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## Young Endeavour

In his book entitled: *Young Endeavour: Contributions to Science by Medical Students of the Past Four Centuries*, William Gibson, who is professor of the History of Medicine at the University of British Columbia, recounts discoveries made by over one hundred undergraduates. In his Introduction, he writes " . . . the findings . . . may be sufficiently interesting to stimulate young minds to independent effort and hard thinking" and he continues, "this book might also stimulate teachers and researchers in our universities to give youthful minds entrusted to their tuition every opportunity to develop and to contribute".

This issue of the Bulletin includes papers by four of our own undergraduate medical students, in which they describe widely varied experiences gained under the supervision of Faculty members: a prevalence study, a case report of a rare condition, a comprehensive description of a relatively common disability, and an account of a new diagnostic technique. While perhaps not comparable to some of the outstanding discoveries related by Professor Gibson, nevertheless these reports do show that some medical students today are not content merely to absorb knowledge passively and then regurgitate it at examination time.

Over and above the discovery of any knowledge lies the considerable value of preparing a written report suitable for publication, followed by the undeniable thrill of seeing one's self in print for the first time. From these modest beginnings, as these students pursue their individual careers after graduation, will come the regular contributions to the medical literature yielding benefits to all mankind.

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## DIET MANUAL

### Nova Scotia Department of Public Health 4th Edition, 98 pp., 1975

Revisions have been made to the Diet Manual prepared by Nutrition Division, Nova Scotia Department of Public Health. These revisions were necessary to update the Manual in relation to the recently revised Recommended Daily Nutrient Intakes for Canadians, and other developments and research in the practical application of diet in health as well as disease.

This Manual is prepared as a nutrition guide for family physicians in general practice. It serves as well as a reliable resource on diet therapy for the various Homes for Special Care and smaller hospitals. It is not available to the general public.

Copies of the revisions are available free to family physicians for up-dating present copies; complete Manuals are available at the cost of \$4.00 per copy. All requests should be directed to Dr. D. G. McCurdy, Administrator, Community Health Programs, Nova Scotia Department of Public Health, Box 488, Halifax. Money order or cheques should be made payable to Department of Public Health, Att. Nutrition Division.

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# Intralobular Bronchopulmonary Sequestration

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Intralobular bronchopulmonary sequestration<sup>1,2</sup> is an anomaly in which there is a partial or complete developmental separation of a portion of a lobe of a lung from its continuity with the normal bronchial tree. In this sequestered portion of pulmonary tissue cysts may occur. The blood supply of this tissue is usually one or more anomalous vessels arising from the aorta just above or just below the diaphragm (although the systemic artery has arisen from the subclavian or intercostal arteries), thus making it of interest to the surgeon since it represents a definite surgical hazard. Massive haemorrhage has occurred in several patients, leading in some cases to fatal bleeding because of damage to the unsuspected anomalous artery. Almost invariably, the sequestered tissue is found in the posterior basal segment of a lower lobe, and usually on the left side.

## History

Anomalous arterial supply to the lungs was first described in 1802 by Maugars, a French medical student, while the first adequate description of a systemic artery supplying a sequestered portion of lung was that of an unpublished thesis by Fischer quoted in 1928 by Müller.<sup>3</sup> However, the greatest amount of attention has occurred since 1946 when Pryce published his first paper on the subject.<sup>4</sup> Many excellent reviews have since been published in the literature.<sup>5,6,7,8,9</sup>

## Aetiology and Pathology

There is still difference of opinion as to whether the primary defect is in the respiratory system or in the pulmonary vascular system. One theory is that the primary lesion lies in the failure of the pulmonary artery in fetal life to supply the segment of lung involved resulting in persisting systemic supply to the fetal lung. After birth, cystic changes take place in the area of the lung supplied by the systemic artery because of the high systemic pressure. Other theories include the vascular traction theory in which the fundamental disorder is held to be traction exerted by aberrant arteries on the developing bronchial buds with their resulting sequestration, and the theory of coincidental occurrence in which there is a chance simultaneous occurrence of cystic degeneration of the lung and an aberrant systemic pulmonary artery.

The gross abnormality usually falls into one of three groups: (1) a large cyst in the sequestered region, (2) a polycystic mass, or (3) a sequestered mass containing dilated bronchi that branch parallel to the anomalous artery. In any of these gross types, the bronchial or cystic elements

may be completely dissociated from the bronchial tree, or there may be a small communication with the bronchial tree, perhaps as a result of infection. The cysts are lined with respiratory epithelium, while alveoli surrounding the cysts and pigment are not evident. Thus, it seems that the conducting component (bronchial) is abnormally developed and expanded into cystic structures, whereas the functioning (alveolar) component is underdeveloped. The tissue between the expanded bronchi is largely fibrotic and contains mucus, or if infection is present, pus. Infection probably takes place by contiguity from an adjacent, temporary infection of the lung, or by haematogenous spread.

In most cases, the anomalous arteries are confined to the sequestered regions. Veins do not, as a rule, accompany the anomalous arteries, and it is assumed that the venous drainage from the sequestered regions is via the normal pulmonary veins. The anomalous arteries have been referred to as bronchial type arteries, but histologically, they have the appearance of true pulmonary arteries. Atherosclerotic degeneration is commonly present, possibly due to increased pressure in a pulmonary type of vessel or to atrophic disuse of a nutritive artery. The pulmonary sequestration has been seen in some cases to connect with the gastrointestinal tract, usually with the oesophagus, but occasionally with the stomach.

## Prevalence

The exact prevalence is not known, but there have been over 250 descriptions of surgical procedures described in the literature up to 1964. Surgical significance is indicated by the fact that at least three deaths have been described in the literature due to injury to an unexpected anomalous artery.

## Symptoms and Diagnosis

The symptoms of this disorder are variable. Most patients are asymptomatic<sup>10</sup> until an acute respiratory infection develops, and in many cases, this does not occur until they are adults. Other patients present with repeated acute pulmonary episodes associated with intermittent cough, occasional blood-streaked sputum, fever, chills, and roentgenographic evidence of a pathological process in one or the other lower lung field. Other patients have presented with no pulmonary complaints, but with an abnormal chest X-ray with or without vague nonspecific complaints.

The roentgenographic appearance<sup>11</sup> depends on whether the sequestered segment has been the site of an infection and has resulted in the development of a communication with the airways of contiguous lung tissue. When no communication exists, the anomalous tissue appears as a homogeneous mass of water density in the posterior portion of a lower lobe

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(usually the left) and almost invariably contiguous to the diaphragm. It is round, oval, or triangular and typically is sharply circumscribed. If communication with the bronchial tree has resulted from infection, the roentgenologic presentation is of an air containing cystic mass with or without air fluid levels. There have been reported cases in which serial roentgenography of homogenous sequestered segments showed the development of cysts as a result of infection. The size of the lesion may vary with time depending on the amount of gas and fluid within it. Bronchographic contrast medium rarely, if ever, enters the lesion. The opacified bronchial tree appears festooned around the mass, and is a distinctive if almost diagnostic finding.

Bronchoscopy reveals either an apparently normal bronchial tree, or purulent secretions coming from a lower lobe bronchus.

Although the diagnosis of bronchopulmonary sequestration may be strongly suspected from the previous findings, definitive diagnosis depends on opacification of the anomalous vessel by percutaneous aortography, or by selective catheterization of the anomalous vessel(s). In a few cases, the anomalous vessel was apparent on plain roentgenograms or on tomograms as a finger-like appendage extending posteriorly and medially from the mass toward the aorta.

### Treatment<sup>12</sup>

The ideal treatment is resection of the sequestered anomalous tissue without sacrificing normal lung. However, in many cases this is not feasible because it is a fragile vessel with atheromatous degeneration. If suppuration is present in the sequestration, empyema is a threat, leading to a more extensive resection that would be indicated in the uncomplicated sequestration.

### Case Report

Mr. J. W. is a 41 year old male who presented at the Halifax Infirmary with a five year history of epigastric and retrosternal discomfort. The discomfort was in the form of an ache with intermittent increases in intensity but without any known precipitating or relieving factors. The patient was a non-smoker and denied having a cough, sputum, haemoptysis, malaise, fever or night sweats. Physical examination was unremarkable. Radiological investigation revealed a hiatal hernia and a soft tissue mass adjacent to the oesophagus immediately above the diaphragm. The diagnosis of leiomyoma of the oesophagus and hiatal hernia was made. A left thoracotomy was performed and in division of the inferior pulmonary ligament to expose the hiatus and lower oesophagus, two vessels, each 4 mm in diameter were seen arising from the aorta and entering the posterior basal segment of the left lower lobe. The aberrant systemic vessels were seen to enter a portion of lung which would not aerate even under forced inflation. The sequestered portion of lung tissue was removed by segmental resection and found to contain a yellow pus-like material which was sterile. The hiatus hernia was repaired and no lesion was found in the oesophagus. The pathological specimen showed a portion of pulmonary tissue with a greatly enlarged cystic bronchus with

patchy chronic inflammatory infiltrate in part of the wall. There was patchy fibrosis with dilated terminal bronchi with some containing mucin. A diagnosis of intralobar bronchopulmonary sequestration of the left lower lobe was made. Post-operative course was uneventful.



(Rt is superior) The upper illustration shows the tied off aberrant systemic vessels. The lower illustration has the sequestered lung tissue being pointed out.

### Summary

Intralobar bronchopulmonary sequestration is a significant condition in that the surgeon should be aware of its existence so that (1) it will be suspected in lesions involving a lower lobe and (2) surgical morbidity and mortality will be avoided due to injury to an unsuspected anomalous artery. A review of the subject and a case report are presented

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# STUTTERING

Patrick Kelly,\* B. Sc., T. J. Murray,\*\*M.D.,F.R.C.P.(C.)  
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Like so much in medicine, stuttering is difficult to define. According to most definitions, almost all of us stutter at one time or another, but only when our reactions to this disfluency have blossomed into obvious struggle and avoidance reactions, would we be regarded as true stutterers. The "struggle reaction" may be manifest in grotesque head jerks, mouth contortions or strange movements. Other so-called "interiorized" stutterers, who show little visible struggle, duck and dodge their feared words and situations, substitute words, add interjections, use all sorts of avoidance tricks and tend to live in constant fear of revealing their affliction to the world.

Several theories attempt to explain the nature and etiology of stuttering; they can be divided into three main groups:

1. The constitutional breakdown theory suggesting that stuttering has an organic basis within the nervous system.
  2. The learned behaviour or anticipatory struggle theory based on the idea that stutterers learn their speech patterns.
  3. The neurosis of repressed need theory implying that stuttering is a result of a psychological disturbance.
- There is also a composite view, involving all the above theories, that stuttering is a multi-faceted syndrome.

## The Constitutional Theory

The constitutional theory suggests that an abnormality in some aspect to the neuromuscular or metabolic organization of the nervous system leads to a breakdown of integration of the paired peripheral muscles of speech. Perhaps stuttering itself is not inherited, but a hereditary predisposition to this neuromuscular abnormality and an environmental precipitating factor would result in stuttering; thus, the child who is predisposed to stutter may never do so if he has a favourable environment.

One early organic theory suggested that cerebral dominance over speech might have developed inadequately, either as an inherited problem or from a shift of handedness. Today, there is little support for this idea. Another organic theory explained the predominance of male stutterers, saying that speech is learned at a period when myelination of cortical areas in males is slower than in females. This hypothesis also has had little support. However, the testing of certain psychomotor skills does suggest some relationship between stuttering and a tendency to motor and sensory perseveration.

In general, the theory that stuttering is an organic central nervous system problem has received minimal support.

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Nevertheless, the authors are engaged in a double-blind cross-over study of the use of haloperidol in treating stuttering. Haloperidol has been useful in certain movement disorders with an organic central nervous system basis; a number of these are characterized by speech abnormalities. As a result, we are testing the possibility that this drug may also help stuttering, and the preliminary results are promising in the short term portion of the study. Details on this study will be published at a later date.

## The Learned Behaviour Theory

One of the most interesting theories that has gained wide support, suggests that stuttering originates in the early oral stumblings that are a normal part of the speech-learning process. The problem may arise when children try to master adult speech too quickly, particularly if encouraged to do so by parents who set inappropriately high standards for their children's speech.

Wendell Johnson stated that "stuttering begins not in the child's mouth, but in the parent's ear". He felt that repetitions and prolongations are normal in children's speech. However, when someone reacting to the child (usually a parent) "diagnoses" the child as stuttering and reacts to normal speech patterns with anxiety, the child begins to fear and struggles to avoid his dysfluencies. Thus, he becomes a true stutterer. Johnson feels that overanxious perfectionists with high, rigid standards of behaviour are prime candidates for misjudging their children's speech. It is of interest that when Johnson interviewed both children diagnosed as stutterers, and normal children, he found little difference in the way they spoke. He thus referred to stuttering as a "diagnosogenic" disease—a disease created by its own diagnosis.

