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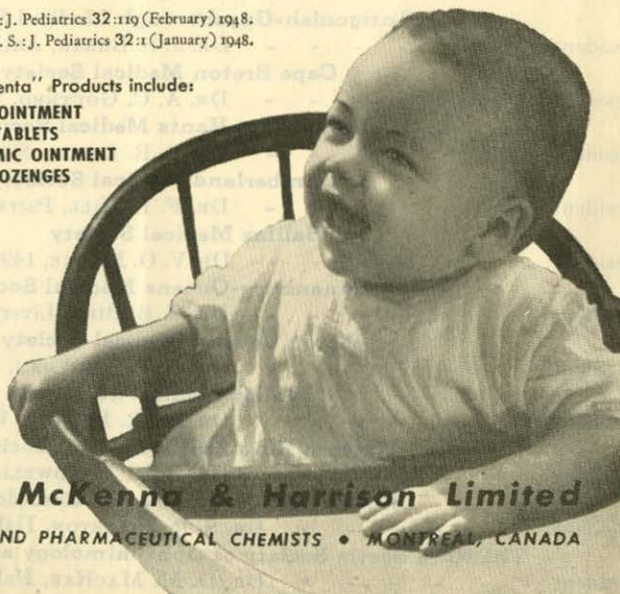
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1. Lapin, J. H.: J. Pediatrics 32:119 (February) 1948.

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Sir William Osler (1849-1919)*

A Great Canadian

By KENNETH A. MACKENZIE, M.D.

Halifax, N. S.

ONE hundred years ago, in remote Tecumseh County, Ontario, William Osler was born in a humble Anglican parsonage. From these beginnings he rose to a place of international prominence in his chosen field. Sir Humphrey Rolleston spoke of him as "the greatest personality in medicine in our day." Time permits only brief references to certain phases of Osler's life. Details will be found in the brilliant biography by Dr. Harvey Cushing, *The Life of Sir William Osler*, the finest biography ever written about a member of our profession, also in a shorter biography by Edith Gittings Reid, *The Great Physician*, and, in this the centennial year of his birth, tributes have appeared attesting to his pre-eminence as a medical figure in many medical and lay journals.

We learn that, at the age of forty, he had successively won a reputation as an outstanding figure in Canada, the United States and Great Britain, and became internationally recognized in the Commonwealth Countries and Continental Europe.

As we shall see later, although he wrote voluminously on many medical subjects—notably on aneurysm, endocarditis, angina pectoris and chorea—he did little, if any, original work which could be classed as medical discovery. We must, therefore, look elsewhere for the secret of the tremendous influence and accomplishments of this great Canadian.

It should be noted that he entered the field of medicine at a time when that profession, according to later standards, was at a low ebb and he had to fight ignorance, prejudice and professional jealousies at many levels. He fearlessly attacked the weak points in practice and teaching, and succeeded in bringing about important reforms with the minimum of offence to his rivals and opponents.

Early Education

Osler's boyhood was normal in that he exhibited a fondness for pranks. For these he "got the sack" from his first grammar school. At Barrie, his second school, he was a leader in mischievous doings and was one of a group known as "Barrie's Bad Boys." Later, at Weston, he had a memorable escapade, when with eight other boys, he spent three days in jail awaiting trial. The cause of this episode was the barricading and smoking out of a teacher who was very unpopular. Although full of mischief, Osler won prizes in athletics and was a good student. After Weston he went to Trinity College, Toronto. At this time he announced his intention of entering the ministry but changed his mind and entered Trinity Medical School. During these years, he made two wonderful friends, Rev. W. A. Johnson, an Anglican priest and naturalist, and Dr. James Bovell, a physician and naturalist. These remarkable men awakened in young Osler an interest in natural history and taught him methods of approaching problems in a scientific manner. While still in his teens he became an enthusiastic microscopist and studied intensively the fresh water algae of the ponds in his neigh-

*An address presented to the students of Dalhousie Medical College, Halifax, N. S., December, 1949.

bourhood. Throughout his life, he repeatedly acknowledged his great indebtedness to Johnson and Bovell.

His first paper, *Christmas and the Microscope*, was published in 1868 when he was eighteen years of age. A second, *On Canadian Liatomacaea*, was published in 1870. While studying anatomy at Trinity, he observed, in a cadaver, bodies which he recognized as *Trichina Spiralis*.

In 1870, the medical teaching in Toronto was in a state of chaos due largely to professional jealousies, and Osler, with a number of other medical students, went to McGill which was then considered to be the best school in Canada and one of the best on the Continent. Thus, Toronto lost Osler.

At McGill he found a great friend in Dr. Robert Palmer Howard who shares with Johnson and Bovell the honor of being the dedicants in his *Practice of Medicine*. After graduating from McGill, in 1872, he immediately proceeded to London where he spent the next two years in post-graduate training. After short visits to Dublin and Edinburgh, he settled down to fifteen months of hard work in the Laboratory of John Burden Sanderson where he studied histology and physiology. While here, he played an important role in the discovery of blood platelets. After short periods in Paris, Berlin and Vienna, he returned to Montreal. While in England, he had serious intentions of taking up ophthalmology and he was also interested in the Indian Medical Service but good judgment and wise counsel prevailed and he decided to devote his life to internal medicine.

In Montreal he was appointed Lecturer on the Institutes of Medicine and, later, physician to the Montreal General Hospital. The Montreal period, 1874-1884, was a strenuous one for Osler. He took a special interest in pathology and his work there made him a real pioneer in that department of medicine.

In the positions which he subsequently occupied, it should be noted that he was always invited and never sought the new post. In 1884, he was invited to head up the Medical Department of the University of Pennsylvania at Philadelphia. In 1889, he was invited to Johns Hopkins where he organized medical teaching on a high plane. It was here that he found the time to write his famous text book. In 1904, he was appointed Regius Professor of Medicine at Oxford, the first time that this coveted office was given to a man who was not a resident of the British Isles. At Oxford he filled this important post with great success until his death in 1919.

His Text Book and Other Writings

Osler's *Practice of Medicine*, published in 1892, was a tremendous achievement and rapidly became recognized as the best text book written up to that time and it was adopted as the standard text by Canadian and American Universities. It maintained a high place for several decades and still has a fair sale in spite of many worthy competitors. Notable features of the book were, (1) the complete coverage of the subject, (2) the place which pathology played in his descriptions of disease, (3) the skilful use of picturesque phrases which showed a familiarity with the classics and the writings of the old masters of medicine.

A criticism of the book was the brevity of his comments on therapy, in defense of which he once said that his colleagues more than made up for his shortcomings in this respect; for this was at a time when overdrugging and

poly-pharmacy was carried to an absurd degree. Osler recognized this weakness of practice and, as a conservative therapist, should be considered as a man well in advance of his time. The book was well received in Great Britain, the Commonwealth Countries, and on the Continent. It was translated into several European languages and into Chinese and Japanese. Lay readers, as well as medical readers, have been charmed by two of his other books, *Alabama Student*, a selection of interesting biographies, and *Aequanimitas*, a series of essays. A small volume *The Diagnosis of Abdominal Tumours* was written before the days of X-ray and has now only historical interest. A book on *Angina Pectoris* is still worth reading. The most amazing part of his literary work is the large number of papers, lectures and addresses, most of which have been published. Dr. Maude E. Abbott has compiled a list of all his writings in a volume of one-hundred and twenty pages, entitled *Classified Bibliography of Sir William Osler*. One is astonished that so much could be accomplished by one man in his lifetime.

A characteristic of Osler which has been frequently stressed by his friends and biographers was his sense of humor and fondness for practical jokes. On one occasion he invited a guest to dinner and informed the guest that Mrs. Osler was very deaf, he, also, informed Mrs. Osler that their guest was deaf. Both shouted at each other during the dinner and only discovered several days later that the other had normal hearing. Another time, when Dr. Abraham Jacobi was a guest speaker at a banquet, Osler removed Jacobis' notes from his pocket, watched him nervously search for the notes during the dinner and, just in time, handed back the notes, saying that they had been picked up in the cloak room. On another occasion, while lecturing on diabetes, he pointed out that the diagnosis could be made by tasting the urine. He put his finger in the urine and then in his mouth. When a number of students repeated the test and confirmed the sweet taste, he said that he was really testing their powers of observation and that they should have noted that the finger which he put in the urine was not the same finger that he had put in his mouth.

