MEDICAL EDUCATION IN TORONTO

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There are certain interesting parallels in the histories of South Africa and Canada. Important Dutch settlement occurred in South Africa in the latter part of the 16th and the early part of the 17th centuries; at about the same time early French settlement was taking place in Canada. Important British settlement in South Africa took place in the latter part of the 18th and early part of the 19th centuries, in which period much the same thing was happening in Canada. When South Africa was discovering its first diamond the provinces in Canada were undergoing federation to form in 1867 the Dominion of Canada.

I suspect that there was a somewhat similar pattern in the diseases which plagued the early settlers. Scurvy was rife on ships coming to Canada and, during the long winter months, in the settlements. It was relieved and later prevented by 'spruce beer' made by boiling bruised branches of the spruce tree in water. It was at approximately the same time that Captain Cook was discovering how to combat scurvy at sea and lime-juice came to be served daily to the British navy. Smallpox which had been brought to Mexico by Spanish troops spread from there to the North American Indians and took a terrific toll in Canada of Indians and white settlers.

Most of the diseases that were common on overcrowded ships of the time were brought to Canada—yellow fever, typhus, typhoid fever, Asiastic cholera, dysentery and diphtheria. There was a tremendous migration to Canada from Ireland after the potato famine and the mortality on the emigrant ships ran from 6 to 12% of the total number of passengers.

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HOSPITALS AND MEDICAL EDUCATION

I had expected to find that medical education had been established in French Canada (Lower Canada) much earlier than in Ontario (Upper Canada), but this was not the case. The first Canadian hospital, the Hôtel Dieu in Quebec, was founded in August 1637 by the Duchesse D'Aiguillon and the Augustine Hopitalières of Dieppe. It was the first hospital established in North America north of Mexico and it held its tercentenary celebration in 1939. A little more than 300 years after this contribution to Canada from Dieppe, Canadian soldiers held a less happy rendezvous in the old city. No effort was made by the French prior to the British conquest of Canada to establish a school of medicine in Quebec. The system of apprenticeship, together with an intermittent migration of French physicians to the colony, apparently sufficed to meet the needs of the time.

The Montreal General Hospital was founded in 1818 and here the first effort was made to organize a medical school when, in 1822, Dr. Stephenson began a series of lectures. Two years later the Montreal Medical Institute, the precursor of the medical faculty of McGill, was established. Almost at the same time, 1824, Drs. Rolph and Dunscombe started a school of medicine and a hospital for clinical teaching in St. Thomas, Ontario. A few years later this school was re-established in Toronto. After that several were started in rapid succession—King's College, Toronto, in 1842; L'Ecole de Médicine et de Chirurgie de Montréal in 1843; in Quebec in 1847 the Incorporated School of

Medicine, succeeded in 1852 by the Medical Faculty of Laval; and in Upper Canada in 1850 what later became the Medical Faculty of Trinity. Canada now had 12 medical schools, the youngest being at the Universities of British Columbia and Saskatchewan. The first university degree in medicine given in Canada was granted by McGill in 1833.

Toronto

Since I wish to speak to you particularly of my own school, the University of Toronto, it may be of interest to say a few words of the city itself. The water front on Lake Ontario, where the western part of the city now stands, appears to have been a meeting place for Indian tribes before the coming of the white man. There the Humber River empties into the lake and formed a convenient highway down which the red men from the interior came in their canoes to join others who came by way of the lake itself. On this site the French established a trading post in 1749 and called it Fort Rouille. The seat of government of Upper Canada was situated originally at Newark, now Niagara-on-the-Lake, but this was considered later to be too close to the American border for safety and in 1794 Sir John Graves Simcoe moved it to the north side of Lake Ontario and established there the capital of Upper Canada. It was called York in honour of the second son of George III. In 1812 the legislative buildings were burned and the town pillaged by the Americans. In 1834, having attained a population of about 10,000 the place was incorporated as a city, and the name changed from York to the original Indian name Toronto, meaning a 'place of meeting'.

