

# The Nova Scotia Medical Bulletin

Official Organ of The Medical Society of Nova Scotia Canadian  
Medical Association Nova Scotia Division.

**AUGUST, 1951**

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Published on the 20th of each month and mailed to all physicians and hospitals in Nova Scotia. Advertising forms close on the last day of the preceding month. Manuscripts should be in the hands of the editors on or before the 1st of the month. Subscription Price: \$3.00 per year.

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# The Hazards of Tuberculosis in the General Hospital

C. B. STEWART, M.D., M.P.H.,<sup>1</sup> and C. J. W. BECKWITH, M.D., D.P.H.<sup>2</sup>

IN recent years, public health authorities and others concerned with the control and treatment of tuberculosis have directed considerable attention to the problem of tuberculosis in general hospitals and to the importance of case-finding in the patient population of these institutions. Although gratifying progress has been made in some parts of Canada, the action taken to date by many hospitals boards and administrators has been far from satisfactory. It is not our intention in this paper to present any new principles or methods for meeting this health hazard, but merely to review the situation and emphasize its importance, using illustrations derived from our experience in Halifax.

Pulmonary tuberculosis is a communicable disease and, as such, it can create a public health problem in general hospitals. It is still a disease of relatively high prevalence in Canada in spite of excellent progress in its control. It is not easily discovered by routine physical examination. These facts are well known to practitioners of public health. But, because the incubation period is a long one and the evidence of person-to-person spread is not so dramatically obvious as in many other communicable diseases, there is a regrettable tendency on the part of many medical, nursing and lay members of hospital staffs to forget, or at least disregard, the infectious nature of the disease. Furthermore, not all hospital authorities or medical staff members have yet been fully educated as to the difficulty of diagnosing tuberculosis, at least not to the point of taking effective action.

It should hardly be necessary to state that physical examination of the chest alone is of relatively little value in appraising the true incidence of pulmonary tuberculosis in hospital patients or any other group. It is only by the intelligent evaluation of the x-ray plate with the aid of the clinical examination and other corollary evidence that an estimate can be obtained which will be close to the true incidence. Fifteen years ago a physician would decide from symptoms and physical signs whether there was suspicion enough to warrant an x-ray of the chest, and the x-ray was the court of appeal. The trend today is to use the x-ray as an accurate instrument to detect the presence of pathological changes in the chest and then to have the clinician evaluate their significance. Such evaluation includes history, physical examination, tuberculin status, examination of sputum, other laboratory aids and often, with early diagnosis, a period of observation.

Considerable progress can still be made in our hospitals to raise the doctor's level of suspicion concerning the possibility of hidden tuberculosis, or, preferably, to educate him in the desirability of having routine chest x-rays taken on all of his patients, or at least on those admitted to hospital. In Halifax, the provision of a free service for 4 x 5 inch x-ray plates on any patient seen by a practising physician has greatly aided in this direction. Many clinicians are making extensive use of this service for their patients.

Once tuberculosis is diagnosed in a hospital patient, effective action can

Presented before the Epidemiology Section at the thirty-seventh annual meeting of the Canadian Public Health Association, held in the Nova Scotian Hotel, Halifax, June 27-30, 1949.

1. Professor of Epidemiology, Dalhousie University.

2. Director of Tuberculosis Control, City of Halifax, and Medical Superintendent, Halifax Tuberculosis Hospital.

be taken to reduce the hazard to a minimum. It is no longer suggested that the problem be side-stepped by exclusion of tuberculosis from the general hospital, but rather by early discovery of the hidden case and prompt effective action within the hospital by a staff that has had adequate teaching in the handling of all communicable diseases, including tuberculosis. It is noteworthy that the Report on Hospital Care in the United States, prepared by the Commonwealth Foundation in 1947, recommended that the modern general hospital should provide for the treatment of tuberculosis and other communicable diseases, that special hospitals should not be provided for such conditions and that those now in operation should expand their programs to include other than infectious diseases. At present most tuberculosis patients are treated in special hospitals, but it is a poor general hospital that does not have the facilities and staff capable of providing safe and effective care for such a patient until transfer to a sanatorium can be arranged.

In the planning of an adequate tuberculosis control program for a general hospital, the institution must be regarded as a community. It is made up of the sick, those attending the sick and those required for maintenance of the hospital plant. The total population of the hospital is, with few exceptions although in varying degree, exposed to the hazard of communicable disease. All too frequently only a partial program of tuberculosis control is in effect—for the nurses in training but not the graduate nurses or the internes and doctors; for patients but not for the ward aides or the laundry staff. A complete program requires attention to the whole hospital community. Routine x-rays surveys in industry reveal an appreciable incidence of tuberculosis, and hospital staff members should be investigated in the same way at periodic intervals. There is always the possibility of the medical, nursing or maintenance personnel having undiscovered disease. In addition, patients with known tuberculosis may be admitted to the general hospital—and they should be, if they develop other conditions that can best be treated at such an institution. However, a greater hazard lies in the hidden case. The patient admitted for treatment of non-tuberculosis disease may have tuberculosis as well, unknown to himself or his physician. Several avenues of communication are therefore possible; patient to staff member or vice versa, patient to patient, or staff member to staff member. Emphasis on the occupational hazard to the nurse and other attendants, who may be infected from a known or hidden case of tuberculosis, should not allow us to disregard the other routes of spread.