Osler published some curious papers under the nom-de-plume of Egertom Y. Davis and had, also, registered at hotels under this name when he wished to remain incognito. On several occasions he fooled his friends by denying that he was Osler and that his name was Davis. This would be confirmed by enquiries at the Hotel desk. It is said that one man who met this treatment at Atlantic City wondered why this man Davis was so familiar with Mrs. Osler.

Personal Recollections

It was my great privilege to have met Osler four times, once at his home in Oxford, in 1907. During the war I met him at Shorncliffe where he was consultant to the Army, at Colchester Heart Hospital where he occasionally gave clinics, and talks, and in London. My first meeting is a matter of great personal interest to me. In 1907, while in London, I was one of four young doctors who had a great desire to meet Osler. On instructions from his house physician we arrived at the Old Radcliffe Infirmary at two o'clock of a certain day. Osler was in his ward and came to meet us and give us his usual hearty welcome. We spent two hours in the wards and had an interesting clinic on all his interesting cases. We were then piloted around the Infirmary which is a most interesting institution. When we appeared to thank him and bid

him good-bye he said, "Boys, you are not going yet. Mrs. Osler is waiting for you to have afternoon tea." He walked with us to his beautiful home, formerly occupied by Max Muller. We had a pleasant tea hour; Osler showed us some of his prize books and conversed with each in turn. Noting my name, he remarked that I was probably born in Pictou. Although he had never been there he had associated the name of MacKenzie with Pictou. I then mentioned that my present home was Springhill and he immediately asked about the Springhill Cottage Hospital and was interested in this institution. His mother had made a contribution to the original hospital fund. One of my precious momentos of this visit is a snapshot in which I am standing between Dr. and Mrs. Osler.

The student of to-day cannot help getting inspiration by becoming familiar with the life and works of this distinguished Canadian. Charles A. Dana has well said that "whoever knows the writing of William Osler is an educated man."

The following are among the reasons for his phenomenal success:

1. He had wonderful parents, poor in material things but rich in those qualities of heart and mind which favour similar accomplishments in their children. Three of Osler's brothers became distinguished men, two in Law and one in Finance.
2. The influence of great men in his formative years. Johnson and Bovell, already referred to, gave him an early interest in botany and zoology, a splendid beginning for his future work. Later he made intimate friendship with the leaders in medicine in all important medical centres.
3. Interest in the best literature. Early in life he became familiar with the Bible, Shakespeare, and *Religio Medici*. This was the beginning of a life-long interest in the classics. He studied the works of the old masters and was the greatest living authority on medical literature. He used this knowledge freely and effectively in all his writings.
4. He possessed an amazing capacity for work. His master word in medicine was "work." Yet, he took time for holidays and his home was an open house for a continuous stream of visitors.
5. The last is difficult to define. He had a charming manner and made lasting friends. He was fond of children and played with them at every opportunity. He had a great admiration for general practitioners, many of whom render wonderful service under unfavourable conditions and without the advantages of hospital and laboratory facilities. He loved the poor and many of these were aided and cheered by his kind and sympathetic interest. A good example occurred at Oxford. The Regius Professor of Medicine at Oxford was also visiting physician to the Old Alms-house at Ewelme. Osler's predecessors performed this duty in a somewhat perfunctory manner making only one or two visits a year. He, however, made weekly visits and established friendly relations with the unfortunate old men.

Another story is told of an incident which occurred while in Montreal. He was approached by a man who was cold, hungry and inebriated requesting

financial assistance. He gave him some money and, also, his coat with the request that the money be used for food and that he "will" him his liver. Later, this man died in hospital and in his belongings was found a Will bequeathing his overcoat and liver to Dr. William Osler.

This sketch would not be complete without some reference to Osler's large and valuable library. I quote here from *Life of William Osler*, by Edith Giddings Reid, his wishes, "I like to think of my books in an alcove of a fire-proof library in some institution that I love; at the back of the alcove an open fireplace and a few easy chairs, and on the mantel piece an urn with my ashes, through which my astral self could peek at the books I have loved, and enjoy the delight with which kindred souls still in the flesh would handle them."

And the fulfillment, "His library and his catalogue are in the McGill University in a beautiful room in the fire proof Strathcona building. At the end of the room in the centre of an alcove is a bronze medallion bearing his portrait behind which are his ashes.'

Inflammation Then and Now

SIR JAMES LEARMONTH

K.C.V.O., C.B.E., LL.D., Ch.M., F.R.C.S.

The First John Stewart Memorial Lecture*

IT has been for me a peculiar pleasure, as well as a pious duty, to come to Halifax to deliver this first John Stewart Memorial Lecture. It is just over a century since John Stewart was born, and just over 70 years since he graduated with honours in the University of Edinburgh. For the last two years of his medical course he was closely associated with Lister, who was adorning the Regius Chair of Clinical Surgery, and he accompanied his master to London, not only as dresser and house surgeon, but also as an apostle. Although his professional life was spent in Nova Scotia, we in Edinburgh like to regard him as at least partly an Edinburgh man; in addition to his medical degree, he received the Doctorate of Laws from the University of Edinburgh in 1913, and, very appropriately, was made an Honorary Fellow of the Royal College of Surgeons of Edinburgh on the occasion of the Lister celebration in 1927. I am charged by the Faculty of Medicine of the University of Edinburgh, and by the President and Council of the Royal College of Surgeons of Edinburgh, to convey to you their felicitations and good wishes on this considerable occasion. That you have done me the honour of asking me to deliver this address is something I shall value for the rest of my life.

I have come to the conclusion that it would be inappropriate for me to attempt any large estimate of Dr. Stewart's life and work, here in the University and Province which he served so well. I suspect that some in this audience have reason to be grateful for his professional skill, and many more reverence his example. But there is one story I would like to tell you. In Scotland now there are few left who knew Dr. Stewart, but one of these is my own revered teacher, Sir Robert Muir, himself the Lister Orator of 1933. When I told him I was going to deliver this address, he said, "I am very glad you are going to do that, Stewart was a grand man." Those of you who know Sir Robert will appreciate all that is implied in his tribute, and at that we may leave it.

I propose to examine with you the history of pathological conceptions of inflammation in their relation to surgery.

As in other similar surveys, it will be convenient to begin by examining the views set out in the writings of Hippocrates. In these appears the usual habit of Greek thinkers of the time, of examining isolated conditions, and even of examining isolated phenomena out of their general settings, a habit which led to painstaking abstract analyses of the condition or phenomenon, pushed to the limits of which these highly intellectual physicians, poets, philosophers and historians were capable. The result was often a medley of exquisite pieces of description or of abstract thought, without any sustained attempt to fit each into its proper relationship with others. The Hippocratic writings do not recognize the association of fever with inflammation; and this failure seems the more incredible to our modern minds, because the writings recognize, as one form of favourable outcome both of inflammation and of fever, the localization of the excess of the noxious "humor" to the subcutaneous tissues, where it was digested, and from which it was ultimately cast

* Presented at Dalhousie University, Faculty of Medicine Refresher Course, Camp Hill Hospital, Halifax, N. S., October 27, 1949.

out. Twenty or thirty years ago, this idea returned to medical practice, as it were in reverse; and there was a passing fashion, originating in South America, of treating systemic pyogenic infections by introducing an irritating chemical into the subcutaneous tissues, to produce a local "fixation" abscess. To-day, the formation of one or more local abscesses in the course of a general infection can sometimes be regarded as an indication that the natural resources of the body are dealing successfully with the infection.

