching units and teaching beds in the affiliated hospitals. It is important to emphasize that these are absolutely essential to modern medical education. Medicine has become much more scientific and medical education has improved greatly compared with the system of apprenticeship of the last century. However, medical education still has to retain the best elements of the apprenticeship system. The private patients of another physician may be used effectively by a teacher to demonstrate an unusual condition or for other specific reasons. Nevertheless, this type of teaching by demonstration does not alone provide an adequate basis for a medical education. The student must be incorporated into a group of clinical clerk-interne-resident-staff members, each assigned and required to accept responsibility commensurate with his level of training. In a hospital where every patient has his own doctor, modern clinical teaching is impossible. There must be a nucleus of "closed wards" or "teaching units" in which all the patients are under the care of the active staff and their graduate and undergraduate students. If this system of closed teaching units is not fully preserved under any proposed voluntary or government-financed insurance plan, medical education will rapidly deteriorate.

27. The importance of the teaching unit to the hospital as well as to the medical school is evidenced by the letter contained in Appendix C which includes the following resolution from the Board of Commissioners of the Victoria General Hospital:

"THAT, UNDER ANY FORM OF UNIVERSAL MEDICAL CARE PROGRAMME, THE TEACHING ASPECTS AND RESPONSIBILITIES OF HOSPITALS BE PROTECTED AND MAINTAINED AT EXISTING OR IMPROVED STANDARDS. THIS RESOLUTION IS TO BE FORWARDED TO THE DEAN OF MEDICINE, WITH THE REQUEST THAT IT BE INCLUDED IN THE UNIVERSITY BRIEF ON EDUCATION."

### **Student Enrolment and the Supply of Medical Doctors**

28. Undergraduate medical education must take priority over all other functions of the Faculty of Medicine listed in a preceding section (Paragraph 19). The Faculty of Medicine has two duties, to provide educational opportunities for the young men and women of the four Atlantic Provinces who wish to study medicine, and, incidentally, to provide most of the physicians who will practice in this region.

29. More than 85 per cent of the English-speaking students of the Atlantic Provinces who entered medicine during the past ten years enrolled at Dalhousie (Appendix D).

30. Approximately 70 per cent of the medical doctors entering practice in the four provinces are Dalhousie graduates (Appendix E).

31. **Shortage of Physicians** It has been obvious for many years, to all who have given the matter thought, that there is a shortage of physicians in the four Atlantic Provinces. Convincing statistics were presented in a Government Report in 1950. If one applies any reasonably acceptable ratio of what is thought to be an adequate proportion of doctors to population, one invariably arrives at the conclusion that there is a shortage (Appendix F). How large this is, depends upon which of the several yard-sticks is applied, all of which are a little dubious as to accuracy. It must be emphasized, however, that even the lowest estimate of the shortage reported in the Survey of Health Facilities (1) was a larger number of doctors than could have been placed in practice in Nova Scotia with assurance of a reasonable livelihood. In other words, an estimate of the shortage based on how many communities in Nova Scotia need and are prepared to support a doctor, or which could support more than they now have, would be much smaller than an estimate based on providing an ideal level of service according to any known standard. The public and the medical profession both tend to make estimates of the shortage of doctors on the very practical basis of counting communities capable of supporting more. However, any system which will provide greater medical insurance coverage, or which subsidizes physicians in "underdoctored" areas will

(1) Stewart, C. B. —Survey of Health Facilities and Services in Nova Scotia, 1949-1950: Province of Nova Scotia Report.

result in the larger estimates of the shortage becoming more "realistic" than they were in the past.

**32. Factors Influencing Shortage** Many writers and speakers have speculated concerning the reasons for the shortage of physicians here and in Canada generally. Some without any knowledge of the facts have placed the blame on the medical profession, which was suspected of having ulterior motives in keeping the supply low so that incomes would be high. Nothing could be farther from the truth. Only two factors have placed limitations on the education of doctors at Dalhousie. The first was the size of the laboratories in the medical science departments, in which almost all of the classes of the first two years are taught. Only sixty students could be accommodated from 1923 to 1945, fifty in medicine and ten in dentistry. During that whole period, every qualified applicant from the four provinces could be accepted, and many from other areas were also trained. So the second and most important limiting factor clearly was the small number of students wishing to study medicine. Only in the immediate post-war period did Dalhousie have to curtail admissions of Atlantic Province students, and an effort was made to prevent this by crowding additional benches and equipment for ten more students into the existing laboratories. The highly qualified students were admitted, but many good average students were refused. At no time did the medical profession suggest a limitation of enrolment, but there was a consistent pressure by individual doctors on the University to take more than could be accommodated.

**33. Recent Trends in Student Enrolment** The post-war influx of students subsided in 1955, as in all other Canadian and American medical schools, and Dalhousie has had sufficient room for all qualified Atlantic Province students from 1956 to date. In fact, the first year classes were kept up to their usual size by accepting more students from the West Indies, the U. S. A. and other countries. The trend in applications is now going upward again in a sharp slope. The influx of Arts & Science students which began three or four years ago reached the professional schools in 1960 and 1961. It was still possible to accept all well-qualified Atlantic Province students in September 1961, but if the present upward trend in applications continues, a considerable number will have to be rejected by 1962, or at latest 1963, or no foreign students accepted. The Faculty considers it desirable that some foreign students should be admitted.

### **Inadequate Data for Planning**

**34.** When the number of applicants for admission to medical schools began to fall a few years ago, some very pessimistic predictions were made and there was much guessing at the explanations. The truth is that there are no valid standards for estimating how many students should be expected to enter medicine from the population of 1.9 millions in the Atlantic Provinces. Several recent articles have deplored the reduction in numbers as compared with those of the post-war period. Obviously there has been a reduction, but the post-war period was a very abnormal one to use as a base-line for comparison. At that time the back-log of six years of veterans was superimposed on the normal number applying for admission. In fact, most statistics grossly over-estimate the numbers seeking a medical education during that period. There was no central clearing-house where records were analyzed by name and most students, particularly in the lower academic class, submitted scores of applications each year to institutions all across the continent.

**35.** A study is now being made of the Dalhousie records to determine the number of applicants from these four Provinces in relation to population. If the results seem to reveal anything of interest, they will be forwarded to your Commission. One cannot be too optimistic because there seems to be no "normal" period with which a comparison can be made. The post-war period had an unusually large number of applicants, but preceding it were the war and the depression years, when applications for admission to medical schools were abnormally low.

**36. Need for Medical Buildings** In any event, the experience at Dalhousie shows that the two limiting factors on the supply of doctors has been the inadequacy of facilities and the small number of qualified students. The latter seems to be gradually correcting itself although, perhaps, more slowly than is desirable. The former could be solved by providing funds to the University to build larger teaching facilities and to staff them. Dalhousie has no desire to place a limitation on future enrolment simply because of inadequate facilities.

### **Expansion of Dalhousie Medical School**

37. In the Survey of Health Facilities and Services of Nova Scotia in 1949-1950 (1), it was estimated that Dalhousie should be graduating sixty-five students per year to meet, at least in part, the shortage then existing and to take into account the growth in population, loss of doctors by death and retirement and their transfer to and from this region. It is now estimated by the Faculty that at least seventy-five students should be enrolled in first year as soon as facilities can be provided. The trends would seem to indicate that sufficient students will be seeking admission and there is no question of the need for more physicians in the area. This need will increase as voluntary medical insurance plans grow, and particularly if comprehensive Government-financed health insurance were to be introduced. It is estimated that under such a plan there might be a 50 percent increase in demand for medical services in the Maritime Provinces and even more in Newfoundland. A corresponding increase would be required in the number of medical graduates. Since the Faculty of Medicine at Dalhousie is the only one in this region, the shortage of practitioners must be considered as well as the needs for providing students with professional education in the field of their choice. For both of these reasons an increase in the present enrolment is desirable before 1965.

38. It is therefore planned that the immediate goal of Dalhousie Medical School will be the enrolment of seventy-five students in the first year class and the provision of staff and facilities on a corresponding scale. In the Medical Building now being planned, space is being provided for seventy-five medical and twenty-five dental students, but the rooms will be so designed that the classes of the two Faculties can be separated and one hundred medical students and fifty dental students accommodated. The Faculty of Medicine would prefer a class of approximately seventy-five rather than the larger number. It is anticipated, however, that there may be a period when one hundred medical students will have to be accommodated while plans are being made for another medical school in the Atlantic Region.

(1) Stewart, C.B.— Survey of Health Facilities and Services in Nova Scotia, 1949-1950: Province of Nova Scotia Report

39. **Number of Medical Schools** One suggestion which is almost certain to be presented to the Royal Commission is that more medical schools be established in Canada. When 85 percent of the English-speaking students from the Atlantic Provinces are now being accommodated at Dalhousie, and the few who went elsewhere in the last five years could have been admitted here, it would seem premature to suggest the establishment of another medical school in the Atlantic Provinces until Dalhousie is used to its fullest capacity. Another school, if it were of a capacity of less than forty students per year, would be very costly and inefficient, and it should preferably have more than fifty. There are not that many students seeking admission to medicine from any province in this area. The cost per student per year is certain to be at least \$3,500 in a small new school and might be more much. Dalhousie's cost is now approximately \$3,200. The initial cost of buildings would be three or four million dollars, excluding hospitals. The shortage of trained staff must also be considered. It seems reasonable to suggest therefore that the facilities at Dalhousie be developed to their maximum. After the enrolment reaches seventy-five in first year and begins to move toward one hundred, consideration should be given to establishing another medical school. At that time Dalhousie will assist in any possible way to further such a development. The Faculty would prefer an annual class of about seventy-five. However, unless there is a successful programme for recruitment of more students into medicine and increased financial support for them, it will probably be quite a few years before the expanded facilities at Dalhousie will be used to their fullest extent.

### **Quality of Medical Students**

40. Of great concern has been recent suggestions that there has been a reduction in the academic quality of applicants for admission to medical schools. Most of these statements are based on one published study of the academic standing in their pre-medical courses of the first year medical students of U. S. schools (1). The conclusion was that only half as many students enrolling in medicine in recent years had an A average in pre-medical studies as in the period 1950-1951. This is, of course, a gross mis-use of statistics, although it seems to have

(1) Turner, E. L., Wiggins, W. S., Shepherd, G. R., Springall, A. N. and Tipner, A.: Medical Education in the United States and Canada, 56th, Annual Report. J. A. M. A. 161, 1956, p. 1659. (By the Council on Medical Education and Hospitals, A. M. A.)

been accepted by most medical educators without much question. The fact is that with few exceptions, only veterans were admitted to Canadian or American medical colleges from 1945 to 1949. In 1950 and 1951 the "civilians" were again admitted and these included an unusually high proportion of top-ranking students, some with higher degrees. They had waited until the veteran classes passed through, assured of their own chances of admission later. The poorer students permanently transferred into other fields of study, rather than take a chance on waiting one or two years in the dubious likelihood of getting into a medical school.

41. It may well be true that there are fewer brilliant students choosing medicine now, but such statistics as have been published do not prove it. The impression of teachers at Dalhousie is that our classes show no sign of deterioration. An analysis of the academic records for the last twenty years is almost complete now, and no significant trends are evident.

#### **Financial Support for Students**

42. Nevertheless, it is quite obvious that the highly qualified student who is in the top third of his class in Arts & Science, is at a decided financial disadvantage if he chooses to study medicine. If he goes on to a Masters and Ph.D. degree he can be reasonably sure of a research fellowship of approximately \$2,000 per year, enough to cover tuition and living costs during his training period. His only expense will have been during the undergraduate years in science. On the contrary, if he goes into medicine, he will pay higher tuition than in science and will have a longer course by about two years. It costs the medical student a minimum of \$1,600 a year for four years in the Medical School to cover tuition and living expenses, a total of \$6,400. There is almost no likelihood of him getting a bursary or fellowship. The science student of high academic standing will receive \$2,000 a year for the three or four years of M.Sc. and Ph.D. training, a total of at least \$6,000. The differential is at least \$12,000 in favour of the science student. It would seem reasonable to assume that some students who would prefer to study medicine may have to choose another field of science for financial reasons.

43. During the past two years, the Province of Newfoundland has provided financial assistance to medical students at the rate of \$1,200 per year. The student must serve two years

after graduation in an area to which he is assigned and an additional two years practising in any community he may choose in the Province which may include post-graduate training in St. John's. The introduction of this plan has been followed by an increase in the number of Newfoundland students entering medicine at Dalhousie. Whether this is the chief cause for the increase is not known, since it coincides with the increase in general enrolment in Arts & Science.

44. **Length of Medical Course** The length of the medical course is considered by some to be a major obstacle to the recruitment of students. It is necessary to consider here the tremendous growth in medical knowledge, the intricacy of new diagnostic and therapeutic procedures and the sheer volume of facts with which the future physician must not only become acquainted, but must learn to understand, to reason with and to use. Under such circumstances any suggestion that the period of medical study should be reduced cannot be considered very seriously. Nevertheless, it might be possible to shorten the time between entry to medicine and graduation without shortening the actual period of study. A lengthening of the academic year would achieve this end. In its favour is the argument that an expensive teaching plant should be used by students for a longer period each year. Certainly in its favour is the fact that it would shorten the period of medical education. A student spends at least eight years of his life in pre-medical, medical and internship training, and an additional four years if he takes post-graduate training in a specialty. In the pre-medical course he is in University only seven months of the year. It should be quite possible to compress the same work into two years if the University had a longer session. In the Medical School the academic year is longer, being nine months. It might be possible to give the present four-year course in three calendar years of eleven months, with one month's holiday. However, such a method of shortening the length of the period between admission and graduation could not be adopted by Dalhousie University under present conditions. It is estimated that half the medical students would be unable to attend at all, if they did not have three months in which to earn a part of their educational costs.

45. A system of financial support for pre-medical and medical students, adequate in amount to preclude the necessity of summer earnings, would therefore be a first requirement toward compressing the course. This assistance would have to

be of the order of \$2,000 each year. Dalhousie medical students now require a minimum of \$1,600 and more would be required because of the longer academic year.

**46. Effect on Post-Graduate Education** If a system of support similar to that used in Newfoundland were adopted and graduates who had received Government aid as students were required to repay it in service, it is suggested that such service be provided on a national rather than a provincial basis. The graduate could then be assigned to any medically needy area of Canada, to the military medical service, Indian health or immigration, provincial public health or other services. In the last two years, if four years of service were required, the graduate should be permitted to practice in any part of the country and in particular, it would be important that he be allowed to do post graduate work anywhere in Canada. In fact, careful consideration should be given to the desirability of having such scholarships completely free of any service requirement.

**47. Grants to Medical School** In order to compress the medical course into a shorter period, the second requirement as well as assistance to students, would be financial support to the University to allow at least a 35 per cent increase in the teaching staff of both the pre-clinical and clinical years. Professors now depend heavily on two of the three summer months, when students are absent, to get their research done. If the present year of three terms were extended to four terms, no staff member should be expected to teach more than three. By rotating staff in each Department it should be possible to provide research opportunities as at present if the staff were increased by one third.

**48. Retention of Internship** It is not considered practical or desirable to shorten or eliminate the twelve months of internship. This is the time when the student learns to apply his basic knowledge to clinical problems, and of paramount importance, he learns to take a reasonable amount of responsibility. It should be emphasized again that it is only in a teaching unit, where such responsibility is delegated by the staff, that the best level of medical education can be achieved.

**49. General Practice Internship** The College of General Practice has recommended a second year of internship. This has much to commend it but we hesitate to suggest any increase in the length of the training programme. It would seem

more practical to have a general practice preceptorship, with the new graduate after internship going into practice with an experienced general practitioner. It has been suggested that the general practitioner might keep the new graduate in his practice for two years, the first under supervision and the second in full charge, while the senior practitioner himself took a year of further post-graduate study at a teaching hospital.