A variation of this theory is that children may have their speech drives blocked by normal repetitions and prolongations of speech-learning, and find these frustrating. In this situation, stuttering begins in the ear of the child, not the parents. The interruptions lead to frustration that eventually gives rise to fear, struggle, and avoidance reactions.

From the viewpoint of modern learning theory, the approach-avoidance conflict results from the competitive and opposing urges to speak and not to speak and leads to the repetitions and prolongations of stuttering. Although it seems that some aspects of stuttering represent learned behaviour, there is still disagreement as to whether the original dysfluency was learned. The problem may have been precipitated by an organic neuromuscular difficulty, resulting from operant conditioning and reinforcement, or be caused by an emotionally induced breakdown in coordination.

## The Psychological or Erotic Theory

Stuttering, like many disorders, has been subjected to intricate and highly implausible psychoanalytical theorization.



Regarding stuttering as a neurotic symptom rooted deeply in the subconscious, Freudian psychoanalysts suggested that it is brought about when personality conflicts early in life cause an individual to become fixated in the anal or oral levels of psychosexual development. They feel that stuttering may satisfy some infantile need for oral erotic gratification or anal erotic needs. It may also be a covert expression of hostility or aggressive impulses which the individual fears to express openly. Unfortunately, these theories are based on stutterers with severe emotional problems who have been referred to psychiatrists. Most stutterers do not show any specific psychological abnormalities, and there is no true "stuttering personality". It might be expected that stutterers would tend to show anxiety, sensitivity, embarrassment, fear and depression, particularly in relation to their speech pattern, but no serious underlying personality pattern or psychological disturbances have been noted.

There has been no general agreement on the psychiatric theories of stuttering, and psychoanalysis has not been successful in most instances.

### **The Development of Stuttering**

Van Ripper has listed four stages in the development of stuttering. The first is characterized by light, easy repetition of sounds and syllables, and the child is not aware of his speech dysfluency. In the next stage, his repetitions become more rapid with more prolongations. The child may show some surprise when he stutters, but he does not seem overly concerned. In the third stage, the repetitions are more rapid, prolongations are associated with fixed postures, and there is some frustration shown by the child. In the last stage, the speech is characterized by forcing and other visible and audible behaviour. The child now develops fears, either word fears or situation fears.

It is common for stutterers to associate their stuttering with certain words, which they remember from past embarrassing circumstances. They may then stutter every time those words appear for the rest of their lives. They may also develop fears of common words, even their names, for which they can find no substitute. The second fear, related to situations, is much more vague, depending on the attitude of both listener and speaker in stores or in class. They may also relate poorly to certain family members, friends, or strangers. To a great extent, their fears are based on past experiences. Frequently, they show opposite reactions to given situations. For instance, some of our patients have great difficulty when speaking to strangers, whereas other experience greater discomfort and stuttering behaviour with family and friends.

From their fears derive two other characteristic elements of the final stage of stuttering: avoidance and escape. The stutterer mentally scans ahead for words and situations he feels he must avoid. In the extreme, he may stop talking altogether, but usually he will speak as little as possible. He may develop amazing proficiency with certain synonyms, and use all sorts of tricks to postpone feared situations. He may also use "starters" — key words or interjections that help him initiate speech. These features of stuttering may

eventually become an involuntary habit, and can be a more grossly apparent abnormality than the speech itself. Some patients who have learned to take deep breaths before speaking may eventually develop such exaggerated breathing patterns that their stuttering seems less bizarre than their breathing. A patient who is helped to speak by rhythmic movements of his hands or legs eventually develops such exaggerated limb movements that they are his more obvious abnormality.

When a stutterer experiences a "block" he may find his mouth "frozen" and may develop a disturbing tremor resulting from tension in his diaphragm, mouth and throat muscles which vibrate at different frequencies. He will naturally attempt to escape this state by squeezing his eyes, squirming, blinking or sucking in air through his nostrils. The secondary symptoms are subsequently reinforced if he feels that they release him from the block.

Once the stutterer has entered the fourth stage of stuttering, characterized by fear, frustration, avoidance and escape, his affliction becomes self-perpetuating. Each successful avoidance means that future situations will become more complex, and he is engulfed in a tangled web of his own creation.

### **The Incidence of Stuttering**

Slightly fewer than 10% of our population stutters. Stuttering seems to exist in all civilized communities, but is rare or absent in many so-called "primitive" societies. Although most North American Indian tribes experience no stuttering and have no word for it, the problem does exist in three Canadian tribes that possess strong social competitiveness. These seem to share a fear that individual shortcomings jeopardize the status of the entire tribe, and thus they impose rigid standards early in life.

The general population of stutterers is neither more nor less intelligent than that of non-stutterers. It is true that on the average, college students who stutter have higher IQ's than their classmates, but this is probably because their handicap discourages all but the brightest students from entering college. Although it appears that stuttering is more common in the middle and upper classes, it may not be the class that is important, but the intensity of drive to achieve a higher status. Many people with stuttering outgrow the problem, and up to 10-14% of people have been stutterers at one time. Indeed, if we regarded the dysfluencies of childhood as stuttering, virtually all children would be considered stutterers. Although there are exceptions, most studies show that, as a group, the parents of stutterers tend to be perfectionists and somewhat competitive; they are often dominating and overly anxious in relationships with their children.

Stuttering is a disease of childhood and predominantly of males (male to female ratio 4:1). Perhaps boys are forced into sterner competition, experience more frustration and insecurity, and are expected to be more outspoken and self-assertive than girls.

About 50-60% of stutterers know of a relative who stuttered as opposed to 15% of non-stutterers. This may not

indicate heredity. However, because these families may be "stuttering conscious" and anticipate it in their children.

### The Person Who Stutters

There is little evidence that definite physical or constitutional abnormalities are associated with stuttering. Although the developmental patterns are normal in stutterers, the proportion of only children among them seems high. Stutterers can be troubled somewhat more than normal children by shyness, thumbsucking, fears, enuresis, sensitivity, compulsive orderliness, excessive dependence, and other related problems. Repeated studies have shown neither evidence of psychological problems that indicate an organic basis nor consistent EEG abnormalities. There is also little evidence to support the view that the average stutterer is distinctly neurotic or severely maladjusted. There is no specific character structure or basic personality pattern typical of stutterers. If we look at personality patterns, we find an extreme overlapping between stutterers and non-stutterers. For instance, well adjusted stutterers are in far more satisfactory emotional health than poorly adjusted non-stutterers.

### The Moment of Stuttering

Although we have difficulty determining the causes of stuttering, there is information on the conditions which precipitate the moment of stuttering.

For most stutterers, the likelihood of blocking on a given word is strongly influenced by the beginning sound of the word. Secondly, most stuttering occurs on the four principal parts of speech — nouns, verbs, adjectives, and adverbs. Normally, stutterers have little difficulty with articles, prepositions, pronouns, conjunctions, and interjections. Thirdly, other things being equal, longer words are stuttered more frequently than shorter ones. Fourthly, there is appreciably more stuttering on the first word of a sentence. Although these factors seem to affect the place where stutterers have difficulty, a fifth factor is probably even more important. This is the memory of past difficulty at a given point in the speech sequence. Any cue reminding the stutterer that he has "blocked" at this point before, may provoke further stuttering. In most instances, the stutterer appears able to predict the occurrence of his blocks. Further, if he is told that he appears to have difficulty with certain nouns or words and is then given a paragraph containing them to read aloud, he will have great difficulty with them, even if he had none previously.

Stuttering seems to be more frequent when the responsibility for communication is greater. Thus, if you know what the stutterer wants to say, he will have less difficulty. But if he has to speak clearly on an idea so that you can understand it, his difficulty will be increased.

A stutterer's difficulty is governed to a great extent by the listener's reaction, or what the stutterer imagines it to be. If the listener reacts with impatience, embarrassment, pity or shock, the stuttering will increase. This is so even if the stutterer merely expects such reactions. Stuttering is also

increased by the need to make a favourable impression. A stutterer's speech will be worse if he is continually interrupted, but improved if he tends to speak in a singsong, whispering, or shouting situation.

It is of interest that stuttering is not increased by fear or anxiety alone; there are many accounts of wartime stutterers doing communication work during emergencies and bombing missions. Fear in such situations is related to another circumstance, not to speech, and, therefore, does not affect speech adversely.

Stuttering varies in response to suggestion. If the stutterer is convinced that he will have difficulty with certain speech patterns, he will. Also, if he is persuaded that he will speak normally, he will, but only for as long as the conviction remains strong.

Stuttering varies with changes in physical tension; most stutterers speak better in calm, relaxed surroundings. A few can avoid stuttering by voluntarily relaxing their muscles. If there is a prolonged period between the moment the stutterer knows he is going to speak, and his actual speech attempt, his stuttering will increase.

Two significant factors emerge: First, the greater the amount of punishment the speaker anticipates, the more he stutters; and second, stuttering varies with the speaker's expectation of stuttering.

### The Treatment of Stuttering

Although some forms of therapy date from antiquity, the treatment of stuttering is still variable and controversial. No method is entirely successful though several are in present use. Early therapy, based on the fact that anything distracting will improve the patient's stuttering, has been developed. Also, suggestion is used, but its benefits are temporary. Relaxation therapy trains the patient to relax during his speech, but ignores the fact that the real difficulty occurs under pressure and stress. Psychotherapy, used in various forms with inconsistent results, is at present worth pursuing, but not sufficiently effective to recommend widely.

Several forms of therapy resulted from the great interest in stuttering in Iowa, during the 1930's. The first was aimed at reducing the fear and avoidance of stuttering, while attempting to modify the stuttering pattern gradually. Another was voluntary stuttering to develop an objective attitude in the stutterer. He was taught to stutter voluntarily, and thus openly expose his problem. Techniques to stop the patient from avoiding stuttering were also used. Johnson believed it was possible for the stutterer to slow down, delay, and simplify stuttering reactions until they became essentially like normal noun dysfluencies. He felt that stutterers were prevented from talking normally by the very things they did to stop themselves stuttering. Other methods of "pulling out" stuttering blocks and getting rid of successful blocks were also used.

Certain principles are necessary in treating stuttering in children. First, the parent must be persuaded to refrain from criticizing, correcting, or helping the child in his attempt to

... speak, or from reacting to his difficulties in any way. Every opportunity should be taken to improve the parent-child relationship. Any factors or conditions which appear to be increasing speech hesitation should be eliminated, and finally, the child's anticipation of normal speech and faith in himself as a speaker must be strengthened. It is hoped that our present control study of haloperidol in the treatment of stuttering will provide further insight. □

#### Further Reading

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## Physician Self - Assessment

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The following questions have been submitted by the Division of Continuing Medical Education, Dalhousie University, and are reprinted from The American College of Physicians **Medical Knowledge Self-Assessment Test No. 1** with the permission of Dr. E. C. Rosenow, Executive Vice-President.

It is our hope that stimulated by these small samplings of self-assessment presented you will wish to purchase a full programme.

**DIRECTIONS:** Each of the questions or incomplete statements below is followed by five suggested answers or completions. Select the ONE that is BEST in each case.

A 19-year-old secretary complains of diarrhea of three to five stools per day, with increasing amounts of bright red blood for three weeks. The stools are usually small in amount. Mucus is often present. She also has had mild lower abdominal cramps, tenesmus and urgency. The patient's appetite has been poor, and she has lost three pounds. Prior to the onset of this illness, she tended toward constipation. There is no significant past or family history.

Hematocrit is 40%, leukocyte count is 9,600 per cu mm, with a normal differential.

50. Proctosigmoidoscopy might be useful in establishing a diagnosis. What is the best time to perform this examination?
- (a) after the diarrhea has subsided
  - (b) at the time of the physical examination
  - (c) after a thorough cleansing with a soapsuds enema
  - (d) the day of the barium enema after castor oil preparation
  - (e) as soon as a proctologist can spare the time.
51. If this patient proves to have non-specific ulcerative proctitis without involvement of the colon above the rectum, what are the chances that the disease will extend and involve the proximal colon during the next five years?
- (a) 80-100%
  - (b) 50-80%
  - (c) 20-50%
  - (d) 5-20%
  - (e) less than 5%

(Please turn to page 172 for answers) □

# Prevalence of *Enterobius vermicularis* in a population admitted to the Izaak Walton Killam Hospital for Children Halifax, Nova Scotia

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## Introduction

Human infestation with *Enterobius vermicularis* (pinworms) has been known since ancient times; *Enterobius* eggs have been found in 10,000 year old dried fecal specimens from caves in Western Utah<sup>1</sup>. Today the pinworm is the most common helminthic parasite of man in North America and Europe<sup>2</sup>. Reports of the prevalence of *Enterobius vermicularis* infestation during the past twenty-five years in various countries have ranged from 1% in Guam school children to a remarkable high of 100% in Amsterdam children<sup>3</sup>. Although most Canadian physicians, particularly pediatricians, realize that pinworm infestation is not uncommon, accurate information on the extent of its distribution in this country is scarce<sup>4 5 6 7</sup>.

