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NOTES ON CANADIAN MEDICAL HISTORY

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Montreal

A short paper on the history of Canadian Medicine of necessity will be highly selective. I have therefore chosen to deal with a few of its earlier aspects only.

It is natural to date the development of medicine in Canada from the time of the French settlements in the seventeenth century, but the North American Indians had their own medical knowledge, and there is much in it to interest us. Several well-known vegetable drugs, such as sarsaparilla, jalap, cinchona, and guaiacum were native to North America and were used by the aborigines. One writer even gives the Thompson Indians credit for employing organo-therapy in their use of beavers' testicles for pain; and undoubtedly some tribes realized the value of an infusion of spruce tips in scurvy. Jacques Cartier learnt this from them to good effect. However, their medical knowledge in general is chiefly of ethnological interest.

The Early Practitioners

From the little that is known of the first medical men to arrive in the country, they seem with a few exceptions to have been barber surgeons and apothecaries. They came in the first instance with Champlain on his voyages to Acadia and Quebec, and later with the troops and colonists for New France. By the beginning of 1700 it is said that about 96 people practising medicine were scattered along the shores of the St. Lawrence up to Montreal. Many of these can have been little better than charlatans.

Two names, however, deserve attention. One is Michel Sarrazin (1659-1734), who came out in 1685 as surgeon and later was made chief surgeon to the troops in Quebec. He returned to France to take his degree in medicine, and then returned to settle in Canada, being named royal physician. His practice extended over an area which would have been large even with modern methods of transportation, and there were the added dangers of travelling between Quebec and Montreal. Still, he managed to carry on a great deal of botanical and zoological work, which he reported to l'Académie Royale des Sciences, of which he had been made a corresponding member in the same year (1699) in which Sir Isaac Newton had been admitted. He made a collection of over 200 plants and sent them back to Paris. Tournefort, of the Jardin Royal, forerunner of Linnaeus, named the pitcher plant (*Sarracenia purpurea*) after Sarrazin. He was the first to put the production of maple syrup on a commercial basis and to describe the blueberry. His work on Canadian fauna was extensive and unequalled; he described the beaver, the porcupine,

and the muskrat, which he dissected, but when he came to examine the skunk he failed, because, in his own words, "it had a frightful smell, capable of making a whole canton desert." In his latter days, however, he fell on bad times; he lost all his money and died a pauper.

Jean François Gaultier (1708-56) was his successor as royal physician, and a worthy one. He too did outstanding work in botany, natural history, and entomology. His name is enshrined in the wintergreen plant, *Gaultheria procumbens*.

Otherwise, men of mark did not begin to appear until the early nineteenth century. They will be mentioned later.

In Ontario, then called Upper Canada, settlements began considerably later. The Treaty of Versailles in 1783 saw the migration of a large number of so-called United Empire Loyalists from across the border. Few medical men came with them to Upper Canada, the explanation apparently being that physicians in the American colonies were not forced out of the country as much as in the case of the other professions. It is probable, too, that the rigours of pioneering life were too severe: as was said, the pioneer physician needed the constitution of a horse and the clothing of an Arctic explorer.

There were not more than 40 qualified men in the province as late as 1815. Quacks flourished. An appeal is found in a Kingston newspaper against quacks "who, without one ray of science, presume to thrust the created into the presence of the Creator."

But gradually better men came in, chiefly retired regimental surgeons, and Boards were set up to control practice, as had been done in Lower Canada (Quebec). Amongst the earliest names of importance are those of James MacAulay; William Baldwin, who laid out the present Spadina Avenue of Toronto as the approach to his summer home "Spadina"; the eccentric "Tiger" Dunlop, whose unusual last will and testament is frequently quoted; and, perhaps most notable of all, Dr. Christopher Widmer. A born leader, Widmer initiated the building of the Toronto General Hospital and was early interested in medical education. He was termed the Father of Surgery in Upper Canada. His name was associated with every medical enterprise, and his energy, ability, and foresight made him a dominating figure till his death in 1858.

Of 260 doctors whose biographies appear in Canniff's *History of the Medical Profession in Upper Canada*

from 1783-1850, 70 were graduates of Scottish universities, 43 of English, 28 of Irish, and 40 of American. Thirty-nine had their training wholly or in part under the system of apprenticeship.