Since the *Toronto General Hospital* has long played an important role in medical education, its history is relevant. In 1812 England was so occupied with her European wars that the attack upon Canada by the United States received little attention and only a comparatively small force of regular troops was available for defence. The independence of the country was preserved through the valiant action of civilian volunteers and lack of whole-out effort by the USA. At that time the Loyal and Patriotic Society of Upper Canada was formed to help care for the sick and wounded. There must have been a garrison hospital, although I have found no record of it, but there was no civilian hospital. The ravages of the conflict emphasized the need for one. At the end of the war the Loyal and Patriotic Society had medals of gold, silver and bronze struck in England for the heroes of the war. Distribution was to have been according to rank but dispute arose about how this was to be done, probably between the regulars and the volunteers, and finally the medals were defaced over an anvil, melted down and sold as bullion. The money realized plus the balance of the funds of the Loyal and Patriotic Society, amounting to about £4,000, was used to establish a general hospital. It was a red-brick, two-storey structure 107 feet long and 66 feet wide, and had a capacity of about 70 beds. In 1824 we find the following note in the local paper: 'The York Hospital is the most extensive building in the Province and its external appearance is very respectable.' Some 399 acres had been appropriated by Order-in-Council in 1817 for the establishment of the hospital. The original structure may be considered, therefore, to have been a monument to the heroes of the war of 1812.

The new building was used little at first because of the local prejudice against being sick in hospital. Fire destroyed the legislative assembly in 1824 and between then and 1829 the new hospital was used to house the legislature. In June 1832 the steamship *Great Britain* dropped anchor in the harbour of York with immigrants on board from England and Ireland and brought with it an epidemic of Asiatic cholera. The disease had reached Quebec and Montreal a few weeks earlier. Thus did the great pandemic, which had commenced in India in 1826 and had appeared in England in 1831, reach Canada. The new building was taken over to house the cholera victims and was used fully as a hospital for the first time. When thinking of the problems of today it is worth while to contemplate what must have been the difficulties of that period. In the year 1832 52,000 immigrants landed in the St. Lawrence and passed through the recently established quarantine station at Grosse Ile. Of these, 11,000 reached Upper Canada. Screening was inadequate because of the lack of knowledge of disease and the manner in which it spread. The majority of the immigrants arrived penniless. The population of the town of York, through which most of those bound for Upper Canada passed, was then less than 10,000 and there were few doctors; 30 years later there were only 35.

Since its original establishment the Toronto General Hospital has moved twice, in 1855 and in 1913. In 1853, in order to finance the new hospital, most of the original grant of land was sold at auction. Lots fronting on King Street, now near the centre of the business section of the city, fetched from 3s. 6d. to 8s. per foot frontage. The same land today is worth $1,500 to $2,000 per foot. When the second hospital was completed in 1855, the population of Toronto was 45,000 and there were 35 practising physicians. For the first time the staff was divided by the Board of Trustees into physicians and surgeons.

In one respect the troubles of all hospitals seem to be similar. Financial problems plagued this one. The city refused to accept responsibility for indigent patients and, since many of its clientele were penniless immigrants, finances reached such a state that between August 1868 and August 1869 the doors were closed to new admissions. Subsequently assistance was obtained from the city and province and with the help of donations from wealthy citizens the hospital gradually increased in size until in 1882 there were 361 public and 39 private beds. It was, however, inadequate to meet the needs of the rapidly growing community and the demands of medical education.

Before another move was undertaken a committee of important citizens representing the public, the hospital and the University of Toronto was set up to study and advise upon the future. It was a far-seeing committee and its recommendations were responsible for what is now regarded as a sound relationship between the University of Toronto and the teaching hospitals. The hospital was to be moved to a new site adjacent to the campus, where all the facilities of the University would be available for the training of students of the early years in the humanities and the basic sciences, and senior students would have ready access to all the opportunities that a great hospital has to offer in the way of clinical training. By the terms of the agreement the professor and head of a university department automatically became head of that department in the hospital. For example, the Professor and Head of the Department of Medicine is Physician-in-Chief of the General Hospital. A committee called the Joint Hospitals Relations Board was set up to control appointments. Recommendations from it must be approved by the Board of Governors of the University and the board of trustees of a hospital.