So great were the prestige and the influence of Hippocrates and his writings that the relationship between inflammation and fever was not noted, or at least was not stated categorically, until five centuries had passed; and then Celsus described the clinical features of local inflammation in a short sentence which is still drilled into the student at his first surgical clinic—"rubor et tumor, cum calore et dolore," "redness and swelling, with heat and pain." This was still to regard the responses of the tissues and of the individual as dependent on a particular irritant. The world had not so long to wait before the next step in the understanding of the pathology of inflammation was taken. Two hundred years after Celsus, Galen announced his belief that the tissues reacted in a fairly constant way to all varieties of noxious stimuli, whether the stimulus was physical, chemical, or what he called in his pleasant way, "the vagaries of the humours." This hypothesis, that there is a general response of the tissues to irritants, which varies for particular irritants only in detail, is the hypothesis now supported by pathologists.

Surprisingly accurate as a generalization though Galen's statement was, for more than fifteen centuries it had to remain a generalization lacking any fuller examination. First, until the invention of printing the spread of knowledge was apostolic, and it did not behoove the apostle to stray too far from the text of his master. Secondly, no fuller examination could be made until the advent of the experimental method; and thirdly, some medical rebel was necessary, who was not to be dominated by the prestige of names or by that of schools of thought. These three conditions were satisfied in the person of John Hunter, the Scotsman from Long Calderwood who was to become the greatest ornament of British surgery.

The text of John Hunter's writings on inflammation is to be found in his book on *The Blood, Inflammation, and Gunshot Wounds* (1793), a likely enough grouping of subjects for one who had learned the practice of his profession as a military surgeon. "By these extensive powers inflammation becomes the first principle in surgery." It is one of the merits of this great man, that he was not content to examine a problem purely from the point of view of treatment; he must also understand "why." And to his investigations he brought a breadth of outlook that embraced all forms of animal life. Hunter considered that "pure inflammation is rather an effort of nature than a disease, yet it always implies disease or disturbance, in as much as there must be a previous morbid or disturbed state to make such an effort necessary." He held that inflammation might arise as the result of any of three causes:—first, "An accidental force applied to a part," which altered the architectural arrangement of the tissues of the part—a wound or a bruise; secondly, some "irritation" which did not necessarily alter the architecture of the tissues, including under the term "irritation" both thermal and chemical agents; and also "fevers of every kind" for he writes, "I need hardly mention that fever is often the cause of local inflammation;" and thirdly, "a particular

disposition in parts themselves" including those local affections—for example boils—in which constitutional disturbances were absent.

In his direct way Hunter then turned his attention to the details of the process of inflammation. From the first he realized that most of the features of the process were of vascular origin. "The act of inflammation would appear to be an increased action of the vessels, an 'increase or distension beyond their natural size,' 'a blush.'" He found that the tumour or swelling was the result of "the extravasation of the coagulating lymph and some serum," and that the serum tended to collect in dependent parts, whereas the coagulating lymph produced what he called "adhesive inflammation." He held that pus was an end-product of inflammation which had to be got rid of; but there were no bacteriological laboratories to help him, and he made the only classification of pus possible at that period: pus arising after inflammation (and forming what now we would call a pyogenic abscess), and pus arising without inflammation, forming what now we would call a tuberculous abscess. In reaching these conclusions he depended not only upon clinical experience but also upon carefully planned observations and experiments upon animals.—These he recorded in so great detail, that often the reader has to search carefully for phrases and sentences in which he sums up his own conclusions.

When he had made up his mind on the nature of the pathological processes in inflammation, he took the logical step of working out treatment for it, based upon his observations on its pathology. Because he thought the process of inflammation a beneficial one, he first laid it down that, "inflammation the parts must submit to, and as inflammation by its effects will generally have a tendency to make them recede more, in this light it is not proper to check the effects of inflammation." He was of his time in recommending that constitutional treatment should be of a lowering nature, and should include purging and blood-letting: but he was enough of a rebel from convention to confess that he was at a loss to explain why such lowering treatment was beneficial. On the other hand, his views on local treatment were more nearly our own. As a local application to inflamed parts he recommended the linseed poultice, and when made in Hunter's way this was to all intents and purposes a sterile wet dressing, for he directed, "Take boiling water, q.s. and stir in the linseed till it becomes of a sufficient thickness, and then add a small quantity of some sweet oil." He knew too that incisions to evacuate abscesses must be generous, and might, if the incision were of some depth, require the insertion of a drain to prevent premature closing: for dressing he thought the poultice as good as anything, but with remarkable foresight he considered that the essential step was, "to keep the surrounding parts clean." He had observed that if a tuberculous abscess burst through the skin, and remained open, inflammation was inevitable and death of the patient very likely. Thirty years later Abernethy evacuated such abscesses by a valvular incision which he allowed to close. We know now that if a tuberculous abscess is kept open, secondary infection by pyogenic organisms is apt to result. It is of great interest that Abernethy gave as his justification for this valvular technique that, "there is reason to believe that the inflammation which frequently succeeds the discharge of large abscesses in the common way is due to the admission of air, which acting on the effused blood, or perhaps on the matter itself, occasions decomposition."

The breadth of Hunter's views are the more striking when we consider

the handicaps under which he worked. "In his day," wrote D'Arcy Power, "there was no chemistry: no physics, no acquaintance with minute anatomy, for the microscope was not yet in common use; no knowledge of animal cells; hardly even a theory of fermentation to account for disease, because humoral pathology and the doctrine of climatic conditions still held sway . . . He would have gotten the true explanation of many of his facts had he been born in 1778 instead of 1728."

In a rather different way, for the next century John Hunter exercised an influence on surgical practice hardly less dominant than had been that of Hippocrates centuries before. He had faithful disciples, who adhered strictly to his doctrines, but no one of them approached his intellectual calibre; they were content to follow his teaching and practice, and either lost sight of, or were incapable of pursuing, the methods which he had used in his researches. This stagnation of knowledge has happened all too often in the history of science; the successors of great men tend to focus their attention on the technical successes rather than on the working of the minds of their masters. In the generation after Hunter there were many brilliant technicians, but only one—Abernethy—who maintained his outlook. In the next generation, Brodie combined Hunter's theory and practice. In the third generation, Paget came nearest of all Hunterians to his outlook, and has left in his "Lectures on Surgical Pathology" a clear exposition of his own conception of inflammation. It is strange that there is no evidence in the third edition of Paget's book, published in 1870, that he realized the importance of the observations which Lister had made in 1867. So strong was the Hunterian tradition that Paget could write, "And yet, let me add that Mr. Hunter was not far wrong—he never was."

It is instructive, on this day when we commemorate John Stewart, to find Paget beginning his lecture on inflammation with the statement that, "a knowledge of the phenomena of inflammation, the laws by which it is governed in its course, and the relations which its several processes bear to each other, is the keystone to medical and surgical science." He knew that the vessels of an inflamed part were dilated: but although the edition was published three years after Lister's first communication on the antiseptic technique, he thought that the pathological features of inflammation were due to certain factors operating together: these were, defective maintenance of the natural structure of the part; increased afflux of nutritive materials to it, and increased production of lowly organized, or organizable, materials in or about it. These factors, he thought, had their origins in perversions of nutrition, which in turn depended upon changes in the amount or the composition of the blood supplying the part, in the influence of nervous force, or in "the condition of the proper substance of the inflamed part." He insisted, and as we now think rightly insisted, that the external causes which precipitated the inflammatory reaction were those which "when applied with more severity, or for a longer time, lead, not to inflammation, but to the death of the part," and he included in such causes the effects of violence, of heat, of cold, and of chemical irritation.

Paget's views had a great influence on the surgical work of his time, as was natural in so learned a man, but they did nothing to minimize the risks run by the patient who had to submit to the surgeon's knife. Yet while Paget wrote, the data for the solution of that most important of all problems

in medical science were already in existence: they had been provided by Pasteur, by Koch and by Lister. This is not the only occasion upon which the medical profession has been at fault in failing to correlate data obtained from a number of sources or from a number of sciences: and we must now examine the data which were then available.

From the middle of the 19th century there was an upsurge of scientific endeavour, led at first by a small number of gifted men, but soon to be the field of endeavour for a great army of research workers. These gifted men were: in pathology, Virchow and his pupil Cohnheim; in biology, Metchnikoff; in bacteriology, Pasteur and Koch, and in surgery, Lister.