What is the extent of the tuberculosis problem among patients admitted to general hospitals? Reported figures vary widely in different areas, but usually the rates have been considerably higher in the hospital patients than in groups of the general population examined in mass surveys of the same areas. In the Province of Nova Scotia during the past three years x-ray surveys have been made of admissions to seven general hospitals for periods of six months or more. Of 4,099 patients admitted, 239 or 5.8 per cent showed evidence of pulmonary tuberculosis, active or inactive, and 130 others or 3.1 per cent were considered tuberculosis suspects on the initial x-ray. A total of 369 or 8.9 per cent of adult patients therefore required further study for diagnosis and classification. Data from several of the hospitals were not classified in such a way that we can calculate what percentage of these 369 persons were eventually proven to have active tuberculosis requiring treatment, but in one hospital this was 1.2 per cent of 1,895 admissions. In other

surveys of adult population groups in Nova Scotia with the mobile photofluorographic unit the proportion of active, inactive and suspect tuberculosis was approximately 2 or 2.5 per cent, or one-quarter of that observed in hospital patients. At present, only four hospitals in this province are taking routine films on all admissions, although several others have films on most of the patients.

In Ontario provision has recently been made for a province-wide program for x-raying patients admitted to hospitals, and to date approximately 1.47 per cent of 14,000 patients have had pulmonary tuberculosis, of which 0.22 per cent were active. The higher rates among patients admitted to Nova Scotia hospitals indicate our need for a similar plan.

The above data referred to the adult patients only. Among these, the persons over the age of 50 years must not be exempt from suspicion of tuberculosis, and must not be protected by the cloak of age. Tuberculosis respects no age groups, least of all those over 50. Of the 309 tuberculosis deaths occurring in Nova Scotia in 1947, 84 or 27 per cent were persons over the age of 50. Nor can the children be entirely disregarded; for in this group as well unsuspected tuberculosis does occur. The use of the tuberculin test is a sound routine procedure, positive reactors to be x-rayed or flouroscooped. Although the risk of infection within the hospital is small from this source, the tests are vaulable from the standpoint of epidemiology, since the family of the positive reactors can then be surveyed by x-ray. The value of this procedure has been indicated by our experience in the Halifax Children's Hospital where all admissions are routinely tuberculin-tested and appropriate action taken by the City Department of Health to follow up the families of positive reactors. Several adult sources of infection in the community have thus been uncovered.

As a case-finding procedure, the routine x-ray of adult hospital admissions has proven its value. It aids in the protection of the hospital staff, the other patients and finally the household contacts to whom the patients would return. It addition, the earlier diagnosis is often a great boon to the patient since it reduces the duration of treatment, its cost and possibly its eventual outcome. But the full benefit from this program requires an effective plan to ensure full investigation, clinical, laboratory and radiological, of all persons who had suspicious admission x-rays while they are still in the institution, and notification to the public health authorities and family physicians to make certain that treatment and control measures will be instituted. Close co-operation of hospital and health department is essential to a fully effective plan. Routine admission x-rays may be of no value except to provide interesting statistics unless they result in effective investigation, treatment and control. Unfortunately the "follow-through" is not always all that it should be.

But again it should be repeated, one must not place all of the emphasis on the hazard of the hidden case of tuberculosis in the general hospital. Not all of the tuberculosis discovered by these routine admission films would have been missed during the period of hospitalization. The disease may be discovered in the process of differential diagnosis and immediate transfer to a tuberculosis hospital may not be possible. Known cases of tuberculosis may also require general hospital care for a concomitant ailment. And, finally, non-pulmonary tuberculosis is usually accepted as a responsibility of

the general hospital. The extent of this problem is not generally recognized. Some indication of its magnitude may be gathered from the fact that in 1948, of the 51 deaths from all forms of tuberculosis in Halifax, 21 or 40.6 per cent occurred in the general hospitals. A sound technique for the safe care of these cases must be worked out, and all nurses in a general hospital should have had training in tuberculosis, communicable diseases or both. Mere discovery of the hidden case or knowledge of a definite diagnosis does not lessen the risk. The nurses and other attendants must know how to deal with the cases properly. It is encouraging to note that affiliations have now been arranged to train the nurses of several Halifax Schools of Nursing in the Hospitals for Tuberculosis and Communicable Diseases, but the majority of nurses in this province are not receiving such training, and there is still considerable inertia and active opposition to be overcome before such training will be adequate.

Another indication of the extent of the tuberculosis problem in the general hospital and of our inadequate program for dealing with it can be observed in the incidence of the disease in nurses and medical students. This has been emphasized many times in the past, but it is believed that many nursing school supervisors and hospital administrators would be shocked if they made a careful analysis of their statistics. We have reviewed the records of four Halifax nursing schools and the Dalhousie Medical School for the period 1937 to 1947 and have compared the incidence of tuberculosis with that occurring in female students at Dalhousie University. Most of these latter students were in the Arts and Science Faculty. The Students' Health Service conducted an annual physical examination, and fluoroscopy of the chest was performed by a specialist in tuberculosis or internal medicine on all of these students. An x-ray was also obtained in doubtful cases. The study included only female university students of the same age groups as are admitted to nursing training and only those who came from Nova Scotia, in order that a valid comparison could be made.

Table I shows the incidence of tuberculosis in the three groups.