#### **Desirability of High Priority for Medical Education**

**50.** There is now a ratio of 1,013 persons per physician in Nova Scotia. The Canadian average is 879. In order to meet this national average, without accepting this as a final or ideal ratio, we would require 110 more doctors in Nova Scotia alone. To reach the national average in the four Atlantic Provinces would require more than six hundred additional doctors. Assuming that the recent past is a trustworthy guide, one would expect Dalhousie to provide about sixty to seventy per cent of this number. In recent years Dalhousie has been graduating an average of fifty-two per year, of whom approximately thirty-five remain in this area or return here after post-graduate training. The estimated requirement of new doctors in the Atlantic Provinces to replace loss by death, retirement and emigration and to provide for the population at its present rate of growth, is approximately twenty-five. The doctor shortage is therefore being gradually met by Dalhousie at the rate of about ten per year. Added to this in recent years has been considerable immigration. The ratio of population per physician in Nova Scotia has improved from 1,277 persons per physician in 1949, to 1,103 in 1960, and gains have been made in the other three provinces as well. By increasing the graduating class at Dalhousie to seventy-five, the shortage of doctors would be decreased at the rate of about twenty-five per year, assuming two-thirds of the graduates remain in these provinces. Ten years after Dalhousie classes reach seventy-five graduates per year, the shortage would be appreciably reduced, by 250 more Dalhousie graduates and about eighty immigrants. This would reduce, but not eliminate the shortage of six hundred in the region as compared with the Canadian average.

**51.** It cannot be too strongly urged that the Royal Commission examine the implications of the above figures very carefully. Plainly stated, if the Federal or Provincial Governments were to provide money **now** to permit Dalhousie Uni-

versity to enlarge its facilities and if they were to begin **now** a system of student support which would bring more students into medicine, it would take at least three years to plan and construct the teaching facilities and obtain the staff at Dalhousie. Since three years of pre-medical education are required, the University might, with financial assistance, be ready for the increased enrolment when it began. It would be unlikely, however, that financial assistance for students would result in an immediate upsurge in numbers. It would be five years at least and more likely seven or eight after introduction of a scholarship plan before the enrolment would reach eighty to eighty-five in first year medicine, a level that might permit the graduation of seventy-five. It would be **five years, later** before this larger class would graduate. In other words, it would take at least ten years, and more likely twelve or thirteen, for the Atlantic Provinces to reach an optimum level of medical graduates and, as already shown, it would take about ten years more after that to bring this area up toward, but not yet to, the Canadian average in population-physician ratio.

52. Add to this problem the obvious fact that the subsidization of physicians in under-doctored areas, the provision of medical services insurance at Government expense for the indigent and elderly, or the adoption of a medical insurance plan covering the whole population would each, in varying degree, result in a demand for more medical services in Nova Scotia, and the whole Atlantic area. There is some strongly suggestive evidence, although not clear-cut, that a fully insured population in the three Maritime Provinces, excluding Newfoundland, might demand at least fifty per cent more individual medical service than they did ten years ago when the Canadian Sickness Survey was carried out. No data of more recent origin are available, but there is clear evidence that the population insured under Maritime Medical Care is receiving 3,400 physicians' services per 1000 population when the level for the whole province is about half that figure. It was about 1,500 in the Maritimes in the 1950-1951 period of Canadian Sickness Survey and several insured populations at that time had about 50 percent more medical services, approximately 2,100 to 2,300 physicians' services per 1000.

53. The Faculty of Medicine of Dalhousie University respectfully appeals to the Royal Commission that you ensure that the provision of more adequate numbers of well-qualified

physicians be started immediately through support to universities and to pre-medical and medical students, and that extension of medical care services be carried out on a gradual basis, beginning only with the more pressing needs. Subsidization of doctors in areas of low average economic status and provision of medical insurance for the indigent would seem to be two obvious methods. If a complete medical services insurance plan is introduced within the next few years there will not be nearly enough doctors to operate it effectively. The physicians in this province are for the most part carrying an excessively heavy practice load now. To increase this will result in deterioration of the present service, with resultant lowering in the prestige and trust accorded the doctor, which, in turn, will mean a reduction in the number of students attracted into the profession. We think the recruitment and education of doctors should precede the introduction of any extensive medical insurance plan by at least ten years and preferably longer.

54. **Quality of Immigrant Doctors** One obvious solution to the shortage of doctors, apart from educating more Canadians, is by immigration. It is strongly recommended that the Royal Commission study carefully the records of the Medical Council of Canada and the Provincial Medical Boards, also the results of the Educational Council for Foreign Medical Graduates, which show extremely high failure rates among the graduates of many foreign medical schools. An article in the Journal of Medical Education (1) by Dr. J. M. Weir of the Rockefeller Foundation clearly shows that except in the United Kingdom, the Scandanavian countries, the U. S. A. and Canada, the level of medical education is appallingly low. The countries with the greatest excess of doctors willing and anxious to emigrate have, in general, the poorest system of medical education. In some instances an M.D. coming to this country to take care of patients immediately as a hospital interne has no more bedside clinical experience than one of our second year medical students.

55. No doubt some of the shortage of doctors must be met by immigration but better methods should be evolved for the clinical education of these immigrants, or the medical service to Canadians will deteriorate. As a University, our concern

(1) Obstacles to Medical Education at the International Level. John M. Weir, M. D. J. A. M. A., Vol. 173, No. 13. - p. 1451-1453.

on this matter is with the inevitable affect on recruitment of Canadian students into medicine, but we are also keenly aware of our responsibility to advise against a course which might have an ill-effect upon the public health of this country.

### **The Supply of Medical Teachers**

**56. Medical Sciences** The problem of obtaining the best qualified medical teachers requires careful consideration. There are far too few men entering the medical sciences. Most of the prospective students considering medicine think only of medical practice as a goal. Students do not realize the tremendously important role of the medical scientist in medical education and research. Inadequate salaries in most universities, including Dalhousie, make it unlikely that we will attract nearly enough of the scientists interested in biology and chemistry into the medical sciences of biochemistry, physiology, pharmacology, bacteriology, anatomy, pathology, etc. Industry and Government service attract many of the trained men.

**57. Part-time Clinical Teachers** In the clinical fields the problems are even more acute. There has been a great dependence upon the practising specialist or general practitioner to do the clinical teachings of medical students. At present Dalhousie has only twelve full-time teachers in the clinical departments to teach the last two years of the undergraduate course, the internship year and the four years of specialty training. More than 125 doctors in Halifax are also doing clinical teaching on a part-time basis in the affiliated hospitals. Without the unselfish devotion of this large number of practising doctors in the City of Halifax who, until very recent years, carried on all of the clinical teaching, and still bear a very large share of it, the University could not have established and maintained a programme of medical education and could not do so now. Their teaching was often done in the past for no financial remuneration and today the average honorarium is just over \$500 per year although many devote a third of their time and some half-time to hospital and teaching duties. The University recognizes this great contribution and is grateful for it. We suggest, however, that the public of these four Provinces owes a debt to these men on which some payment is long overdue.

**58. Relation of Teaching and Patient Care** In addition to teaching and research, all members of the staff of the clin-

ical departments, both full-time and part-time, have heavy responsibilities for the care of patients in the teaching wards of the affiliated hospitals. It is impossible to draw a clear-cut distinction between teaching and clinical care on a teaching ward, and in some instances, between clinical research and clinical care. The roles of the medical school and the teaching hospitals are therefore inextricably intermixed. As the hospitals are increased in size, a larger and larger proportion of the patients referred from other areas of the Province, as well as the indigent patients from Halifax, are cared for without payment to the doctor in the wards of the Victoria General and the other hospitals. Unless some method is found to pay the doctors who care for these indigent patients and at the same time teach medical students and specialists-in-training, we cannot hope to attract enough new doctors to Halifax to provide the increased volume of care in the larger hospitals and to teach the medical students. There is not enough private consulting practice to support all of the necessary specialists in this medical centre.

**59. Full-time Clinical Teachers** During the past decade Canadian medical schools and affiliated teaching hospitals have progressively increased the number of full-time teachers in the clinical departments. Such a teacher is a graduate in medicine who had usually had extensive post-graduate training in some particular specialty for five or six years, including teaching and research. Most have successfully completed the difficult examination to become Fellows of the Royal College of Physicians and Surgeons of Canada. The large volume of clinical teaching in the undergraduate and post-graduate fields, the growth of clinical research, the complex administration of a modern teaching hospital and many other factors make it necessary to have more geographic full-time staff. Dalhousie has increased the number from two to twelve in the last five years and will require more. This University has fewer full-time clinical teachers than most other medical schools.

**60.** The major problem in obtaining and retaining clinical teachers is a financial one. To provide salaries from the teaching budget of the University to staff members who also care for the sick in the teaching ward places a heavy load on the University, and in most instances the salaries are not commensurate with what a specialist of similar qualifications and experience could obtain in private practice. Any system of medical insurance for the indigent should permit the payment of the clinical teachers in University hospitals on such a basis



that their earnings would at least be commensurate with non-teaching specialists in the same fields. At the same time the closed teaching units must be retained as indicated in an earlier section (Paragraphs 26-27).

### Medical Research

61. Research is a vital activity of a Faculty of Medicine. There are many reasons for this: the vitality of the Faculty is largely measured by the eagerness with which its members pursue knowledge and this vitality is essential to good teaching, but today, the prestige of a university, meaning its standing in the community and among other universities is very largely determined not only by its success in teaching at the undergraduate level but also, perhaps dominantly, by its accomplishments in graduate teaching and research. One has only to think of the great universities of the world to realize that this is so. A university is therefore compelled by the nature of its business and the force of circumstances to provide time, space and facilities and money for graduate training and research. In fact, if it did not do so, it would not be possible to staff the departments.

62. The expansion of medical research at Dalhousie has been very striking. One indirect indication is the increase in research grants from the Medical Research Council, Department of National Health & Welfare, Defence Research Board and other agencies. In 1948 there was one small research project receiving a grant of \$3,400. In 1954, grants totalled \$80,000. In 1961-1962 research grants already approved exceed \$320,000.

63. Apart from the Medical Library, no new buildings have been provided for the Faculty of Medicine since 1923 and these had research facilities for only one staff member in each Department. Within the last five years some additional space has been provided for research laboratories through the remodelling of the Medical Sciences Building and the space vacated by Dentistry in the Forrest Building. In spite of these additions, there is an acute shortage of research facilities. This is now the chief difficulty standing in the way of recruiting staff. Absolutely no facilities for research in the clinical departments were provided within the University until recently when a few rooms in the Public Health Clinic were remodelled. Facilities for research must be provided for the staff and graduate students.

64. It is now accepted as policy that the full-time staff of each department be adequate to permit approximately fifty per cent of the staff time per department to be devoted to medical research during the whole year, i.e. approximately one-third of the time during the academic year together with two summer months, excluding one month of holidays.

65. In the new Medical Building being planned at Dalhousie for five of the seven pre-clinical sciences it is estimated that the total area required will be 150,000 square feet. More than 50 per cent of this will be for medical research. In addition, the Dalhousie Public Health Clinic of approximately 25,000 square feet will be remodelled into research laboratories for the clinical departments. There will, in addition, be need for animal quarters outside these two buildings. The estimated cost of building and furnishing these new research facilities is two and a half million dollars out of the total building cost of four and a half millions.

66. In 1959 at the request of the Association of Canadian Medical Colleges, the Government of Canada set up a Special Committee to advise on the support of medical research in Canada. The two major recommendations of this Committee (1) were that a Medical Research Council be established and that a fund be set up to aid in the construction of medical research facilities to provide within the next five years twenty-five million dollars for research facilities in medical schools and twelve and a half millions for research facilities in teaching hospitals. The first recommendation was implemented in part in 1960 when the Medical Research Council was set up under the National Research Council. No action has yet been taken with respect to grants for research facilities.

67. The National Research Council of Canada provides grants to universities to assist research in chemistry, biology, physics, engineering and other disciplines, and it also operates its own research laboratories in Ottawa and Regional Laboratories in Saskatoon and Halifax. The Medical Research Council provides comparable grants to universities for medical research but has no central research laboratories. The Special

(1) Farquharson, R.F. et al: Report of the Special Committee Appointed to Review Extramural Support of Medical Research by the Government of Canada. November 12th, 1959.

Committee recommended to the Government that there should not be central laboratories but in lieu of these there should be decentralized medical research facilities of comparable value financed by Government in the medical schools and their teaching hospitals. This seems to be a reasonable request and does not commit the Government to make a similar outlay for university buildings in other sciences now provided with such facilities by the National Research Council.

68. It is recommended that the Royal Commission consider a system of support for the construction of medical research facilities under the Medical Research Council as recommended by the Special Committee on Medical Research.

69. **Medical Science Teaching to Dental Students** In the eight functions of the Medical School listed earlier, dental education followed undergraduate medical education and medical research. Most of the information on the programme of dental education is presented by that Faculty. It is sufficient here to mention only that the Faculty of Medicine has always carried out the teaching in anatomy, bacteriology, biochemistry, microanatomy, pathology, pharmacology and physiology for dental students as well as medicals. Most of the teaching is done in combined classes. The new Dental Building was planned to accommodate twenty-five to thirty students in the clinical departments, instead of the former ten or twelve. The proposed new Medical Building is being planned with a view to the needs of Dentistry as well as Medicine. Unless this building can be provided soon, it may be impossible to take in all of the available students from the Atlantic Region who wish to study medicine or dentistry, but every effort will be made to prevent such a limitation on enrolment in either Faculty.

#### **Undergraduate and Graduate Education in the Medical Sciences**

70. The teachers in the Medical Science Departments of Dalhousie Medical School are highly qualified in fields of science, which in most instances are not otherwise represented in the University. The Faculty of Medicine is prepared to share the skills of these medical scientists with the Faculties of Arts and Science and of Graduate Studies, and in turn the Faculty of Medicine gains by having graduate students participate in their research projects. However, it is not sufficient

merely to set up M.Sc., and Ph.D. programmes in biochemistry, physiology, bacteriology, pharmacology, etc. In order to recruit graduate students into these Departments, it is necessary to acquaint the under-graduate students with the scope and problems of these disciplines. Courses for junior and senior students must therefore be provided under the aegis of the Faculty of Arts & Science, in such fields and under such teachers of the Medical Faculty as are approved by the Faculty of Arts & Science.

71. It is the policy of the Faculty of Medicine that these science courses be strictly limited in registration. Under ordinary circumstances a department of the Medical School will not undertake more than two such courses, each with an enrolment not exceeding twenty. This is meant to prevent the Medical Science Departments of the Medical School from becoming overloaded with students of other faculties.

72. There are practically no facilities in the Medical School for these graduate and undergraduate students in science. As already indicated, the buildings were constructed for medical and dental teaching only, with a very small allocation of research space for one professor in each department. The graduate students are at present fitted into whatever space can be found. Some of the already inadequate teaching laboratories have been given over to graduate students and to research laboratories for staff members. There are no small lecture rooms, no seminar rooms, no science laboratories in any department, other than those designed for medical and dental students. The teaching programme for medical and dental students is so heavy that no time can be scheduled to fit science classes into their laboratories except in the new addition to the Pathology Institute which will provide space for science students in the two Departments located in that building.

73. In the proposed new Medical Building provision will be made for two classes of twenty undergraduate science students in each basic science department of the Medical School and research space for two graduate students per full-time staff member in each Medical Science Department. The total enrolment of graduate students in the Departments of Anatomy, Microanatomy, Physiology, Biochemistry and Pharmacology on this basis might reach thirty by 1965 and might increase, as more Medical Research Associates and other staff are appointed, to a maximum of sixty or seventy.

## Post-Graduate and Continuing Medical Education

74. It has been estimated that research is doubling our fund of scientific information every ten years, and that the past fifty years have seen more advances in medicine than the whole preceding period in history. While the necessity for continuing one's medical education throughout a life-time of practice has been reiterated since Hippocratic days, the speed of recent developments make life-long medical training for today's practising doctor a matter of vital concern because of the effects of his services on the public welfare.

75. It is a new idea to most universities that they should accept any responsibility for helping keep their graduates educated for the rest of their lives. Many educators say that this is the individual's own responsibility after he had received the university's stamp of approval. In the slower paced era of only a few decades ago this philosophy worked reasonably well. Certainly it is still the primary aim of Dalhousie Medical School to inculcate habits of study which will help a graduate keep up-to-date in his field. However, it is impossible to make a student reasonably proficient in all phases of medicine during a five-year period. This, together with the rapid increase in knowledge, makes it essential that some graduates take specialty training in a limited field, and that those who go into general practice receive post-graduate training at frequent intervals. Dalhousie University has accepted responsibility in both of these fields, the training of specialists and the continuing medical education of practitioners. In fact, Dalhousie has participated in this latter field for more than thirty-five years through the annual Dalhousie Refresher Course. The Division of Post-Graduate Medical Education has been set up in the Faculty to organize and supervise these programmes.