The original structure, completed in 1913 at a cost of $3,750,000, stood on a square of 9 acres and had 768 beds, of which 570 were devoted to public ward services, and ample facilities for out-patient care. It was described as one of the finest, if not the finest, on the North American continent. In 1930 a wing to accommodate 350 private patients was added and in 1932 another building primarily to house diagnostic radiology and radiotherapy, bringing the capacity to 1,250 beds. An extensive programme of modernization is now nearing completion which will centralize the service departments and increase the bed capacity to 1,750.

Toronto can claim the honour of having had the first *hospital for children* on the North American continent. The first building, containing 11 rooms and having accommodation for 16 patients, opened its doors to the public in 1878. In 1887, the jubilee year of Queen Victoria's reign, a hospital of 270 beds was completed and opened. The citizens donated $20,000 in honour of the occasion. The present structure with a capacity of 650 beds was opened in 1951 and is a magnificent plant. Research and teaching have been stressed in this institution for the past three-quarters of a century and contributions from the members of its staff, many of whom will be familiar to you, have placed it in the forefront of the children's hospitals of the world. Two full floors of the present building are devoted to research.

The federation of teaching hospitals used by the University of Toronto is completed by St. Michael's, which was opened in 1892 and now has a capacity of 900 beds, and the Western, opened in 1896 with accommodation at present for about 700. While the General is regarded as the central unit in this federation and the heads of the university departments are there, all hospitals bear a similar relationship to the University and no appointment can be made to the staff of any of them except through agreement between the hospital and the university.

While *medical research* has, so far as I can discover, always been regarded as important in the Toronto school, it received a great stimulus from the work of Sir Frederick Banting and Prof. Charles Best. In 1922 the Banting Institute, which stands across the street from the General Hospital, was opened. Like

all such establishments it has long since been unable to meet the demands for space. In 1955 the Best Institute of Physiology was built alongside the Banting Institute and this has somewhat relieved the pressure. A Cancer Institute recently completed provides, in addition to all the requirements for therapy, magnificent facilities for fundamental and clinical research in that field. All of these developments are part of the University and its basic departments and sources of expert knowledge are available to those working in any unit.

Let us return for a moment to a consideration of the *proprietary schools*. The Rolph school of medicine was interrupted by the rebellion of 1837. Rolph was one of William Lyon McKenzie's collaborators and as such felt it was wise to leave the country for a time. He returned in 1843 and resumed his lectures. This school became the Toronto School of Medicine, the Faculty of Medicine of Trinity College, and the Medical Faculty of King's College. The last-mentioned was abolished in 1853; the others were finally amalgamated in 1903 under the Faculty of Medicine of the University of Toronto. Several other schools made a temporary appearance but space allows mention only of the Women's College of Medicine, which was opened in 1883 because women could not gain access to the other schools. It was closed in 1906 when women were admitted to the study of medicine in the University of Toronto on an equal footing with men. Its memory is preserved in the name of the Women's College Hospital, a fine modern unit of 300 beds staffed entirely by women and recently accorded limited privileges of university teaching. On the occasion of the union of Trinity and Toronto the inaugural address was delivered by Sir William Osler. It was entitled 'The Master Word in Medicine' and is, I think, one of his greatest. It was the need for grounding in the basic sciences that spelled the doom of the proprietary schools. The expense involved in the provision of the necessary laboratories was beyond them.

One or two other milestones in the history of the school should be mentioned. In 1919 a sum of money was donated to the University by Sir John Eaton to establish and maintain a full-time chair of medicine. Prof. Duncan Graham was its first occupant and thus became the first full-time professor of medicine in the Commonwealth. The following year a full-time chair of surgery was established and Prof. Clarence L. Starr was appointed to it. I should add that in spite of their name neither of these posts is entirely full-time: a small amount of practice is allowed but the responsibilities involved in heading a large department leave little time. In 1910 provision was made for a course leading to the Diploma of Public Health and in 1924, through a generous gift from the Rockefeller Foundation, a School of Hygiene was created and endowed. Its impact, I believe, has been international.