The present study attempts to determine the prevalence of enterobiasis in a population of children admitted to the Izaak Walton Killam Hospital in Halifax during the summer of 1975.

## Materials and Methods

We examined 650(35.3%) patients between 3 months and 17 years of age from a total of 1,843 children admitted to the hospital between June 12th and August 15th, 1975. Using the adhesive cellulose-tape slide technique, the modified method used by Melvin and Brooke<sup>8</sup>, 1037 tests were performed.

Four hundred and one children were examined only once. Because a survey requires at least 3 tests/patient for a high rate of accuracy<sup>9</sup> 300 children were randomly selected for 3 examinations; if their initial tests were positive they were not re-examined. Because some were discharged after one or two days, only 249 children received a complete set of tests. The interval between tests was usually one or two days. We collected 1037 samples between 5:30 and 7:45 a.m., before the children were fed or bathed; these were interpreted the same day, by 35X microscope magnification. One drop of xylene (xylol) was placed between the tape and the glass slide before microscopic examination to eliminate refractile irregularities.

We examined 329 boys and 321 girls. To exclude those who had acquired infection from other patients, only children who had been in the hospital for 10 days or less were tested. (The reported time between ingestion of eggs and appearance of the female worm at the anus varies from 15 to 76 days<sup>10 11</sup>.) Of children tested, 84% were from Nova Scotia, 15% from the other Atlantic provinces, and 1% from other

parts of Canada and St. Pierre and Miquelon. Home addresses recorded for 501 children showed that 144 were from urban and 357 from rural areas. Only 18 non-caucasians were examined.

## Results

Table I shows that the overall prevalence of pinworm infection, based on a single examination, was 17.7%. Highest prevalence was among 8-10 year-olds; no infestation was found in 28 children from 3-24 months of age, and the youngest infected child was 25 months. Although prevalence was somewhat lower among boys than among girls, the difference was not significant.

There was considerably increased prevalence of enterobiasis in urban children. Based on a single test, 52 of 144 urban children (36%) had pinworm infection, whereas only 68 of 357 rural children (19%) were infected. The average ages in the two groups were 6.7 and 6.6 years respectively.

Because these prevalence figures are based on one examination per patient, they are almost certainly below the true rates. The results of three tests on 249 children are summarized in Figure 1. The cumulative increase apparent here indicates that if all children in the study had been examined 3 times, 46.8% more positives would have been discovered.

## Discussion

Reports show that the prevalence of enterobiasis in children varies from 1% (Guam) to 100% (Amsterdam)<sup>3</sup>. In the United States alone, prevalence ranges from 14%<sup>12</sup> to 96.3%<sup>13</sup>. Recent prevalence studies in other countries, however, have shown results similar to ours. Kan *et al.*<sup>14</sup> in 1971 reported that 21% of 417 patients admitted to a ward in the Pediatric Unit in Singapore were infected. Gibbs<sup>15</sup>, in 1966 found 23.1% of 307 children in Easter Island to be infested.

To our knowledge, only four investigators have recorded results of prevalence studies of infestation with *Enterobius vermicularis* in Canadian children in the past 35 years. Their studies showed prevalence rates of 48.6 and 60% in Toronto<sup>4</sup>, 33% in Quebec<sup>5</sup>, 23.2% (including children and adults) in the northwest Territories<sup>6</sup>, and 24% (based on examination of 100 children) in Newfoundland<sup>7</sup>.

Comparison of different prevalence studies is complicated by many factors: children are infested more commonly than adults, white children more than black, school age children more than preschool, urban children more than rural, and

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Table I

Prevalence of *Enterobius vermicularis* by age and sex ( based on a single examination)

Years of Age	BOYS			GIRLS			Total % Infected
	Number Examined	Number Infected	% Infected	Number Examined	Number Infected	% Infected	
2	16	0	0	12	0	0	0
2-3	53	4	7.5	50	8	16.0	11.6
4-5	67	12	17.9	58	12	20.7	19.2
6-7	48	12	25	40	12	30.0	27.3
8-9	36	10	27.8	37	12	32.4	30.1
10-11	43	8	18.6	38	9	23.7	21.0
12-13	41	4	9.8	51	5	9.8	9.8
14-17	25	3	12	35	4	11.4	11.6
TOTAL	329	53	16.1	321	62	19.3	17.7

children from low income groups more than those from high income groups<sup>10,16</sup>. Such factors may cause the wide variations in reported prevalence rates.

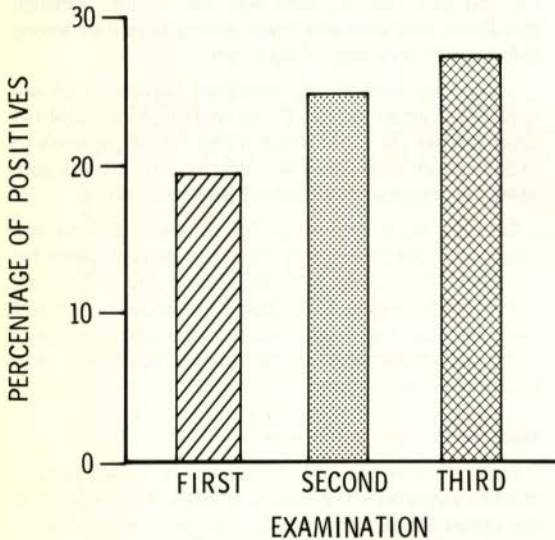


Figure 1

Cumulative increase in percentage of positives shown by subsequent examinations

Although our prevalence rates appear lower than those in some Canadian studies, they are comparable when certain differences in sample population and diagnostic methods are considered. For example, the high Toronto rate<sup>4</sup> is based on an average of six examinations per patient, all of whom were urban children. The Quebec survey<sup>5</sup> included only school age children and our general prevalence rate of 26.0% for the same age group is comparable to theirs of 33%. (Both results quoted are based on a single examination.)

Our youngest infected child was a 25 month old girl, whereas the youngest case of pinworm infection reported was a 5 week old infant<sup>17</sup>. Most prevalence studies are on school age children only, but Bumbalo *et al.*<sup>18</sup> in a study of

1,145 Buffalo children of all ages, reported that the youngest infested child was 18 months old. Low prevalence rates have been reported among the under 2 year-olds,<sup>12,14</sup> but Kuitunen — Ekbaum<sup>4</sup>, reported a 42% prevalence in this age group in Toronto. Our finding of no positives in these children is probably explained by the low numbers examined (28 children) and the lack of repeat tests for many.

As stated earlier, the difference in prevalence rates between urban and rural children has been noted by several researchers, the most recent being Parekh<sup>19</sup>, who in 1972, reported rates of 21.9 and 8.2% for urban and rural children respectively in India.

Figure 1 shows the consistent increase in rate of detection when additional examinations are made. Three tests were 46.8% more effective than one in diagnosis. Although our finding is based on relatively few patients, it is supported by Sadun and Melvin<sup>9</sup>, who reported that a single slide test revealed about 55% of actual infestations; 6 tests approach 100% detection. If our figure of 46.8% is applied to our minimum prevalence rate of 17.7%, we find that, on the basis of 3 examinations, the general prevalence of enterobiasis is closer to 31.4% and, in fact, would probably be even higher if 6 to 7 examinations had been made. However, time limitations and rapid patient turnover prevented giving additional examinations to all children.

Many physicians apparently view the pinworm infestation problem with indifference, and impress on parents the idea that it is unimportant and only of nuisance value. Although the symptoms are usually mild, even absent, about 25% of the infested children show symptoms severe enough to warrant definite diagnosis and treatment<sup>18</sup>, and the infection may cause severe morbidity and even death. Bijlmer<sup>20</sup>, in 1946, reported a death from pinworm invasion of the intestinal wall. Miller and Ginsberg<sup>21</sup>, in 1948 reported a case of chronic inflammatory intestinal obstruction due to *Enterobius vermicularis*.

Many reports in the literature consider the possible causal relationship between appendicitis and pinworm infestations<sup>7,22,23</sup>. Recent reports state that *Enterobius vermicularis* in ectopic locations can cause granulomas in various organs<sup>24,25</sup>.

Of considerable importance are recent studies<sup>7,26</sup>, indicating that enterobiasis is often an important etiological factor in urinary tract infection in young girls. It is believed that the female pinworm is able to migrate from the rectum to the female urethra, carrying *Escherichia coli* contamination into the urinary bladder<sup>26</sup>.

### Summary

The prevalence of enterobiasis among a population of patients admitted to a children's hospital was analyzed by age, sex, and place of residence. We examined 650 children (84% from Nova Scotia, 15% from the other Atlantic provinces) and performed 1037 tests.

Based on a single examination, 115 children (17.7%), had positive tests for the presence of *Enterobius vermicularis*. The greatest prevalence was shown by 8-10 year olds, followed closely by 6-8 year olds. No children under 2 years of age were infested. We found no real difference in infestation rates between boys and girls. However, we did find markedly higher prevalence in urban (36%) than in rural (19%) children.

To estimate the number of undetected positives in a single sample, we gave up to three tests to 249 children. With 3 tests 46.8% more positives were discovered, indicating a higher general prevalence rate. We estimate that a minimum of 27.0% of all children tested had enterobiasis.

Our findings are significant in the light of recent evidence that *Enterobius vermicularis* is important in the etiology of urinary tract infection and several other disorders in young girls. □

### Addendum

Dr. Krause, Pathologist at the Izaak Walton Killam Hospital for Children in Halifax in a review of appendectomies, reported pinworm infestation in 6.2% of 135 cases in 1974 and 7% of 100 cases from January 1 to September 20, 1975 (personal communication).

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### PHYSICIAN AVAILABLE

McGill Graduate — 1972 — with 2½ years experience as General Practitioner available for locum work.

Contact:

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c/o The Nova Scotia Medical Bulletin

## Some Pictorial Highlights of the 122nd. Annual Meeting



Dr. L. C. Grisdale, right, President of The Canadian Medical Association installs the new President of The Medical Society of Nova Scotia, Dr. T. J. McKeough during closing ceremonies at the 122nd Annual Meeting.



Past President, Dr. J. A. George, right, presenting a token of appreciation to Mrs. D. B. O'Brien, wife of the outgoing President while Dr. T. J. McKeough looks on.



Incoming President, Dr. T. J. MacKeough pins the Past President's pin on Dr. Brian O'Brien, outgoing President during the annual banquet at the 122nd Annual Meeting.



President Elect, Dr. William Mason, a Halifax radiologist, expressing his appreciation and his commitment to the Medical Society during the 122nd Annual Meeting closing banquet.

THE MEDICAL SOCIETY OF NOVA SCOTIA

PROCEEDINGS OF

11th MEETING OF COUNCIL

AND

122nd ANNUAL MEETING

NOVEMBER 20-21, 1975

**INTRODUCTION:** The 11th Meeting of Council began as the Medical Society Officers accompanied by Dr. Lloyd C. Grisdale, President of The Canadian Medical Association, paraded through Council Chambers to the head table. Following call to order by Dr. J. F. Hamm, Chairman of the Executive Committee and General Council, the Officers were introduced and Dr. Grisdale brought greetings from the Canadian Medical Association. Dr. Grisdale wished Council well in its deliberations and indicated he would be available to participate in the meeting as required.

Dr. Hamm welcomed the Exhibitors and recognized their contribution to the Annual Meeting. He encouraged Council members to visit the displays and discuss the products and services with the representatives. Dr. Hamm extended the Medical Society's invitation to the representatives to attend the Thursday Luncheon and Friday Banquet and Ball.

Council business began as Mr. D. D. Peacocke, Executive Secretary, read the names of Society members deceased since November 21, 1974 as follows: Dr. David MacD. Archibald, Waterloo, Ontario; Dr. Charles J. W. Beckwith, Halifax; Dr. Alexander Lindsay, Kentville; Dr. John W. MacIntosh, Halifax; Dr. Ian Earl MacKay, Stellarton; Dr. Alexander J. Murchison, Halifax; Dr. James W. Reid, Halifax; Dr. T. M. Sieniewicz, Halifax; Dr. Garnett W. Turner, Windsor; Dr. Herbert B. Whitman, Westville. Council observed a period of silence in tribute to the memory of these members.