TABLE I

**Incidence of Tuberculosis in Students of Nursing (1), Medicine (2) and Arts and Science (3) 1937-1947**

Student Group	No. Admitted to Training	Proven Tuberculosis			Suspect Tuberculosis	Person-Months in Training	Average Annual Tb. Attack Rate per 1,000 per annum
		Reactivation	New	Total			
Nurses, Hospital A	482	6	27	33	13	11,228	35.3
Nurses, Hospital B	333	0	11	11	4	8,099	16.3
Nurses, Hospital C	111	0	2	2	0	2,077	11.5
Nurses, Hospital D	57	0	1	1	0	509	23.5
Total, Student Nurses	983	6	41	47	17	21,913	25.7
Arts and Science (Female)	442	1	0	1	0	7,770	1.5
Medical	491	2	8	10	1	17,954	6.7

(1) In four Halifax Schools of Nursing.  
 (2) In Dalhousie University.

Proven tuberculosis included a small number who had shown evidence of apparently healed pulmonary lesions on admission to training, but who suffered a reactivation of the disease. Suspect tuberculosis included several with pleurisy or other lesions that were never specifically diagnosed as tuberculosis.

The nurses-in-training were obviously subjected to a far greater risk of tuberculosis than young women of the same age group and the same educational status who came from similar areas of the province. The nurses were observed over a slightly longer average period, since the rate of withdrawal was greater among the University students, but this is taken into account in calculating the rate by the life-table technique. One of the writers recently referred to a report showing that the tuberculosis attack rate was ten times as high in nurses-in-training as it was in teachers-in-training. A specialist in tuberculosis criticized this statement as being exaggerated, stating that the conclusions must have been drawn from a study of non-comparable groups with respect to age and other factors. However, the groups were closely comparable, and probably indicated fairly accurately the much higher attack rate in nurses. In our study the observation on two reasonably comparable groups of young women showed the nurses to have a tuberculosis rate sixteen times as great as their fellow students in Arts and Science.

Table II shows the cumulative percentage of nurses and medical students who developed tuberculosis at the end of each year of training.

Disregarding the tuberculosis suspects, the figures show that the risk of developing tuberculosis expressed by the life-table rate was 7.8 per one hundred student nurses during their three years of training and 3.9 per hundred medical students during five years of training. In nurses, the greatest incidence occurred in the second year of training, one hospital having a rate of 6.3 per cent per annum. In medical students, the rates were low until the final clinical and interne years. It is also to be noted that none of the nurses

TABLE II

**Cumulative Percentage of Tuberculosis Per Year of Training in Nurses and Medical Students**

Student Group	Cumulative Per Cent Developing Tuberculosis by end of				
	1st Year	2nd	3rd	4th	5th
<i>Nurses</i>					
Hospital A	2.6	8.9	10.4	—	—
Hospital B	1.2	3.6	5.4	—	—
Hospital C	0	0	2.8	—	—
Hospital D	0	4.2	—	—	—
Total Student Nurses	1.8	6.1	7.8	—	—
Medical Students	0.5	0.8	1.5	2.2	3.9

and few of the internes had affiliation in a tuberculosis sanatorium or ward during these years. These observations definitely indicate the importance of patient contact in the general hospital for both nurses and medical students. It is encouraging to note that there has been a downward trend in

these tuberculosis rates in nurses and medical students over the ten-year period, and a sharp drop since 1947.

It is emphasized that these rates occurred in hospitals of recognized standing and their administrative authorities were not aware of an unusual tuberculosis problem. A self-survey in other institutions, which are quite complacent about their records, might be equally revealing.

The mere occurrence of hidden or known tuberculosis in the general hospital does not provide the full explanation of the increasing hazard to nurses and other attendants of the sick. There is strong evidence to show that the tuberculin status of the individual nurse is important. In general, a negative tuberculin reactor develops significant pulmonary tuberculosis more frequently than the positive reactor. Our studies of tuberculin reactions indicate that of the 518 student nurses tested since 1947, 40.9 per cent had positive reactions to the Vollmer patch tuberculin test or second strength purified protein derivative of tuberculin (0.005 mg.). This indicates that at least 60 per cent of the nurses are in the tuberculosis-susceptible class. If we had used a more specific and less potent tuberculin test than the second strength PPD, the number of negative reactors would be larger, at least 70 per cent. In some classes it has been as high as 80 per cent.

The falling death rate together with early diagnosis and increasing facilities for segregation of tuberculosis from the general population is resulting in an increasing number of young people reaching the age of occupational hazard as negative tuberculin reactors. Indeed, we have come to the conclusion that in this occupational group a report of a negative x-ray without knowledge of the tuberculin status creates a condition of false security for the individual and the hospital.

In March, 1947, we started B.C.G. vaccination in the student nurses in four Halifax hospitals and medical students of Dalhousie University. The time interval and numbers involved do not warrant any conclusion yet, but it is interesting to note that of the 294 vaccinated nurses observed for a period of 4,414 person-months, none have developed pulmonary tuberculosis. Of 17 tuberculin-negative nurses, who were not vaccinated, and who were observed for 135 person-months, one developed tuberculosis. Of 206 nurses with positive tuberculin reactions observed 1,415 person-months, 2 have developed tuberculosis. Rates have not been struck because of the small numbers. In any event, comparisons with the figures for the preceding 10 years could be used only as an index of the effectiveness of the whole tuberculosis control program and not of B.C.G. vaccine alone.