The eastern provinces of Nova Scotia, New Brunswick, and Prince Edward Island were so distinct from Upper and Lower Canada that their early history is quite a separate chapter. They seem to have had no shortage of physicians, as was the case in Ontario. Some were French, but the majority were English, and with the founding of Halifax in 1749 several medical men came into the country. The old churchyards in Halifax have many records of medical interest. One tombstone to two young brothers who died of diphtheria bears the following commentary: "Stranger; whether has the disease or medical omission clad meast in their last claiht?"

From 1775 to 1800 there was, as in Upper Canada, a large influx of the United Empire Loyalists, but in this case they were accompanied by many physicians. Nathaniel Perkins, one of the first to practise variolation in Boston; W. J. Almon; and the Hon. John Halliburton were all prominent men. The name of Abraham Gesner is outstanding. A native of Nova Scotia, he had studied under Abernethy and Astley Cooper. His work in geology and natural history was notable. He discovered coal oil, inventing the word "kerosene" for it. His old refinery still exists, and is owned by the Standard Oil Company.

In the West there were pioneer doctors with the fur-trading establishments as early as 1814. Dr. (Sir) John Schultz built the first house in Winnipeg. He later became the Lieutenant-Governor of Manitoba, and in welcoming the Canadian Medical Association at one of its early meetings in the West (Banff) exhorted them to "pause and reflect for a moment that they were where for economic purposes Canada was widest, and no longer a mere arable strip on the banks of the St. Lawrence."

In the North-West Territories, which comprised what is now Alberta and Saskatchewan, there were occasional medical men with explorers and fur-trading settlements. Dr. J. Richardson, with Sir John Franklin in his overland journey to the Polar sea, makes a reference to Edmonton in 1820 (it had been founded in 1795 as a fur-trading centre) as having much goitre, and Dr. W. B. Cheadle treated patients there on his trans-continental journey.

With the formation of the Northwest Mounted Police (the "Mounties") in 1873 a regular succession of surgeons began, the first being Dr. George Kittson. Dr. R. G. Brett (1851-1929), Ontario born, helped to found the Manitoba Medical College, then moved to Alberta and became a leading medico-political figure. He established the sanatorium at Banff.

The building of the Canadian Pacific Railway (finished in 1885) brought yet more medical men into the country, and by 1889, the year in which the Canadian Medical Association held its meeting in Banff, there were 33 physicians registered in the N.W.T.

There is no difficulty in naming the pioneer doctor in British Columbia. This was Dr. John S. Helmcken (1825-1920), a graduate of London, who came to British Columbia in 1850, as surgeon to the Hudson's Bay Company. At one period he described himself as "the leading practitioner from San Francisco to the North Pole, and from Asia to the Red River of the north." This

was easily accounted for, as he was then the only practitioner within those limits. He filled a large place in the medical and political life of British Columbia, and his house in Victoria is preserved as a museum. He was one of the delegates to Ottawa from the province to support terms of union with Canada.

Medical Teaching

As the better type of men increased medical boards were set up for the control of medical practice (in Lower Canada in 1788; Upper Canada in 1795; Nova Scotia in 1828), but these had little control over the large numbers of unlicensed practitioners. Often these latter were the only form of practitioner available under pioneering conditions. There was no medical teaching in the country, as would be expected. The Canadian medical student had either to be satisfied with the training of an apprentice or else go abroad at great expense.

At this very early stage of development a well-organized medical school was formed in Montreal in association with a general hospital to provide clinical teaching. The teachers—four Edinburgh graduates—were the staff of the Montreal General Hospital, founded in 1819, and their school, which was opened in 1823, was at first called the Montreal Medical Institution. In 1829, however, the school agreed to become the Medical Faculty of McGill University, thereby gaining the right to confer degrees, whilst enabling the University to begin active operation as required by the terms of its foundation.