The Transactions of the 10th Meeting of Council and the 121st Annual Meeting (1974) as printed in the December 1974 issue of the Nova Scotia Medical Bulletin were approved.

**BY-LAWS COMMITTEE REPORT** — Dr. J. H. Quigley presented Society By-Law changes as set out in the October 1975 issue of the Nova Scotia Medical Bulletin. He pointed out that the principal policy changes proposed were:

- (a) Branch Society membership and Society membership would no longer be dependent upon membership in the other organization, with the exception that Branch or Society Officers would have to be members of the other organization,
- (b) The Nominating Committee membership would be increased to correspond with the Society Executive Committee,
- (c) Public disclosure of the Nominating Committee report well in advance of the Annual Meeting would be required,
- (d) Extensive updating of the Terms of Reference for the Executive Secretary, and
- (e) Adoption of Rules and Regulations to the By-Laws.

The proposed changes were approved after lengthy discussion, such approval contingent upon Government approval. Dr. Quigley observed that as a result of the extensive review of the changes, a number of editorial changes were still required. His suggestion that the Officers be authorized to do this was agreed to.

**CHILD HEALTH COMMITTEE, COMMUNITY HEALTH COMMITTEE, SECTION FOR GENERAL PRACTICE REPORTS** — Each of these Reports to Council dealt with the issue of immunization. Criticism was leveled at the efficacy of the programs, the record keeping system, and unequal availability of free vaccine.

Council approved Dr. Lynk's recommendations that her Community Health Committee be empowered to investigate ways and means of establishing proper immunization to all Nova Scotia children and control and recording of same, and Dr. Churchill's Committee recommendation that specific measures be taken in every community and region of Nova Scotia to ensure that all children receive full immunization against Diphtheria, Pertussis, Tetanus, Polio, Rubeola, Rubella and Mumps. Dr. Colford of the Department of Public Health explained what action is being taken and contemplated by his Department. He informed the meeting that Dr. Churchill is the Medical Society representative on his Department's Committee on Communicable Disease Control, noting that the Committee is very active and expects to make significant recommendations in the near future.

Additional recommendations were passed by Council relating to availability of M.M.R. Vaccine and attachment of compulsion to pre-school immunization. Dr. John MacDonald, speaking for the Section for General Practice, brought forward the Section's concern over the potential existing for epidemics of Measles, Rubella, and even Polio.

The aforementioned committees and section will of necessity have to co-ordinate closely and actively in the months ahead to ensure that a viable and acceptable immunization policy is adopted in Nova Scotia.

**DISCIPLINE COMMITTEE** — Dr. O'Brien reported that this committee had not been required to deal with any problems during the year. He noted that discipline of the profession is a matter for the Provincial Medical Board. When complaints received by the Society indicate that disciplinary action might result they are forwarded to the Provincial Medical Board for consideration.

**DRUG & ALCOHOL ABUSE COMMITTEE** — Dr. Cy Bugden reported that the abuse of alcohol is reaching epidemic proportions and that appropriate facilities to effect treatment are far below requirements. As well, his committee suggested that physicians should receive considerably more training on this subject in medical school. His recommendations that the Society make efforts to gain an increase in beds available in Detox units where required, that members increase their participation in providing Detox services, and that the Faculty of Medicine increase its curriculum emphasis on the problems of alcoholism were approved.

**EDITORIAL BOARD** — Dr. Buhr reported that the Board continues to plan and produce a publication concerned with continuing medical education, medical communication, enhancement of unity within the medical profession, and development of a healthy relationship between physicians in the community. His report included the recommendation that "if the present format of the Bulletin is acceptable then the continued cost of production be underwritten by the Society"; this was referred to the Executive Committee.

**ETHICS COMMITTEE** — Dr. Murphy, in pointing to the problem of physicians conveying the impression they are specialists, gained approval of a recommendation that no member should use a specialty designation or hold himself out to the public as a specialist unless he is certified in the



specialty by the Royal College of Physicians and Surgeons of Canada, the College of Family Physicians of Canada, or registered as specialists by the Provincial Medical Board.

**FINANCE COMMITTEE** — Dr. Pace tabled the Auditor's Report for Fiscal Year 1975 ending September 30, 1975. The budget for 1976 was reviewed, along with the Statements, and approved. Council received with pleasure the recommendation that there be no membership dues increase for Fiscal Year 1977.

In recognition of the contribution of Society Presidents to the effective operation of the Society, it was approved that an annual stipend of \$5,000. be made to the President, such stipend to commence in Fiscal Year 1976.

**LEGISLATION COMMITTEE** — Dr. Dunsworth's report expressed the view that a number of the resolutions passed at 1975 C.M.A. General Council were confusing and contradictory. His recommendation that the Executive Committee of The Medical Society of Nova Scotia review resolutions arising from the 1975 General Council and attempt to clarify ambiguities and discrepancies and communicate its deliberations to the membership through appropriate channels was approved.

**MATERNAL & PERINATAL HEALTH COMMITTEE** — Dr. Doug Cudmore, newly elected chairman of the committee, provided Council with a comprehensive report on his committee's activities. Principally this has been the compilation of perinatal mortality data in the Province by hospital, health region, and Branch Medical Societies. This information has been provided to appropriate persons and organizations on an ongoing basis. He also reported that the committee has been involved in the planning and direction of the Reproductive Care Program in Nova Scotia. This Program has been widely acclaimed throughout North America, having been presented at a number of important medical conferences.

Dr. Cudmore pointed with regret to the fact that Dr. Hebb's Fetal Risk Project had been ended prematurely due to lack of government funding. This program had also gained wide recognition throughout North America. He added that his committee and the Reproductive Care Program will continue to pursue as many of the Fetal Risk Project objectives as possible. He informed Council that the Perinatal Record Form previously distributed through the Fetal Risk Project would now be distributed free of charge through the Reproductive Care Program.

His recommendations that the committee continue to function in its present capacity and that the Society continue to endorse and participate in the Reproductive Care Program were approved.

**MEDIATION COMMITTEE** — Dr. O'Brien reported that there had been considerable activity during the past year in relation to mediation of disputes. He expressed his appreciation to Section Chairmen and Branch Presidents for their important co-operation in resolving these complaints. Pointing to the increased activity of the Provincial Medical Board, Dr. Dunsworth gained adoption of his motion that the Provincial Medical Board, be commended for their excellent, comprehensive report for 1974.

**MEDICAL EDUCATION COMMITTEE** — Dr. Doug Henshaw informed Council that subsequent to his recent appointment as Chairman his committee has only just examined the problems which would provide the basis for setting objectives for the years ahead. He reported these objectives as being 1) continued liaison with the Continuing Medical Education Division to provide (a) input from physicians regarding courses, (b) evaluation of current programs, and (c) suggestions for future programs; 2) consolidation of the information disseminated — particularly in the hospital programs; and 3) exploration of means to provide more complete coverage in CME programs. His report was adopted for information.

Discussion then moved to the subject of the requirement for a two-year internship as had been recommended recently to the Federation of Provincial Medical Licensing Authorities. **There was general disagreement with such a proposal because of the absence of evidence to indicate that additional training was required for physicians entering practice.** It was the consensus of the meeting that there should be maintained an ongoing watch on this issue to ensure that any changes in licensing requirements are made only when justified. It was observed that the C.M.A.'s Council on Medical Education is undertaking intensive study of this subject. Dr. Byron Reid informed Council that the C.M.A. Council on Medical Education has struck a committee to consider undergraduate clinical curriculum and preregistration requirements. This will ensure that the next time the subject is considered by the Federation, the Canadian Medical Association will be in an informed position and better able to

provide its representatives to any committees on this subject with clear direction. Council passed a resolution directing the Executive Committee of the Medical Society to refer all matters relating to or studies concerning the duration and content of medical training (including internship) to an appropriate committee of the Society.

**MEDICAL RELIGIOUS LIAISON COMMITTEE** — Dr. Don Brown informed Council that his committee had been concerned with determining ways and means of creating a proper climate for communication between physicians and clergymen. The purpose of this is to improve care and treatment of patients. Members are encouraged to contact his committee for information or discussions on this particular subject.

**MEMBERSHIP SERVICES COMMITTEE** — Dr. Vair reported that this committee had been active during the past year, concerning itself with membership development and improvements to the insurance program. His report announced an increase of thirty in the number of Society regular members. He also reported that the participation in the Insurance Program continues to grow.

**He announced that the maximum term life insurance available through the plan has been increased from \$125,000. to \$200,000.** As well, an agreement has been negotiated to provide a partial disability rider to our existing plan. Dr. Vair's report also included accounting for the year's financial activities of the insurance programs.

**NUTRITION COMMITTEE** — Dr. J. T. Hindmarsh encouraged the membership to increase its interest in nutrition. His report recommended increased use of the Bulletin for publication of articles on nutritional topics.

**PAP SMEAR COMMITTEE** — Dr. R. C. Fraser's report referred to the difficulties encountered in gaining government agreement and funds for the establishment and implementation of a functioning Central Cytology Registry for Nova Scotia. He also reported that the revised Pap Smear Form would be introduced within the next several months. His recommendation that the Pap Smear Committee serve as a direct liaison between the Society and the Registry (once formed) was referred to the Executive Committee for consideration.

**PHARMACY COMMITTEE REPORT** — Dr. A. D. MacKeen reported on his attendance at a conference in Ottawa arranged to consider the development of a Canadian Drug Formulary System. The Conference established a Steering Committee with membership from Provincial health authorities and Provincial health associations. The Steering Committee's function was to develop a list of drugs of specified criteria for inclusion in a Canadian Drug Formulary which would serve as a guide towards rational drug therapy by individual physicians and would be used in provincial drug programs. It transpired that the Steering Committee was heavily biased with representation from government and the motives of government became clear. Following strong letters of protest from C.M.A. and the O.M.A. regarding the representation on the committee and the limited objective of merely making a list of drugs to be used in health programs, the Steering Committee appears to have gone into limbo.

Dr. MacKeen reported on continuing satisfactory discussions with the Nova Scotia Pharmaceutical Society on a variety of subjects. His recommendation that his committee continue as the Society representative at the Interprofessional committee meetings was approved.

Dr. MacKeen's report included Recommended Guidelines for Dispensing Physicians. It was pointed out that the Guidelines would be applicable to all members of the medical profession who found it necessary to dispense drugs and not just those physicians who dispensed for purposes of Pharmacare. It was also observed that this did not alter the Medical Society policy with respect to physicians dispensing of drugs and adoption of the Guidelines was not designed to encourage this practice.

Dr. MacKeen's recommendation that the Guidelines for dispensing physicians be accepted in principle was approved following clarification of the term "in principle", the Chairman having explained that as certain editorial changes have already been identified as being necessary, approval in principle would permit this. The Guidelines as amended by the Executive Committee now represent official Society policy.

**PHYSICAL FITNESS COMMITTEE** — Dr. Merv Shaw reported that the purpose of his committee is to increase the awareness and participation of both the medical profession and the general public in physical fitness. During the year he said his committee surveyed Society members regarding their interest in physical fitness, and also undertook "BODY-

CHECK". Not unexpectedly, he reported considerable room for improvement in physical fitness within the medical profession. Dr. Shaw also put out a request to Branches for greater participation in his committee work.

**PRESIDENTS' LIAISON COMMITTEE** — Dr. O'Brien in tabling his report pointed to a particularly busy year. Contacts with Government, the Commission and other organizations were frequent. He observed that it was becoming more and more apparent that the Medical Society is the true representative of the medical profession in Nova Scotia. Increasingly, the Society is being asked to represent its members and member organizations.

Dr. O'Brien referred to the difficulties that had been encountered late last year with regard to negotiations on behalf of the Internes and Residents. However, he pointed out that the differences appeared to be resolved and he expected that future negotiations will be more productive and less time-consuming.

Dr. O'Brien informed Council that considerable effort had been given to consideration of Bill C-68 which was a Federal Bill amending the Medical Care Insurance Act for the purpose of limiting the extent to which the Federal Government would contribute to Medicare costs of the provinces. Also receiving attention was Bill C-73, the Anti-inflation Legislation. He stated that both Nova Scotia and the Canadian Medical Association have given qualified support to this Federal action on the proviso that the medical profession is to be treated fairly. He indicated the Society would not countenance another episode like that of 1970-71 when the medical profession was the only group in Canada which took action to counter inflation. In concluding his remarks Dr. O'Brien expressed his deep appreciation to the Officers and Branch Representatives for their support during the past year.

**PUBLIC RELATIONS COMMITTEE** — Dr. Willoughby's report described in detail the multitude of activities in which his committee and public relations counsel had been involved during the past year. He observed that the principal thrust of the Public Relations Committee has been to maintain and, wherever possible, improve relations and communications with various Government department officials. He expressed the belief that his committee and counsel had been singularly successful in this respect during the past year.