The impetus for the new conception of inflammation came from Virchow. His original hypothesis was that inflammation was a degeneration, and that the swelling resulted from the soaking up, by each cell in the inflamed area, of nutritive substances from the blood. Great man that Virchow was, he set his pupil Cohnheim the task of attempting to disprove the hypothesis. This Cohnheim succeeded in doing. He showed that the fundamental pathological change in an inflamed part is increased permeability of the walls of the local capillaries—"It is only and solely the vessel wall that is responsible for the entire series of events." Though time was to show that this was not the whole truth, it provided a picture of such local changes as the accumulation of fluid, thought by Cohnheim to be a filtrate, and the emigration of leucocytes. His description of the latter phenomenon is so vivid that I quote it to you. "The eye is fettered by a very unexpected occurrence. Usually it is a vein with the typical peripheral arrangement of the white corpuscles, but sometimes a capillary, that first displays the phenomenon. A pointed projection is seen in the external contour of the vessel wall, it pushes itself further outwards, increases in thickness, and the pointed projection is transformed into a colourless rounded hump; this grows larger and thicker, throws out fresh points, and gradually withdraws itself from the vessel wall, with which at last it is connected only by a long thin pedicle. Finally this also detaches itself, and now there lies outside the vessel a colourless, faintly glittering contractile corpuscle with a few short processes and one long one, of the size of a white blood cell, and having one or more nuclei, in a word, a colourless blood-corpuscle."

In his explanation of the origin of the macrophages, the large cells found in inflammatory exudates, Cohnheim was less happy; he thought that they were pus cells swollen by the ingestion of extraneous material. He thought the orthodox German surgical view wrong, that where pus was absent inflammation was absent: but he envied the surgeon the ease with which he could, on occasion, remove inflammatory products. "If," he wrote, "the operative removal of inflammatory products were only always possible. But to bar the advance of purulent pyelitis to the kidney, and thus to avoid the development of pyelonephritis, to effect this, the physician, despite all the progress made by our art, is still practically powerless." What an evening together Cohnheim, Domagk and Florey could have!

Perhaps the most dramatic day in Cohnheim's short life was a November day in 1875, when there came to Breslau a Doctor Koch, with, he claimed, a pure culture of anthrax bacilli. Cohn was sceptical, but sent to the Pathology Department for an independent judge. Cohnheim went himself, and on his return said to his assistant Weigert, "Now leave everything as it is and go to

Koch. This man has made a magnificent discovery, which for simplicity and the precision of the methods employed, is all the more deserving of admiration, as Koch was shut off from all scientific association. He has done everything of himself and with absolute completeness. There is nothing more to be done. I regard this as the greatest discovery in this domain, and believe that Koch will again surprise and put us all to shame by further discoveries." Could there have been more generous tribute?

The next view was that of Metchnikoff, a zoologist at the Pasteur Institute, who was so far a Hunterian that he made his observations on animals "Inflammation," wrote Metchnikoff, "generally must be regarded as a phagocytic reaction on the part of the organism against irritants. This reaction is carried out by the mobile phagocytes, sometimes alone, sometimes with the aid of the vascular phagocytes or those of the nervous system." Metchnikoff regarded the vascular phenomena as of secondary importance. Unfortunately he was not content to have contributed a fact to the knowledge of inflammation; he thought his the only fact, and as he was a stubborn man much of his writing consists of attacks on those who dared to criticize his view, or to suggest an alternative view.

And now to Lister. "There are," said M. Lucas-Championniere, "only two periods in Surgery—that before Lister and that since Lister." Lister had studied the local phenomena of inflammation in a series of beautiful experiments, and his papers on the subject are classic. His methods of treating wounds were founded on the work of Pasteur, and on the 16th day of March, 1867, he published in *The Lancet* the details of his new treatment, a milestone in surgical progress. He wrote, "We find that a flood of light has been thrown upon this most important subject by the philosophic writings of M. Pasteur, who has demonstrated, by thoroughly convincing evidence, that it is not to its oxygen, or to any of its gaseous constituents, that the air owes this property of decomposing organic substances, but to minute particles suspended in it, which are the germs of various low forms of life long since revealed by the microscope, and regarded as merely accidental concomitants of putrescence; but now shown by Pasteur to be its essential cause, resolving the complex organic compounds into substances of simpler chemical constitution, just as the yeast plant converts sugar into alcohol and carbonic acid."

At first Lister thought that the micro-organisms which infected wounds were derived from the air, and his original technique included an attempt to sterilize the air in the neighbourhood of an operation by spraying it with carbolic acid. But by 1890 he had come largely to discount the dangers of airborne infection, although in the recent war the problem became important again in shelters. At no time did he hold that infection came only from the air, and from the first he paid great attention to the skin in the area to be operated upon, to the hands of those taking part in the operation, and to sponges. Very early in his work he expressed the belief that different types of bacteria might be the cause of the different manifestations of infection in wounds, and (diffidently, wrote his pupil Sir Hector Cameron) that a bacterium might be the cause of tetanus. He himself isolated one non-pyogenic bacterium in pure culture. Nowadays this belief is a commonplace of bacteriology.

As time passed, and especially on the Continent of Europe, for sterilization by chemicals was substituted sterilization by heat. Some thought to

belittle Lister's work by hailing this technique as the aseptic method, but they conveniently forgot that Lister himself introduced the term aseptic, and used it in its strict sense to indicate a wound in which sepsis was absent.

When Lister had completed his work, the surgeon was able to operate in the knowledge that contamination of his wounds by pyogenic bacteria would not lead to inflammation in them. It was natural that clinicians and those who were avidly following the new science of bacteriology should turn their attention to the treatment of primary pyogenic infection. Soon bacteriologists had added to the known defences of the body the more subtle mechanisms of immunology, and had added to the therapy of infections the production of antibodies to reinforce those of the body itself. Moreover, as the list of micro-organisms grew, it was found that all were not equally sensitive to any one antiseptic; and as the search for potent germicides extended, it narrowed first to an attempt to provide a specific germicide for each organism—with, as the ultimate objective, a germicide that would be active against all organisms. This was a matter in which the young science of organic chemistry could help, by painstaking building up and adjusting molecule after molecule. In due course Ehrlich announced salvarsan, and opened up a boundless field for investigation.

It seemed that bacteria were fighting a losing battle, which might develop into a rout; and it took battle to upset that conviction. For early in the war of 1914-1918 the contending armies were faced with the grave problem of dealing with wounds already grossly infected by the time they came under surgical care. The original Listerian principles were tried, but it was not so easy for an antiseptic to reach all the nooks and crannies of a huge flesh wound, and none of the known antiseptics proved effective. A partial answer was found in the removal of dead and bruised tissue—wound excision—and this became and remained the best treatment for wounds during the first world war.

Were we any better off in 1939? In the interval there had been no notable contribution to the pathology of local inflammation. The Hunterian view prevailed that it was a natural mechanism, not to be checked unduly, and that for all except certain groups of organisms it was the only antibacterial mechanism available. The exception was highly important, for in 1935 Domagk had demonstrated the action on streptococci of the red dye prontosil, and subsequent investigation had shown that the active part of the molecule of the dye was sulphonamide. It was found too that sulphonamide acted, not by poisoning streptococci, but by interfering with their metabolism, so that they ceased to multiply and finally died out. It was thus the first of a group of substances, the list of which is not yet ended, to which the generic term "antibiotic" is given.

The second world war brought in its train every conceivable mechanism for initiating inflammation. In most circumstances excision of wounds remained indispensable. But Florey and Fleming added to the antibiotics penicillin, a drug of such potency and general applicability that the younger members of my audience will never see the tragic problems before which those of us who are older used to stand impotent in despair. Like the sulphonamide drugs, it could be distributed in the blood stream, and so might reach every cell in the human body which retained its blood supply. And now we have streptomycin, aureomycin and the promise of others.

Has the study of the pathology of inflammation made equal progress?