This school owed its formation to the desire of its four founders to raise the professional standards in Canada. The names of the four founders were John Stephenson, A. F. Holmes, William Robertson, and William Caldwell. They were men of strong personalities. Caldwell had fought a duel over some derogatory comments on the first proposal to build the hospital. Holmes became the first dean of McGill Medical Faculty, but was no more influential than the more reserved Robertson. Stephenson apparently was the *vis a tergo* in the organization of the school. As a student he had the distinction of being the first to be operated on by Roux, of Paris, for cleft-palate, and his Edinburgh graduation thesis *De velosynthesi* is still preserved in the Osler Library at McGill.

These men left their mark on the school by their transmission of the Edinburgh tradition of clinical teaching in the wards. This school has the longest uninterrupted record of bedside teaching in North America*; it was what attracted Osler to McGill.

The first attempt to form a medical school in Ontario was made by Dr. John Rolph in 1824. Rolph was at once a politician, which got him into a great deal of trouble; a member of the Bar, which probably helped him out of trouble to some extent; and a well-trained surgeon. He had studied under Astley Cooper and had great attainments as a lecturer. He became involved in the rebellion of 1837, fled to the States with a price on his head, and was finally pardoned in 1843, when he came back to Toronto and began his school again. He gathered good men around him, notably Dr. Joseph Workman (1805-94), who probably had more brilliant mental powers than Rolph himself. Rolph's school was eventually taken into the University of Toronto in 1887. There were two other private medical schools in Toronto for a time which also merged with the University.

Even when they became medical faculties of universities the older medical institutions remained largely independent for many years, making their own appointments and controlling their own finances. The right to grant medical

*Clinical teaching at the bedside had been carried on at the Pennsylvania Hospital in 1756, but it was interrupted by the War of Independence and was not resumed in the Edinburgh tradition until Osler went to Philadelphia in 1884. Macphail rightly speaks of "two faint streams from Edinburgh across the Atlantic, one to Philadelphia and one to Montreal" ("Sources of Modern Medicine," *Canad. med. Ass. J.*, 1933, 28, 239).

degrees, however, was always retained by the universities. This discouraged the formation of weak and undesirable institutions.

The following is a list of the Canadian Medical Schools in geographical order from east to west :

Established Canadian Medical Schools

	Founded as a Medical Faculty or School in
Dalhousie University, Halifax, N.S.	1868
Université Laval, Québec City	1853
Université de Montréal, Montréal, Que.	1843
McGill University, Montréal, Que.	1823
University of Ottawa, Ottawa, Ont.	1945
Queen's University, Kingston, Ont.	1854
University of Toronto, Toronto, Ont.	1844
University of Western Ontario, London, Ont.	1881
University of Manitoba, Winnipeg, Man.	1883
University of Saskatchewan, Saskatoon, Sask.	1926
University of Alberta, Edmonton, Alta.	1913
University of British Columbia, Vancouver, B.C.	1950

Up to 1914 those seeking postgraduate training still turned almost wholly to British and Continental centres, French-speaking doctors in particular going to Paris. The first world war checked this severely. The second war ended it altogether as regards the Continent. The great expansion in hospitals and research centres in the U.S., but also in Canada in such institutions as the Montreal Neurological Institute and the Banting and Best Institute in Toronto, has reversed the direction of postgraduate migration.

No university degree in medicine, of itself confers the right to practise in Canada. Each province retains the control of licensure within its boundaries. Some schools require their students to register with their home province before beginning their course. Even this registration, however, only gives the right to practise in that particular province.

There were many years of discussion before the provinces agreed on a uniform registration which would permit of Dominion-wide practice. This was one of the first objectives of the Canadian Medical Association when it was formed in 1867, but it was only achieved in 1912 by the persistence and statesmanship of Dr. (Sir) Thomas Roddick (1846-1923) after his election to the Federal legislature.

A Newfoundlander by birth, Roddick had early shown his outstanding capacities. It was he who first brought Lister's methods convincingly before the profession in 1877.* In 1885 he was put in charge of the medical services in the Riel Rebellion in Saskatchewan, work which required not only organizing ability but unusual physical endurance, for which his powerful physique was well prepared. His real genius, however, lay in the patience and imperturbability by which he was able finally to harmonize apparently irreconcilable views and to persuade men to rise above provincialism. Roddick evolved the Canada Medical Act (the "Roddick Bill"), by which a medical register under a Dominion Medical Council was set up. Those passing an examination set by the Council were to obtain the right to register for practice in any province without further examination, on complying with the regulations pertaining thereto. Thus the right of the provinces to control their licensure was not disturbed, whilst it did away with the

necessity for taking separate examinations for each province to which a man might wish to go.