POSTGRADUATE TRAINING

Before the first world war few facilities existed in Canada for postgraduate training in medicine. The majority of our men had gone to Britain or the United States for advanced work in the specialties. At the end of the war it was realized by those responsible that the opportunities in these countries would be taxed to meet the needs of their own graduates and that it would be necessary for us to provide for postgraduate training in Canada. As one of the oldest and largest of our schools the University of Toronto has taken a lead. The first organized scheme for the training of surgeons was inaugurated at the General Hospital by my predecessor, Prof. W. E. Gallie, 28 years ago. What he began as a relatively small endeavour was extended during my regime to embrace all of the hospitals engaged in undergraduate teaching and, in addition, the Veteran's Hospital of some 1,500 beds. The course is administered by a committee of the associate professors of surgery of which the head of the department is chairman. The Committee has under its control over 1,000 public ward surgical beds and perhaps an additional 500 private beds. Training in anatomy, physiology, pathology, and biochemistry is provided by university departments in night classes and late afternoon lectures. Trainees are admitted to the course not only from Canada but from many other countries. Appointments are available for advanced training in all of the surgical specialties. Because of the large number of resident posts in the participating hospitals it is usually possible to place a candidate in a job suitable to his needs. Gradually organized courses of training have been set up in other fields and opportunities for advanced training in all the medical and surgical specialties are now provided.

Graduate education has been influenced profoundly by the *Royal College of Physicians and Surgeons of Canada*. It is now 27 years since the College was incorporated by Act of Parliament. It was founded, I think, because of some dissatisfaction with the qualifications for specialists then in existence. The Royal College in Britain had never pretended to say whether a man was clinically competent but merely that he possessed the necessary academic background. This was misunderstood in Canada and many men who had obtained fellowship but had had little or no practical training were grossly incompetent. This applied particularly to surgeons. The standards of the American College of Surgeons at that time were not regarded as being sufficiently high. The founders of the Canadian College cherished a hope that its degree would not only signify that the holder was trained in the basic sciences but clinically competent. On the whole I believe that the hopes of the founders have been fulfilled. There is no doubt that the College has succeeded in raising the standards of medical practice throughout the country. Since a candidate must meet the standards of training before he is allowed to sit the examination, the requirements have slowly been altered to meet the needs of the various special fields. For example, a man may obtain fellowship in surgery as modified for orthopaedic surgery or urology or neuro-surgery; such men must pass examinations in which half the paper is devoted to general surgery and half to the specialty and must face general surgeons and specialists on their orals. Standards are high and as a result so is the failure rate.

In 1939, because some form of national insurance seemed imminent, the Royal College consented, on the invitation of the Canadian Medical Association, to attempt to say, originally through assessment of credentials and later by examinations, who in the country should be considered specialists. In this the College assumed a great burden but there is no doubt that its action and the desire of men to meet the basic requirements laid down has improved the standards of practice, particularly in other than university centres. Generally speaking, the training demanded one year less than for fellowship and the examinations, both written and clinical, were of a more practical nature, e.g. a knowledge of basic sciences necessary to the intelligent practice of the specialty is demanded instead of the more academic knowledge expected of the fellowship candidate. It was hoped to discontinue at some future time the examinations for certification but it now seems doubtful if this will be possible except in particular specialties such as neurology and neuro-surgery, where it is already being done. The period of training demanded for fellowship is so long that men possessed of a sound practical knowledge can scarcely be denied some recognition and the alternative to retaining this qualification would be a lowering of the fellowship standing. This is undesirable.

The scheme for recognition of advanced graduate training in and knowledge of the specialties that has been outlined is, I believe, in certain respects unique. As happens so often in Canada, there has been an attempt to learn from Britain and the United States and profiting from their experience work out something embodying the good points of each. In the beginning the Canadian College conducted primary examinations but these were discontinued and each attempt to re-institute them has failed. The requirements of the College are very similar to those of the American Boards but we believe that we were fortunate that a central examining body was set up before specialty groups arranged their own. Because of this it has been possible to continue to demand a broad basic training even though the candidate intended eventually to confine his activities within a narrower field.

The great argument for a primary examination, of course, is that it weeds out those who lack the mentality required for advanced training, but many of us wonder if it really works that way. Certainly it has not prevented the training of too many specialists in Britain. Admittedly the weakness of our system is its inability to sort out at any early stage those who have chosen unwisely to do advanced training and will never be able to pass the examinations.

Some of this difficulty will be overcome when prospective trainees and those responsible for providing postgraduate training accept, what is undoubtedly true, that men with a poor academic record as undergraduates will probably not be able to pass fellowship examinations, regardless of the length of time they spend on preparation.