To summarize, tuberculosis is a problem in the general hospital and will continue to be one for some years to come; indeed the problem may increase even if there is a decrease in the number of tuberculosis patients, because at the same time there will be an increase in the number of negative tuberculin reactors who will be reporting for work, training or treatment. There is no excuse for undiagnosed tuberculosis existing in a general hospital either in the patient body, the hospital personnel or the maintenance staff. To reduce this hazard, it is necessary to x-ray all admissions in the adult group, in-patient and out-patient, private and public, with adequate investigation of those patients showing pathological shadows before a diagnosis is established. Tuberculin testing of children patients and investigation of the positive reactors, together with their families, is of considerable value. Notification

of the public health authorities of cases so discovered is an integral part of the tuberculosis control program. X-rays of all staff personnel on appointment and at intervals of six months are also required and in nurses every three months. The greatest danger of tuberculosis in the general hospital lies, not with the known case if properly controlled, but in the undiagnosed patient. However, the hazard from the known case is equally great unless personnel are adequately trained. An adequate training program should include experience in communicable disease technique for all hospital personnel caring for patients or likely to come in contact with contaminated articles. Affiliate training in tuberculosis sanatoria should be a requirement for all nurses. The tuberculin status of the staff is now of sufficient importance to warrant routine tuberculin testing. In the occupational hazard group, the negative tuberculin reactor should at least be re-tested at regular intervals. Many now recommend also the use of B.C.G. vaccine although its value has not yet been proven by statistical studies to the satisfaction of all authorities. Finally, compensation should be provided for those who develop tuberculosis because of the occupational hazard of caring for the sick.

The modern general hospital, being a community centre, is one of the best places to organize a good tuberculosis control program and to educate the public. To date, the record of such hospitals has not been too good in this respect.

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#### Acknowledgement

The authors wish to express their thanks to Miss Yvonne Malloy, R.N., and Miss Jean Peabody, Statistician, Department of Preventive Medicine, Dalhousie University, for their assistance in collecting and analyzing the data on tuberculosis in nurses and medical students. Financial assistance for this study and others on tuberculosis has been generously provided by the Halifax Anti-Tuberculosis League and the Dalhousie University Medical Research Fund.

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#### WANTED—A LOCUMS TENENS

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# Sleeping Patients\*

J. C. HOSLACK, M.D., C.M., (Man.) Editor

TO us it has always appeared to be unnecessary and unkind to rouse sleeping patients in the early hours of the morning in order to record temperatures (which are usually normal) and then, adding insult to injury, to rouse them again in order to wash their faces. The only practice worse than this is the waking of a patient so that he may be given his sleeping pill! This latter custom (it occurs almost frequently enough to be so called) is especially pernicious and does more justice to the nurse's sense of duty than to her common sense. But "orders is orders" and perhaps it's easier to disturb a sleeping patient than to explain why the medicine was not given.

Some years ago this matter of rousing sleepers was taken up with the authorities of a local hospital. A committee was appointed and it went over the records of two or three wards with a total population of sixty. On the days checked all the non-febrile patients had had to be awakened. The only patients with abnormal temperatures were already awake. The temperature-taking process began about six and continued for about an hour. Those who went off to sleep again were again roused for the washing ritual.

There cannot be a surer way of starting the day wrongly. It should be a cardinal rule to treat sleeping patients as we are advised to treat sleeping dogs—let them lie.

Nothing in Nature's therapeutic armamentarium is more helpful than sleep—"sleep that knits up the ravelled sleeve of care, sore labours bath, balm of hurt minds, great nature's second course, chief nourisher in life's feast." Only those who have tossed fitfully through never-ending hours know its blessing, and to have this blessing snatched away, like Tantalus' cup, is a thing not easily excused. Might not the nurse, tip-toeing to the bedside and looking upon her slumbering patient murmur "Oh sleep, O gentle sleep, Nature's soft nurse, Why must I frighten thee that thou no more will weigh his eyelids down and steep his senses in forgetfulness," and, then realizing the enormity of such an offence tip-toe out and leave him sleeping? The registered 98.4 would probably be right anyway. And, when it comes to that, how often are the temperature readings correct? We have it on the authority of the *Lancet* that, despite manufacturer's claims, it requires fifteen to twenty minutes to record an accurate oral temperature and from five to ten minutes if the thermometer be placed in the rectum. Under these circumstances, then, the waking of a patient for the purpose of recording an inaccurate figure is a valueless nuisance.

The same can be said of pulse taking at dawn. Again, according to the *Lancet*, it takes at least one minute and sometimes three minutes for the pulse rate to be stabilized. In ordinary cases nothing useful is learned by the 30-second contact of finger and wrist. There is, moreover, the possibility that the nurse over-wound her watch and has to fall back on the seaman's method of timing lighthouse flashes (one chimpanzeeses, two chimpanzeeses, etc.) But again it doesn't really matter except in cases where the rate and quality of the pulse is a matter of importance. These latter cases demand,

and should be given, the time necessary for accurate recording. And the same applies to the recording of respirations.

Another practice which would be profitably abandoned is the prescribing of fomentations. For a few—very few—minutes they are of the proper heat to be useful. After that they become mere sodden cloths incapable of doing harm, to be sure, but equally incapable of doing good. To be useful they must be applied hot and often, for when the heat has left them so has their value. The old fashioned poultice is much better. Moreover in these days of under staffed hospitals the poultice is a particularly desirable replacement of the fomentation for the former, plump and thrifty, holds its heat and permits of long intervals between relacements, while the fomentation, like a skinny spendthrift gives up its all in a short time and for most of its life is a clammy nuisance.

# Pathologically Speaking

BERTHA O. ARCHIBALD

WONDER how many people remember the poky little room back of the elevator shaft in the old Victoria General Hospital. Here, Dr. Charles Puttner, the Radiologist, took much pleasure in demonstrating his electrical treatment apparatus to the medical students. If he noticed a student who was a little fresh, he would in a most professional manner request him to take the pulse of the patient whom he was treating. The student proceeding to do so would receive a very definite electric shock. This always amused the old doctor and somewhat lowered the ego in the young student when the rest of the class participated in laughter.