In the carrying out of this Dominion registration certain complicating factors have arisen in late years, chiefly relating to the large numbers of medical men from other countries seeking to practise in Canada. But there has been no change in the general tenor of the legislation.

Newfoundland

The union of Newfoundland with Canada (1949) is too recent for the inclusion of its medical history in this sketch. It may be said, however, that the first colonists to reach Newfoundland (1610) had no medical men with them. The comment by Guy, the leader of the expedition, after ten months in Newfoundland, was that only four had died during the winter, and in his opinion "all of them if they had as good will to work as they had good stomachs to their victuals would long since have been recovered."

The first medical men came with a French military force in 1662, and military surgeons came and went with the various expeditions. Dr. William Carson, an Edinburgh graduate, has left a name for his fearlessness in urging reform in the government of the island, and was chiefly instrumental in having the first hospital for civilians built in St. John's in 1813. Before that, two military hospitals existed (one for infectious disease), but they were almost exclusively for the soldiers of the garrison.

Hospitals

The first hospitals in Canada were built in the stormy years of the French settlements in the seventeenth century at Quebec and Montreal, and later at Three Rivers. The oldest is the Hôtel-Dieu of Quebec, begun about 1641, but suffering many vicissitudes from attacks by the Indians.

The Hôtel-Dieu of Montreal was built first in 1644, and was due entirely to the courage and ability of Mlle. Jeanne Mance. She had no training as a nurse, but devoted herself to the care of the sick of the small colony. The hospital suffered much from

poverty. It was burnt down three times. In 1861 it was moved uptown from its site in the business section, and has become greatly enlarged and completely modernized.

The oldest English hospital in Canada is the Montreal General Hospital. It was founded in 1819 and its original building was erected in 1822. It arose as a direct result of the rapid growth of Montreal, and of the floods of immigrants arriving in Canada in the post-Napoleonic period. It was a teaching hospital from the beginning, as already mentioned, and for about 60 years was the only English hospital in the city. Osler studied in its wards and later was one of its physicians. Much of the material for his original *Textbook of Medicine* was drawn from his experience in its wards and necropsy room. The hospital is now being transferred to a more suitable site uptown.

The Royal Victoria Hospital, the second teaching hospital to appear in Montreal, was opened in 1892, and immediately began to build up a first-class staff. In the last 50 years there has been a tremendous expansion in hospitals in the city and province.

In Toronto (first called York) the Toronto General Hospital was built in 1820, but was taken over by the Provincial Government for parliament buildings in 1824,

Sir Thomas Roddick.

*Sir Thomas was the first medical man outside of the British Isles to be chosen as President of the B.M.A. This was on the occasion of the first visit of the B.M.A. to Canada in 1897.

L'Hôtel-Dieu de Québec in 1816. The walls date from 1696.

and was not used as a hospital until 1829. The T.G.H. has seen many changes and difficulties before becoming the present very large and modern institution (1,418 beds).

Toronto can claim the honour of having established the first hospital for children in the Sick Children's Hospital. Beginning in small rented quarters in 1875, it has gradually been built up into an institution of international reputation.

It was in the Department of Physiology of the University of Toronto that Banting and Best did their original work on insulin in 1921. The Banting and Best Department of Medical Research was established by the Board of Governors of the University as the result of a special grant made by the province of Ontario in 1923.

Medical Journals in Canada

The first Canadian medical journal, *Le Journal de Médecine de Québec*, was published in Quebec in 1826 by a young French doctor, F. X. Tessier. It had both French and English papers, and was well conceived; but it was much too far ahead of the medical strength of the country, and ceased in 1828.

It was 1844 before the appearance of the next journal, the *Montreal Medical Gazette*. Although it lasted for only a little more than a year, it was the beginning of a series of publications which managed to maintain medical journalism in various guises until some degree of permanence was attained. It was as difficult then as it always has been to find men both capable of editing and willing to make the necessary sacrifices. Two men stand out in the early years.