**REHABILITATION COMMITTEE** — Dr. Shears reported on the problem of the shortage of personnel required to carry out physical treatment and retraining of patients. He also observed that the Dalhousie University plan to upgrade the physiotherapist program to a four year degree program would contribute to the shortage. His recommendation that the Society seek approval for payment of larger numbers of aides in physiotherapy departments was approved; however, his committee's proposal that there be adopted a "C.N.A. type program to train remedial gymnasts" was defeated.

**SALARIED PHYSICIANS** — Dr. MacAulay reported that his committee began the year with representation from General Practice, Surgery, Medicine, Psychiatry, Radiotherapy, Ophthalmology, Preventive Medicine, Pathology, and Administrative Physicians, who had been nominated by their Sections. It was agreed the committee would serve to advise salaried physician groups who were preparing for negotiations regarding terms of employment. He stated that his committee had provided extensive assistance to the Internes and Residents and although the negotiations were difficult and protracted, success was achieved. He went on to point out that all other member groups decided to go it alone with their negotiations with Government. Three specific groups were given information regarding negotiation details for their own private negotiations. Dr. MacAulay then observed that none of the other groups had been successful, and should take note of the success the Society had enjoyed in its negotiations. In relation to this point Council approved his recommendation that all specialty Sections indicate their desire to have the Society be the negotiating agent for all salaried physicians.

It was the consensus of Council that the Medical Society required more authority in relation to representing all physicians in the province. The committee recommendation that the Medical Society seek certification under the Trade Union Act or otherwise be recognized as the official representative of all salaried physicians in the Province was received and subsequently referred to the Officers for discussion. This decision came as a result of a reminder that the Officers had been discussing this subject fairly extensively with Government.

Dr. MacAulay's report also dealt with the subject of administration within the hospital system in Nova Scotia. The recommendation that the Society take a more active role in advising the Government regarding management practices that require modernization to meet present health care system needs was referred to the Officers for further study. The point was made that in most instances hospitals in Nova Scotia do not receive budgetary approvals until their operation is sometimes into the new year by six months. Dr. McKeough explained how this comes about — i.e. the hospital fiscal year is a calendar year whereas the Commission fiscal year is from April 1, and quite often the health budget is not approved until sometime after this date. It was therefore resolved that the Society point out to Government that the Commission budgetary and accounting system which does not establish annual budgets until six months of the budgetary period has passed is not consistent with modern management needs for program planning, budgeting and control.

**WORKMEN'S COMPENSATION BOARD LIAISON COMMITTEE** — Dr. Shears' report dealt with the subject of on the job rehabilitation as well as the difficulties related to determination of the degree of disability of patients. His committee recommendations were referred to the Officers for consideration.

**REPORT OF REPRESENTATIVE TO C.M.A. BOARD OF DIRECTORS** —

Dr. Mason reported that the C.M.A. had presented a brief to the Senate Committee considering legislation relating to Marijuana. The points made were that there were definite health hazards accompanying the use of cannabis and the public of Canada should be clearly advised against its use, and secondly, that the simple possession of small quantities of Marijuana not be considered a criminal offense. Arising out of discussion was approval of the following resolution: "WHEREAS The Medical Society of Nova Scotia and the C.M.A. on numerous occasions have continued to stress the definite health hazards which accompany the use of cannabis BE IT RESOLVED THAT the Medical Society of Nova Scotia reaffirm its strong and unmistakable stand concerning the medical-psychological dangers of cannabis usage and any impression to the contrary are erroneous and BE IT FURTHER RESOLVED THAT full publicity be given to this statement."

Dr. Mason then reported that National Health and Welfare was in the process of developing guidelines for diagnosis and treatment of various illnesses. On invitation C.M.A. representatives attended the early meetings. The view was expressed that establishment of guidelines which might either now or in the future be rigidly adhered to would be restrictive, inflexible, and inoperable. They would also work a severe handicap in many other areas. Therefore the C.M.A. withdrew its involvement. Lengthy discussion made it clear that specific guidelines as being proposed on a national basis could have serious effects. Assessment on a national average failed to recognize the differences between provinces, areas, communities, and even individuals. Council agreed that monitoring of standards of quality of care and adoption of standards must be done on a local basis. It was reported that the Division of Continuing Medical Education had done considerable work in this respect and was prepared to consider its proposals with the Medical Society. Council approved a statement that the Medical Society of Nova Scotia believes that development of national guidelines in the diagnosis and treatment of various illnesses is not the proper way to ensure quality care. Patient care appraisal at the local hospital level has been shown to be a very effective way to improve quality of care.

Dr. Mason reported that C.M.A. was continuing to seek tax relief for physicians attending postgraduate medical courses. The meeting heard a report that if the C.M.A. test case was won, Government would pass legislation to close the existing loop hole, and that Government suggested that the tuition fee include maintenance expenses and this would be acceptable. A contradictory report was also received. Mr. Geekie agreed to clarify the point on his return to Ottawa and provide appropriate direction to organizations conducting continuing medical education courses.

**REPORT OF REPRESENTATIVE TO C.M.A. COUNCIL ON COMMUNITY HEALTH** —

Dr. Murdock Smith provided Council with a comprehensive report on the wide range of subjects under consideration at C.M.A. level. Topics being considered and to be considered by his Council include nutrition, emergency medical services, abortion, physician health, family planning, and female physician dropout.

**REPORT OF REPRESENTATIVE TO C.M.A. COUNCIL ON MEDICAL ECONOMICS** —

Dr. Dave Andrews reported on C.M.A. activities in the fields of economics, pointing to the wide range of subjects being

considered. These include medical systems research, survey research (concern with life time earnings, physicians' earnings, physicians' comparative fees, etc.), and physicians' remuneration. He informed Council that he served on the subcommittee for physician remuneration.

**REPORT OF REPRESENTATIVE TO C.M.A. COUNCIL ON MEDICAL EDUCATION** — Dr. Byron Reid reported on the extensive involvement of his Council in the matter of physician licensure and qualifications for same. (See Medical Education Committee Report). He also reported that his Council continues to be deeply involved in the evaluation of physician preregistration programs as well as training programs for lab, x-ray, and respiratory technicians. Dr. Reid reported that he is a member of the Council's subcommittee studying the matter of duration of preregistration training programs.

**REPORT OF REPRESENTATIVE TO C.M.A. COUNCIL ON MEDICAL SERVICES** — Dr. Henry Bland reported that his Council had studied a variety of problems including payment for indirect services performed by physicians, manpower, the role of the primary care physician, a drug advisory service and practice accreditation. With respect to this last item he referred to his report's reference to Professional Standards Review Organizations in the States and the action by the Province of Quebec in hiring physicians to act as inspectors of practices. Dr. Bland rang the bell on this particular point, warning the Society to be especially concerned and aware of what was taking place. Reference was made to previous discussion of the Federal Government guidelines project. The necessity for active Society and member involvement in its own peer review was recognized by Council.

**M. D. MANAGEMENT LIMITED** — Dr. George Sapp reported on the performance of the various C.M.A. Funds and provided evidence that Society members should take advantage of the superior programs offered through C.M.A. He reminded Council of the excellent Audio-Visual presentation on Estate Planning that has been developed by M.D. Management Ltd. Comments from the floor indicated a high level of satisfaction with the presentation.

**REPORT OF REPRESENTATIVE ON HEALTH COUNCIL HEALTH PROFESSIONALS LICENSING COMMITTEE** — Dr. Dunsworth reported that this committee was not progressing with its assignment as rapidly as he had anticipated. The committee was originally struck to review current developments in health professionals licensing, review legislation respecting licensing for control of health professionals, define a health professional and comment upon the establishment of a health professionals board of professional associations. He reported that the committee had met with the various organizations involved but had not yet been able to reach final conclusions on the subject.

**MARITIME MEDICAL CARE INC. ANNUAL REPORT** — Dr. Burden's report paid special attention to the relationship between the Corporation and the Medical Society. He reported that the Corporation is still very much a private non-profit prepaid health insurance plan and, contrary to wide belief was not taken over by the Government with the advent of Medicare. Maritime Medical Care continues to operate a viable private business with its Board predominantly medical doctors appointed by the Medical Society in conjunction with the Branches. His report made frequent references to the close co-operation between the Medical Society and M.M.C. and gave specific examples of the various joint committees which function in administrative support of Medicare. He concluded with comment on the excellent relations between the Commission and the Corporation, noting that the President of M.M.C. attends Commission meetings as an observer.

**MEDICAL ADVISORY COMMITTEE ON DRIVER LICENSING** — Drs. Giffin and Heffernan reported that this committee which is a committee of the Department of Highways deals principally with the subject of special problems relating to driver licensing. This report provided Council with a summation of the type of problems they deal with and the increasing activity of the committee. The report commented on the recent amendments to the Motor Vehicle Act, one of which made provision for physicians to report unsafe drivers without fear of legal action. He noted that the committee is recommending to the Department that forms be prepared for doctors' use in reporting on patients considered unsafe to operate a motor vehicle. In response to a question as to whether or not the five-year loss of license for third or subsequent conviction of impaired driving had been changed to life, Mr. Geekie of C.M.A. reported that this had been recommended to the

Attorney General by the Province of Ontario and is under "active consideration".

**REPORT OF REPRESENTATIVE ON NOVA SCOTIA HEALTH COUNCIL** — In Dr. Woodbury's absence Dr. C. B. Stewart presented the report. The report included reference to the establishment of the Regional Health Council but noted that the Minister had not yet made all the appointments to it. Reference was also made to the Camp Hill issue with the observations that all discussions to date had been of a very nebulous nature and generally unofficial. Dr. Woodbury's report expressed concern over failure to provide beds for extended care. This has added to the congestion at the Victoria General Hospital and has been a road block in its effort to provide tertiary medical care.

**REPORT OF REPRESENTATIVE TO MEDICAL ADVISORY BOARD — N.S. T.B. & R.D. ASSOCIATION** — Dr. Misener's report provided Council with a comprehensive resume of the wide range of activities of both the organization and the Medical Advisory Board. He reported that the Association is reassessing its programs in the area of education and respiratory diseases and expects significant changes in this regard.

**REPORT OF REPRESENTATIVE TO NOVA SCOTIA HIGHWAY SAFETY COUNCIL** — Dr. Lawrence in his report noted that the organization has changed its name to "The Nova Scotia Safety Council" since its areas of concern are far broader than just highway problems. His report observed that road accidents continue to increase and that alcohol remains a predominant factor in traffic crashes. He reported that the Council's continuing pressure for introduction of control measures appears to be effective as tougher measures relating to seatbelts, air surveillance, breathalyzer and safety inspections are introduced.

Council approved a resolution "WHEREAS the carnage on our highways is to be deplored and WHEREAS it has been shown that the use of seatbelts reduces injury and mortality and WHEREAS the Government of Nova Scotia has passed legislation to make seatbelt use compulsory, BE IT RESOLVED THAT the Medical Society of Nova Scotia support this legislation and urge the Government to enact this law as soon as possible." Dr. O'Brien informed Council that over the past year the Medical Society had in fact communicated and discussed this matter with the Premier urging his Government's adoption of the seatbelt legislation.

**REPORT OF REPRESENTATIVES TO PHARMACY REVIEW COMMITTEE** — Dr. Ian MacGregor and Dr. Leslie Slipp represent the Medical Society on this Commission Committee. They reported to Council the nature of the problems dealt with by the committee. These include appointment of authorized providers of drugs, both physicians and nursing homes, development of standards for authorized providers, benefit additions, standards for community pharmacies supplying nursing homes, a drug formula and quantity limitations on prescriptions. They reported their committee had been very active and had been effective particularly in relation to benefit additions.

**REPORT OF REPRESENTATIVES TO PROVINCIAL MEDICAL BOARD'S REHABILITATION COUNCIL** — Drs. D. K. Murray and H. J. Bland reported that the committee of the Board and Society continues to provide rehabilitation services for physicians. The committee is optimistic and believes that on a long term basis it will be effective in rehabilitating physicians with special problems.

**RH COMMITTEE REPORT** — Dr. R. S. Grant provided Council with a detailed resume of his committee's activities over the past year in terms of service prevention, and education. His report, not presented at Council, contained five recommendations which were referred to the Executive Committee for further consideration.

**REPORT OF REPRESENTATIVE TO UNEMPLOYMENT INSURANCE COMMISSION** — Dr. R. L. Brown informed Council that the Unemployment Insurance Commission has established an Advisory Board in Metro. It is representative of a wide range of organizations. The objective of the Board is to conduct ongoing review of the Unemployment Insurance Act and review problems in relation to the Act for the purpose of suggesting amendments which might be of benefit to society as a whole.