Menkin has reopened the whole question, and although his work has not been generally accepted, it is courageous in its unorthodoxy. Menkin claims that he has isolated in the exudate of an inflammatory process a substance which he calls leucotoxine, the effect of which is to increase both capillary permeability and the emigration of leucocytes. He considers that the localization of inflammatory processes results from the deposition of fibrin in tissue spaces and lymphatics—and we have seen the germ of that hypothesis in John Hunter's "adhesive inflammation." The balance between Cohnheim's polynuclear cells and Metchnikoff's macrophages is adjusted by changes in the acidity of the exudate. Perhaps Menkin has focussed his attention too narrowly, to the exclusion of the role played by antibodies.

The war of 1939-1945 provided opportunities for the close study of the response of the tissues to all the varied forms of noxious stimuli, and these opportunities were grasped by the allied medical services. Recently a general survey of the findings has been made by G. R. Cameron, whose summary is this: the noxious stimulus, the appearances on histological examination of the inflamed area, and the results of chemical analysis of the exudate, vary from case to case only in so far as they represent reactions of graded intensity, observed at varying intervals after the application of the noxious stimulus. The end result of the process of inflammation, varying as it does from complete restoration to normality to massive death of tissue, is directly governed by the severity of the local vascular reaction. The pathological basis of this reaction is an increase of capillary permeability, which upsets the balance—postulated by Starling fifty years ago—between the hydrostatic pressure of the blood, or filtration pressure and the osmotic pressure of its proteins on the one hand, and the osmotic pressure of the tissue fluids on the other hand. As yet, we do not know whether the increased permeability is due to molecular changes in the surface membranes of the endothelial cells of the capillaries, or to loosening of an intercellular cement substance.

Has all this recent vast expansion of knowledge diminished the importance of inflammatory lesions in surgery, which seemed so compelling when Stewart went to Edinburgh? I think it has, for we are in a better position to prevent the occurrence of bacterial infection, and to control it more effectively if it has been established before surgical care is available. Stewart would have been grateful for this, as are we all: but what a thrill it must have been for him to be "in at the beginning."

Early Women Doctors of Nova Scotia *

R. BOND NICHOLS

The year 1949 marked the Bicentennary of the founding of Halifax. Just one hundred years ago, in January 1849, the first woman in modern times obtained her medical degree and became the pioneer and leader for over fifty years of women in Medicine. 1849—one graduate; 1949—six hundred and twelve graduates, in the United States alone, including five from Harvard, the last college to grant medical degrees to women! It is fitting that Nova Scotia which has the tradition of the production and exportation of Bank Managers, College Presidents, Finance Ministers, Premiers and so on, should also have produced over thirty women medical graduates before 1910. Up until the present time, Dalhousie University has granted medical degrees to fifty-five women.

The story of Elizabeth Blackwell is fascinating. Her biography by Isobel Ross (Harper Bros., New York, 1949) is entitled *Child of Destiny* and so she was aptly termed. So often history seems to bring the individual and the time together. So it was that this daughter of a large and individualistic household, transplanted from England to the New World at the age of eleven years, felt the restlessness of that era of growth, and ferment and revolt, felt that she must join Susan B. Anthony, Harriet Beecher Stowe, and the others who were writing, talking, fighting for causes, pushing toward high goals.

When a friend who was dying of cancer, looked into her face and said, "You are fond of study, Elizabeth. You have leisure, health and a cultivated intelligence. Why don't you devote these qualities to the service of suffering women? Why don't you study medicine? Had I been treated by a lady doctor my worst sufferings would have been spared me,"—Elizabeth seriously began to consider the question. Though many aspects of medicine were repugnant to her, yet, as she later wrote, "The idea of winning a doctor's degree gradually assumed the aspect of a great moral struggle, and the moral fight possessed an immense attraction for me." Her family had always known of her determination, stubbornness and strong will. Long before she was ten, they had looked to her for decisions, and stood a little in awe of her. Here then was a girl, small and blond and frail in appearance who was destined to storm the barriers of the medical profession. Although she was too shy to speak to her parents' friends, she was bold enough to project the idea of preventive medicine, to lecture on prostitution, social diseases, and sex education for women, and to found a medical college for women, of which, medical observers agreed that, "not even in Zurich, Dublin, Paris or Edinburgh was the training of medical students any better than it was at the Women's College of the New York Infirmary." For Halifax, the present link with Elizabeth Blackwell, is Dr. Jane L. Heartz Bell. She is at the present time the only one of the seven Nova Scotia women graduates of that Women's Medical College of New York living in Nova Scotia, though Dr. Louisa Hart lives in Sackville, N. B.

Dr. Jane L. Heartz (Bell) was born in Bridgetown. After two years at Mt. Allison University she took her medical degree in 1893. Her teacher was Emily Blackwell, the younger sister of Elizabeth, who by that time had transferred to Emily the running of the college that she might herself have more time to devote to her crusade against vice. Dr. Bell took postgraduate

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work under Sir William Osler in John's Hopkins. Then for five years she worked in Chicago, gaining experience by running large clinics, especially in the Jewish sections. She learned German to facilitate her work. With a companion, she went at all hours of the day and night into the horrible slums of that great city. Sometimes as she says, the elevated train conductors as they disembarked, wondered if they would see them again. The time was just after the discovery that antitoxin could halt the terrific ravages of diphtheria, and she has many tales of the tragedies and victories of that period. With Dr. Bertha Van Heusen, whose autobiography, "Petticoat Surgeon" is a woman's saga of those "Horse and Buggy Doctor" days, she worked in the Chicago City Health Department. In 1898, she came to Halifax and despite her marriage in 1903, carried on a general practice with special emphasis on the care of women and children until 1929. Since then her indefatigable energy has found new outlets. After a course at the N. S. College of Art, she has painted, has travelled widely, has been President of the Y.W.C.A., the Council of Social Agencies—in fact, no worthy cause for civic betterment has lacked her support.

The first Nova Scotia woman to receive a degree in medicine of whom there is record is Dr. Annie Maxwell (Fulton), who was born in Pictou Co., in 1848. She received her degree from the Women's Medical College in Philadelphia and practised in various towns in Michigan where she died in 1889. She married Mr. Samuel Fulton, had a son who was a dentist, and a brother who practised in Bear River, Digby Co. She is a distant relative of Dr. Kenneth Mackenzie.

When Dr. Jane Bell came here in 1898, she bought the house and took over the practice of Dr. Maria Angwin who was the first woman to practise in Halifax. She, too, was a graduate of Elizabeth Blackwell's College in 1892 and took postgraduate work in Edinburgh and at The Rotunda, Dublin. Her father was minister of Grafton St. Methodist Church in whose Sunday School she taught regularly. She first opened an office in Dartmouth, later had one on Sackville St. and then built the house now occupied by Dr. Charles S. Morton on Spring Garden Rd. She met bitter opposition but from one who knew her, I learned the following, "She was a woman of courage ready for any emergency, versatile, afraid of nothing, answering all calls to any section of the city by day or night. A friend of hers once heard of one of her night calls to Lower Water St., then as now, not a very salubrious district. He asked her if she did not carry a weapon of defence when going to such a notorious district. Her reply was a bit emphatic as she said, "Oh no, I always carry a hatpin." Her friend replied with rather an amusing stutter, "B-but, Dr. Angwin, s-usp-pose you were to strike a b-b-button?" Another tale tells of the parrot whose sepulchral tones announced, "Someone wants the Doctor," whenever one of the line of old fashioned bells outside her basement kitchen door jangled.

As early as 1895, therefore, a woman doctor was practising in Halifax. Noted as Dr. Angwin was, for her short hair, her adamant stand against strong drink and cigarettes, she did not arouse so much interest as the fiery, determined little individual, who maintained that she would as soon marry a Chinese as a white man, taught school to earn the money to be a doctor, graduated as Dalhousie's first woman physician, and aroused both horror and amusement as she rode around her practice in the North End in divided skirts on a bicycle. Her name was Annie Hamilton. She was born in Pictou Co. and graduated in 1893. Perhaps because, during her college course, she

had taught a mission class of Chinese, she became intensely interested in them. At any rate she practised in Halifax until 1903 and then went to China. There is no record of her return. A fellow school-mate describes her as being "very plainly dressed, rather colorless, with straight thin hair, not very attractive." In fact, shortly after school opened the boys sent a paper around the class to get her one "of the affairs the other girls wore—a bustle." Yet, the girl who went with her to Pictou Academy in two different sessions, and later to Dalhousie, can write after 50 years, "I knew her very well and loved her. All her good points were not outward, they were in her head and heart. The night before her graduation, a girl who boarded in the same house put her hair in curl papers and she appeared on the platform with curls all over her head. To me it was no improvement, Annie needed no curls."