76. Over one-third of the medical graduates of Dalhousie go on to take a four-year graduate course in a clinical specialty, leading to certification or fellowship in the Royal College of Physicians and Surgeons of Canada. There are approximately sixty such residents in University-affiliated hospitals in Halifax. With the proposed enlargement of these hospitals in the near future, the number of such specialists-in-training will probably double. Their training is officially the responsibility of the hospital, but all clinical teachers in these hospitals are members also of the Faculty of Medicine. The same people are therefore required to shoulder the load of post-graduate as well as

undergraduate education. Again it is emphasized that the number of full-time clinical teachers is very small and most of the teaching is done by practising specialists. Post-graduate students also require advanced teaching in the application of the medical sciences to clinical medicine, and this is the responsibility of the Medical Science Departments. This large number of specialists-in-training in the affiliated hospitals therefore adds greatly to the responsibility of the Clinical Departments of the Medical School, and to a lesser degree to the Medical Science Departments.

77. Facilities will be provided in the new Medical Building for post-graduate students in the clinical specialties as well as graduate students in the medical sciences. There is a great dearth of medically qualified teachers in the basic science departments, partly due to the fact that most Canadian medical schools have not provided facilities for training such advanced students. However, the hospitals will still provide most of the training facilities for these residents.

78. Special mention should be made of the training of specialists in psychiatry at Dalhousie. Because of the great shortage of specialists in this field, the University requested in 1948 that the Federal Provincial Mental Health Grant be used in part to support a training programme for psychiatrists and clinical psychologists. The four Atlantic Provinces have supported this since 1949. Full-time and part-time teachers were appointed to carry out both graduate and undergraduate teaching. The current budget for the graduate programme exceeds \$30,000 per annum. Most of the graduate students are also supported by bursaries of approximately \$3,000 per year, often supplemented by a partial salary from the Department of Health of the province to which he is committed to return. This system of support for both the institution providing the training and the graduate student himself has much to commend it, as a means of reducing the shortage of specialists in certain fields.

79. The programme of the Dalhousie Division of Post-Graduate Medical Education is provided by a Director and Secretary with the part-time assistance of one hundred and twenty-six faculty members, sixty guest lecturers from the Atlantic Provinces, and twenty-seven guest Faculty members from medical schools outside the Atlantic Provinces. A small residency training programme in the pre-clinical sciences pre-

sented sixty hours of lectures to a registration of forty-nine specialists-in-training in Halifax as intramural activity, and sixty-four hours of clinical instruction to a registration of fifty doctors in an extra-mural programme in Saint John, New Brunswick. These programmes, together with the training of psychiatrists described above, and close collaboration in the clinical training of all residents in the affiliated hospitals, represent the University's contribution to the education of specialists.

80. The major effort of the Division is devoted to the provision of continuing medical education for the family doctor. The 1960-1961 programme in Halifax featured 146 presentations with an attendance of 4,277 doctors. The extra-mural programme consisted of 216 presentations to an attendance of 6,140 doctors in communities spread over the four Atlantic Provinces. This is by far the largest programme of continuing medical education in Canada and represents a tremendous contribution by Dalhousie to the health programmes of the whole Atlantic Region. Nevertheless, it is believed that the continuing medical education of the Division needs to be expanded further. This programme provides just over nine hours per registered practitioner of medicine per year in the form of formal educational opportunities, to supplement his professional reading, much less than is recommended as ideal.

81. The College of General Practice of Canada requires for maintenance of membership, attendance of fifty hours formal continuing medical education every two years. While it is not considered essential or even desirable that all of this continuing medical education should be obtained by every practitioner in the four Atlantic Provinces from this one Medical Faculty, it is reasonable to assume that most of it would be accepted if available near at hand. It is also recognized that this requirement is only 50 per cent of that recommended by practising doctors (1) themselves. It would seem reasonable to aim for forty hours a year for all doctors in our area. This would require considerable expansion of teaching staff and funds to bring visiting teachers, as well as an increase in administrative staff of similar proportion, and the development of teaching facilities (primarily teaching beds) for intra-mural teaching in Halifax, and extra-mural teaching in strategically located community hospitals throughout the four Provinces.

(1) Vollan, D.D.: Postgraduate Medical Education in the United States. A.M.A. Publication, 1955. p. 28-29.

82. The extensive programme of continuing medical education in the Atlantic Region and residency training in the affiliated hospitals has in very large part been carried without remuneration by the part-time clinical teachers, and has placed an increased load on the relatively few full-time teachers. To increase it further will require a very considerable enlargement of staff and an increase in the financial expenditures of the University. Bursaries for post-graduate students, as now available in psychiatry, are also needed.

#### **Contribution of the Medical School to Teaching of Other Health Professions**

83. Since Dalhousie is the only Medical School in the four Atlantic Provinces, it is natural that the medical profession, Governments and the public look to this University for the education of other health personnel as well as doctors and dentists. This has already been illustrated by the establishment of courses in graduate nursing, psychiatry and clinical psychology supported by the Departments of Public Health of the four Atlantic Provinces. A few years ago one interested group of the medical profession also suggested the establishment of a School of Physiotherapy and Occupational Therapy. This was recommended by the Faculty of Medicine and has been approved by the Board of Governors subject to space and financial requirements being met. The reorganization of the College of Pharmacy in 1961 within the University also required an increase in teaching within the Departments of the Medical School. The need for more University graduates in the fields of medical biochemistry, pathology, bacteriology, etc. has recently been emphasized by the Consultant in Laboratory Services of the Nova Scotia Hospital Insurance Commission. He has requested assistance from Dalhousie University in organizing such courses to the B.Sc. and M.Sc. level. The Faculty of Dentistry has established a course in dental hygiene, which will also add to the teaching in the Medical Science Departments of the Medical School.

84. It is a conservative estimate that within five years there will be over 125 students per year requiring at least one course in the several departments of medical science, and the total enrolment of such students may reach nearly 300.

85. There is no doubt concerning the need for trained personnel in all of these fields. However, there may be a difference

of opinion as to whether some of the requirements should be met by vocational schools rather than universities. The trend in most parts of North America is to have these needs met by universities, and Dalhousie has to follow the trend unless, as seems unlikely, the needs are met by vocational or technical schools.

86. It is planned that staff and facilities be provided for one basic course designed for students in the Health Professions in each Medical Science Department of the Medical School. It is not intended that separate courses be given for each of these para-medical disciplines, but only one basic course, which can be expanded or adapted by the teachers of the specialty itself. Facilities for the medical science classes for these health professions will be provided in the proposed new Medical Building, but their professional training will have to be conducted in other quarters. It is considered likely that the present Medical Sciences Building or a part of the Forrest Building would be suitable, when these are vacated by the Medical Science Departments.

87. The University has established a Faculty of Health Professions under which the Schools of Nursing and Pharmacy are now operating and which will also include the School of Physiotherapy and Occupational Therapy. Another section of the brief deals with that Faculty.

88. **Recommendation** It is recommended that, in addition to scholarships for students, the Government of Canada should support medical education at Dalhousie by annual grants based on student enrolment. It is recommended that this grant be at least \$1000 per student, increasing to \$2000 over a five-year period. This would provide an additional \$273,000 to Dalhousie Medical School, based on present enrolment. Approximately \$23,000 would be required to cover the present operating deficit, leaving \$250,000 for expansion. This would allow, first, some very necessary improvements in the present salary structure and honoraria for part-time clinical teachers. An increased honorarium of \$500 to the part-time clinicians would in itself require more than \$60,000 per year. Modest salary increases of the forty-one full-time staff would add another \$40,000. The addition of two full-time staff members in each of the six major clinical departments would require almost \$150,000. In fact, twelve additional full-time members will not be sufficient to take care of the post-graduate programmes for residents, the continuing medical education of practitioners and other rapidly growing programmes. In-

creased enrolment when the new Medical Building is completed will require more staff in the basic science departments. It is therefore expected that within five years the grant would have to reach \$2000 per student. This sum will certainly be required if the staff is increased to permit lengthening of the academic year.

## FACULTY OF DENTISTRY

### Introduction

89. It should be stated at the outset that this section of the Brief is essentially a subjective report. Statistical information and staff are not available to provide the graphic evidence to substantiate many of the comments, but the statements made are based upon observations, experience, and the best information available to us.

### Function

90. From the time of its establishment, the Faculty of Dentistry has served the Atlantic area of Canada. Its two chief functions are to provide educational opportunities for young people of the region who wish to pursue careers in Dentistry, and to provide dental personnel for the area. A responsibility to provide continuing education for members of the dental profession, and to support dental research is also recognized. To the best of its extremely limited ability to do so, the University affords such opportunities.

### Education Programme

91. **Pattern** Dental education at Dalhousie follows the traditional pattern which has been developed on the North American Continent, and every effort is made, indeed must be made, to meet at least the minimal standards for approval by assessment groups of the profession. Without such approval, licensing agencies would refuse to recognize graduates of the school, because the best interest of the public would not be served. In addition, the already difficult task of recruiting competent staff would become impossible.

92. As with the other Canadian schools, the Faculty has been surveyed on several occasions since 1950 by a committee of the Council on Education of the Canadian Dental Association. The standards here meet with their approval. Graduates fulfill the academic requirements for admission to licensure examinations in each of the ten provinces, and the National Dental Examining Boards in Canada and the United States. Since 1957, the Provincial Dental Board of Nova Scotia has accepted the graduates of this University for licensure, without further examination.

93. **Course** The course of studies extends over a period of six years, following matriculation into Dalhousie University,

which in the Province of Nova Scotia is, at present, Grade XI. In effect, there are three broad phases to the programme, as follows:

94. (1) Two years of pre-professional study in a faculty of arts and science, which may be taken at any university recognized by Dalhousie. This period serves to provide the students with the basic knowledge required for succeeding scientific courses, to broaden their knowledge through liberal arts courses, and to permit a greater degree of maturity. In addition, a major portion of the selective screening of students is accomplished before admission to the Dental Faculty at less cost to the student and to the University, and at a time when the student may turn to other areas of study with relative ease, should that be desirable.

95. On the satisfactory completion of ten university classes, of which eight are specified, the student is eligible to seek admission to the Faculty of Dentistry.

96. (2) Two years of study in the basic medical and dental sciences, and introductory clinical courses. In the main, the medical science classes are offered by Departments of the Faculty of Medicine, and the medical and dental students form one class. In most respects this is a very happy arrangement. Under this system, students of dentistry derive benefit from association with medical students who will be their confrères in the future, and with whom, on occasion, they must work in close cooperation. The converse is also true. Undoubtedly, better instruction is provided, at less cost, than if separate departments were to be set up within each school. The larger departments tend to attract better qualified teachers who feel keenly the necessity for close associates with whom they can readily exchange ideas, particularly on research.

97. On the other hand, the gap between the basic science subjects and clinical dentistry tends to be broader when the dental faculty does not operate its own basic science departments. The medical scientist is primarily interested in problems directly associated with medicine and the applications to dentistry are of secondary importance to him. This orientation has a more profound influence on dentistry than might seem evident at first glance. Dental research and dental prevention will be advanced chiefly as knowledge in the basic sciences is developed, and students must receive a thorough basic understanding of these subjects if they are to adapt themselves to

changes in the future. There is little doubt that better integration of the basic and clinical sciences would result if the Faculty of Dentistry had its own departments in the basic medical sciences. The teachers' interests would be oriented more closely to dentistry. Not only the teaching would be strengthened by this change, but more students would be motivated to pursue careers in the basic sciences, and more opportunity would be available to them on graduation. Separate medical science departments should be established within the Dental Faculty at such time as the increased student enrolment warrants separate classes from the medical students.

98. (3) The final two years of the undergraduate programme are devoted largely to practical experience in the clinic operated by the Faculty and in affiliated hospitals, together with lectures and seminars.

99. **Academic Year** For the first two years in the Faculty the course extends over a period of approximately thirty-three weeks plus examinations, and in the third and fourth years for approximately thirty weeks plus examinations. Within two years, or as soon as the number of students in the clinical years has increased appreciably, it will be necessary to increase the length of the third year course by approximately four weeks, because of the arrangement of our physical facilities.

100. Continuing pressures from Faculty members, the dental profession, and others, for additional teaching time in many subjects, and for new courses, create problems of programme planning which could be solved more easily by an additional teaching year. Within the past eight years the length of the academic year for this Faculty has increased by four to six weeks, and consideration may have to be given to a further extension, but at this time it does not seem reasonable to increase the number of years.

101. **Development** The programme of dental education is undergoing continuing improvement and review. Dramatic changes have taken place in this Faculty since the Second World War, through the efforts of the University itself, the Council on Education of the Canadian Dental Association, and the financial support of the W. K. Kellogg Foundation. Improved physical facilities, additional full-time teaching staff, and training programmes for the teachers both within the University and at the post-graduate and graduate level at

other institutions, have enabled the Faculty to increase the effectiveness of its teaching.

102. **Objectives** In February of 1961 the Faculty reviewed the objectives of its programme and approved the following statements:

103. 1. "As a small School, activity must be restricted chiefly to undergraduate instruction designed to provide a more adequate supply of well-qualified Dentists for the Atlantic Provinces.

104. 2. "Although for the immediate future Graduate instruction must be left to larger and more generously financed Schools, this Faculty must provide frequent and varied opportunities for continuing education in Dentistry at the post-graduate and refresher-course levels, so that the practitioners of the region may be assisted in improving and advancing their services.

105. 3. "It is axiomatic that university graduates should be educated men and women capable of critical, original and objective thinking. The programme of the Faculty should be designed, therefore, to produce professional people willing and able to assume positions of responsibility and leadership in their respective communities.

106. 4. "All courses should be designed to stimulate and motivate the students to strive towards the ideals of the profession of Dentistry.

107. 5. "The detailed course of instruction should assist the student to acquire a fundamental knowledge and understanding of the sciences basic to clinical dentistry. These provide the foundation for present clinical practice, and enable the student to adapt himself to developments and changes of the future.

108. 6. "Because it is not possible to provide sufficient experience for students to develop a high degree of proficiency in all phases of Dentistry within a reasonable time limit for an undergraduate programme, instruction in the technical phases of laboratory and clinical Dentistry must be restricted severely, at the same time, ensuring an adequate level of competence in the basic areas.

109. 7. "The undergraduate programme must include direction and guidance to the student about his personal and professional relations with the public, his colleagues, auxiliaries, and members of the allied professions, in order that he may learn to work effectively with each.

110. 8. "In order to further this objective insofar as it applies to auxiliaries, the Faculty should undertake the training of Hygienists as soon as is practical. The Faculty should explore the extent to which additional duties may be delegated to adequately trained auxiliaries. It should also cooperate with the profession in the establishment of training programmes for dental auxiliaries.

111. 9. "An appreciation of, and interest in research must be fostered. To this end an opportunity must be provided for students to be made aware of Research activity by direct contact with those conducting projects, and also by affording the opportunity for interested students to do research work."

112. **Continuing Dental Education** Despite the need for additional practising specialists in the region, the Faculty is unable, at present, to offer instruction in either specialty or graduate dental education. To do so would require unforeseen assistance from the basic science departments, additional specialists on the clinical teaching staff, and additional physical facilities. Advanced education is limited, therefore, to refresher and short post-graduate courses. These have been undertaken on a regular basis within the past three years. Courses in various clinical subjects are offered three to four times a year, to the general practitioners of the Atlantic Provinces. Depending on the subject, and the facilities for the programme, each class has a limit of six to twelve. In most instances, guest clinicians have been obtained from our sister universities in Canada and the United States. The response, while not over whelming, has been gratifying. It would appear to be a useful and appreciated service.

#### **Research**

113. Dental research is extremely limited at Dalhousie by physical facilities, finances, staff, and available staff time. It is difficult to say in which area the need is most acute.

114. Within the past ten years, dental research projects have been undertaken by the Departments of Anatomy and Pharmacology, supported by grants from the Associate Committee

on Dental Research of the National Research Council of Canada and the Council on Education of the Canadian Dental Association. In the same period, two projects have been undertaken by members of the dental staff, and six students have been supported by studentships for summer research activities. There has been no money for research in the budget of the Faculty. It had to be secured from agencies outside the University.

115. It may not be necessary for all good teachers to engage in research, but it is well recognized by dental educators that research activity is vital to a good Faculty. Without active programmes, students will not be made fully aware of the true value of research and its implications, nor will there be the stimulus necessary to create additional and sorely needed workers in the field.

116. There is an urgent need for more dental research work and its support in this Faculty.

#### **Staff**

117. **Number** Until 1953, there was only one full-time teacher in the Faculty. Except for classes in the basic medical science, instruction was given almost entirely by the practitioners of Halifax and Dartmouth, who devoted from one to four hours a week to teaching. In addition to those in the basic medical science departments, there are now five full-time teachers, including the Dean, seven teachers serving two to three half-days a week, and nineteen serving for a half a day or less. There is also one new member of the full-time teaching staff on leave of absence to pursue graduate studies, and there is provision in the current budget for one more full-time teacher.