**REPORT OF REPRESENTATIVE TO VICTORIAN ORDER OF NURSES** — Dr. W. F. Verge's report was presented on his behalf by Dr. R. W. Beazley. The report included reference to the activities of the V.O.N. and the difficulties they are experiencing as a result of inadequate funding.

Following strong expressions of support of the V.O.N. per se, as well as the philosophy of a home care program for Nova Scotia Council approved two recommendations — i.e. THAT the Society continue to support the V.O.N. in their request to Government for financing, and THAT the Society continue to support a V.O.N. co-ordinated home care program as set out in their brief to the Minister of Public Health.

**REPORT OF CHAIRMAN OF THE EXECUTIVE COMMITTEE** — Dr. Hamm reported that the Executive Committee had held six meetings during the year. In addition to its role of conducting the business of the Society between Annual Meetings, the Executive Committee has reviewed reports from C.M.A. Council representatives at each of its meetings in an attempt to keep the Society in closer touch with C.M.A. As well, the Executive Committee at each of its meetings had reviewed the actions of the Officers taken at their bi-monthly meetings. The Minutes of the Executive Committee and Officers' Meetings have been widely circulated and President's Newsletters have been issued to keep members fully informed. Dr. Hamm then reviewed the principal actions taken on behalf of the Society during the year. Council endorsed the actions of the Executive Committee taken during 1975.

**SECTION FOR ANAESTHESIA** — Dr. Rushton's report informed Council that his Section had adopted a proposed "Anaesthetic Guidelines for Nova Scotia". These Guidelines were developed within the Commission Clinical Advisory Committee on Anaesthesia. Among other things, the Guidelines include a recommendation that a one year training period in anaesthesia be a minimal requirement for the practice of anaesthesia in Nova Scotia.

**SECTION FOR GENERAL PRACTICE** — Dr. John MacDonald's report dealt principally with the subjects of Peer Review and Immunization. With respect to the latter see Report on Child Health and Community Health. Council approved his recommendation that Peer Review emphasize the quality of care rendered by physicians and leave for paying agencies the investigation of fraudulent practices. It is noted that adoption of this recommendation served to reaffirm Medical Society policy on Peer Review, a statement of which begins with "Peer Review is a process of evaluation and analysis of the quality of medical care by designated physicians. Peer Review is a constructive process, not a punitive one."

**SECTION FOR OPHTHALMOLOGY & OTOLARYNGOLOGY** — Dr. Fort's report drew particular attention to the shortage of fully trained specialists outside Halifax. He stated that the Section and the University Department are anxious to encourage the interest of family physicians and are willing to accept applicants in any of the teaching hospitals. Interested persons may make arrangements through the Department of Continuing Medical Education or the Head of the University Department.

**SECTION FOR PATHOLOGY** — Dr. A. Wotherspoon reported on behalf of Dr. R. B. Abel, expressing concern in a number of areas, particularly unilateral decisions of the Commission relating to payment of tests. Also expressed was concern regarding adoption of their revised Fee Schedule. Three resolutions reading as follows were referred to the Officers for attention.

1. "THAT the Medical Society, on behalf of the Section, make urgent representation to the N.S.H.I.C. for an immediate interim across-the-board increase in remuneration of 9.2% with removal of the limitation on clinical workload retroactive to July 1, 1975. At the same time making clear that payments continue according to the old agreement until the interim arrangement can be implemented."
2. "THAT the Medical Society continues to support the negotiations on the submitted Fee Schedule and strives to ensure that this results in at least the same increase as that achieved for other Medical Society members."
3. "THAT the Medical Society represent the views of the Section to the N.S.H.I.C. on matters concerning the practice of Pathology in order to ensure policies evolved are equitable; in addition vigorous efforts should be made to amend previous policy decisions which are patently wrong or constitute interference with the individuals practice of pathology."

**SECTION FOR PSYCHIATRY** — Dr. Ev Smith reported on the continuing efforts of his Section to develop fair and reasonable remuneration for psychiatrists as well as the problem of encouraging qualified psychiatrists to locate in the Province. He also reported that his Section had worked extensively on proposed legislation relating to mental health.

**SECTION FOR RADIOLOGY** — Dr. Bob Campbell in his report expressed appreciation to the Society members who had worked so hard to gain acceptance by the Commission that radiologists be considered part and parcel of the August Tariff Review — from April 1, 1975. He also informed Council that considerable effort had been made during the past year to achieve recognition of private radiology in Nova Scotia. This issue is not yet finalized. He also referred to the efforts being made to develop a Schedule of Fees for Nuclear Medicine and hoped this would be achieved in the not too distant future.

**SECTION FOR SURGERY** — Dr. George Cook, retiring chairman of the Section, reported in detail on a number of important issues such as failure of the Commission Clinical Advisory Committee to reach decisions relative to surgical guidelines, failure to gain an agreement from the Society on proposals related to consultation fees, and information that physicians are being employed by hospitals on a salary basis for the purpose of providing clinical services. With respect to the last point, Dr. Cook expressed the grave concern of his Section and expressed appreciation that the Medical Society was already dealing with the Commission on this subject. Dr. Cook's report included two recommendations relating to continuing medical education programs and the subject of peer review, both of which will be reviewed by the Officers.

**ANNUAL MEETING** - Following the Council Meeting the Society was called to order in Session of the Annual Meeting to ratify the actions of Council and to hear the President's Valedictory address. Dr. D. B. O'Brien's address appears in this issue of the Bulletin.

The Society considered the report of the Nominating Committee and approved appointment of Branch Representatives to the Executive Committee as shown below: Antigonish-Guysborough — Dr. J. E. Howard; Cape Breton — Dr. P. D. Jackson, Dr. A. C. Walkes; Colchester East Hants — Dr. H. R. L. Martenstyn; Cumberland — Dr. M. P. Quigley; Dartmouth — Dr. R. W. Beazley, Dr. J. P. Savage; Eastern Shore — Dr. A. Cleland Marshall; Halifax — Drs. A. J. MacLeod, A. H. Parsons, and E. V. Rafuse; Lunenburg-Queens — Dr. W. R. Dixon; Pictou — Dr. D. R. MacLean; Shelburne — Dr. R. C. Montgomery; Valley — Dr. D. L. Davison, Dr. R. D. Stuart; Western — Dr. A. M. Clark.

The 1975 Nominating Committee approved is as follows: Antigonish-Guysborough — Dr. J. A. MacCormick; Cape Breton — Dr. P. D. Jackson; Colchester East Hants — Dr. H. R. L. Martenstyn; Cumberland — Dr. G. A. Lawrence; Dartmouth — Dr. R. W. Beazley; Eastern Shore — Dr. P. B. Jardine; Halifax — Dr. A. H. Parsons; Lunenburg-Queens — Dr. E. A. Morse; Pictou — Dr. W. A. Hyslop; Shelburne — Dr. P. H. Jeffrey; Valley — Dr. H. R. Roby; Western — Dr. A. M. Clark.

The following nominations were approved: — President-Elect — Dr. W. F. Mason; Chairman, Executive Committee — Dr. J. F. Hamm; Vice-Chairman, Executive Committee — D. M. A. Smith; Honorary Secretary — Dr. B. J. Steele; Treasurer — Dr. G. C. Pace.

**NEW BUSINESS** — Dr. T. J. McKeough and Dr. D. B. O'Brien introduced the motion "THAT WHEREAS the Medical Society of Nova Scotia desires to recognize the significant contributions of Dr. Garnett W. Turner to the Medical Society of Nova Scotia and the people of Nova Scotia BE IT RESOLVED THAT The Garnett W. Turner Memorial Fund be established for the purpose of providing assistance to selected medical students in accordance with such terms and conditions as prescribed from time to time by the President, Past President, and President-Elect of the Society, and on the conditions set out in the Trust Deed."

Dr. McKeough explained that the Trust Deed was being prepared and that action was being taken for its registration as a Charitable Trust. He observed that the prospects for a successful application are quite good. He encouraged all those interested in making a contribution to the Fund to contact Mr. Peacocke.

Following Dr. O'Brien's Valedictory Address, the Minister of Public Health, Mr. MacEachern, addressed the Society. He expressed his deep appreciation to the Society for its responsible attitude and effective leadership as it dealt with and worked with Government on the many issues and problems common to each.

The 122nd Annual Meeting of The Medical Society of Nova Scotia adjourned at 4:00 p.m., November 21, 1975.

## ANNUAL MEETING EXHIBITS

The Medical Society wishes to express its sincere appreciation to those firms which exhibited at our Annual Meeting in November 1975 at the Hotel Nova Scotian.

### LIST OF EXHIBITORS

Boehringer Ingelheim (Canada) Ltd.  
Burroughs Wellcome Limited  
W. Carsen Company, Ltd.  
Eaton Laboratories  
Highway Safety & Field Programmes Div.  
Hoffmann-LaRoche Limited  
Maritime Medical Care Inc.  
Mowatt & Moore Limited

N.S. Commission on Drug Dependency  
Parke, Davis & Company, Ltd.  
Pfizer Company, Ltd.  
A. H. Robins Co., of Canada Ltd.  
Wm. H. Rorer (Canada) Ltd.  
The Royal Bank of Canada  
Warner/Chilcott Laboratories Co., Ltd.  
White Cross Surgical Medical Supplies

Medical Society members appreciate the extensive financial contributions that exhibitors make toward defraying the costs of conducting an Annual Meeting. As well, the additional expense of preparing exhibits and arranging for the displays are also recognized. Most important, however, is the opportunity the exhibitors have given to members of the profession to meet with representatives of the various firms for discussion of new products and services available to them.

Members of the Society are encouraged to convey their gratitude by giving the exhibitors' representatives an extra expression of appreciation on the occasion of their next encounter.

D.D.P.



# Presidential Valedictory Address, 1975

D. B. O'Brien, M.D.

Halifax, N.S.

The past year has been an eventful one for The Medical Society of Nova Scotia and one which I could comment on at some length today. It is history however, history which has been covered during the past two days in our business sessions. And as my term of office is coming to a close I would prefer to look into the future.

The challenges revolve about our future positions adopted, and actions undertaken in our relations with our peers, with our patients, the public at large, and with Government at a Provincial and Federal level.

With the inception of Medicare in Canada and then its introduction in Nova Scotia in 1969, the Federal and Provincial Governments have become increasingly involved in and concerned with the practice of medicine. Much of this concern is caused because they are relative newcomers in this field, but some of it is caused by us and by our patients.

These concerns can be resolved if all of us, the medical profession, government and public alike are prepared to understand and accept our specific role in the field of health.

Today I would like to examine each of these roles and their interrelationship. As doctors we have the responsibility of ensuring that the public receives the very best possible level of health care. That is the first responsibility of the Medical Society in this province. Your Society was founded on that belief.

Each of us must accept that responsibility individually as well as collectively. As a result, we have a responsibility not only for our own actions but also for those of our peers.

We have the responsibility of maintaining our knowledge at current levels and I do not have to remind you that in Nova Scotia we are fortunate to have the Continuing Medical Education of the Dalhousie Medical School. Their programs are available to each of us either in Halifax or in hospitals throughout the province. It is our responsibility to participate in the design of these programs as well as to partake of their substance. There are many other opportunities to keep abreast of developments in medical care and as true professionals we must utilize these opportunities whenever possible.

Our relationships with our patients are becoming more and more a matter of public scrutiny and this should not alarm us providing that we do provide the level of service for which we have been trained. We must always remember that the patient is an individual and we should strive to understand each one individually and treat him accordingly. I realize that the demand on your time may often make this difficult but it must never become impossible if we are to maintain and improve our services to the community in which we practice.

We must remember as well our responsibility toward society at large. We in the medical profession are some of the highest educated members of the communities in which we live. We must not let that education go to waste by being involved in our practice of medicine to the exclusion of everything else. We must be prepared to present our opinions on a wide variety of topics which affect us and our patients, the people of Nova Scotia.

The very pressures which confront each of us in the last half of the Twentieth Century must be faced squarely and firmly, and medical knowledge of human frailty as well as human strengths is often lacking in such diverse fields as recreation, work environment, and the social structure. Doctors individually and collectively should become involved in the planning and growth of the communities in which each of us lives. We must be prepared to fight for those things which make for a healthier person and criticize those which infringe on the health and welfare of the individual, and society as a whole.

We must not be fearful of criticizing government if they as leaders are not doing their job.

The public has a very important role to play in health delivery. One unfortunately, for which they have not been educated as well as they might have been. This can probably be explained by the fact that we now have universal medicare and the individual tends to forget that doctors services are not "free," that every time that they pay Provincial Sales Tax they are paying towards the cost of health care. In addition, a portion of their Income Tax is contributed towards the operating cost of the health care system in Nova Scotia.