Dr. Archibald Hall, of Montreal, started the *British-American Journal of Medical and Physical Science* in 1845, and for eight years waged a losing battle against a small circulation and lack of funds. But he produced a first-class journal, which reflects his championship of high standards, his courage and dignity, and his absolute certainty that he was always in the right. He strongly reproved the profession for failing to support him even after a second venture later on; but he seems to have been too dictatorial, too bitter, and too easily irritated to carry on a journal successfully.

In contrast there was Dr. John Fulton, of Toronto, who edited *Canada Lancet* (1868-1922)—first called the *Dominion Medical Journal* (1868-9)—from 1872 to 1887, and drew high praise from Osler for his publication. It was successful because he was methodical and business-like, even if it

lacked the fire which warmed the pages of Hall's journal. As Osler said, Fulton learned the lesson "that success cometh neither from the east nor from the west, nor yet from the south, but is found in close attention to the everyday details of life, no matter how trivial."

Several French journals have been produced. *L'Union Médicale*, begun in 1872, has the record for the longest uninterrupted publication under one title. But the *Canadian Medical Association Journal* has an older lineage. Its progenitor was the *Canada Medical Journal and Monthly Record of Medical and Surgical Science*, which first appeared in 1864. The two editors, George Fenwick and G. W. Campbell, parted company in 1872, owing to "personal differences," and each then carried on a journal of his own under slightly different names. Campbell's journal, the *Canada Medical Record*, was very much his own affair, and ceased with his death in 1904.

But Fenwick learned the wisdom of teamwork and was able to attract to the staff of the *Canada Medical and Surgical Journal* the best men in the Montreal profession. Under the later title of the *Montreal Medical Journal* it reached great heights in the journalistic field, especially under the editorship of Andrew Macphail, who exploited to the full his clear and pungent style. In 1910 the proprietors of the journal agreed, in the interests of organized medicine, that it should become the *Canadian Medical Association Journal*, along with the *Maritime Medical News*, a Halifax publication. The difficulties which beset the journal in the war years are mentioned later; it need only be added that its editorship was undertaken in 1921 by Dr. A. D. Blackader (1843-1932), as Macphail had resigned on account of ill-health. Dr. Blackader, who was then in his seventies, gave himself wholeheartedly to the work of building up the journal, and when he resigned in 1930 he had placed it on a solid foundation.

A total of 72 periodicals have appeared in Canada in the course of 128 years. At present there are 18, including provincial Bulletins and undergraduate publications. Medical journals are not now undertaken with the apparent light-heartedness of last century. The economic implications are too severe, and advertising support is indispensable in almost every instance.

The Canadian Medical Association

The desire to organize the profession in Canada arose several years before the time was ripe for carrying it out. In 1844 Dr. Joseph Painchaud, of Quebec, suggested the

The Montreal General Hospital as it was when Osler was a student there.

formation of a "Medical Fund or Association" whose main object was to be a charitable one. The *Montreal Medical Gazette* (the earliest Montreal medical journal) at once proposed to widen the scope of the Association to include the dissemination of medical information and to obtain representation of its wants in legislation. The two medical societies of Toronto and Montreal then combined in developing the movement, with Dr. F. Badgley, of Montreal, as one of the most active leaders.

However, friction developed between the medical societies and the so-called "districts," and the movement failed utterly. Another attempt four years later began in a better spirit, but lacked organization enough to get beyond the first meeting. The wonder is that these efforts were made at all. Communications were difficult, and the number who realized the value of organization was very small. The eastern provinces were not approached in the matter at all.

The third attempt followed on, though it was not directly the result of, the political union of the Canadian provinces in 1867. Dr. William Marsden, of the Quebec Medical Society, who had taken part in the earlier abortive attempts, was now the first to realize, or at any rate to act on, the more favourable prospects for medical organization which would arise from confederation. He was further stimulated by a visit he had paid that year to a meeting of the American Medical Association, as delegate from the College of Physicians and Surgeons of Quebec, bringing back reports of what was being proposed in regard to education and licensure.