118. **Requirements** One of the difficulties in a small school is to obtain a reasonable balance between the cost of the programme and the appointment of a sufficient number of full-time teachers for the various areas in which their services are essential. Previous reference was made to the necessity for research and to the desirability of separate basic science departments. Each involves more staff. The need for additional full-time teachers is also made more acute by the scarcity of practising specialists in the community who might be available for part-time teaching duties.



119. Based on the projected size of class for the present building, at least five additional full-time teachers could be used effectively and efficiently, in the clinical programme if financial support, office and laboratory accommodation could be provided for them.

120. **Recruitment** Despite the fact that the salaries offered by Dalhousie bear a reasonable relationship to those in the other Canadian dental schools, great difficulty has been experienced in the recruitment of competent full-time teachers. In the majority of such appointments, this University has found it necessary to subsidize prospective staff members through a period of specialized education in order to entice them from the attractions of private practice. This is not too surprising, however, when one considers the existing incongruous situation in which the salaries offered to teachers, who should be among the more outstanding people in their particular fields, are less than the income of a reasonably competent general practitioner. The difficulties have been accentuated by the dramatically increased demand for full-time teachers by all of the dental schools, and dental teachers must be attracted from an educational programme which, until recently was directed solely to training for private practice.

121. The salaries must be increased, and other incentives offered to ensure an adequate number of teachers to meet future requirements.

122 **Part-time Staff** The practising dentist continues to be a vital and very essential member of the teaching staff, making his most significant contribution from experience with the practical problems encountered in private practice. His effectiveness would be greatly increased, out of proportion to the time involved, if he were able to offer a minimum of four or five half days a week to teaching. To date, however, this University has not been in a position to offer a reasonable remuneration to include the heavy on-going expense of maintaining his office while absent from it to assume teaching duties. To their great credit, members of the profession have been willing to make financial sacrifice for one or two half days a week in order to serve their profession at the University, but one cannot expect unlimited sacrifice.

123. **Non-academic Staff** Additions to the teaching staff would require automatic increases to the technical and secre-

tarial staff, which to date the University has been able to maintain at a reasonable level.

124. It is believed that the teaching programme could be more efficient and more effective if auxiliary personnel could be employed in increasing numbers. The dental assistant, dental hygienist, and dental technician could be used to assist the student in many additional clinical duties, thus relieving him of non-essential tasks which he now must undertake personally. At the same time, the student would be trained to use auxiliaries more effectively in his subsequent practice. At present, neither the trained personnel nor finances are available in sufficient quantity for this purpose.

#### **Physical Facilities**

125. From the time of its establishment until 1958, the clinical facilities for the Faculty were located in the Forrest Building, which initially accommodated the entire University. In 1953, the Board of Governors decided that the Faculty required greatly improved physical facilities which could be provided only in a new building. Because of the high and increasing population per dentist in the area, it was also decided that the new quarters should enable the student enrolment to be doubled.

126. **Present Accommodation** Accordingly, plans for the new building were made with the understanding that the cost must be kept to an absolute minimum, consistent with the provision of a building which would permit a high standard of dental education. It was to accommodate twenty-five students in each class, and classes of approximately nine students in each of the two years of a course for dental hygienists. Other classes are offered in the basic science departments of the Faculty of Medicine, and in affiliated teaching hospitals (see Faculty of Medicine report).

127. **Limitations** The physical facilities for the Faculty are of excellent quality, although fairly restricted in size. The number of operating units in the clinic is significantly smaller in proportion to the number of dental students, than those in the other Canadian schools. This economy was achieved by a plan to assign a junior and a senior student to the same working area for alternating periods. A slight increase in the length of the academic term for the third year students will be necessary to continue to provide the same amount of clinical experience. Accommodation for specialized clinics was kept

to a bare minimum. There is no special provision for post-graduate and refresher courses, which imposes a limitation on the type of course and the number of students to be accommodated.

128. The greatest space limitations, however, are in office and laboratory accommodation for the teaching staff. When the present teaching establishment has been filled, no further office space will be available in the present building.

129. Laboratory space for research is limited to an area of approximately 789 square feet in two rooms which must also be used for laboratory preparation and teaching.

130. Without additions to the building, it would not be possible to increase the class enrolment beyond twenty-five dental students and approximately fourteen dental hygienists.

131. Reference is made, in the section of the report dealing with the Faculty of Medicine, to the accommodation for the basic medical science classes for dentistry.

132. The Library for the Dental Faculty is now situated in the Medical-Dental Library Building, which was designed in 1939 to accommodate classes of approximately twelve dental and fifty to sixty medical students. Apart from the fact that the building is no longer conveniently located so that it can be used most effectively by the dentistry students, accommodation is overtaxed and provision of additional space is essential. Any future expansion of the Dentistry Building should make provision for the location of the dental library within the Faculty building.

133. The Victoria General Hospital and the Children's Hospital have teaching affiliations with the University, and may be used for the educational programme in dentistry. The physical facilities for dentistry in both institutions are at a minimal level, and substantial improvement is necessary if they are to be used as effective teaching units. Problems of dentistry for the physically handicapped, for those requiring hospitalization for medical or surgical reasons, and the increasing number of geriatric patients make hospital training an essential part of the undergraduate dental curriculum.

### Students

134. Until the establishment of the Faculty, the nearest educational centers for the study of dentistry were in Montreal and Boston. Dalhousie has the only Faculty of Dentistry in the Atlantic Provinces. Service to the region can be seen from the following table which shows that an increasing number, and now the majority, of dental students from the Atlantic community receive their professional education at Dalhousie University:

#### Origin of Dental Students

##### Five-Year Period: 1951-52—1955-56

	Nfld.	N.B.	N.S.	P.E.I.
Total No. Canadian Dental Students	56	101	140	39
Total No. at Dalhousie University	38	47	129	15
% of Total Canadian Students at Dal.	67.8	46.5	92.1	38.4
% of Total Canadian English-speaking students at Dalhousie	67.8	61.8	94.8	41.6

##### Five-Year Period: 1956-57—1960-61

Total No. Canadian Dental Students	51	98	93	16
Total No. at Dalhousie University	42	60	88	10
% of Total Canadian Students at Dal.	82.3	61.2	94.6	62.5
% of Total Canadian English-speaking students at Dalhousie	82.3	86.9	95.6	83.3

##### Ten-Year Period: 1951-52—1960-61

Total No. Canadian Dental Students	107	199	233	55
Total No. at Dalhousie University	80	107	217	25
% of Total Canadian Students at Dal.	74.7	53.7	93.1	45.4
% of Total Canadian English-speaking students at Dalhousie	74.7	71.8	95.1	50.4

135. **Enrolment:** The following Table shows the total student enrolment in the Faculty of Dentistry at Dalhousie University from 1929-30 until the current session, 1961-62:

Year	Student Enrolment	Year	Student Enrolment	Year	Student Enrolment
1929-30	30	1940-41	31	1951-52	49
30-31	27	41-42	25	52-53	50
31-32	21	42-43	39*	53-54	50
32-33	21	43-44	22	54-55	48
33-34	33	44-45	20	55-56	47
34-35	39	45-46	27	56-57	47
35-36	54	46-47	37	57-58	53
36-37	51	47-48	37	58-59	55
37-38	47	48-49	41	59-60	59
38-39	37	49-50	48	60-61	53
39-40	35	50-51	48	61-62	60

\*Special accelerated classes during War Years.

136. Until provision of the present building, total enrolment was limited by facilities and staff to approximately fifty students. Although the building was first occupied in 1958, the class size could not be increased until necessary additions had been made to the full-time teaching staff. It was not until 1960-61 that the Faculty was prepared to accept a full complement of twenty-five freshmen students. The actual enrolment of freshmen in that year was fifteen. For the current year the number has been increased slightly. There are eighteen in the freshmen class, including seven students from outside the Atlantic community.

137. **Applicants** With such small classes, an accurate analysis of the year to year changes in the quality of applicants cannot be made. It is our opinion, however, that there has been no significant change in quality, within the past eight years, unless it is a slight improvement.

138. For the past several years, **all qualified students** from the four Atlantic Provinces who sought admission have gained acceptance.

139. **Recruitment** This indicates the very real necessity of recruiting students for the profession of dentistry. The pressure of teaching duties and other administrative matters have been so great upon the staff that they have been unable to devote more than a token amount of time to this task. When requested, Faculty members have been only too willing to attend career programmes in the high schools of the Province, and efforts have been made to encourage students who show an interest in the profession, by inviting them to visit the school.

140. While the University accepts its share of responsibility for recruitment, members of the profession, individually and collectively, must share the greater burden of responsibility. It is gratifying to note that the Canadian Dental Association and the individual Associations in this region have taken steps to organize recruitment committees at the national, provincial, and local levels, but some years will elapse before the full effect of even the most energetic recruitment programme can be realized.

141. An increase in the number of applicants may be anticipated in succeeding years, because registration in the liberal arts colleges has begun to reflect the population 'explosion' of

the 1940's, and these students are just now attaining age to seek admission to the dental schools. It is doubtful, however, whether this development alone will result in the required number of candidates for dentistry. Studies elsewhere indicate that the most effective recruitment is done by the individual dental practitioner. The very scarcity of dentists may be reflected in an inadequate supply of prospective students, and thus, greater effort must be made by each individual to be an active 'ambassador' for the profession.

142. The Faculty is not aware of any Canadian study on the origin of dental students, but it is safe to say that by far the majority of them, as with university students generally, come from families of moderate or well-to-do circumstances. It has been said that the cost of dental education is one of the factors which discourages students from entering the profession. This may be true, but it is a fact that no student enrolled in dentistry for the past ten years has been required to discontinue his studies for financial reasons. This may mean that most students from lower income families do not enter dental school or even consider the possibilities of a career in dentistry. It is likely that the parents of such students tend to discourage their interest in the profession.

143. Experience with veteran students in the dental schools following the Second World War would substantiate the desirability of finding financial aid for students of limited means. Many were excellent students who would not have been able to attend university had it not been for the subsidization provided through the Department of Veterans' Affairs.

144. Two subsidization programmes are now available to students in this region. One is offered by the Government of Newfoundland to students from that Province. The dental student is subsidized to the extent of twelve hundred dollars a year for four years, in return for which he is required to serve for four years in the province, two of which must be with the Provincial Public Health Department. The other plan is that of the Royal Canadian Dental Corps in which almost the entire cost of dental education, plus pay and allowances, and other benefits are provided for students who undertake to serve in the Corps for a period of five years.

145. Both of these programmes have excellent merit. They provide personnel for the departments, and an educational opportunity for students who might not otherwise be able to

undertake the programme of studies. On the other hand, the plans do have limitations. The potential pool of practitioners for the area is reduced by the Army plan, and in both schemes some potential teachers, research workers, and specialists are diverted from early entrance into the area of their special aptitudes, and may never return to it.

### Dental Personnel in the Atlantic Region

146. **Present situation** As the major source of dental personnel for the region, the Faculty must make all possible effort to fulfill requirements. It therefore seems appropriate to comment on the present personnel situation.

147. The following Tables are prepared from information obtained through the central office of the Canadian Dental Association to show:

- (a) the more recent ratios of population per dentist in each of the Atlantic Provinces and Canada as a whole, and
- (b) the number of practising dentists in each of the Atlantic Provinces, and in Canada as a whole, from 1938 to the present:

#### Population per Dentist for 10-year Period 1952-61\*

Year	Nfld.	N. B.	N. S.	P. E. I.	Canada
1952	17,038	4656	3257	3372	2740
1953	15,059	4564	3262	2983	2686
1954	11,969	4621	3348	3118	2790
1955	12,061	4597	3399	3000	2838
1956	11,771	4574	3449	3273	2881
1957	10,643	4437	3600	2920	2934
1958	10,390	4520	3675	2913	2981
1959	9,522	4653	3737	3030	2963
1960	10,441	5175	3710	2914	3018
1961	10,929	5000	3689	3323	3037

\*From Canadian Dental Association—as of January First in given year.

#### Number of Practising Dentists—Atlantic Provinces and Canada as a whole

Year	Nfld.	N. B.	N. S.	P. E. I.	Canada
1938	*	110	169	30	4174
1943		71	133	22	3284
1947		114	180	28	4602
1948		167	177	24	3726
1949		112	178	29	4549
1950	19	105	171	29	4627
1951	21	106	192	30	4912
1952	21	110	196	29	5071
1953	24	113	197	33	5215
1954	32	116	198	34	5298
1955	33	119	198	35	5354
1956	35	122	198	33	5416
1957	39	125	193	34	5481
1958	41	125	191	34	5564
1959	46	124	190	33	5753
1960	43	114	193	35	5780
1961	42	120	196	31	5865

\*Figures not available prior to Confederation.

148. It can be seen that the ratio of population per dentist in each of the Atlantic Provinces is much higher than the Canadian average. In general, with the possible exception of one of the Western Provinces, the situation is much less favourable in the Atlantic region than in any other area of Canada.

149. In recent years there has been some improvement in the population per dentist in Newfoundland, and little change in Prince Edward Island, but there has been a more or less recession for both New Brunswick and Nova Scotia.

150. **Requirements** Comprehensive statistical information is not available, but it is our belief that dental health in this region is also much less favourable than in other parts of the country. While one would expect such a situation to exist because of the relative shortage of dentists, we suspect, without the means to prove our case, that other factors, possibly diet, heredity, economics, etc. contribute to a disproportionately high incidence of dental disease. If personnel and money were available, the validity of this impression together with possible reasons and solutions, should be investigated.

151. What the population per dentist should be is not known, for it is related not only to need but to actual demand for dental services, and statistics are not available. Demand will vary from one region to another depending on availability of service, the level of education, and the economic conditions in

the area. It seems reasonable to expect, however, that the number of dentists in the Atlantic Provinces should, at least, be as favourable as in other parts of Canada, namely, one to 3,037.

152. The Royal Canadian Dental Corps establishment is on the basis of one dentist for every 750 service personnel. In the United States the present population per dentist of approximately 1,900 is considered far from adequate. According to the recently completed "Survey of Dentistry in the United States" (1), it is stated:

"This latter study reported that national expenditures for dental care increased by 50 per cent during the five-year period of the year of the study, 1957-58. Taking into consideration increases in population and in dental fees, the Health Information Foundation report indicates an increase of 22 per cent in the amount of dental care received per capita during the five-year period. Should this trend continue, total consumption of dental care in 1975 will be about 120 per cent higher than in 1958."

"Should the prediction of the level of future demand be overstated by half, the problem of assuring adequate dental manpower in 1975 still would represent a Herculean task. In fact, to train in the brief period of fifteen years the number of dentists needed to meet even a part of the tremendous increase in demand is an almost impossible undertaking."

153. There is no reason to believe that the incidence of dental diseases in this country is less than it is in the United States. Dental personnel requirements, on the other hand, may be less than in the United States, but only as a result of limitations imposed by economic resources of the country and its individuals, and a lack of appreciation for the necessity of dental care—dental health education.

154. Further evidence of the acute problems associated with the provision of dental health service is the almost complete absence of practising specialists. In the four Provinces there are only six Orthodontists (four in Nova Scotia, two in New

(1) Survey of Dentistry, The Final Report, Commission on the Survey of Dentistry in the United States; 1961; American Council on Education, Washington, D.C., pp. 81, 83.

Brunswick), one Oral Surgeon, no Periodontists, no Paedodontists, and no Prosthodontists.

155. One out of 800 children is born with a cleft palate, and yet there is no center for the management of such cases, most of which require the cooperative services of the surgeon, the paediatrician, dental specialists, the speech therapist, and the psychologist. A few, the more fortunate people, who require specialized attention are able to finance trips to the nearest treatment centers located in Montreal or Boston. Others are given the best possible service by local surgeons and dentists, but many must remain untreated.

156. Dental Public Health services are at a minimum at the provincial levels, and practically non-existent in local communities. From the point of view of prevention, the public health departments unquestionably are attempting to do as much as they can within the limited resources and personnel at their disposal. They are faced, also, with the dilemma of balancing their desire to advance public education in prevention and early dental care, with the fact that any appreciable increase in demand for service could not be provided by the available practitioners.