Since that time, for 55 years, Halifax has never lacked a woman doctor. Between 1911 and the present day, the pioneer, who has in the minds of both the medical fraternity and the lay population represented women M.D.'s has been Dr. Grace Rice who graduated from Dalhousie in 1903, took post-graduate work in Edinburgh and Dublin, came back in 1911 and is still carrying on a large general practice, secure in the affection and esteem of colleagues and patients alike. At the present time, there are twelve women actively engaged in different branches of Medicine in Halifax and Dartmouth, from Assistant Superintendents at the Victoria General and the Nova Scotia Hospitals to Provincial Psychologist, clinicians, lecturers, and specialists in Obstetrics, Gynaecology, Paediatrics and Anaesthesia.

Back in 1899, Mary Leila Randall graduated from Dalhousie. She went to Sydney, C. B. and practised as a paediatrician for at least five years.

In order to make some sort of grouping of these doctors,—though, as a matter of fact, they might almost have been divided as "Pietonians" and "others"—for so many, like other good things have come from that county,—I have made a division between those who trained primarily to be medical missionaries either in India or China, those who practised in Nova Scotia, and the others who though natives of Nova Scotia, and perhaps graduates of Dalhousie never registered or practised here. In some cases they married sometimes continuing in practice. Some, so far, are just names and a date.

Cupid seems in many cases to have ridden the sails of the vessels which carried those girl graduates to foreign lands. On one case, he seemed thwarted, as his victim, despite the pleas of her fiancé, whom she had met as she was arranging her passage, resolved to fulfill her pledge, and, not until her first term of service was ended, did she return and marry him. Another retiring, seriously inclined, utterly devoted maiden was, although seasick, so thoroughly bewitched by a light-hearted fellow traveller, who could as their daughter wrote, "beguile Beelzebub himself," that she married him a month after their arrival in India.

To China then in 1897, went first Dr. Maude Killam, a graduate of the Women's Medical College, New York in 1895. Marriage—to Rev. James Neave, head of the Canadian Mission Press, and the birth of seven children didn't dampen her enthusiasm. Until 1915 she carried on the full life of a missionary in the interior of China. Taking a year for the ordinary two months' journey by houseboat up the Yangtse, stopping en route first to nurse her husband and later four of her children in mud huts in some small village on the shore of that mighty river finally broke her health and she died in Chengtu in 1916. Later there followed Dr. Florence O'Donnell (Piers),

Dal., 1901 and Dr. Minna May Austen, Dal., 1903. They both spent one term in China though not at the same time. Dr. Austen's health became broken and she died in Halifax before World War I. Mrs. Piers has not practised since her marriage and lives in Halifax. Dr. Martha Phillips (Bradshaw), Dal., 1902, married a fellow missionary. After years of service in China they are living in California. All these medical women were sent out by the Women's Missionary Society of the Methodist Church who maintained an Orphanage and a Hospital and Training School in Chengtu. In an average year (1907) over 7000 patients were received. "To the hospital comes the little slave girl, sometimes almost murdered by ill treatment and neglect, the childless wife begging to be helped as her husband is about to discard her, the thirteen year old daughter-in-law whose mother-in-law has beaten her eye out, the weak and puny child whose poor little inflamed and suppurating feet testify to the cruel practice of foot binding, the thin emaciated wreck in the bondage of opium, and in the midst of it all the call comes to go out at once to an opium suicide" (excerpt Dr. O'Donnell's report to Conference, 1907).

One of the first woman graduates in Medicine of Trinity College, University of Toronto, was Mary Mackay, another Pictou Co. girl. For 47 years, from the time of her graduation in 1888 at the age of 24, she loved, and worked with, and for the women of India, despite the fact that her health was seriously impaired. She and her husband, Dr. Buchanan opened up first one, and then another new centre of work among the different tribes-people. Bubonic plague, cholera, small-pox and leprosy were rife. She was on duty in the Dispensary until the day before her first baby was born. Three years later she was to bury her little golden haired daughter among the lepers at the Lazar House which they had built outside the city. There the lepers still sit in the sun upon the little grey granite tombstone. She used the method just lately become popular in the United States, "Each one teach one." She was a born teacher and became the missionary mother of the people. She was—as her daughter says "Still a doctor, but a mother who was a doctor. Always it was she who coaxed the fearful, admonished the careless, remonstrated with those who had recourse to witchcraft, fed the weak and hungry, and nursed the inaccessible. Wading through the streams, pushing her way through the underbush, she would search out the last wee hut where there was distress." She died in India in 1935.

Just as there are still Nova Scotia medical women in India, so down through the last fifty years this tradition of service has been multiplied again and again. Dr. Louisa Helena Hart, who was born in Shelburne in 1870, graduated from the Women's Medical College, N. Y., in 1894, after post-graduate work, went out to India, and there was instrumental in laying the foundation for the Vellore Nursing and Medical College, and the Sanitorium which later became a model for all India. Because of the outstanding aid she at various times gave the Government Medical Service in serious epidemics, a long list of awards was presented to her. She became an Honorary Plague Officer of India. The Kaiser-I-Hind Medal and Bar, first and second class were given her. Mt. Allison in 1944 made her an Hon. LL.D.

Dalhousie has her own lady M.D., Hon. LL.D., in the person of Dr. Jemima MacKenzie, who graduated from Dalhousie in 1904 and was awarded an honorary degree by her Alma Mater in 1940. Another Pictou Co. product, she taught school before coming to Dalhousie. Then, following postgraduate work in the States, she went to India. There in Cawnpore, besides practising

medicine, she directed an orphanage of 170 girls. For the next 15 years assisted by her sister, Dr. Mary, who graduated from Dalhousie in 1905, she led a busy life. She built hospitals and outlying dispensaries. She brought about many reforms in hospital practice, and directed the care of thousands in plague and cholera epidemics. She returned to Canada for a time, but after her father's death went back to spend almost another 20 years in the work. In 1919, the Indian Government conferred upon her the highest honor obtainable by a woman—the Kaiser-I-Hind Medal. As Dr. Hart writes, for she also won a similar award, "These honors were an unusual product of missionary life." While in India, Dr. "Mima" adopted ten Indian children and supported them until they obtained a good education. She also brought two English boys home with her. She now lives in Pictou. There also lives her sister, Dr. "Molly."

Leaving India in 1911, Dr. "Molly" married Rev. Alonso Smith and went with him to Ontario. Marriage did not, however, prevent her from being the first woman to do medical inspection of rural and urban schools in Ontario. First working under the Women's Institute, she was later appointed by the Ontario Government under the Dept. of Education. She had a part too, in starting nursing supervision of schools in Nova Scotia. At 69 years of age, she retired and travelled around the world. At the age of 80, she broke her hip and was told she would never walk again. To-day one would never know it had been broken.

Blanch Munro, Dal., 1904, trained for missionary work in India. After some years there she married Rev. J. A. Crawford from Scotland and is living in Edinburgh with her married daughter. She is still keenly interested in missionary work. During the last war, she used to make the Indian troops happy by talking to them in their own tongue.

Having arbitrarily limited the list to those graduating before 1910, the last name I have of medical missionaries is Dr. Minnie Grace Spencer. After her graduation in 1910, she was sent to India under the jurisdiction of some American Missionary Board. She did field work there in hospitals for 12-15 years. She wrecked her own health and had to retire, coming home to Halifax where she died around 1925.