His report was taken up by the Quebec Medical Society, and a committee, composed of Drs. J. A. Sewell, William Marsden, R. H. Russell, P. D. Tessier, L. J. A. Simard, F. H. A. Larue, and H. Blanchet, drew up an appeal to all members of the profession in Canada (now nearly 3,000) to meet in Quebec for the organization of an Association. The chief object named was that of medical legislation.

This time there was no hesitation. On October 9, 1867, 167 medical men met in Quebec, including representatives from Upper and Lower Canada, as well as from Nova Scotia and New Brunswick, and the organization of the Association was successfully completed, with Dr. (Sir) Charles Tupper as president.

The first annual meeting was held in Montreal, again under the presidency of Dr. Tupper, of whom Osler has said that he was a brilliant example of success of the doctor in politics, although "he never really served two masters—he was a politician first and a practitioner only when stranded by the exigencies of party." The value of his experience to the Association in its formative years was inestimable. His physical attributes were remarkable. He lived to the age of 94 and actually "stumped the country" for his party in his 80th year, and successfully, too. And yet he had been ready at the age of 59 to give up all activities, as he was believed then to have Bright's disease. His case was mentioned by Osler in his paper "On the Advantages of a Trace of Albumen and a Few Tube Casts in the Urine of Men above 50 Years of Age" (*N.Y. Med. J.*, 1901, 74, 949).

It should be added that Dr. Marsden, who was rightly called the Father of the Association, refused nomination

Sir Charles Tupper in 1891.

Dr. Palmer Howard, outstanding in the early days of the C.M.A.

even as vice-president. Extremely retiring in disposition, he preferred to work without recognition, but did accept the presidency in 1873.

The Association immediately began to discuss the problem of medical education and licensure. The first proposal favoured an Act similar to the Medical Act of Great Britain, setting up a general council of medical education for registration. No other subject occupied more of the time of the Association in its early years, and none gave rise to more frustration. In 1874 it was dropped altogether, by common consent, fully vindicating the reflection of Dr. Joseph Workman, of Toronto, that "our greatest, and alas, too palpable want is Union—honest, earnest, self-sacrificing Union—and our next great want is prudence."

The other subjects dealt with at the first meeting were those of statistics and hygiene, and the formulation of a code of ethics. It was only in the third year that a programme of scientific papers was presented. In the tenth year the scientific proceedings were published in printed form; the secretary of the publications committee that year was William Osler.

The Association took some credit to itself for its continuous representations to the Government on the necessity for centralizing the control of public health. Its records show an appreciation of the Government's action in finally establishing a Department of Public Health in 1919.

It is of interest that a proposal was made in 1876 in favour of uniting the Canadian and American Medical Associations. After due consideration, however, and the expression of most cordial feelings on both sides, it was decided to let the matter drop, and merely to continue to exchange courtesies by sending delegates to each other's meetings.

The Association has had its difficult periods. At the end of the first 25 years, for example, interest in it seems to have sunk very low, even to the point of a suggestion in 1893 that it should disband. Membership was small, and only a faithful few carried on the work, notably men like LeBaron Botsford, of St. John, N.B., E. M. Hodder, W. H. Hingston, H. S. Birkett, Joseph Workman, R. P. Howard, F. N. G. Starr, and Alex McPhedran.

Then it gained new life, and in 1910 an Association journal was begun with Dr. (Sir) Andrew Macphail as editor. But just as the journal was getting well under way the war broke out. The editorial staff went overseas on active service, along with a good many contributors, and only the devotion of one or two unofficial editors, notably Dr. Maude Abbott, kept the journal going, whilst the Association itself had great difficulty in carrying on. No

meetings were held in 1915 and 1916, and by the end of the war the financial position of the Association was extremely bad.

The turning-point came at the annual meeting in Halifax in 1921. It was realized then that reorganization was essential. The various provincial organizations had not been brought closely enough into relationship with the Association, and the finances needed immediate attention. A full-time secretary was appointed in the person of Dr. T. C. Routley, a bond issue was raised, and once more the Association began to expand. Within a few years it had paid off the bond issue and was showing the vigour and growth which has brought it to its present stature.

The Association has continued not only to deal with the profession's educational and economic problems, but to concern itself with social and political developments. Post-graduate lectures were first organized in 1925, and were carried on throughout Canada for seven years, with the help of generous grants from the Sun Life Assurance Company. A Department of Hospital Service, also aided by this company, was carried on for 20 years.