In that room, the Pathological Institute was first domiciled, but it has had many subsequent abiding places. The first move was to the Halifax Medical College at the corner of College and Carleton Streets. From there it went to the Technical College and it was there that the late Dr. George A. MacIntosh spent so many hours of his day.

About thirty-nine years ago—in 1912—a little building on Morris Street was erected on the present site of the Pathological Institute. Here, Dr. Alex Lindsay really developed the Department which is now known as the Pathological Institute. That building was soon outgrown and had to be rebuilt in May 1914 and ten years later enlarged to its present capacity.

Mr. E. P. Webber the book-keeper at the Victoria General Hospital always took a keen interest in the young doctors, particularly from a monetary point of view, as he wrote policies for life insurance in his spare time. One day in 1914 with pen in hand, he greeted Dr. Alex Lindsay: "Hello there, Lindsay, I hear you are taking a trip. Is that so?" "Yes, I am Webber. Going to England on the Empress of Ireland." "To England? Well now, isn't that something. You had better let me write up a policy for you before you go!" "Yes, I think that would be wise—say ten thousand?" "Well Doctor, if you pay me fifty dollars I can get you double indemnity, twenty thousand. How about it?" So the deal was closed.

Some days later however, the two met again. "Now about that policy Webber? I think you had better make it ten thousand. I am going over to be married and I need my extra money." So the young doctor departed, amid farewells and good wishes from all his friends in the hospital.

The Empress of Ireland was a beautiful ship, and with her modern safety equipment, almost as unsinkable as the Titanic—people thought. She was in Halifax Harbour enroute to Montreal—and many people availed themselves of the opportunity of going on board.

As she sailed down the St. Lawrence from Montreal not far from Rimouski, a dense fog closed about the Empress. So thick was it, that, although the Captain heard a ship in the distance, only an occasional glimpse of her could be seen as she drew near and nearer. It was about 1.45 in the morning of May 29th, and almost all the passengers were in their cabins asleep. They were awakened by a jolt, which they thought was an iceberg or a rock. The Empress had been struck side-on by the Storeland, a ten-thousand Collier. The engines of the Empress immediately went out of commission, otherwise she could easily have been beached. With her side ripped open, the ship

filled, and in fifteen minutes had sunk stern first, in 180 feet of water. Of the 1467 people on board only 433 were saved. Two of those lost were from Halifax—Adjutant George Edwards and Dr. Alex Lindsay. How often have I thought of that English girl waiting in vain for her lover.

This sketch would not be complete without recalling the names of those who served in the Pathological Institute but have passed on.

Dr. W. H. Hattie 1896 to 1901, when the Laboratory was in the Victoria General Hospital.

Dr. Andrew Holliday—1901 to 1903 when it was located at the Halifax Medical College.

Dr. L. M. Murray 1903 to 1912 during this period the Laboratory was moved to the Technical College when erected.

Dr. Alex Lindsay 1912 to 1914 Pathological Institute opened March 1st. 1914 on the present site.

Dr. Lindsay was the nephew of Dr. A. W. H. Lindsay who was for so many years Professor of Anatomy at Dalhousie College and who was also the Registrar of the Provincial Medical Board. Dr. L. M. Murray in charge until appointment of Dr. Nicholls in December 1914.

Dr. A. G. Nicholls 1914 to 1926—the new Pathological Institute opened in 1915.

It is now fifty years since the Laboratory was started in that dark little room back of the elevator shaft in the old Victoria General Hospital.

COMMITTEE ON FRACTURES AND OTHER TRAUMAS  
AMERICAN COLLEGE OF SURGEONS

## The Care of Hand Injuries

### III

#### Surface Injuries

1. The first-aid care of wounds of the hand is directed fundamentally at protection. It should provide protection from infection, from added injury, and from future disability and deformity. The best first-aid management consists in the application of a sterile protection dressing, a firm compression bandage and immobilization by splinting in the position of function (see note\*). No attempt should be made to examine, cleanse, or treat the wound until operating room facilities are available.

II. Early definitive care requires thorough evaluation of the injury with respect to its cause, time of occurrence, status as regards infection, nature of first-aid treatment and appraisal of structural damage. For undertaking the definitive treatment the conditions required are a well-equipped operation room, good lighting, adequate instruments, sufficient assistance, complete anaesthesia and a bloodless field. The treatment itself consists of aseptic cleansing of the wound, removal of devitalized tissues and foreign material (exercising strict conservation of all viable tissue), complete hemostasis, and the repair of injured structures, to be followed by protective dressing to maintain the optimum position. After-treatment consists of protection, rest and elevation during healing, and early restoration of function by direct active motion.

#### 111. SURFACE INJURIES

Burns, abrasions and avulsions may cause destruction and denudation of any area of the skin of the hand. The care of such injuries has three major objectives:

1. Protection from infection.
2. Early restoration of skin covering.
3. Avoidance of disabling scarring and contractures.

These objectives are sought in the various stages of treatment.

#### 1. First aid treatment.

##### (a) Chemical burns.

Remove chemical by profuse irrigation with water, preferably warm.

##### (b) Heat burns, abrasions and chemical burns (after washing away the injuring agent.)

Apply sterile dressing completely to cover the hand and bandage firmly.

\*Position of function or position of grasp: wrist hyperextended in cock-up position; fingers in mid-flexion and separated; thumb abducted and in mid-flexion, with tip pointing toward little finger.

## 2. Definitive treatment.

This should be carried on in operating room under conditions of strict asepsis. (Draping of field, sterile gloves, masking of operator and attendants.)