Of these women listed above, it has been fairly easy to obtain some facts, but what of Mary Macleod, Yarmouth, who graduated from N. W. University, Chicago, in 1892?—Martha Wyman Shaw (Brown), a graduate of Dalhousie in 1897? Then there was Isabel Delaney, another graduate of the Women's College, N. Y., in the early '90's, another Pictou Co. girl, who married Capt. Barbour of an American Fruit boat plying between the United States and the West Indies who died 35 years ago. Dr. Isabel Ross graduated from Boston University but never practised. She was pathologist at Pennsylvania Hospital, Pittsburg, for 18 years. She retired to Pictou in 1945 and was made a Fellow of the Royal Society of Physicians in 1947. Elizabeth Beharrell was born in Amherst, received her early education there, and later attended Mt. Allison. She also graduated from Elizabeth Blackwell's College in 1895, the first to receive the highest honor of the college, the Purple Seal. She married Prof. Carey, moved to California, had a daughter who trained as a nurse and a son who was a dentist and died in December, 1949. (Since this paper was read).

In 1904, there graduated four girls in Medicine from Dalhousie. Two went to India as we have seen. Dr. Stella Messenger, Dal. '04, was very good looking. While taking post-graduate work in England, she met and

married a Mr. Pearson who had an important civil service job over there. During World War I, she covered a country practice of 20 mile radius around Sherbrooke, Guysboro Co. where she is remembered with affection and respect. Later she practised in Lawrencetown. Her daughter was killed in a coasting accident while home on a vacation from her first year in Medicine at McGill.

Dr. Eliza Margaret MacKenzie, no relation of Dr. Jemima, was tall and stunning in appearance. Perhaps it was due to a difficulty in adjusting to the competition of general practice that, after some time spent in Charlottetown, she trained as a nurse at St. Luke's Hospital, in New York and practised that profession rather than as a physician. She died about 1930.

Just the opposite event happened in the cases of two girls from the southwestern part of the Province. Ada Tedford, born in Springfield, Digby Co., in 1880 graduated while still in her teens as a nurse in Salem, Mass., and then obtained a medical degree from the Women's Medical College, Baltimore. She practised first in Woburn, Mass., and has since been House Doctor in Knoxville, Tenn., except for some years spent in Ohio.

Alice Symonds, born in Darling Lake, Yarmouth Co., in 1861, went to school in Port Maitland, graduated from the Boston City hospital, and did private nursing for a number of years to obtain money for a medical course. She took two years of it at the Women's Medical College in Philadelphia, and the last two at Tuft's College, Boston. She practised in Horsehill, Mass., on the Maternity staff of the City Hospital. Her specialty was the Diseases of Women and Children. She retired in 1922, married Mr. Gilbert Churchill of Darling Lake and died there in 1935.

So, too, in Pictou Co., Katharine Joanna Mackay was one of ten children. In the family already were a doctor brother and a sister nurse. At Pictou Academy the Principal was another brother and he was anxious for Kate and her friend to study medicine and offered to try to get them into McGill where no girl had yet been admitted to the Medical School. The friend, as she says, was "timid as a rabbit and knew she would be too shy to practise." So, Kate went to Boston and graduated from the School of Nursing established there by an associate of Elizabeth Blackwell, Marie Zakrzewska,—The New England Hospital for Women and Children. Her certificate was signed by seven women doctors. Inspired anew, Kate came to Dalhousie and graduated M.D. in 1895. She practised in New Glasgow with her brother. Later she accepted a government position in Honolulu. Back from there around the Horn she came in 1902 to marry an old neighbor, Mr. J. R. MacKenzie. Out West they went and there she practised in several localities until she died of blood poisoning in 1925, although she had actually retired about 1918. She was a girl of parts indeed. She read Greek to herself as she went through medical school in which she was the only woman in her class.

If only we could find out some of the amusing incidents as these girls went to their classes in the old Medical College. Did they have dates? Were they ignored, tolerated, or actually annoyed? Some spirits soared undismayed above petty annoyances. Bessie Angela Bobar, Dal. 1910, was pretty, vivacious, full of life. The story goes that she carved "B.A.B.," not only as companion to all the other initials on the old wooden benches but on the cadavers as well. After obtaining a B.A. degree from King's College where her father was Professor of German, she graduated in Medicine at 21. Following a 15 month post-graduate course in New York Hospitals, she became an excellent Psychiatrist and was attached to the Staff of The Northampton State Hospital in North-

ampton, Mass. for 18 years. It was a splendid Mental Hospital. She was Chief of the Women's Division and worked happily under the Superintendent, Dr. John Houston, whom she later married. After his death she was Consulting Psychiatrist to the Dickens Hospital and for the last year has done part time work for the Veterans' Administration in the Veterans' Hospital in Springfield, Mass.

Pictou, Yarmouth and Halifax Counties have each had their quota of women doctors. From Hants Co., also, came two girls who studied Medicine but obtained their degrees and practised in Massachusetts and have never been registered in Nova Scotia.

Dr. Margaret MacPhee (Sanford), born in West Gore, Hants Co., graduated from Boston University, in 1899, after having been matron for some time at The Walter Fernald State School in Waverley, Mass. She built up a large private practice in Arlington, Mass., married Mr. Robie Sanford and had two daughters. She retired in 1927 and for the next twenty years travelled and studied those subjects for which she had previously had no time in her busy life. She died about 1945.

Dr. Anna Wallace, another native of West Gore, with several medical men in her family tree, taught in N. S. schools for some years and then graduated from Tuft's Medical School in 1904. She became Assistant, and later Senior Physician at The Walter Fernald State School. At this well known institution for the feeble minded she worked for twenty years, retiring in 1945. Since then she has, though spending the winters in Florida, come back to her native province for a large part of each year, and is at present in Halifax.

There were in the class of "Naughty Naughts" at Dalhousie, a brother and sister studying medicine. They were 20 and 21 when they graduated. The sister, Winnifred Braine never registered in Nova Scotia but married Dr. Reynolds and went to live and work in Bute, Montana. When she died in 1944, she was Health Officer for the town of Stephenville. So deeply was she respected that the business offices closed for two hours on the day of her funeral.

In that class as well was a small, but determined woman, twice as old as Winnifred, who had "big eyes like an owl." She made her professors remember her for her questions. Her classmates used to say "Victoria, By the Grace of God, Miss Ernst." For her name was Victoria Sara Ernst. She had taught school, as had so many of the others, to earn money to fulfill her ambition to be a doctor. Twice she had given that money to her father when he was burned out. She lead her final year, but because she was a woman, she was not allowed to intern. Demanding her rights, she was told, "Very well but you will have to sleep with the other internes." On her graduation day, as she went up to get her degree, her class mates rose in a body and sang, "God Save Our Gracious Queen."

For thirty years thereafter she practised in Bridgewater and its environs, and when she died in 1944, the local paper said she was the largest taxpayer in town. She owned forty houses. In her will some of these houses were left to the tenants. She never married but adopted several boys. In one case at least, she asked for the worst boy in the orphanage. Always in black, her long skirts and loose capelike coat became well known in the town. She was "thrify," the townsfolk said as her father poked among the ruins left after the fire which levelled half the main street, to find nails to straighten for other of his daughter's undertakings.

We often hear of someone following in his father's footsteps, but in the case of Dr. Peter Hebb of Dartmouth, he has had to follow both father and mother. Clara May Olding (Hebb), another Pictou Co. child, graduated in

1906. She was an exceptionally fine person and doctor and practised first in St. John, where she was Secretary of the St. John Medical Society in 1907, and later in Chester and Halifax. In fact she was on a case when she was taken acutely ill and died in a few days. Besides her doctor son, she has a daughter, a Doctor of Science, teaching in Edinburgh.

Down on the Maitland shore, a part of Nova Scotia which is still fairly isolated, there has practised for the last forty-three years and still practises, Dr. Annie Hennigar Sandford, Dalhousie, 1906. Let me read from her letter what she thinks and does:

"My 'Horse and Buggy Days' were full to overflowing with hardships, thrills, dangers, determination and profit. In looking back, I would not have missed that period for a cool million. Amputations, fractures, dislocations, tonsillectomies, extraction of teeth, etc., all came my way and I was simply put on the spot as there was no one else to do it."—"I do a little oil painting and have been made a member of the American Physician's Art Association. I want to paint a number of scenes that happened in my life denoting courage beyond what is normally expected of a doctor in performance of duty".