157. The University does not now feel competent to predict what the immediate supply of dentists should be for the Atlantic Provinces. Many factors, such as economic conditions, implementation of prepaid or state-supported dental health care plans, population increases, and the extension of known preventive services, and public health education, will affect the relationship of demand to actual need. More dentists are required, but it is also certain that a sudden, substantial increase in the supply of dentists, even if it were possible within the space of a very few years, which it is not, would create problems of full utilization, and economic difficulties for the practitioners.

158. The following Table shows the additional number of dentists required to attain the average Canadian ratios which was obtained in 1938 and 1961. It is based upon the population figures of March, 1961, from the Canadian Statistical Review, and dental population figures supplied by the Canadian Dental Association:

**Number of Additional Dentists Required to Bring the Population per Dentist to the 1938 and 1961 Canadian Ratios.**

Prov.	Number of additional Dentists needed to attain ratios of:		Number of Registered Dentists 1961
	1:2685*(1)	1:3037*(2)	
Nfld.	132	112	42
N. B.	106	80	120
N. S.	75	44	196
P. E. I.	8	3	31
Total	321	239	389

\*(1) Canadian Ratio in 1938

\*(2) Canadian Ratio in 1961

159. It is evident that the present facilities could not provide, within the space of twenty years, sufficient additional dentists to reach even the present Canadian average, without regard to population increase, death and retirement rates, and other factors which would adversely influence the change.

**Finances**

160. The cost of operating a dental school is probably the highest of any faculty in a university. There are three basic reasons why this is so:

(1) The teaching clinic and laboratories require a great deal of costly equipment and technical services.

(2) The cost of operating the clinic service is borne from the Faculty Budget. In medical schools the service staff and facilities for the clinical departments are usually within a hospital which is financed as a separate unit. The teaching staff, is probably charged to the Faculty of Medicine.

(3) There is a large number of teachers, many of whom are in specialized fields, in proportion to the number of students, despite the almost gratuitous services of a very large number of part-time teachers.

161. **Annual costs** The annual operation of the Faculty of Dentistry at Dalhousie is financed solely from student fees, Government grants, and the University's resources, including income from the operation of the dental clinic. Patient fees, which account for the latter item, are based primarily on the

cost of materials and supplies, and not on the total cost of operating the clinic. The clinic is provided as a teaching unit, although considerable service is rendered incidentally to low-income groups of the immediate area at a nominal charge to the individuals. This service is of great benefit to the community.

162. Comparisons of the cost per student and sources of University revenue for the academic years 1954-55, and 1961-62 are as follows:

	1954-55	1961-62
Cost per student	\$1,219.96	\$4,227.66
Income per student:		
By student fees	398.00	450.00
Government grants	428.80	2438.59
University resources	393.16	1339.07*
<b>Total</b>	\$1,219.96	\$4,227.66

\*Includes a deficit for the Faculty Budget in excess of \$50,000, or about \$950 per student.

163. The projection of the cost per student reported by the Survey of Dentistry in the United States is probably valid for Canadian schools. It is stated on page 383:

164. "Those planning new or expanded schools should contemplate operating expenses of about \$5,000 per student per year by 1970".

165. The cost at Dalhousie should exceed this figure, as the cost per student in a small faculty is higher than in larger schools. If this Faculty of Dentistry were to increase to a size of forty to sixty students per class, it would not be necessary to have a proportionate increase in all of the costs of providing services and teaching staff. Thus, the cost per student up to approximately sixty students per class with the same quality of teaching would be somewhat less than for a class of twenty-five.

166. The four Atlantic Provinces each make an annual grant to Dalhousie for the operation of the Faculties of Medicine and Dentistry. Calculations upon which the payments are made are combined for the two Faculties, and more detailed information will be given subsequently to indicate further the difficulties with which the University is faced in securing adequate

support for the operation of these two professional schools. (See paragraphs lettered F).

167. **Capital Costs** In planning the new Dentistry Building, financial support for the project was sought from Federal and provincial governments, and from private resources. As a result of the most heroic efforts for support, the new building was completed, equipped, and occupied in 1958 at a total cost of one million, nineteen thousand, four hundred dollars (\$1,019,400). Government assistance in this project accounted for less than twenty-five per cent of the total cost. The Government of Nova Scotia provided \$150,000, and through Federal Health Grants, an additional \$54,623. The Government of Newfoundland made a grant of \$30,800 for equipment, but no assistance was received from the Governments of New Brunswick and Prince Edward Island. The bulk of the money had to be raised by the University through gifts from Foundations and other private donors, including one hundred thousand dollars from the W.K. Kellogg Foundation and \$38,000 from the dental profession.

168. It is most unlikely that additional money for capital expansion can be obtained from private sources for this Faculty of Dentistry in the future.

#### **Dental Hygiene Education**

169. The training programme for Dental Hygienists is in the School of Dental Hygiene, which is organized as a separate division within the Faculty of Dentistry. There follows a statement of its present and future position:

170. **Historical Background** Slightly less than fifty years ago the first formal training programme in dental hygiene was initiated in Bridgeport, Connecticut. The primary objectives of the first school were twofold: (1) to train young women to provide oral prophylactic service (scaling and polishing of the teeth) for children in the public schools of Bridgeport, and (2) to promote improved dental health habits through individual instruction and classroom talks. The success of this project demonstrated the value of the dental hygienist in dental public health and also demonstrated to members of the dental profession the valuable contribution which the dental hygienist might make in providing these services for patients in the private dental office. It was indicated that in offices in which the dental hygienist became one of the auxiliary dental personnel, she could assume these two aspects of preventive dental

treatment and thus provide time which the dentist could utilize to perform other treatment services for his patients. The profession of dental hygiene has grown steadily in the United States and the movement to educate young women to become dental hygienists has spread to Canada and other countries.

171. **Origin** Several factors prompted the consideration of the establishment of an educational programme in dental hygiene within the Faculty of Dentistry at Dalhousie University. Among the more important of these factors were: (1) increased employment opportunities in private dental practices, (2) increased employment opportunities in dental public health programmes sponsored by provincial departments of public health, (3) provision of educational opportunities for young women of the Atlantic Provinces and (4) a means of providing the dental student with some experience in working with the dental hygienist who at this level of her training, serves as a chairside assistant as well as in the areas of professional dental service traditionally assigned to her. In summary, it was believed that the establishment of a School of Dental Hygiene at Dalhousie University would assist in providing a further extension and an improvement of dental health services within the community of the Atlantic Provinces.

172. **Physical Facilities** At the time of planning for the construction of the new building for the Faculty of Dentistry provision was made for students in dental hygiene. While excellent physical facilities were provided, it remained to obtain financial support for the proposed educational programme.

173. **Financial Support** The funds necessary for the initiation and the operation of a School of Dental Hygiene for a period of three years were secured from the W. K. Kellogg Foundation, Battle Creek, Michigan. Funds for the first year included a sum for capital expenditures: instruments, educational films, reference books and other items necessary to implement the programme. Funds for the first year of operation were granted on the basis of an initial class of eight students. Cost was estimated at \$2299 per student. The amount of the grant for the second year of operation was based on estimated costs for a total of twenty students (eight second year, twelve first year) and amounted to \$1239 per student. For the third year, the amount of the grant was based on cost of operation for twenty-four students and amounted to \$1070 per student.

174. **Course Content** The two-year course leading to a Diploma in Dental Hygiene offered at Dalhousie University was established on the traditional curricula. The courses which comprise the educational programme may be classified as scientific, general, clinical, and laboratory. The basic science courses are largely concentrated in the first year of study with the more specifically dental hygiene courses and the clinical practice of skills emphasized in the second year.

175. **Admission** Qualifications for admission to the course of study are the same as for all other students applying for admission to undergraduate programmes at Dalhousie University, namely: the satisfactory completion of specified subjects of junior matriculation.

176. **Enrolment** The first class of eight students represented three of the four Atlantic Provinces. As the School of Dental Hygiene was established to serve the Atlantic Provinces, it is hoped that in future classes there will be students from each of the four Provinces. Five of the eight students are on bursaries from their provincial governments and will be employed in dental public health upon their graduation. It is anticipated that the remaining number of graduates will be employed in the offices of private dental practitioners.

177. **Future Support** Through the support of the W. K. Kellogg Foundation, the operation of the first three years of the school is assured. Upon expiration of the grant on June 30, 1964, the financial support for the programme will have to be obtained from other sources: the operating budget of Dalhousie University and grants from the national and provincial governments. Should all costs—salaries, operation of the physical plant, teaching materials, instruments and equipment—remain the same, it is estimated that the cost per student will be from \$1100 to \$1300 per year. Capital expenditures are difficult to predict, but, in time, equipment and instruments will need to be replaced and facilities expanded. The physical space now available could, with slight alteration and installation of additional equipment, provide for classes of fourteen students.

178. **Demand** It is anticipated that within a few years time, there will be an ever increasing demand for the professional services of the graduate dental hygienist as well as an increase in the number of qualified students seeking admission to the

educational programme. It is with these factors in mind that note is made of anticipated future needs.

## 179. PROJECTIONS AND RECOMMENDATIONS

There is need for much more generous financial assistance for the operation of the present Dental Faculty, and on a more stable basis (also see subsequent sections—paragraphs F). Present deficits must be eliminated (162).<sup>\*</sup> More, qualified teachers—particularly on a full-time basis, are required now (124), as well as for any future increase in the size of the school, and technical staff who would contribute to an increase in the efficiency and effectiveness of the teaching programme (124). Salaries of teachers should be improved immediately (120, 121, 122).

180. There should be an immediate improvement in the facilities for the teaching of dental students in hospitals.

181. To stimulate the development of dental research staff (111, 116) and teachers, it is recommended that money be provided to subsidize persons engaged in advanced education programmes for these purposes.

182. An extension of short post-graduate and refresher courses should be developed now, but graduate and specialty education in dentistry is not possible at Dalhousie until there has been an appreciable increase in the size of the Faculty (112).

183. At such time as the class size is sufficiently large (forty to sixty students), basic science departments (Bacteriology, Biochemistry, Microscopic Anatomy, Pathology, Pharmacology, Physiology), with adequate research facilities, should be established as an integral part of the Dental Faculty (97). For many reasons it may be desirable for the medical department of anatomy to continue to offer the instruction in gross anatomy.

184. Based upon experience in this University, much more generous financial assistance is required for the adequate operation of existing and projected dental schools, and for capital needs. Depending on the size of the school, it is estimated that an additional \$2,000 per student is required for annual operation, and \$20,000 per student for new capital construction,

<sup>\*</sup>All cross references are by paragraph number.



which could include separate basic science departments for the Faculty of Dentistry. It is highly improbable that these amounts can be secured from private sources. Since graduates of the dental school may choose to practice in any area in Canada, it is recommended that the Federal Government provide financial assistance both for operation and capital construction of dental schools.

185. It is estimated that only one-fifth to one-third of the Canadian population now receives dental care in a given year. It is known that only five per cent of the population is unaffected by dental diseases, but more information is needed relative to annual need and demand for dental service.

186. It is recommended, therefore, that a reliable study be undertaken to determine the relative need and demand for dental care, so that projections of personnel requirements may be prepared on a realistic basis. Such a study should include consideration of the possible effects of pre-paid and state-supported dental care programmes.

187. There is need to increase the number of dental practitioners in the Atlantic region (146-159). Increasing university enrolment and recruitment activity may improve the present inadequate numbers of students in dentistry, but it appears that additional incentives are necessary to assure the required number and quality of students (134-145). It is recommended that these incentives include:

188. (1) Annual scholarships, each in the amount of \$1,500- to \$2,000, for the four years in the Faculty of Dentistry, to permit the Dental Faculty to compete with other areas of advanced education for students with high academic standing.

189. (2) A number of substantial bursaries for needy students which would assist them for at least the four-year period in the Faculty of Dentistry. To be effective, the amount should be about \$1,000 a year, which, if added to summer earnings, would cover the \$1,500 or \$2,000 per year which students estimate is their personal annual cost. Such bursaries should be on a national basis, preferably with 'no strings' other than an undertaking to serve in Canada.

The University does not now have funds to provide either of these incentives.

190. (3) Student subsidies similar to those provided by the Royal Canadian Dental Corps, sufficient to cover the cost of dental education and living expenses, in return for which the student would agree to some form of public service for a specified number of years.

191. The first two methods are to be preferred, because they allow the graduate to have greater freedom in the selection of a career, whether it be general or specialized practice, research, teaching, or public health.

192. Because of the shortage of dental personnel, implementation of a full programme of state-financed dental care seems impractical at this time. Any state dental health care plan should be preceded by a programme which will provide greatly increased numbers of dentists.

193. Further, any solution to the manpower problem which results in a lowering of professional standards of dental care, will compound the difficulties by discouraging recruitment to the profession, and a deterioration in the dental schools.

194. It cannot be emphasized too strongly that from the day a decision is reached to provide a new school, a minimum of six years will elapse before the first student graduates from it. This includes time for planning and construction, recruitment of staff and a minimum of four years required to educate a dental student.

195. In considering any extension of facilities for dental education in the Atlantic Provinces, the following points are pertinent:

(a) The Faculty of Dentistry at Dalhousie is now providing the majority of dentists for the region (134), and it is able to accommodate twice as many qualified students as now seek admission from the Atlantic Provinces (136).

(b) The first step in a programme for the expansion of dental education facilities in the Atlantic region should be an increase in the size of the existing school.

(c) It has been suggested that the facilities of the dental schools be utilized more efficiently by offering classes for eleven months of the year, rather than the present eight and one-half to nine months, thereby reducing the number of calendar years

required to complete the course of study—although not the total teaching time. This might be possible, but not without a significant increase in the teaching staff and other personnel for whom there is no physical accommodation at present, and under the present circumstances only if the basic science classes for medical and dental students could be adjusted.

(d) The University is not aware of any authoritative evidence to determine the optimal size of a dental school from the points of view of economy and most effective teaching. It is the Faculty's opinion, however, that greater economy could be achieved with a class size of sixty students, but that this figure should not be exceeded. To do so would result in less efficiency until classes of approximately one hundred and twenty were reached, but even more, a close personal relationship between the teacher and student would be impossible. The Faculty must be in a position not only to assess the student's intellectual and technical skill, but his ability to develop rapport with his patients.

(e) The size and location of the dental school is determined, in part, by the necessity that it be an integral part of the university, and by the size of the community in which it is located. It is doubtful whether an urban population appreciably less than 100,000 would provide the number of patients for the variety of teaching experience in the clinical programme.

197. Part of the personnel problem can be solved by the more extensive use of auxiliaries in practice. These include the dental assistant, the dental hygienist, and the dental technician. Training programmes for these groups should be developed.

198. Within two years, this University will require support for its dental hygiene programme in the amount of approximately \$700 per student per year (177).

199. It is reasonable to expect that auxiliaries can be trained to do more of the technical procedures under the direct responsibility of the dental practitioner, than is now legally permissible. This possibility should be explored on an experimental basis, to determine the extent to which additional duties can be assigned in an effective and economically sound manner.

200. It is recommended that a system of Federal-Provincial Public Health Grants be implemented, specifically for dental health problems, similar to those available for medicine. These should provide funds for clinical research and other studies such as the project suggested in paragraph 199, for specialized treatment centers such as cleft palate clinics, diagnostic centers (particularly in orthodontics and other specialty areas) and the extension of dental public health services.

## **FINANCING OF THE FACULTIES OF MEDICINE AND DENTISTRY**

201. The introductory section of this brief indicated that Dalhousie Medical School was introduced to the cold hard problems of financial insolvency when it was only five years old. It surmounted its first major crisis in 1920 with an endowment from the Rockefeller and Carnegie Foundations.

202. The second major financial crisis for the Faculties of Medicine and Dentistry occurred after World War II when costs were spiralling, needs for staff were great and the provincial grants were very small. In fact, it was only in 1947 that two of the four Provinces had first recognized their responsibility for supporting medical and dental education. A few details of later negotiations with the Provincial Governments and the search for funds from other sources will be described to emphasize the high cost of medical and dental education, the need to maintain high standards and the problems resulting from the instability of provincial grants.

203. From 1947 to 1954 the provincial grants remained at the level of \$115,000. In 1954 a further approach was made to the Governments of the four Provinces, indicating that a substantial increase in support was required because of the existing deficits and the obvious fact that both Faculties would have to improve very markedly in order to meet the requirements of accrediting agencies. Without increased support it would be impossible to obtain staff or provide a reasonable quality of education for the students of this region.