- (a) Gentle removal of first-aid dressing, soaking loose with normal saline solution if necessary.
- (b) Gentle cleansing of injured surface by light sponging with saline on cotton balls. If surface is dirty or greasy, it may be gently cleansed with sterile neutral soap in sterile water or bland detergent. Loose fragments and tags of skin are removed. Blisters are not opened.
- (c) Sterile strips of fine-mesh vaseline-impregnated gauze are smoothly applied to the injured surface. These are covered with dry sterile gauze, gauze being placed between adjacent fingers. The whole hand is covered with a thick layer of sterile mechanic's waste or fluff gauze, and splinted in the position of function. Elastic knit bandage is applied over all, including all fingers, with firm even pressure. The hand is kept elevated.

## 3. Subsequent dressings.

The original dressing is left undisturbed for 12-14 days unless elevation of temperature suggests active infection requiring inspection. The second, and all subsequent dressings until healing, are done under completely aseptic conditions (as described above.) Preparations for skin grafting should be made in advance.

- (a) The dressing is removed. Slough and debris are washed away by irrigation with normal saline solution (no scrubbing of surface).
- (b) Granulating areas from which slough has separated should be covered with thin split-thickness skin grafts.
- (c) Dressing, similar to that employed at first definitive treatment, is applied. Hand is splinted in position of function.
- (d) Further dressings, similarly conducted, are done at intervals of seven days until epithelization of burned surface is complete. Skin coverage by grafting should be secured as rapidly as possible, as the best assurance against infection, inflammation, infiltration, scarring and contractures. This early coverage by "skin dressing" is of the greatest importance, even when epithelization from the margins is proceeding satisfactorily. Split-thickness grafts are best for this purpose, even though it is anticipated that some of grafted area must later be removed for replacement by more suitable skin.

## 4. Restoration of function.

As soon as epithelization of burned surfaces is complete, directed active use and exercise of the hand is begun. Normal use of the hand is encouraged and voluntary exercise and appropriate occupational therapy prescribed.

**PROGRAMME OF THE NINETY-EIGHTH ANNUAL MEETING OF  
THE MEDICAL SOCIETY OF NOVA SCOTIA****REGISTRATION FEE \$5.00****MONDAY, SEPTEMBER 10th**

- 10.00 a.m.—Meeting of the Nova Scotia Medical Health Officers Association; University Residence, St. Francis Xavier University, Antigonish.
- 2.30 p.m.—Meeting of the Nova Scotia Medical Health Officers Association.
- 2.30 p.m.—Executive Meeting, The Medical Society of Nova Scotia.

**TUESDAY, SEPTEMBER 11th**

- 9.00 a.m.—Registration, Auditorium, St. Francis Xavier University.
- 9.30 a.m.—First Business Session.
- 11.30 a.m.—Adjournment for visiting Booths.
- 12.00 noon—Dr. Carleton B. Peirce, Professor of Radiology, McGill University, Radiologist-in-Chief, Royal Victoria Hospital, Montreal, Quebec, "Diverticulitis or Carcinoma of the Lower Bowel." Discussion to be opened by Dr. A. L. Wilkie, Associate Professor of Surgery, McGill University, Montreal.
- 1.00 p.m.—Admournment.
- 1.10 p.m.—Luncheon, Morrison Hall, St. Francis Xavier University. Speaker Dr. Glen Sawyer, St. Thomas, Ontario, "General Practice."
- 2.30 p.m.—Dr. E. M. Worden, Lecturer in Paediatrics, McGill University, Montreal, "Changing Trends in the Common Acute Infectious Diseases." Discussion to be opened by Dr. H. B. Ross, Assitant Professor of Paediatrics, Dalhousie Medical School, Halifax.
- 3.20 p.m.—Dr. H. B. Ross, "Dalhousie Post-Graduate Programme."
- 3.30 p.m.—Dr. M. M. Hoffman, Professor of Experimental Medicine, Dalhousie Medical School, Halifax, "Medical Aspects of Thyroid Diseases." Discussion to be opened by Dr. Joseph A. McDonald, Glace Bay, N. S.
- 4.30 p.m.—Golf: Afternoon Tea at the Golf Club.
- 9.00 p.m.—Dance, Informal, and Cards (Bridge and Canasta). Place to be decided.

**WEDNESDAY, SEPTEMBER 12th**

- 9.00 a.m.—Second business meeting.
- 10.15 a.m.—Mr. C. R. Ross, Industrial Hygiene Engineer, Department of Public Health, Halifax, "Industrial Hygiene Problems in Nova Scotia."  
Discussion to be opened by Dr. J. G. B. Lynch, Sydney, N. S.
- 11.00 a.m.—Dr. A. D. Kelly, Deputy General Secretary, Canadian Medical Association, "Impressions of the National Health Service in Great Britain."  
Discussion to be opened by Dr. A. E. Blackett, New Glasgow, N. S.
- 11.40 a.m.—Adjournment for visiting Booths.
- 12.00 noon—Dr. H. M. Coleman, Surgeon, Toronto East General and Orthopaedic Hospital, Toronto, Ontario, "Be Careful with Fractures."  
Discussion to be opened by Dr. T. B. Acker, Halifax, N. S.
- 1.00 p.m.—Adjournment.
- 1.10 p.m.—Luncheon, Speaker, Right Rev. J. P. Nicholson, St. Francis Xavier University, Antigonish, N. S.
- 2.30 p.m.—Dr. G. G. G. Simms, Chairman, Health Committee, Provincial Civil Defence, Halifax, "Civil Defence."  
Discussion to be opened by Dr. J. A. Noble, Halifax, N. S.
- 3.45 p.m.—Dr. Claude S. Beck, Professor of Neuro-Surgery, Western University, Cleveland, Ohio. Title to be announced.  
Discussion to be opened by Dr. J. C. Wickwire, Liverpool, N. S.
- 6.00 p.m.—Reception by Doctor and Mrs. J. J. Carroll and Doctor and Mrs. O. C. MacIntosh at the Gymnasium.
- 7.00 p.m.—Annual Dinner at Morrison Hall.  
Presidential Address, Dr. J. J. Carroll.  
Doctor H. B. Church, President, Canadian Medical Association, "General Practice in Rural Areas."