She goes on to give a vivid description of the picture she has completed showing her leading her horse, which she blindfolded with the carriage rug, past two bears on a lonely road.

"Dr. Annie"—"a grand man with a tooth"—so I've been told, does office practise only nowadays because of ill health but her advice to the girl graduate of to-day is "to get out in the country where you are so urgently needed, especially if you are not afraid of work and enjoy an outdoor life."

Surely these early countrywomen and colleagues of mine, "having obtained a good report through faith, received not the promise."—but have left to us now in the medical profession, "seeing we also are compassed about with so great a cloud of witnesses," an incentive, "to lay aside every weight and run with patience the race that is set before us."

I wish to acknowledge my indebtedness to those who have helped me to find out these facts about the early women doctors who were natives of Nova Scotia. If there are others whom I have not listed, it is from forgetfulness and not ingratitude.

Mrs. W. J. Archibald

Dr. Jane L. Bell

Dr. L. R. Braine

Dr. Eliza Brison

Mrs. Barrie Calkin

Miss Sarah Churchill

Mrs. Graham Creighton

Miss Edith Creighton

Mrs. Melville Cumming

Dr. Elizabeth Balcom Davis

Misses Dora and Georgene Faulkner

Mrs. Hilton Fisher

Mrs. Hilton

Miss Jean Lindsay

Dr. J. R. Corston

Miss Margaret Low

Miss Ellen Mackay

Miss Dorothy MacKay

Mrs. D. H. Mackay

Dr. K. A. Mackenzie

Dr. Enid Johnson MacLeod

Mrs. Harold Oxley

Dr. Florence (Mrs. W. H.) Piers

Dr. Grace Rice

Miss Bertha Rodgers

Mrs. W. C. Ross

Dr. Annie Hennigar Sandford

Mr. W. B. Spencer

Dr. H. L. Scammell

Miss Mary Vroom

Miss Phrona Wetmore

As we have gone over this list of medical women, and learned a little about them, again and again through my mind has run the great roster of the Eleventh Chapter of Hebrews,—of those Old Testament heroes who "by faith wrought righteousness and out of weakness were made strong."

The International and Fourth American Congress on Obstetrics and Gynecology

May 14-19, 1950—Hotel Statler—New York

The Chairman of the General Program Committee for the forthcoming Congress is Dr. Howard C. Taylor, Jr. of New York City. To date the following speakers have been placed on the program by Doctor Taylor and assigned the designated subjects. Each paper will be about twenty-five minutes in length and will be followed by a formal discussion.

Professor Heinrich Martius of the Department of Obstetrics and Gynecology of the University of Goettingen in Germany will speak on the general topic: Radiation Techniques and Results in the Treatment of Cancer of the Cervix.

Dr. Leon Gerin-Lajoie of the University of Montreal will speak on uterosalpingography as a means of differential diagnosis in hemorrhages of the uterus.

Dr. Carlos D. Guerrero of Mexico City will present an address based on the use, misuse and abuse of surgery in gynecology.

Dr. Arthur T. Hertig of the Harvard Medical College will address the Congress on "Implantation of the Human Ovum."

Dr. Carl Kaufmann Professor of Obstetrics and Gynecology of the Faculty of Medicine at Philip University at Marburg in Germany will speak on the subject of the relations of endocrinology to gynecology.

Dr. Hans Ludvig Kottmeier of the Gynecological Department of the Radio-pathology Institute in Stockholm, Sweden will lecture on various aspects of cancer therapy.

Dr. Laksmanaswami Mudaliar of Madras University in Madras, India will speak on a topic related to the toxemias of pregnancy.

Dr. Manuel Luis Perez of Buenos Aires has taken as his subject: "The Usefulness of Antibiotics in Obstetric Surgery."

S. R. M. Reynolds, Ph.D., of the Department of Embryology at the Carnegie Institute in Washington, D. C. will speak on: The Contractility of the Human Uterus and Its Physiological Basis.

Dr. Walter Seegers of the Department of Physiology of Wayne University College of Medicine in Detroit will talk on the work done by him and Dr. Charles Schneider on the fundamental aspects of the blood clotting problem and the practical aspects of the problem in obstetrics.

Dr. Harold Sheehan, Professor of Pathology, at the School of Medicine of the University of Liverpool in England will speak on the kidney in abruptio placentae.

Dr. Jean Snoek of the Hospital St. Pierre at the University of Brussels has for his subject: Some Aspects of the Renal Function in Pregnancy and Their Morbid Consequences.

Dr. Herbert F. Traut of the University of California Medical School will speak on the early diagnosis of uterine cancer.

The above speakers are all to appear during the five morning general sessions of the program and the list is but partially completed. Other noted men will take part in the afternoon programs of the medical section of the Congress being arranged by a sub-committee headed by Dr. Newell Philpott of Montreal. Separate afternoon programs are being arranged for nurses

by Miss Margaret A. Losty, R. N. of New York, for public health people by Dr. Edwin F. Daily of Washington and for hospital administrators by Dr. G. Otis Whitecotton of Alameda. Doctor Daily is also arranging the program of speakers on the economic aspects of obstetrics and gynecology that will occupy Wednesday morning. The Wednesday afternoon program will be entirely planned and presented by the National Federation of Obstetric-Gynecologic Societies. For registration details, housing data and other aspects of the Congress address inquiries to Dr. Fred L. Adair at 161 East Erie Street, Chicago II, Illinois.

Canadian Cancer Society

The Allan Blair Memorial Fellowships

Applicants for these Fellowships shall be graduates in medicine of an approved Faculty of Medicine and

- (a) Shall have had, after receipt of their degree not less than three (3) years of postgraduate study, of which at least two (2) shall have been in a field related to the diagnosis and/or treatment of cancer;
- (b) Shall under this Fellowship, pursue a programme of two (2) years further postgraduate study of the diagnosis and/or treatment of cancer acceptable to the Advisory Committee on Fellowships of the Canadian Cancer Society; and
- (c) Shall express a firm interest and assume the moral obligation to practise his/her profession subsequently in Canada with a particular interest in cancer.

One Fellowship shall be awarded annually. A Fellowship is tenable for two years and has a value of \$4,000 per annum.

Application forms may be obtained from the Canadian Cancer Society, 280 Bloor Street West, Toronto 5, Ont.

Applications should be submitted to the above address not later than January 15, 1950. Awards will be announced February 1, 1950. Fellowships will become tenable July 1st.

Waists Away

Big waistlines have a habit of developing behind big desks. For many office workers, recreation consists of walking from the streetcar stop to the elevator and from the elevator to the desk. All sedentary employees need some form of exercise to keep their muscles from becoming weak and flabby. Walking to work in the morning is often a good way to keep in trim.

Earlier and Easier

Tuberculosis was once the foremost killer in Canada but in recent years medical science has forced it farther and farther down the scale. TB can usually be cured if it is discovered early. Chest x-rays detect TB before outward symptoms are visible, making cure easier and quicker. Mobile x-ray clinics visit most Canadian communities regularly. Have a checkup yourself right away. Early detection and treatment have saved many lives from TB. Don't neglect to protect yourself against this disease.

War of Nerves

Many stubborn feeding problems are caused when parents try to force food into a child against his will. Children do not always eat the same amount from day to day and their tastes sometimes change from time to time. Parents should make some effort to fill their children's nutritional needs with the foods their children prefer. Diplomacy often succeeds where strong-arm methods fail.

A Modern Menace

Many homes are now equipped with fluorescent lighting in kitchens and bathrooms. Fluorescent lighting is fine, but improper handling of burned-out tubes may be dangerous. Fluorescent tubes are coated on the inside with a substance containing beryllium, a poisonous element that causes dangerous tumors when it enters the skin. Used tubes should be broken only under carefully controlled circumstances.

Fatigue on the Job

Everyone who must turn out of bed in the morning to earn his daily bread needs an adequate amount of sleep. Nobody can stay healthy if he "burns the candle at both ends." Ill health thrives on fatigue and sleep combats fatigue. Health is earning power, so get all the sleep you need. Don't make the alarm clock your deadliest enemy.