204. The Provinces were requested to provide increases of \$143,000, allocated on the basis of the average number of students in attendance in the Faculties of Medicine and Dentistry from the respective Provinces over the previous five-year period. Nova Scotia was asked to bear a higher proportion than the other three Provinces, in recognition of certain incidental benefits to the province in which the schools are located.

205. Increases of \$103,000 were granted, which permitted some but not all of the necessary improvements. The major amounts were provided by Nova Scotia and Newfoundland. With these increases the total provincial grants in 1957 amounted to \$218,000.

206. In 1957 an approach was again made to the four Governments, and to the Premiers' Conference of that year. A three-year programme for the period 1957 to 1960 was presented, indicating a need for further increases in Provincial Government grants amounting to \$300,000 per annum by 1960, to bring the total to \$618,000. Again the Provinces were asked to provide grants in proportion to the number of medical and dental students from each Province enrolled at Dalhousie in the preceding five-year period. They were also asked to consider a method by which the four Governments could evaluate jointly the requirements of these Faculties and establish a definite system for sharing the costs.

207. The grants were increased by three of the provinces but no inter-provincial arrangement for sharing the costs was made. The University must still make an individual appeal annually to each of the four Governments.

208. In 1957 the Provinces of Newfoundland and Nova Scotia both acceded to the request of the University and provided grants representing their share of the requested \$300,000. The Government of the Province of Prince Edward Island increased its grant from \$12,000. to \$25,000. per annum, and indicated a willingness to consider the matter further. The Government of the Province of New Brunswick has not raised its grant since 1955. The total increase from the three provinces was \$208,653. instead of the \$300,000. requested. In 1960 the Provincial Government grants had therefore reached a total of \$426,653.

209. A Royal Commission on Higher Education was set up in 1961 by the Government of New Brunswick. Dalhousie University is presenting a brief requesting adequate support for the Faculties of Medicine and Dentistry.

210. The cost per student in the two Faculties based on actual expenditures and total enrolment in 1960-61 was \$2,928.76. Several positions were unfilled during a part or all of the year, thus reducing this actual cost from what it would have been with a full staff complement. This figure did not include expenditures for research, capital projects for building, for the operation of the Public Health Clinic or for the post-graduate programmes in psychiatry and continuing medical and dental education. This is a figure for under-graduate medical and dental education alone. Based on the known

1961-62 registration and the approved budgets for the two Faculties the cost per student this year will be \$3379.19.

211. The following table shows the grants per student from each province and the proportion of the estimated cost for 1961-62 which these grants will cover:

Province	1960 Grant	Medical & Dental Students from each province	Grant per Student	Proportion of cost per Student
N. S.	\$294,566.	123	\$2,394.80	70.8
N. B.	30,000.	56	535.70	15.8
Nfld.	77,087.	39	1 978.30	58.2
P. E. I.	25,000.	29	861.30	25.7
Totals and Averages	\$426,653.	247	1,727.35	51.1

212. The 1957 calculation that an increase of \$300,000 would be needed by 1960 was in fact an under-estimate. Although additional Government grants of \$208,653. were provided, budgeted costs went up \$344,100. For the following reasons the Medical and Dental Schools were able to continue in operation and to make some progress without the requested increase from New Brunswick and with only a partial increase from Prince Edward Island:

- (a) Several essential staff appointments were delayed.
- (b) Grants were obtained from the W. K. Kellogg Foundation to start several essential projects. All of these are on a short-term basis and must be met from other sources. Indeed, some grants have now expired.
- (c) Some endowment funds increased in value.
- (d) The Federal grants for education were increased. However, these cover only a tiny fraction of the cost of educating a student in Medicine or Dentistry. In 1960-61 the Federal grant per student to Dalhousie was \$184.00. Unless it is changed it will represent only 5.5 per cent of the cost per medical and dental student in 1961-62.

213. If all provinces had met the request for increases between 1957 and 1960, the additional amounts available would scarcely meet the anticipated deficits for the current session.

214. The increased income obtained by the University from 1954 to 1960 by way of Provincial grants totalled \$688,677. for the operation of the undergraduate medical and dental programmes. During the same period the University added to its income for the two Faculties a total of \$721,666. from all other sources except the Federal grants for education and for research. Although Provincial grants gave invaluable assistance toward the operating costs, the University did not depend wholly upon them but in fact more than matched them.

215. In addition, grants for research in Medicine and Dentistry during that period increased by a total of \$675,731., most of which came from Federal Government sources.

216. Furthermore, the University obtained for capital construction of the Dental Building and remodelling of the Medical Buildings a total of \$923,977., while Provincial grants for the same purposes amounted to \$235,423. To this latter should be added the contribution by the Government of Nova Scotia of space in the new Pathology Institute, which is estimated at approximately \$250,000.

217. The large additional sums required for capital and operation cannot be provided unless a much greater proportion is borne by Government. The University cannot continue to provide increasing funds from private resources for these two Faculties, at the rate achieved in recent years.

## **FACULTY OF HEALTH PROFESSIONS**

218. Dalhousie's Faculty of Health Professions was created in 1961 to bring under one faculty the College of Pharmacy, the School of Nursing, and the proposed Schools of Physiotherapy and Occupational Therapy which have already been approved by the Board of Governors and the Senate of the University, and also to include any other para-medical groups or divisions which may be added to take care of future needs.

### **College of Pharmacy**

219. The first training in pharmacy in Nova Scotia began in 1908. From 1908 until 1911, evening classes were conducted in the Nova Scotia Technical College. In 1911, the Nova Scotia College of Pharmacy was established and was affiliated with Dalhousie University. In 1917, the New Brunswick Pharmaceutical Society united with the Nova Scotia Pharmaceutical Society in the operation of the college and the name was changed to "Maritime College of Pharmacy". In 1950, the Board of Trustees of the Maritime College of Pharmacy admitted the Prince Edward Island Pharmaceutical Association to affiliation with the Maritime College of Pharmacy.

220. Upon the completion of the pharmacy course, a Diploma in Pharmacy was awarded to the students. In 1958, the Maritime College of Pharmacy requested that the Canadian Conference of Pharmaceutical Faculties appoint a committee to assess pharmaceutical education in the Maritimes and make recommendations for the development of the College of Pharmacy. In 1959, the committee submitted a comprehensive report on pharmaceutical education in the Maritimes. A summary of some of their recommendations is as follows:

1. That the course of study in the Maritime College of Pharmacy and Dalhousie University be brought into conformity with the minimum requirements of the Canadian Conference of Pharmaceutical Faculties, that is, by instituting a four-year curriculum based upon senior matriculation or the equivalent and leading to a Bachelor's degree, preferably a Bachelor of Science in Pharmacy.
2. That negotiations with Dalhousie University be initiated by the Maritime College of Pharmacy with

a view to the University establishing a Faculty of Pharmacy.

3. That provision be made for adequate staff who hold advanced degrees in Pharmacy.
4. That adequate facilities be provided for the College of Pharmacy.

221. At the present time, the following steps have been taken to implement the recommendations of the committee. The Maritime College of Pharmacy has been incorporated into Dalhousie University as a College of Pharmacy in the Faculty of Health Professions (and Dr. J. G. Duff has been appointed Director of the College of Pharmacy). This fall the first year of a new four-year degree course based on junior matriculation was introduced.

222. There are still many problems to be solved before the recommendations of the Advisory Committee can be completely fulfilled. The Maritime College of Pharmacy was operated by the pharmacists of the Maritime region in affiliation with Dalhousie University and received some financial assistance from the provincial and federal governments. In order to implement the recommendations of the committee so that pharmaceutical education in the Maritimes will meet the standards obtaining elsewhere in Canada, further sources of financial support must be found. Additional qualified staff must be recruited, and expanded and improved facilities with modern equipment must be provided. Since Dalhousie University has agreed to provide for the training of pharmacists, a financial strain has been placed on the University.

223. The committee recommended that in order to meet the needs of the Maritime region, the College of Pharmacy should be prepared to handle approximately 110 students. In 1960-1961, the enrolment at the College was 51. This year 78 students are enrolled in the College of Pharmacy and unless expanded facilities are available next year, it may become necessary to limit the number of admissions.

224. The pharmacists of the Maritimes are contributing to the operation of the College, but it is probably neither reasonable nor realistic to expect that they will increase their contributions much beyond their present commitments for the

operation of the College of Pharmacy. Certainly the increased costs which will be incurred in meeting the estimated requirements of the future cannot be met from this source. It is estimated that the expenditures for 1961-1962 will be approximately \$30,000.00. The pharmacists of the Maritimes are contributing approximately 30 per cent of this sum at the present time. Endowment income from the assets of the Maritime College of Pharmacy, which have been transferred to Dalhousie University, is providing approximately 13 per cent. The remaining income for the operation of the College must be provided by student fees, from the general funds of Dalhousie University and from provincial and federal grants.

225. When the required facilities and staff are provided, it is estimated that the expenditures for the College will be approximately \$65,000.00. It is hoped that the provincial and federal governments will provide the necessary financial assistance to the College so that the recommendations of the committee can be completely fulfilled and that adequate pharmaceutical training will be provided for the Maritime provinces.

226. A more comprehensive Report on Pharmaceutical Education will be presented at a later date to the Commission by the Canadian Conference of Pharmaceutical Faculties. Other aspects of pharmacy are being presented by the Provincial societies and associations throughout Canada, and the information in these briefs pertaining to the educational aspects of pharmacy also applies to the Maritime region.

### **School of Nursing**

227. The School of Nursing at Dalhousie University was organized in 1949. A five-year basic programme in nursing and a one-year programme for graduate nurses were offered leading to the degree of Bachelor of Nursing Science and to the diploma in Public Health Nursing or in Teaching and Supervision in Schools of Nursing.

228. In 1958, the basic programme was reorganized and extended and the degree renamed Bachelor of Nursing. The changes included the addition of professional material to provide the student not only with a basic liberal arts education but also a first level professional qualification in public health nursing or in teaching in schools of nursing.

229. The responsibilities and functions of the professional nurse in schools of nursing, hospitals and public health agencies have been greatly affected by the rapid changes and advances in the fields of medical and social services. These changes create a demand for better prepared and specially qualified nurses for teaching, supervisory and administrative posts, as well as for general nursing posts in hospitals and public health agencies. The need for personnel with specialized training for these positions is very acute. To help meet this need, one-year Diploma Courses for graduate nurses have been made possible through Federal Health Grants administered by the Provincial Governments of Nova Scotia, New Brunswick, Prince Edward Island and Newfoundland. We are at present conducting courses in three fields, namely:

1. Nursing service administration
2. Public health nursing
3. Teaching in schools of nursing

230. There is considerable interest locally in short-term courses for which no credit is offered—these are variously referred to as refresher or certificate courses and vary in length from three days to five weeks. The demand for these short-term programmes, we feel, will continue to be reasonably steady and is a service which the University School endeavours to provide to the community.

231. As noted in paragraph 229, these courses have been supported by funds from the Federal Health Grants administered through the four Atlantic provinces. Should there be any change in the nature of this support (for example, if one or more of the provinces should discontinue participation in the programme), this would necessitate a reappraisal of the whole basis of financial support of the School of Nursing and would make imperative the provision of funds from other sources to enable the School to continue to render these important services.

232. As has been noted in various surveys (1), (2) conducted over the past ten years, there is a very urgent need for more

- (1) Report on the Survey of Nursing Facilities and Nursing Education Needs in Nova Scotia under the Federal Health Survey Grant, 1950, E. MacLennan.
- (2) Survey of Nursing Services and Requirements in Nova Scotia Hospitals 1956 with Revisions 1959, F. Gass.

(These are Government documents and are out of print.)

nurses in Nova Scotia. An estimate of required numbers of personnel based on recommended standards shows the need to be approximately 1200 additional staff. This need ought to be met as soon as possible and certainly within the next five or six years. A fraction of this number may well be supplied from the auxiliary personnel group, but it is doubtful if more than 400 of this category could become available before 1965, and therefore the number of professional nurses required would rest at 800, which is far above the numbers which the present schools of nursing could train in this period.

233. In the face of this acute shortage it is imperative that additional facilities for the preparation of the professional nurse be developed. A slight increase in the capacity of the existing schools of nursing can be anticipated in view of the hospital construction programme now being carried out in our province. Another possible solution to the problem of overcoming this shortage of nurses might be found in the Central School Plan of nursing education which perhaps might be undertaken as an experiment in nursing education in Nova Scotia. By definition, "a Central School is one whose administrative and educational personnel are organized so as to constitute an educational entity although the students' clinical experience is secured in more than one hospital and in other agencies as well". The proposed pattern of regional hospitals with teaching staff for medical school needs would appear to provide a ready-made clinical field for nursing education as well. The many details of finance, administration, recruitment, and so forth, require considerable thought and careful planning, but the general principles underlying the Central School Plan would seem to be readily applicable to the geographical distribution of hospitals in Nova Scotia. Should any such plan prove feasible in Nova Scotia, it could certainly count on the full support not only of the Dalhousie School of Nursing but of the other faculties of the university which might properly be called upon to give assistance as well.

234. The proposal tentatively put forth in paragraph 233 would not involve at this time the discontinuance of the existing Schools of Nursing in the province.

235. In order to develop and expand the facilities for nursing education, to the extent referred to in paragraph 232, financial assistance beyond the resources of the local area will be required. The following recommendations are put forward in support of the request for such assistance:

- (A) That the several levels of government (federal, provincial, and municipal) ought to accept responsibility on an established and recognized basis for the support of adequate educational programmes in nursing and that financial assistance be assured through the various channels appropriate to the respective levels of government, such as professional training grants, grants offered under Vocational Training Plans and direct assistance for a sound nursing educational programme.
- (B) That the relevant governments concerned ought to make provision for the continuance on an assured basis of professional training grants for the preparation of administrators, supervisors, instructors for hospitals, schools of nursing and public health nursing agencies.

## SUMMARY AND RECOMMENDATIONS

1. Dalhousie University has the only Faculty of Medicine and the only Faculty of Dentistry in the four Atlantic Provinces and has recently established a Faculty of Health Professions, including at present the School of Nursing and College of Pharmacy and to include the School of Physiotherapy and Occupational Therapy and any other training programmes in fields relating to human health, as these are established. (1-8)

2. The University has not been satisfied with just meeting the minimum requirements of accrediting agencies, but strives to maintain the highest quality of professional education and research.

### Faculty of Medicine

3. The Faculty of Medicine is concerned not only with undergraduate medical education, but is the major medical research centre of the region. Medical scientists are educated in the pre-clinical departments in anatomy, microanatomy, bacteriology, biochemistry, physiology and pharmacology. Clinical specialists receive post-graduate training in the affiliated hospitals and Pathology Institute in medicine, surgery, obstetrics and gynaecology, paediatrics, psychiatry, pathology, diagnostic and therapeutic radiology, anaesthesia, urology and neurosurgery.

4. The Faculty operates the most extensive programme in Canada for the continuing medical education of general practitioners throughout the Atlantic Provinces. (80)

5. The Faculty provides all courses in the medical sciences for dental students, and assists in the scientific and clinical training of other health personnel, including nurses, pharmacists, dental hygienists and medical technicians. (69, 83)

6. More than 85 per cent of English-speaking medical students from the four Atlantic Provinces study at Dalhousie. (Appendix D.)

7. Approximately 70 per cent of the doctors entering practice in the four provinces are Dalhousie graduates. (Appendix E.)

\* All cross references are by paragraph number.

8. The number of students from the Atlantic Provinces seeking admission to Medicine has increased during the past two years. There is no decline in the academic calibre of our medical students. (33, 40-41)

9. The full-time staff of the pre-clinical sciences has increased in recent years from sixteen to thirty-one and of the clinical departments from two to twelve. The part-time staff has increased to 127. (20)

10. Several improvements have been made in the programmes of medical education at Dalhousie and tremendous growth has occurred in medical research in recent years. (61-62)

11. The University has been able to finance these improvements in medical education and the increase in staff by obtaining larger grants from the Governments of the four Atlantic Provinces and from various other sources. (214-216)

12. Because of the increase in students seeking admission to Medicine and the shortage of doctors in this region, there is a need to expand the Medical School to admit at least 75 and eventually 100 medical students per year. This shortage will become much more acute if medical insurance plans expand, whether voluntary or Government-financed. Facilities should be provided also for at least 25 and, if necessary, 50 dental students in the medical science departments. (36-38)

13. Present facilities are grossly inadequate, except in the Departments of Pathology and Bacteriology. In order to permit the expansion in enrolment and to provide much-needed research facilities, a new Medical Sciences Building is required, which will cost approximately \$4,500,000. Clinical research facilities must also be expanded by remodelling the Dalhousie Public Health Clinic at a cost of approximately \$250,000. (21 and Appendix B.)