Every time they utilize a doctor's service they are spending these tax dollars. They are a benefit to be used when necessary, but not to be wasted.

Patients must come to realize that doctors are human too. Like everybody else, the doctor gets tired; that he must spend some time with his family and that he must have some time to himself in order to relax. It is easy to understand the concern of an individual faced with what he considers a medical emergency demanding a level of service more sophisticated than is necessary. Mutual understanding and an air of co-operation by both doctors and patients is a necessary item for patient satisfaction and limitation of unnecessary demands.

Perhaps the single most important thing that an individual can do to assist in his medical care is to ensure that he has a family doctor. Every adult has the responsibility to contact the physician of his choice and to develop a relationship with that physician which will ensure proper and adequate treatment in time of need. One of the most frequently heard criticism of physicians is the statement "I could not get a doctor". This would not be nearly as common if a competent family physician is sought out. Because of the demands of their time, many physicians are striving to limit their practice to a specific number of patients in an attempt to ensure a high level of medical care and quite often it is these very physicians who are criticized by a complacent individual. It is not unreasonable for a patient to establish with his doctor a clear understanding as to what services he will and what services he cannot provide.

The increasing involvement of government in the health care field is something we should become concerned about. All too often governments feel that they are the providers of medical care while in fact they are co-insurers with the patient for the care provided. As well, the Provincial Government has the responsibility of licensing physicians and of ensuring that the medical legislation of the province is adequate and that it is enforced.

We have been fortunate in Nova Scotia in that the Provincial Government has understood its role and has strived to fulfill it in a responsible manner.

Unfortunately, pressures from other levels of government may make it difficult if not impossible for the province to fulfill its role in the field of health care as well as it may care to. At the present time there sits proposed legislation in Ottawa which will limit Federal Government expenditures for medical services. This is Bill C68, with which you should all be familiar. Nova Scotia is not one of Canada's more affluent provinces and must therefore depend to a significant extent on federal support for the maintenance and expansion of health delivery in this province. However when the Federal Government decides that the way to control health care costs is by limiting the numbers of dollars available without paralleling that decision with serious attempts to be more flexible and open to change, then the poorer provinces are the ones which take the brunt

of federal action. The more affluent provinces of Canada may be able to take up the slack financially because of their greater tax revenues. All too often however, Nova Scotia must compete with these richer provinces for medical manpower and we feel the public in Nova Scotia has the right of demanding the same levels of health delivery service.

If the Nova Scotia Government does not receive adequate federal financial support to provide incomes for all health professionals at a level which can compete with other parts of the country, then we have a serious problem in maintaining the level of service demanded by the public. It should be remembered that the Federal Government, on the introduction of health care cost sharing, *decided* that portability of benefits was of major importance. This can only be maintained by each province remaining competitive.

As physicians we have a special insight into the ramifications of the Federal Governments proposed cutbacks . . . we therefore have a responsibility to ensure that Bill C68 is changed to protect the development of the health delivery system in Nova Scotia by allowing more flexibility and an adequate number of dollars to do the job well. We in Nova Scotia adamantly oppose Bill C68.

Of recent date the Federal Government has initiated Bill C73 concerning Wage and Price Guidelines. We are certainly included in these restrictions and they are surely designed to restrict doctors incomes.

The Medical Society and the CMA have publicly declared their qualified support for the measures. If we see the legislation is applied fairly and equitably we are prepared to give the legislation our unqualified support. We recall that in 1971-72 when voluntary restraints were called for, medicine co-operated, a large portion of society did not, and in many provinces the purchasing power of physicians has never recovered to 1969 levels.

It is therefore with some apprehension but with hope for fairness that we agree to co-operate at this time.

At the same time we must be prepared to provide full measure in return for our incomes and must ensure that all needless duplications of service, be they in personnel or facilities, be curtailed. In this regard the Federal Government is assisting in the area of immigration of physicians to Canada. In recent years there has been a major influx of physicians to Canada from other countries and together with the number of graduating Canadians would have created an over-supply of physicians in the very near future. Such an over-supply would have encouraged over-utilization of services at needless expense and we support the governments move in this area.

It must be realized however that there are regions of this country and indeed some isolated areas of Nova Scotia where the supply of physicians does not meet the demand. We have a responsibility to encourage doctors to move to these areas in an effort to provide satisfactory level of medical care to all residents of the province.

So far I have discussed the individual roles of the physician, the public and the government . . . but they do not move in isolation. It is only by working together that we will be able to maintain and improve the level of health care which we *all* demand. It is only through co-operation and understanding that we will be able to maximize the efficiency of services and utilize the available finances without penalizing either of the three interest groups.

We must work together to ensure that services are adequate, that overutilization of services does not take place, that expansion of facilities is planned and rational, that in fact each change in the health delivery system is for the better and not just made for the sake of change. Often we have a tendency to change for the sake of change. This must not be allowed to happen if we are able to satisfy public demand within reasonable fiscal restraints.

This then is the challenge which confronts the medical profession in Nova Scotia as we look to the future. It is a challenge which each of us must be prepared to accept on behalf of medicine, and the general public we have been trained to serve.

In order to meet this challenge each of us must be informed and prepared to participate. In The Medical Society of Nova Scotia we have the correct vehicle. Your Society is well known and appears well regarded by government and its commissions. This will only continue as long as each of us is involved in moulding Society policy, as long as each of us is prepared to sacrifice some time and effort.

The Federal Department of Health and Welfare has indicated strongly that there must be a major change in the health delivery system during the next five years. We should not oppose change, we should encourage it. But, and this is a big but, any change which does take place must be for the better. As you all know Governments often make decisions based on fiscal restraints as is their role. We must ensure that those restraints do not infringe on the continuing improvement of the Health Delivery System.

As physicians we are still the leaders of the health care team despite suggestions from some quarters to the contrary. We therefore have the responsibility of leadership in the planned reshaping or remoulding of the health care system in this country.

This is a major responsibility and during the coming year it must become the focus around which The Medical Society revolves. The doors have been opened for us to participate and it is time for each of us to become involved as individuals in the community, as members of the various Branches and as members of The Medical Society. □



# Application Of Doppler Flowmeter In Evaluation Of Occlusive Arterial And Venous Disease

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## GENERAL PRINCIPLES

When patients with obliterative arterial disease are evaluated for possible reconstructive surgery, the exact location of the occlusion and the condition of the collateral circulation must be determined. It is now possible to obtain this information completely devoid of hazard, discomfort or damage using the transcutaneous Doppler flowmeter. This device contains a sender and receiver of ultrasonic energy. Energy which is reflected back from moving surfaces is altered in frequency in proportion to the velocity of the moving surface (Doppler effect) so that the difference in frequency between the energy sent and the energy received is a measure of the velocity of the moving stream. The probe is placed on the skin over the blood vessel to be tested and as the energy impinges on the blood stream, some is reflected back into the probe. The frequency difference between emission and reception can be transmitted as sound within the audible range, or recorded by use of an analogue output that is proportional to the mean frequency of the audible signal.



Figure 1

Doppler Flowmeter model 810 as used at Camp Hill Hospital.

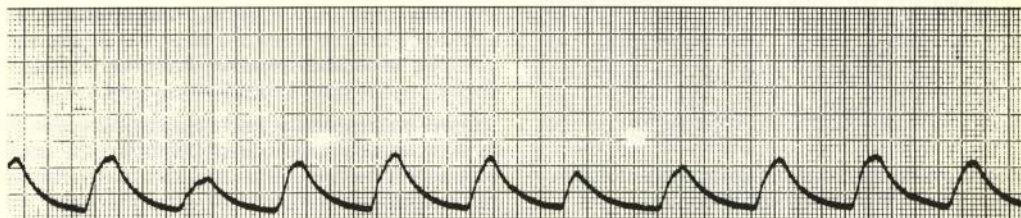


Figure 2A

Abnormal post-tibial arterial recording. Patient has intermittent claudication after two blocks. Ankle BP 75 mm. Hg. Monophonic audio signal.

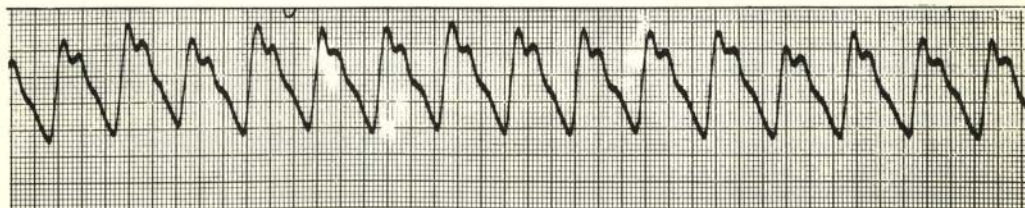


Figure 2B

Normal post-tibial artery recording. Triphasic audio signal with ample BP 156 mm. Hg. Note the almost vertical systolic slope in the normal pattern.

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\*Available from Parks Electronics. Price \$595.  
This can be coupled with a Burdick E.K. IV E.K.G., for graphic recordings.



Just as the stethoscope increased auditory sensibility and the sphygmomanometer quantitates a palpable arterial pressure, ultrasound instrumentation increases one's ability to observe and so diagnose blood flow abnormalities in arteries and veins.

Application of ultrasonics in medicine is relatively recent. In 1960, Satomura and Kaneko, using an ultrasonic blood rheograph based on the principal of the Doppler effect, first described a non-invasive method of studying instantaneous changes in blood flow in human peripheral arteries.<sup>1</sup> Later, Strandness and Rushmer (1966) popularized transcutaneous flow detection to study peripheral vascular problems.<sup>2</sup> Until that time, diagnosis or objective assessment of limb ischemia was dependent upon clinical examination, angiography, or the cumbersome technique of plethysmography. Development of the Doppler opened a new field for clinical investigation in patients with peripheral vascular disease.

Normal arterial sounds consist of first, second, and third sounds. The pitch rises abruptly to a high peak during systole and falls during diastole. Arterial sounds are recognized by the changes in velocity during each cardiac cycle. Venous sounds, in contrast, are respiratory-dependent, i.e. becoming louder on inspiration. Venous flow can be detected distal to an occlusion or proximal to a site of thrombosis. In patients with total proximal venous occlusion, sound recorded distal to the site of blockage does not show respiratory modulation. It is continuous and rumbling in character and is unmodified by breath-holding or the Valsalva manoeuvre. Diagnosis of venous occlusion may be made by detecting an increase of venous flow velocity by external compression.

In the presence of a normal patient's deep venous system, a surge of blood can be heard in the common femoral vein when the calf muscle is squeezed by the examiner. This sound, termed "augmented sound", was first described by Siegal and his colleagues<sup>3</sup>. Similar manoeuvres can be used over the popliteal and calf veins. By placing the flow probe behind the knee, popliteal vein flow can be studied. Absence or marked diminution of induced signals suggests occlusion between the site of pressure and the flow probe.

In patients with occlusive or stenotic lesions of the proximal arteries, and in whom pedal pulses are not palpable, flow signals can usually be obtained over the posterior tibial or dorsalis pedis arteries. Abnormal sounds are heard which result from collateral flow and these are of low pitch. The second and third sounds are absent. A flow signal detected immediately below a stenotic segment senses high velocity flow and is characterized by a high pitched sound superimposed upon continuous low frequency sound. This indicated the presence of turbulent flow. Abnormal sound recorded more distal to an occlusion is monophasic when displayed graphically. This flow velocity pattern results from collateral vessel flow and is characterized by a slow acceleration during systole, delayed deceleration, low systolic peak velocity, and absence of distinct second and third deflections. The flow pattern is irregular whenever there is a palpable thrill. Audible signals can be detected by using the flow probe as a stethoscope over the posterior tibial or dorsalis pedis artery. If the blood pressure cuff is applied

around the ankle above the malleoli, ankle systolic pressures are recorded at the pressure at which flow signals return during deflation of the cuff. Segmental limb pressure can be recorded by placing the cuff around the calf or thigh.

In normal subjects, the ankle pressure when measured in a supine position is equal to or higher than that in the upper extremity. A pressure index or percentage of brachial pressure is obtained by comparing the systolic pressure in the lower extremity with that in the upper extremity. The pressure index is useful in grading the degree of ischemia. In normal individuals, the pressure index in all instances is greater than 1.0, but in patients with angiographic evidence of occlusion, the pressure index is always less than 1.0. In patients with intermittent claudication, the average pressure index is 0.59, whereas in rest pain or impending gangrene the pressure index ranges from 0.26 to 0.05 respectively<sup>4</sup>.