**THURSDAY, SEPTEMBER 13th**

- 9.30 a.m.—Third Business Session.  
Election of Officers.



# Society Meetings

## VALLEY MEDICAL SOCIETY

The 44th Annual Meeting of the Valley Medical Society was held at Fire Hall, Middleton, on Wednesday, May 30th, 1951, at 3.00 p.m.

The President, Doctor H. E. Kelly was in the chair. Also present were Doctors J. R. Kerr, B. R. Wilson, S. E. Bishop, G. H. Wheelock, F. W. Morse, L. R. Morse, J. E. Hiltz, A. Laretei, J. J. Stanton, N. F. Macneill, I. R. Sutherland, G. R. Forbes, O. R. Stone, G. R. Mahaney, R. A. Moreash, H. G. Grant, V. O. Mader, A. H. Leighton, D. McD. Archibald, and Mr. A. M. MacMillan.

The minutes of the last two meetings were read and approved.

The financial report was read and adopted.

A letter regarding a generous offer from the W. K. Kellogg Foundation to the Medical School of Dalhousie University was read. This provoked much discussion.

Some were in favor of bringing in an outstanding man, some were in favour of a refresher course and a few were in favor of a two to three weeks course at the Victoria General Hospital. No motion was passed regarding this matter.

The President appointed the following nominating committee to bring in a slate of officers for the coming year: Doctors L. R. Morse, J. R. Kerr and G. R. Forbes.

On motion Doctor Aksel Laretei was made a member of the society.

The following are the officers for the coming year.

President—Doctor J. R. McCleave, Digby.

Vice-Presidents—Hants County—Doctor G. W. Turner, Windsor.

Kings County—Doctor H. A. Foley, Canning.

Annapolis County—Dr. B. R. Wilson, Middleton.

Digby County—Dr. D. G. Black, Digby.

Secretary-Treasurer—Doctor R. A. Moreash, Berwick.

Representative to Cancer Committee—Doctor P. S. Cochrane, Wolfville.

Representative to the Executive of The Medical Society of Nova Scotia—  
Doctor F. R. Morse, Lawrencetown.

Programme Committee—Doctor J. E. Hiltz, Kentville, Doctor O. R. Stone,  
Bridgetown. Doctor R. A. Moreash.

Liaison Officer—Doctor J. R. Kerr, Annapolis.

The following scientific programme was presented:

1. Doctor A. H. Leighton and Mr. A. M. MacMillan (both of Cornell University)—Cornell Research Programme in Community Welfare in Nova Scotia.

2. Doctor R. A. Moreash—Electric Saw and Drill for small hospitals with demonstration.

3. Doctor V. O. Mader—Transthoracic approach to Stomach and Upper Abdomen.

This approach is becoming more popular and is being used more all the time for operations involving the upper abdomen.

The discussion and questions following the presentation were varied. Many of the questions strayed considerably from the subject but at the same time they were important and of much interest to the meeting.

4. Doctor Frank W. Morse and Doctor Gordon H. Wheelock—Presentation of two cases:

- (a) Dystonia Musculorum
- (b) Pseudohypertrophic Muscular Dystrophy

This presentation was unique inasmuch as moving pictures of the cases were shown. These depicted the outstanding features of each case. The pictures were taken and shown by Doctor Wheelock. Both cases were Doctor Morse's and he gave the history of them and provided the comment during the showing of the pictures.

R. A. Moreash.  
Secretary-Treasurer

# Annual Meeting

Our ninety-eighth annual meeting will be held in the Town of Antigonish from Monday, September 10th until Thursday noon, September 13th.

The President, Doctor J. J. Carroll, has gone to no end of trouble in securing a good scientific programme, and also making sure that everybody will be well entertained. The visiting team of the Canadian Medical Association this year will be made up of Doctor Carleton Peirce, the Radiologist at the Royal Victoria Hospital of Montreal, Doctor E. M. Worden, Lecturer in Paediatrics at McGill University, Doctor H. M. Coleman, Surgeon at the Toronto East General and Orthopaedic Hospital. In addition, the President of the Canadian Medical Association, Doctor H. B. Church, will speak on "General Practice in Rural Areas" and Doctor A. D. Kelly, Deputy General Secretary, will give us a most interesting address on his "Impressions of the National Health Service in Great Britain." In addition, we shall have as a visitor, Doctor Claude S. Beck, Professor of Neuro-surgery, Western University, Cleveland, Ohio.

The contributions this year from the members of our own Society will be by Doctors M. M. Hoffman, Professor of Experimental Medicine, Dalhousie Medical School, Mr. C. R. Ross, Industrial Hygiene Engineer, Department of Public Health, and Doctor G. G. Simms of the Provincial Health Department. Doctor Simms' address will be most interesting and timely, as it has to do with Civil Defence, probably one of the most important matters to be dealt with at the meeting.