14. Most of the affiliated teaching hospitals have recently enlarged or are planning to expand their facilities. By 1965 teaching units in these hospitals will be adequate for 75 students in the senior year. (21 (e) )

15. Unless there is a very large increase in the number of students seeking admission to medicine from the four Atlantic

\* All cross references are by paragraph number



Provinces, the proposed enlargement of the Medical School will be adequate for the immediate future, but eventually another medical school may be required in the region. (39)

16. Medical education is very expensive. The average cost per medical student in 1961-1962 will be \$3250. Provincial grants provide \$1080 (33.2%), federal grants \$172 (5.3%) tuition fees \$564 (17.4%) and University sources \$1434 (44.1%)

17. Such an expensive educational programme could not be operated at an adequate level by a privately endowed institution without considerable assistance from Governments. It is very doubtful whether the private sources of the University can contribute to future increases at the same rate as in the past seven years. Since 1954 Provincial grants provided a total of \$688,677, University sources provided \$721,666 and medical research grants amounted to \$675,731. The Medical Alumni Fund provided \$140,000 for the capital improvements in the Medical School buildings since 1954, and the Government of Nova Scotia constructed the addition to the Pathology Institute. (210-217)

18. The system of provincial grants is not set up on a stable basis and an annual appeal has to be made to all four Governments. (17, 203-209)

19. It is respectfully recommended to the Royal Commission on Health Services:

- (a) That the Government of Canada provide scholarships and bursaries for medical students at a rate of \$2000 per year, and that service requirements, if any, following graduation should not interfere with the post-graduate training of specialists. (42, 43, 82)
- (b) That the Government of Canada provide substantial capital grants to aid in the expansion of both teaching and research facilities in existing medical schools. The immediate needs of Dalhousie are estimated at \$4,750,000. (65-68)
- (c) That annual grants be made to medical schools to permit an increase in teaching staff in pre-clinical and clinical de-

partments and to pay higher salaries to full-time staff and adequate honoraria to part-time clinical teachers. These grants should be at least \$1000 per student now and increased to \$2000 over a five-year period. (47, 56-60, 82, 88)

- (d) That in any system of medical services insurance there be specific safeguards to ensure development and maintenance of teaching units of adequate size (a) in the hospitals affiliated with medical schools for undergraduate teaching, and (b) in hospitals approved by the Royal College of Physicians and Surgeons for post-graduate training in the specialties. (26, 27)
- (e) That any recommendation of the Commission relating to medical education permit free choice of the University as to whether or not it retains supervision over the year of internship. (25)
- (f) That plans for extension of health services be preceded by a realistic estimate of the personnel requirements, especially the physician requirements, and that suitable provision be made to ensure the necessary increase in physicians **before** any extensive increase in health services is begun. This will require an interval of at least ten years. (50-53)
- (g) That Universities be asked to explore methods of shortening the duration of medical education by lengthening the academic term. (44-46)
- (h) That methods be explored for improving the clinical training of immigrant doctors before licensure in Canada. (54, 55)

#### **Faculty of Dentistry**

20. The Faculty of Dentistry serves as the only center for dental education and the chief source of dental practitioners for the Atlantic region. (134)

21. The present staff and physical facilities are excellent, although severely limited in number and size, even for the maxi-

\* All cross references are paragraph number

mum number of students now possible in the school. (117, 122, 126)

22. The Faculty has made dramatic improvements in staff, physical facilities, and teaching programmes within the past eight years. Much improvement was made possible, initially, by generous financial support for annual operation from the W. K. Kellogg Foundation, and more recently by the greatly appreciated increase in the grants from provincial governments. (101, 112, 117, 126, 127, 162, 167, 7, 203-217)

23. There is need, however, for much more generous financial assistance for the operation of the present Dental Faculty, and on a more stable basis. Present deficits must be eliminated. More qualified teachers particularly on a full-time basis, are required now as well as for any future increase in the size of the school, as are technical staff who would contribute to an increase in the efficiency and effectiveness of the teaching programme. Salaries of teachers should be improved immediately. (162, 119, 124, 120-122)

24. There should be an immediate improvement in the facilities for the teaching of dental students in hospitals.

25. To stimulate the development of dental research staff and teachers, it is recommended that money be provided to subsidize persons engaged in advanced educational programmes for these purposes. (111, 116)

26. An extension of short post-graduate and refresher courses should be developed now, but graduate and specialty education in dentistry is not possible at Dalhousie until there has been an appreciable increase in the size of the Faculty. (112)

27. At such time as the class size is sufficiently large (forty to sixty students), basic medical science departments, with adequate research facilities, should be established as an integral part of the Dental Faculty. (97)

28. There is an urgent need to increase the number of dental practitioners in the Atlantic region. (146-159).

\* All cross references are paragraph number

29. The Faculty of Dentistry at Dalhousie University now admits all qualified students from the Atlantic region who seek admission, and it could accommodate double the number.

30. Even if the school was operating at capacity with the present facilities, it could not provide, within the space of twenty years, additional dentists for the Atlantic region in sufficient numbers to reach even the present Canadian average population per dentist. (158)

31. Strong incentives are necessary to assure the required number and quality of students. (187)

32. It is therefore recommended that these incentives include:

(1) Annual scholarships, each in the amount of \$1,500 to \$2,000, for the four years in the Faculty of Dentistry, to permit the Dental Faculty to compete with other areas of advanced education, for students with high academic standing.

(2) A number of substantial bursaries for needy students which would assist them for at least the four-year period in the Faculty of Dentistry. To be effective, the amount should be about \$1,000 a year, which, if added to summer earnings, would cover the \$1,500 or \$2,000 per year which students estimate is their personal annual cost. Such bursaries should be on a national basis, preferably with 'no strings' other than an undertaking to serve in Canada.

(3) Student subsidies similar to those provided by the Royal Canadian Dental Corps, sufficient to cover the cost of dental education and living expenses, in return for which the student would agree to some form of public service for a specified number of years.

33. The first two methods are to be preferred, because they allow the graduate to have greater freedom in the selection of a career, whether it be general or specialized practice, research, teaching, or public health.

34. Because of the shortage of dental personnel, implementation of a full programme of state-financed dental care seems

\* All cross references are paragraph number

impractical at this time. Any state dental health care plan should be preceded by a programme which will provide greatly increased numbers of dentists.

35. Further, any solution to the manpower problem which results in a lowering of professional standards of dental care, will compound the difficulties by discouraging recruitment to the professions, and a deterioration in the dental schools.

36. It cannot be emphasized too strongly that from the day a decision is reached to provide a new school, a minimum of six years will elapse before the first student graduates from it. This includes time for planning and construction, recruitment of staff and a minimum of four years required to educate a dental student.

37. In considering any extension of facilities for dental education in the Atlantic Provinces, the following points are pertinent:

- (1) The first step in a programme for the expansion of dental education facilities in the Atlantic region should be an increase in the size of the existing school.
- (2) Greater economy could be achieved with a class of sixty students, but this figure should not be exceeded.
- (3) The size and location of the dental school is determined, in part, by the necessity that it be an integral part of the university, and by the size of the community in which it is located. It is doubtful whether an urban population appreciably less than 100,000 would provide the number of patients required for the variety of teaching experience in the clinical programme. (195)

38. Part of the personnel problem can be solved by the more extensive use of auxiliaries in practice. These include the dental assistant, the dental hygienist, and the dental technician. Training programmes for these groups should be developed.

39. Since graduates of the dental school may choose to practice in any area of Canada, it is recommended that the Federal Government provide assistance to universities:

\* All cross references are paragraph number

- (1) For the annual operation of dental schools in the amount of \$2,000 per student;
- (2) For the annual operation of schools of dental hygiene in the amount of \$700 per student;
- (3) For capital construction at the rate of \$20,000 per student.

40. It is reasonable to expect that auxiliaries can be trained to do more of the technical procedures under the direct responsibility of the dental practitioner than is now legally permissible. This possibility should be explored on an experimental basis to determine the extent to which additional duties can be assigned in an effective and economically sound manner.

41. It is recommended that a system of Federal-Provincial Public Health Grants be implemented, specifically for dental health problems, similar to those available for medicine. These should provide funds for clinical research and other studies such as the project suggested in the preceding paragraph; for specialized treatment centers such as cleft palate clinics, diagnostic centers (particularly in orthodontics and other specialty areas); and for the extension of dental public health services.

#### **Faculty of Health Professions**

42. **School of Nursing:** The Dalhousie School of Nursing is at present providing a course leading to the degree of Bachelor of Nursing as well as a diploma course in:

- (1) Nursing service administration;
- (2) Public health nursing;
- (3) Teaching in schools of nursing.

43. There would appear to be a need for eight hundred additional nurses in Nova Scotia within the next five or six years. The existing facilities for nursing training can only meet a portion of this requirement. The feasibility of establishing a central school of nursing in Nova Scotia on an experimental basis ought to be investigated. Financial support for nursing education at Dalhousie ought to be reviewed and assurances

\* All cross references are paragraph number

given that adequate support will be forthcoming on a permanent basis.

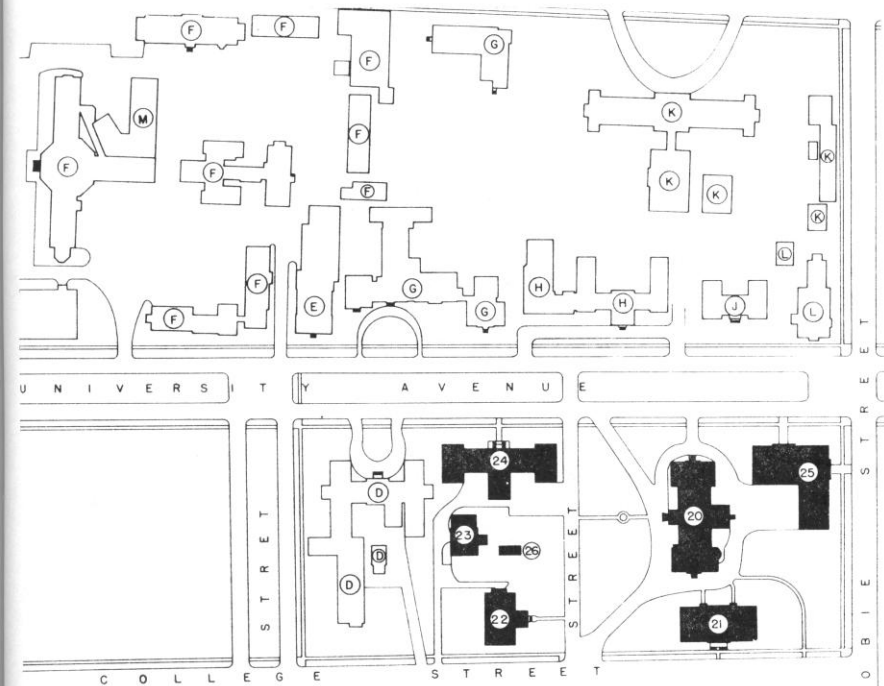
44. **College of Pharmacy:** The College of Pharmacy, as a division of a Dalhousie Faculty, is only in its first year of operation, and it is not yet easy to state with certainty and in detail what the future requirements will be.

45. Enrolment for the present year has increased more than fifty per cent over that of the previous year. Most of this increase is accounted for by students undertaking a four-year degree course which is being offered for the first time in the Atlantic provinces.

46. Cost of operation for the current year is estimated to be approximately \$30,000, which is expected to be available from existing sources. It is anticipated that this figure will approximate \$65,000 when the programme is fully implemented and in order to accommodate one hundred and ten students. Student fees and other foreseeable sources of income may produce an additional \$10,000. The remaining \$25,000 will have to be provided from other sources.

47. Unless the Federal university grants are substantially increased, we recommend that special grants for the training of health personnel be provided by the Federal Government.

## APPENDIX A. GROUND PLAN FOR DALHOUSIE CAMPUS



- |                                |                                 |
|--------------------------------|---------------------------------|
| 20. Forrest Building           | E. Pathology Institute          |
| 21. Medical Sciences Building  | F. Victoria General Hospital    |
| 22. Medical and Dental Library | G. Children's Hospital          |
| 23. Heating plant              | H. Rehabilitation Center        |
| 24. Public Health Clinic       | J. Halifax Health Center        |
| 25. Dental Building            | K. Halifax Mental Hospital      |
| 26. Greenhouse                 | L. Fire Station                 |
| D. Grace Maternity Hospital    | M. Cobalt Bomb Treatment Center |

APPENDIX B

**DALHOUSIE MEDICAL SCHOOL BUILDINGS  
AND AFFILIATED HOSPITALS**

**1. Forrest Building**

The Forrest Building, built in 1886, is shared by the Department of Biology of the Faculty of Arts & Science and the Departments of Anatomy and Microanatomy of the Faculty of Medicine. The Departments of Surgery and Physiology also have research laboratories in this building. In recent years as the Faculty of Law, the Faculty of Dentistry and the International Fisheries Research Commission moved from this building, the Department of Biology and the Medical School departments have expanded. The attic was also converted to use. This Topsy-like growth has resulted in a "sandwich" with Biology on the top floor, Anatomy next on the third floor, Biology again on the second floor, Anatomy on the first floor, together with research laboratories for Surgery, and in the basement various service rooms and student quarters for both Faculties and a research laboratory for Physiology. The arrangement is very inefficient.

An even greater disadvantage is the large amount of waste space in the wide, high-ceilinged corridors, excessively large offices, etc. Barely 50 per cent of the floor area of this building can be effectively used. The great fire hazard and the inadequacy of the water, sewage and electrical systems are other factors which limit the usefulness of this building and make remodeling extremely expensive.

Nevertheless, it is likely that it will have to be used for the next 20 or 30 years until a plateau is reached in expansion of the University, which will allow replacement as well as additions to the plant. The present plan is to obtain a new Medical Sciences Building to which the Departments of Anatomy and Microanatomy will move, leaving the Forrest Building to the Department of Biology to take care of rapidly increasing enrolment and to provide necessary research facilities for Biology and the Institute of Oceanography.

**Medical Sciences Building.** Constructed in 1922-23, this building houses the Departments of Physiology, Pharmacology and Biochemistry. Designed for 60 medical and

dental students with one professor in each of the three subjects, it now serves 85 medical and dental students as well as science students and those of the para-Medical professions, and a staff of eleven teachers, as well as research fellows and technicians. Because of this crowding, the Board of Governors has approved the provision of a new medical building for these departments and Anatomy and Microanatomy, if funds can be obtained. The present Medical Sciences Building will be remodelled to serve the needs of the Faculty of Health Professions (Nursing, Pharmacy, Physiotherapy and Occupational Therapy).

**Public Health Clinic.** This building houses out-patient clinics for children and prenatal patients but it is anticipated that these hospital services will be moved to the Grace Maternity Hospital now under construction and the Children's Hospital when a new building is provided. The Clinic Building will then be required for the research laboratories of the clinical departments, Medicine, Surgery, Obstetrics, Paediatrics, Psychiatry and the other medical and surgical specialties.

**Pathology Institute.** The Provincial Department of Public Health provides space for the University departments of Pathology and Bacteriology in the Pathology Institute. This was also constructed in 1925, but a large new addition was completed in 1961 with excellent teaching laboratories, lecture rooms and seminar rooms for the Departments of Pathology and Bacteriology. The old section of the building formerly used for teaching is being redesigned as research laboratories.

**Library.** The Medical-Dental Library Building was opened in 1939. It is an excellent structure, but is already becoming over-crowded. In the planning for a new Medical Building provision for larger library and reading room facilities will be necessary.

**Teaching Hospitals.** The Clinical Departments have in former years carried out most of their work in the affiliated hospitals, the Victoria General, Camp Hill, Children's, Grace Maternity and the Nova Scotia Rehabilitation Centre. During the last five years, some very necessary research facilities have been provided for these departments in the Dalhousie Public Health Clinic.

Almost all of the affiliated teaching hospitals have plans for large new additions. The Victoria General Hospital will have a capacity of 850 beds. The Grace Maternity is building a new hospital of 110 beds. The Children's Hospital will probably have a new building within the next five years of approximately 250 beds, replacing its present structure of 150 beds. The Nova Scotia Rehabilitation Centre plans a new building of 50 beds with a large out-patient unit. Camp Hill Hospital has a capacity of 550 beds, and the Armed Forces Hospital 200. The Halifax Infirmary is just completing a new addition, bringing its capacity to 480 beds. There is a great need for more beds in the Halifax Convalescent Hospital, now 50 beds, which is housed in the former Tuberculosis Hospital building. When the Rehabilitation Centre moves to a new building, the Convalescent Hospital will have approximately 130 beds against a need of approximately 350.