Health insurance has probably occupied the attention of the Association more continuously than has any other subject. The principle of insurance against the cost of illness has received the support of the Association, particularly through the medium of prepaid medical care plans.

The first proposals to establish a Royal College of Physicians and Surgeons of Canada were made at the annual meeting in Vancouver in 1920, the primary object being to stimulate study and postgraduate work in medicine and surgery. The idea gradually matured, and the College was finally incorporated by Act of Parliament in 1929. Once launched, the College became an entirely independent organization.

Inspection and accreditation of hospitals is one of the later activities of the Association. This work had previously been done in Canada by the American College of Surgeons, and on their withdrawal from this particular field the Association initiated plans for the necessary machinery to carry it on. To Dr. E. K. Lyon, of Leamington, Ont., is due most of the credit for focusing attention on the importance of this phase of hospital life and of eventually bringing into being the Commission to deal with it. The C.M.A. contributes the major part of the very heavy cost of this work. Formation of a College of General Practice originated within the Association some five years ago, and the College came into being last year, with a full-time secretary. There has been an encouraging response to this movement, but of course it is still at a very early stage of development.

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There is little information on the growth and physical development of Indian children, according to the latest annual report of the Nutrition Research Laboratories at Coonoor. However, a start has been made. Workers at the Coonoor Laboratories first analysed data in the literature on 46,000 boys from various parts of India, and from this prepared growth curves for them. Then a homogeneous group of about 2,000 boys were examined from around Coonoor, and their growth curve was found to correspond closely to that derived for India as a whole. But, what is more interesting, these curves were found to parallel, though at a slightly lower level, recent growth curves for British and American boys. The report poses the question of the influence of nutrition in producing the lower growth progression found in the Indian children.

TREATMENT OF POLYCYTHAEMIA WITH RADIOACTIVE PHOSPHORUS

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Polycythaemia was first treated by radioactive phosphorus (P^{32}) in 1940 by Lawrence, who has reported 201 cases dealt with since that time (Lawrence *et al.*, 1953). Two reports have already been made in this country, comprising 20 cases (Bodley Scott, 1953) and 27 cases (Abbatt *et al.*, 1954). P^{32} was used in the Royal Marsden Hospital at the end of 1948, and 48 cases have been treated since then. Our purpose is to draw attention to the benefits that may be expected and to comment on certain features of the symptomatology and course.

Radioactive phosphorus is prepared by the irradiation of pure sulphur, and is obtained as a solution of orthophosphoric acid. It has a half-life of 14.3 days, but excretion of part of the administered dose in the urine reduces its effective half-life in the body to about 10 days.

When P^{32} is administered the phosphorus participates in the general biochemical reactions of the body. A large amount is incorporated into those cells in which proliferation is most active, because this is where the turnover of phosphorus is greatest. One of the most active tissues in this respect is the bone marrow, and this activity is increased when there is marrow hyperplasia as in polycythaemia or leukaemia. The injection of radioactive phosphorus therefore provides a method of irradiating the overactive haemopoietic tissues more selectively than can be done with external irradiation.

Dosage

The patient is admitted to hospital. The P^{32} is injected intravenously as a solution of sodium phosphate. There are no side-effects and no irradiation reactions have been observed, even following the administration of the maximum dose. After the P^{32} has been given, the urine is collected and its radioactivity measured. The patient is discharged from hospital when the excretion has reached a safe level (100 mC in 24 hours), which in practice means two to three days after the injection.

Two methods of P^{32} dosage have been employed. At first all patients were treated by a "split" dose—that is, two injections of P^{32} at an interval of about two months. Subsequently it was thought that a single injection would probably be sufficient for some patients, and both methods are now used according to the severity of the disease. The split dosage was used for 28 patients, with an interval of 6–12 weeks between the injections. The dose was usually 5 mC followed by 4 mC. The smallest amount given in the two injections was 6 mC and the largest 12 mC. A single injection was given to 16 patients as the first treatment. The dose varied between 4 and 7 mC, according to the severity of the symptoms and haematological findings. The single dose is more convenient, and, since there is no obvious difference