The business meetings should be most important. We have set aside three sessions to allow full time for all such matters as Maritime Medical Care, treatment of pensions for the Provincial Government, and other phases of socialized medicine.

The social side will be well looked after. There is a luncheon on Tuesday at which Doctor Glen Sawyer of St. Thomas, Ontario, will speak on "General Practice." There will be golf on Tuesday afternoon, and a tea at the Golf Club followed by a dance in the evening, and bridge, and for the more modern, Canasta.

Early Wednesday evening there will be a reception by Doctor and Mrs. J. J. Carroll and Doctor and Mrs. O. C. MacIntosh, followed by the annual dinner at Morrison Hall.

Everything points to a most interesting and useful meeting, so decide now to come and book your reservations immediately.

## News Item

In the May issue of the Journal of Laryngology and Otology there appeared a contribution by Hugh Wm. Schwartz of Halifax entitled "The Influence of Heredity on the Pneumatization of the Temporal Bone." This original study was carried out by X-ray on two hundred and thirty-seven (237) individuals, for the most part represented in fourteen family groups (the largest has fifty-four members) twenty-five sets of identical twins, two sets of triplets and ten persons who had been the subject of acute inflammatory disease.

These four hundred and seventy-four (474) temporal bones were classified by Dr. S. R. Johnston under four headings—cellular (large or small according to which appeared to predominate), acellular (sclerotic or diploic). In our opinion the selection of an experienced and unbiased person to carry out this tedious task adds greatly to the value of this investigation.

Prof. Richard Saunders' series of drawings illustrating the embryology of the middle ear and the subsequent steps in air-cell formation are executed with the clarity characteristic of this teacher.

The summary is as follows: This study adds further evidence that (a) purulent otitis media in infancy has no retarding effect on the process of pneumatization: (b) that acute inflammatory disease leaves little or no evidence recognizable in X-ray films taken six months to twelve months later: (c) that the high proportion of similar patterns in the mastoid processes of identical twins is strong evidence of heredity being (a) and probably the deciding factor: (d) the classification of the temporal bones of family groups, as determined by the X-ray, also leaves the impression that heredity is probably the explanation of the different types of bones and the extent of pneumatization when present.

Perhaps this study is not as impractical as may appear at first glance. If it helps the roentgenologist to realize that a great deal of what he sees in a film of a temporal bone is more closely related to the patients' grand-parents and parents than with some supposedly old infection, then this work will not have been in vain.

## Post-graduate Week in Obstetrics, Gynaecology and Paediatrics

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The Department of Obstetrics, Gynaecology and Paediatrics of Dalhousie University and the Victoria General, Grace and Children's Hospitals will put on a course in obstetrics, gynaecology and paediatrics outlined below. This is not a specialists course, but one aimed entirely at helping the general practitioner solve his ordinary obstetrical, gynaecological and paediatric problems.

1. It will be limited to 6 applicants, and the first six who apply will be accepted. Applicants from all the Maritime Provinces and Newfoundland will be welcome. Only those intending to take the entire course will be accepted and applicants should state whether or not they will be able to do this.

2. The dates will be November 26th to December 1st, inclusive.

3. Applications should be made to the Post-Graduate Office of Dr. Carl Tupper, Victoria General Hospital, as soon as possible.

4. Men taking the course will be given a bed in a dormitory at the Grace Hospital for the entire week, so that they can see all public cases delivered at the hospital that week. They will pay the Grace \$5.00 for this purpose at the beginning of the course.

5. They will be able to get their meals in the cafeteria of the Victoria General Hospital at the usual meal rate charged there.

6. They should be in the front hall of the Grace Maternity Hospital at 8.45 p m. on Monday, November 26th, where they will be met and have further details explained.

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
9-9.50 Management of labor	Congenital Heart Disease	Ca. Cervix Diagnostic Pts.	Wet Smears Vaginal Discharge	The Nephritides	9-10.30 Symposium on Ante Partum & Post Partum Bleeding
10-10.50 Care of baby in first hour of life	Acute Rheumatic Fever	X-ray Pelvimetry	Ward Walk	Meningitis Convulsions	10.30-11.30 Feminine Hygiene
11-11.50 Induction of labor & Indie. for C.S.	Fluid Balance	Manikin Demonstr. with Forceps	Endocrine Therapy	Round Table Ward Cases	
12-1 Abortions	Round Table Respiratory Infections Infants	Panel on Toxaemias of Pregnancy	Panel on anything new in Literature	Behaviour Problem	12-1 Rh Factor

## NOON RECESS

2-5 Gynaecological Patient Clinic at V.G.H.	2-5 Pre Natal Clinic	2-3 X-ray films	2-3 Problems of New Born Prematurity	2-5 Pre Natal Clinic at at D.P.H.C.	
		3-4 Skin Diseases	3-4 Asphyxia		
		4-5 Surgical Problems			

## Correspondence

Halifax, N. S.  
July 10, 1951

Dr. H. G. Grant, Secretary,

The Medical Society of Nova Scotia,  
Dalhousie Public Health Clinic,  
Morris Street,  
Halifax, N. S.

Dear Doctor Grant:

In the planning of your schedule of activities for the coming season you will be interested to know that we are hoping to have a series of speakers, one each month, through September to April.

By September we should be able to provide you with a list of the speakers and the dates of their lectures, to which the members of The Medical Society of Nova Scotia are cordially invited.

Yours very truly,

(Sgd.) E. F. Ross, M.D., Chairman,  
Medical Post-Graduate Committee,  
Dalhousie University.