These hospitals will have a total bed capacity of approximately 2600 beds by 1965. It must be emphasized however, that not all are available for teaching. It has been recommended by the Association of Canadian Medical Colleges that the general hospitals used for teaching medical students (excluding military and veterans' hospitals) should have a minimum of 10 teaching beds per fourth year student. The present plans at Dalhousie are for a building to accommodate 75 first year medical students as the desirable number, but provision will be made to permit enrolment up to 100 if necessary. The teaching units in the affiliated hospitals will contain approximately 750 beds by 1965, sufficient to graduate 75 medical students per year. These teaching facilities will be adequate provided that any future plan for the development of medical services insurance retains the closed teaching wards now available or planned in future construction.

## APPENDIX C

The Victoria General Hospital,  
Halifax, N. S.  
October Fourth, 1961.

The Dean, Faculty of Medicine,  
Dalhousie University,  
Halifax, Nova Scotia.

Dear Doctor Stewart:

### [ROYAL COMMISSION ON HEALTH SERVICES

At its last meeting, September 27, 1961, the Board of Commissioners of the Victoria General Hospital passed the following resolution:

"THAT, UNDER ANY FORM OF UNIVERSAL MEDICAL CARE PROGRAM, THE TEACHING ASPECTS AND RESPONSIBILITIES OF HOSPITALS BE PROTECTED AND MAINTAINED AT EXISTING OR IMPROVED STANDARDS. THIS RESOLUTION IS TO BE FORWARDED TO THE DEAN OF MEDICINE, WITH THE REQUEST THAT IT BE INCLUDED IN THE UNIVERSITY BRIEF ON EDUCATION."

In the development of medical education in this country, the system of "graded responsibility for patient care under supervision" has come to be the accepted pattern of teaching in the clinical years and can now be regarded as essential to the operation of a teaching hospital.

In keeping with the foregoing, the Victoria General Hospital Board of Commissioners subscribes to the philosophy embodied in the definition of a teaching unit as adopted by the Canadian Medical Association.

A teaching unit is a hospital or a group of beds in a designated area of a hospital in which the care of the patient is the function of the team of staff physician-resident-intern-clinical clerk. The medical staff of such a teaching unit is to be appointed jointly by University and Hospital and organized

as departments, the heads of which are similarly jointly appointed by University and Hospital.

A teaching patient is one who enters a teaching unit, but patients in other parts of a hospital with a teaching unit may be used for teaching with the consent of the patient and attending physician.

In addition to the foregoing, there are many additional requirements for a Teaching Hospital. These include the education of nurses and nurses aides, technicians etc., and adequate space, teaching and demonstration rooms, conference rooms, laboratories etc. far in excess of those required for a non-teaching hospital. For a teaching hospital to meet its responsibilities as such, there must be special investigation and clinical research facilities involving special nursing units, laboratories and much highly specialized investigative and treatment equipment.

It must also be recognized and accepted that the operating costs of such a teaching hospital will be considerably higher than those of a non-teaching institution.

Yours very truly,

C. M. Bethune, M. D.  
Administrator.

APPENDIX D

Number of Students from the Atlantic Provinces Enrolled in First Year Medicine at Canadian Medical Schools, 1951 to 1961, inclusive.

Year	University	Students Admitted from				Total	% at Dalhousie	
		N.S.	N.B.	Nfld	PEI		of Total	of English Speaking
1951	Dalhousie (1)	28	15	7	8	58	82.8	82.8
	French Canadian (2)	....	....	....	....	....	....	....
	Other English Canadian (3)	2	7	....	3	12	....	....
1952	Dalhousie	28	11	8	9	56	83.6	91.8
	French	1	4	....	1	6	....	....
	Other English	....	5	....	....	5	....	....
1953	Dalhousie	21	10	13	4	48	72.9	85.7
	French	....	10	....	....	10	....	....
	Other English	2	6	....	....	8	....	....
1954	Dalhousie	17	13	6	8	44	81.5	81.5
	French	....	....	....	....	....	....	....
	Other English	4	5	....	1	10	....	....
1955	Dalhousie	26	9	15	4	54	87.	88.5
	French	....	1	....	....	1	....	....
	Other English	....	7	....	....	7	....	....
1956	Dalhousie	23	10	3	7	43	79.6	86.
	French	1	3	....	....	4	....	....
	Other English	....	5	1	1	7	....	....
1957	Dalhousie	27	14	6	7	54	84.3	91.5
	French	1	4	....	....	5	....	....
	Other English	1	3	1	....	5	....	....
1958	Dalhousie	28	7	4	5	44	83.	91.6
	French	1	4	....	....	5	....	....
	Other English	1	2	1	....	4	....	....
1959	Dalhousie	15	9	8	6	38	79.2	82.6
	French	1	1	....	....	2	....	....
	Other English	....	5	3	....	8	....	....
1960	Dalhousie	18	8	8	8	42	79.2	82.3
	French	1	1	....	....	2	....	....
	Other English	....	5	4	....	9	....	....
Total	Dalhousie	....	....	....	....	481	81.3	86.3
	French Canadian	....	....	....	....	35	....	....
	Other English Canadian	....	....	....	....	75	....	....

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- (1) Dalhousie—Students from the Atlantic Provinces attending Dalhousie University Medical School.
- (2) French—French-speaking students from the Atlantic Provinces attending other Canadian Medical Schools.
- (3) Other English—English-speaking students from the Atlantic Provinces attending other Canadian Medical Schools.

APPENDIX E

In the Survey of Health Facilities and Services in Nova Scotia under the Federal Health Survey Grant in 1949-50, the following table showed the proportion of doctors starting practice in each ten year period who were Dalhousie graduates. An attempt is being made to obtain comparable data from all provinces for 1951 to 1960.

TABLE I.

UNIVERSITY AND YEAR OF GRADUATION OF PHYSICIANS IN FOUR ATLANTIC PROVINCES, 1950

University	Year of Graduation							Total
	Before 1891	1891-1900	1901-1910	1911-1920	1921-1930	1931-1940	1941-1950	
Dalhousie	....	9	33	52	116	132	222	564
McGill	2	14	49	34	59	49	36	233
Toronto	1	1	7	3	8	10	9	39
Queens	....	2	1	11	7	9	7	37
Laval	....	....	4	8	12	15	24	63
Montreal	....	....	....	1	2	5	4	12
Other Can.	....	2	1	....	2	5	1	11
U.K.	3	1	4	4	18	37	40	107
U.S.A.	2	11	11	13	6	5	2	50
Other	....	....	....	1	5	6	3	15
Total No.	8	40	110	127	235	273	338	1131
Per cent	....	....	....	....	....	....	....	....
Dalhousie	0	22	30	41	49	48	66	50

It is to be noted that 50 per cent of all practising physicians in the four provinces were Dalhousie graduates as were 66 per cent of the doctors who started practice in the 1941 to 1950 period. It is estimated that this proportion is now over 70 per cent.

The following table shows the total number of Dalhousie graduates from 1891 to 1950 and the proportion who were practising in the Atlantic Provinces at the time of the 1949-50 survey.



TABLE 2

**NUMBER OF DALHOUSIE MEDICAL GRADUATES 1891 to 1950  
BY TEN YEAR PERIODS, AND PROPORTION PRACTISING IN  
ATLANTIC PROVINCES IN 1950**

Year of Graduation	Total Dalhousie Graduates	In Atlantic Provinces	Per cent.
1891-1900	74	9	21.6
1901-1910	127	33	26.0
1911-1920	110	52	47.3
1921-1930	256	116	48.3
1931-1940	298	132	44.3
1941-1950	382	222	58.1

It is emphasized that the small proportions in the two earlier decades is heavily influenced by the reduction of the graduates through death. The proportion of graduates between 1941 and 1950 who stayed in the Atlantic Provinces was 58.1.

The following table shows that 52.1 per cent of the graduates between 1951 and 1960 are practising in this region and an additional 24.2 per cent are still in post-graduate study. Some of these will return to practice here. It is estimated that this will bring the proportion to approximately 60 per cent.

TABLE 3

**DALHOUSIE MEDICAL GRADUATES 1951 to 1960 BY  
LOCATION OF PRACTICE INCLUDING POST GRADUATE  
STUDENTS**

Year	N. S.	N. B.	P.E.I.	Nfld.	Other	P.G.	Total
1951	23	5	3	4	20	0	55
1952	25	3	0	2	17	6	53
1953	20	8	5	1	13	9	56
1954	16	6	2	2	13	15	54
1955	12	6	2	2	7	19	48
1956	14	10	3	3	6	15	51
1957	15	7	2	3	13	9	49
1958	7	3	3	8	17	17	56
1959	11	8	4	3	12	14	52
1960	13	5	1	3	5	23	50
Total	156	61	25	31	123	127	524

Total in Atlantic Provinces 273. Per cent in Atlantic Provinces 52.1  
Per cent still in Post-Graduate Study 24.2.

**ESTIMATES OF THE REQUIREMENT OF PHYSICIANS  
IN THE ATLANTIC PROVINCES**

1. The ratio of population per physician is less favourable in the Atlantic Provinces than in the rest of Canada. The number of active resident physicians in the four provinces is 1528. This is a ratio of 1246 persons per doctor as compared with the Canadian average of 879. There is a greater shortage of physicians in Newfoundland than in the other three provinces. The ratio in the three Maritime Provinces is 1151 persons per physician.

2. Table 1 shows the ratio of population per physician in Canada and in the three Maritime Provinces from 1911 to 1960, at ten year intervals and for the four Atlantic Provinces in 1951 and 1960.

TABLE 1

YEAR	RATIO OF POPULATION PER PHYSICIAN		
	Canada	Three Maritime Provinces	Four Atlantic Provinces
1911	970	1232	
1921	1108	1261	
1931	1034	1299	
1941	968	1248	
1951	977	1271	1406
1960	879	1151	1246
1960 Population	18,034,443	1,439,446	1,905,360
1960 Physicians	20,517	1,251	1,528

This shows that there was a very stable rate from 1911 to 1951 both in Canada and the three Maritime Provinces. In view of the fact that there are so many more doctors who are engaged in other activities than in the direct care of patients in recent years, it might be expected that a better ratio would be necessary than in 1911. However, to counteract this there has been an improvement in transportation which permits a doctor to take care of more patients than formerly. In any event, this table indicates that it has only been during the last decade that the ratio of population per physician has been improved in Canada as a whole, and that the same trend occurred in the Atlantic Region.

3. Without suggesting that the ratio of population per physician in Canada is ideal, it is interesting to calculate how many additional physicians would be required in this region to meet at least that ratio. Using the Dominion Bureau of Statistics' estimate of the population of Canada and of the provinces as of June 1st, 1960, and applying the ratio of 879 persons per physician, it is estimated that the three Maritime Provinces should have 1590 physicians as compared with the present supply of 1251, a shortage of 339. Including Newfoundland, the four Atlantic Provinces would require 2109 physicians to meet the Canadian ratio, as against the present number of 1528, a shortage of 581.

4. The report of the Survey of Health Facilities and Services in Nova Scotia in 1949-1950 contained several estimates of the requirements for medical and dental personnel based on different standards. The methods of estimating requirements have not improved greatly since that time, although some of the data should be revised to cover the last decade. It is planned to obtain additional information from the Provincial Medical Boards of the other three Atlantic Provinces to augment the data now being collected by the Medical Society of Nova Scotia. This will provide a more accurate estimate of the physicians required in the area.

5. The above report made another approach toward estimating the adequacy of the supply of physicians. The following table showed the ratio of population per general practitioner and specialist in Canada in 1941 by community size. No later studies are available, to our knowledge, which relate the number of physicians by type of practice to the community size.

TABLE 2

**RATIO OF POPULATION PER GENERAL PRACTITIONER AND SPECIALIST IN CANADA BY COMMUNITY SIZE**

Community Size	Population per Physician			Total
	General Practitioner	Specialist	Other	
150,000 and over	1,882	1,940	1,847	630
30,000-150,000	1,796	1,898	1,744	604
10,000-30,000	1,364	2,920	5,180	788
Under 10,000	2,375	25,590	17,850	1,881
Canadian Total	2,055	4,103	3,857	977

It will be noted that the average population per general practitioner is very similar in cities over 150,000 and from 30,000 to 150,000. It may or may not be a reasonable assumption that these cities have a fairly adequate supply of general practitioners to meet the demands, but it would seem reasonable to assume that at least as good a ratio should be required in smaller communities and perhaps one to 1500 in rural areas where a doctor cannot care for as large a population.

6. The following table shows the number of physicians required in the Maritime Provinces and in the four Atlantic Provinces, if a ratio of one general practitioner per 1800, or one per 1500 is applied. It is emphasized that these figures are for general practitioners only and do not include specialists, but an estimate is made of the total physician population based on the proportion of general practitioners. In 1949 this constituted 49.2 per cent of the total physicians. As later figures become available these estimates may be adjusted.

TABLE 3

**ESTIMATE OF PHYSICIAN REQUIREMENTS BASED ON ONE GENERAL PRACTITIONER PER 1800 OR 1 PER 1500 IN THE THREE MARITIME PROVINCES AND IN THE FOUR ATLANTIC PROVINCES**

	Four Atlantic Provinces	Three Maritime Provinces
1960 Population	1,854,000	1,398,000
Estimated requirement for G.P.'s at 1 per 1800	1,030	777
Estimated requirement for G.P.'s at 1 per 1500	1,236	932
Estimated total requirement for all physicians if G.P.'s at 1 per 1800	2,093	1,579
Estimated total requirement for all physicians if G.P.'s at 1 per 1500	2,512	1,894
Present supply (1960)	1,528	1,251
Shortage based on 1-1800	565	258
Shortage based on 1-1500	984	643

This table shows that if general practitioners were available in this area at a ratio of 1 per 1800 persons we would require 565 doctors more than we now have in the four Atlantic Provinces, of whom 258 should be in the three Maritime Provinces. The major shortage of more than three hundred is in Newfoundland. The estimate for the Atlantic Provinces based on 1 per 1800 is not greatly different from the earlier estimate

based on reaching the Canadian average of population per physician, both being approximately 600. If the ratio of 1 general practitioner per 1500 were applied to the population, it would appear that there was a shortage of 984 doctors in the four Atlantic Provinces, or 643 in the three Maritime Provinces.

7. The Canadian Sickness Survey in 1951 shows interesting comparisons of the volume of physician services in various regions of Canada based upon the number of home and office calls. This showed the Maritime Provinces to be approximately 14 per cent below the Canadian average and 31 per cent below the highest figure in the Province of British Columbia, as shown in the following table.

**TABLE 4**

**NUMBER OF DOCTORS' CALLS (HOME AND OFFICE EXCLUDING CLINIC) PER 1000 OF POPULATION BY REGION**

British Columbia.....	2,052
Ontario.....	1,999
Quebec.....	1,524
Maritimes.....	1,418
Prairies.....	1,298
Newfoundland.....	687
Canada.....	1,646

8. The following comparison of the volume of physician services in medically insured populations seems to show an even more striking deficit in the number of doctors so far as the Maritimes are concerned.

**TABLE 5**

Insured Families, Canadian Sickness Survey	2154 Physicians' services per 1,000
Insured Families, Swift Current	2340 Physicians' services per 1,000
Voluntary Medical Insurance Plans	2150 Physicians' services per 1,000
Maritime Medical Care	3254 Physicians' services per 1,000

If the clinic visits are included in the number of physician services shown in the preceding table, the Maritimes have a ratio of approximately 1550 doctors' calls per 1,000 as compared with the insured groups shown above which for the most part range from 2150 to 2350 except for the Maritime Medical Care group. Further study is required, but it seems reason-

able to base estimates of the future demands for medical services on the demand already experienced in insured populations. These figures suggest that in the Maritime Provinces there might be an increase of at least 50 per cent in the demand for medical services if comprehensive medical services insurance were introduced, i.e. from 1550 to 2200 or 2300. Such an increase of 50 per cent over the present number of 1251 physicians in the three Maritime Provinces would bring the figure to 1876 doctors. As shown in Table 3, the estimate based on one general practitioner per 1500 persons, and approximately an equal number of specialists, was almost the same, 1894. A fifty per cent increase under insurance coverage does not therefore seem an unrealistic estimate.