The simplicity of pressure measurement allows instantaneous determination of the effect of exercise following a standard treadmill test. Moderate exercise causes a slight increase in ankle blood pressure. Cessation of muscle activity allows ankle pressure to return rapidly to normal. Those physiologic responses become pathologic in patients with arterial occlusion. A profound drop in ankle pressure is usually found with exercise.

## SPECIFIC CLINICAL APPLICATIONS

### Occlusive Arterial Disease

The most common cause of occlusive disease affecting arteries supplying the lower extremity is arteriosclerosis obliterans. Despite the presence of arterial occlusion and impalpable distal artery pulsations, flow signals can be achieved by noting the presence or absence of pulsatile flow, measuring ankle blood pressure, determining the ankle-brachial pressure index, and identifying turbulent flow.

Objective assessment of patient symptomatology can be done by ultrasound techniques. Determining the ankle pressure level and noting the pressure index readily identifies those patients who have arterial intermittent claudication and differentiates them from those patients who have leg pain on exercise from other causes. Such differentiation is difficult in patients with intact pulses. Yao,<sup>5</sup> examined 34 patients who had exercise leg pain and palpable pedal pulses. All had abnormal flow velocity patterns in the posterior tibial and dorsalis pedis arteries. In all of these patients, the ankle pressure was less than the brachial systolic pressure, and exercise provoked a marked decrease in both pressure and flow recorded from the posterior tibial artery.

Ankle pressure supplements angiographic information on the status of flow distal to arterial occlusions. A pressure index ranging from 0.40 to 0.50 is usually accompanied by good distal runoff.<sup>4</sup> Even in the presence of angiographic demonstration of poor distal runoff, a reconstructable popliteal artery can be assumed if the ankle pressure is above 50mmHg.<sup>5</sup> When flow or pressure from pedal arteries is not detectable and there is angiographic evidence of poor runoff, attempted limb salvage angioplasty is unlikely to succeed.

The importance of recognizing the presence of stenosis in the iliac artery prior to superficial femoral artery reconstruction is well appreciated by vascular surgeons. Such proximal stenosis is common and its physiologic importance must be considered. Identification of turbulent flow in the common femoral artery after exercise is comparatively simple using the Doppler. This gives information about the hemodynamic significance of iliac artery stenosis. In normal subjects, the pulsatile flow pattern following moderate exercise on the treadmill is characterized by an increase in systolic velocity and absence of reverse flow. In the presence of critical stenosis of the aortoiliac segment, turbulent flow is seen in the common femoral artery after exercise. This is manifested by continuous flow with marked velocity increase in both high and low frequency components; simultaneous ankle pressure measurement reveals a profound concomitant drop in ankle systolic pressure.

### Post Operative Graft Assessment

The Doppler is useful in determining the patency of a reconstructed artery. It is well known that even after successful arterial grafting, ankle pulses often remain absent. The Doppler provides a tool for use at the bedside and is of particular value with patients in whom there is a residual lesion in addition to that undergoing correction by surgery and in whom return of the pedal pulse is unlikely. Graft patency can be easily monitored during the immediate postoperative period (24 hours) by frequent measurement of ankle and brachial systolic pressure. If the pressure index fails to increase after operation despite adequate blood volume replacement during the first 6 to 12 hour period, occlusion by thrombosis is likely.

### Upper Limb and Cerebral Vessel Assessment

In the upper extremity, arteries accessible for transcutaneous flow examination are the subclavian, axillary, brachial, radial, ulnar, and all digital arteries. The diagnosis of occlusion of the subclavian artery can easily be made by noting monophasic flow pattern in the brachial artery and its branches.

In patients exhibiting digital ischemia or Raynaud's phenomenon, this method is particularly applicable. A change of flow velocity in brachial artery during various thoracic outlet manoeuvres establishes the diagnosis of thoracic outlet syndrome. The presence of digital artery thrombosis alerts the physician to causes such as scleroderma or rheumatoid arthritis.

The noninvasive nature of this technique appears to make it an ideal screening procedure prior to definitive arteriography.

In the assessment of cerebral ischemia, the Doppler offers new approaches. In addition to establishing the presence of atheroma in the carotid artery by detection of turbulent flow, the supraorbital artery, a terminal branch of the internal carotid artery, serves as a convenient outlet for studying internal carotid artery flow. In the presence of total occlusion of the internal carotid artery, reverse flow is often demon-

strated in the supraorbital artery. Change in direction of blood flow while the superficial temporal artery is momentarily compressed, further substantiates reversed extracranial blood supply to the brain when there is total occlusion of the internal carotid artery.

There may be no bruit when the internal carotid artery is completely occluded. In this instance detection of abnormal flow pattern and direction of flow in the supraorbital artery aids in establishment of a diagnosis. Assessment of supraorbital artery flow is also helpful in bilateral carotid artery stenosis or occlusion. Manual compression of the superficial temporal artery and observation of the effect on the ipsilateral supraorbital artery flow enables more adequate assessment of the source of ischemic symptoms, thus permitting a better surgical approach. "Subclavian steal", manifested angiographically by retrograde filling of the vertebral artery, can be readily diagnosed by demonstration of reverse flow using the directional Doppler.

The presence of abnormal flow patterns and pressure in the brachial artery, accompanied by reversed flow in the vertebral artery following hyperemia induced by exercise or cuff occlusion, confirms the diagnosis instantly.

### Doppler in Venous Obstruction

The Doppler ultrasound method is also applicable in differentiation of the cause of chronic limb swelling. Detection of abnormal femoral venous flow velocity patterns suggests the presence of iliofemoral venous occlusion.<sup>6</sup> Valvular incompetency at the common femoral and popliteal level can be determined by the presence of negative flow while the abdominal pressure is increased. Similarly, incompetency of the saphenofemoral valve as the causative factor in development of varicose veins may be instantly detected by this method. Chronic limb swelling due to valvular incompetency rather than thrombosis affecting major veins may be determined by this method.

At the time of operation, Doppler ultrasound flow detection is employed to determine patency of the graft.<sup>7</sup> Upon completion of a femoropopliteal bypass graft, flow signals or recorded patterns proximal and distal to the anastomotic sites enable the vascular surgeon to assess graft patency in the operating room. Abrupt change in sound characteristics immediately distal to the site of anastomosis indicates technical difficulty.

The presence of turbulent flow is also an indication of technical error. Detection of technical error in the operating room permits its immediate correction; thus graft failure can usually be corrected early. Keitzer<sup>7</sup> and his colleagues have reported a significant reduction in reoperative rate in 142 patients on whom the Doppler flowmeter was used intraoperatively.

### Ultrasound in Limb Injury

The Vietnam war with its frequent arterial injuries proved the worth of the instrument in this field. Its advantages besides being noninvasive are;

1. It can be used as often as necessary both pre and postoperatively.
2. Tracings using the DC output jack with an EKG recording can be compared hourly.
3. Ankle blood pressures can be measured and compared in the injured and noninjured limb.
4. The site of injury can be accurately determined in the change of the audible signal from a diphasic to a monophasic pattern
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## Summary

The Doppler ultrasound has many applications in the field of vascular surgery both acute and chronic, both arterial and venous. Experience with this instrument will remove much of the uncertainty in evaluating the vascular status of patients. □

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# Medical Estate Planning Services

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## GUIDELINES FOR AUTHORS

Reference to these guidelines and recent issues of the Bulletin will help authors in preparation of their papers. Send the original typed copy to the Editor and keep a carbon copy.

The entire manuscript (including references and tables) should be typed double-spaced, with a generous margin on the left, on only one side of the pages. Do not underline unless the type is to be set in italics. Standard abbreviations (e.g., hr, mg, ml) are acceptable without definition; less-common abbreviations should be written in full the first time they are used. Give generic as well as proprietary names and the manufacturer's name for drugs.

**References.** Identify references by numbers within the text, and list them in numerical order on a separate sheet [see (f)].

**Figures.** Provide an unmounted glossy print of each, clearly marked on the back with a SOFT marker, indicating top, figure no., and author's name. Show scale when relevant. Do not write legends on them [see (h)].

The usual framework of a paper is as given in (a) to (h) below, starting each section on a new page and numbering pages consecutively to the end of (h).

- a) Front page, showing title, author(s) and degrees, whether the author is in family practice or the institution where the work was done, and address for correspondence.
- b) Brief summary.
- c) Introduction.
- d) Materials and methods, then Results; or Case report.
- e) Discussion.
- f) References.  
Examples: **Journal papers** — EBBERT, A., Jr. Two-way radio in medical education. *J. Med. Educ.* 38: 319-28, 1963.  
**Books** — MAJOR, R. H., and OELP, M. H. *Physical Diagnosis*, 6th ed. Philadelphia, Saunders, 1962, p. 51.  
**Contributions in books** — Voheer, H. Disorders of uterine function during pregnancy, labor, and puerperium. In: *Pathophysiology of Gestation*, ed. by N.S. Assali. New York, Academic Press, 1972, vol. 1, pp. 145-268.
- g) Tables (each, including heading and footnotes, on a separate page).
- h) Figure legends (all listed on one page); state magnification of photomicrographs.

# CANADIAN CANCER SOCIETY

## Nova Scotia Division

### Drug Policy

#### REVISED POLICY — JANUARY 1975.\*

**NOTE: This policy cancels all previous policies.**

The policy of the Canadian Cancer Society, Nova Scotia Division, is to provide financial assistance to cancer patients to cover the cost of doctors' prescriptions for any drug or pharmaceutical product listed below:

#### Pain Killing Drugs

- A. **CODEINE** — in any form or combination.
- B. **MORPHINE** — in any form or combination.
- C. **PETHIDINE (MEPERIDINE)** — in any form or combination.  
Common Brand Names: Demerol (Winthrop)  
Pamergan (Poulenc)
- D. **TOTAL OPIUM ALKALOIDS** — in any form or combination.  
Common Brand Names: Pantopon (Roche)
- E. **ANILERIDINE** — in any form or combination.
- F. **PROPOXYPHENE** — in any form or combination.  
Common Brand Names: Darvon (Lilly) Tablet No. 642 (Frosst) Depronol SA (Warner Chilcott), Progesic (Allen Hanbury)
- G. **PENTAZOCINE** — in any form or combination.  
Common Brand Names: Talwin (Winthrop)

#### Tranquillizers

- A. **METHOTRIMEPRAZINE** — in any form or combination.  
Common Trade Names: Nozinan (Poulenc)  
Antianxiety and hypnotic — potentiates the action of pain killers.
- B. **CHLORDIAZEPOXIDE** —  
Common Trade Names: Librium (Roche), Solium (Horner) etc.  
Antianxiety and tension states.
- C. **DIAZEPAM** — in any form or combination.  
Common Trade Names: Valium (Roche), Vivol (Horner) etc.  
Anxiolytic — Relaxant
- D. **AMITRIPTYLINE** — in any form or combination.  
Common Trade Names: Antidepressant Elavil (Horner), Mareline (Elliot Marion etc.)

#### Sedatives and Hypnotics Barbiturates

- A. **AMOBARBITAL** — in any form or combination.  
Trade Names: — Amytal  
Intermediate Acting Barbiturate
- B. **PENTOBARBITAL** — in any form or combination.  
Trade Names: Nembutal  
Short Acting Barbiturate.

- C. **PHENOBARBITAL** — in any form or combination.  
Trade Names: Phenobarb (Lilly), Luminal (Winthrop)  
Long acting barbiturate.
- D. **SECOBARBITAL** — in any form or combination.  
Trade Names: Seconal (Lilly), Tuinal (Lilly)  
Short acting barbiturate with prompt onset. In combination with Amobarbital the action is intermediate.

#### Non-Barbiturates

- A. **FLURAZEPAM HCL** — in any form or combination.  
Trade Names: Dalmane (Roche)
- B. **METHYPRYLON** — in any form or combination.  
Trade Names: Noludar (Roche)
- C. **METHAQUALONE** — in any form or combination.  
Trade Names: Quaalude (Rorer), Mequelon (Frosst), Mandrax (Roussel)
- D. **CHLORAL HYDRATE** — in any form or combination.  
Common Trade Names: Noctec (Squibb), Novochlorhydrate (Nova Pharm)

#### Antiemetics

- A. **DIMENHYDRINATE** — In any form or combination.  
Common Trade Names: Gravol (Horner), Dramamine (Searle)
- B. **MECLIZINE HCL** — in any form or combination.  
Common Trade Names: Bonamine (Pfizer)
- C. **TRIFLUOPERAZINE** — in any form or combination.  
Common Trade Names: Stelazine (Smith, Kline & French), Clinazine (M&M), Solazine (Horner)
- D. **PROCHLORPERAZINE** — in any form or combination.  
Common Trade Names: Stemetil (Poulenc)

#### The Society Will Not Be Responsible For Any Medication Other Than Those Listed Above

In addition to restricting payment to the above list, the Society must insist that its procedures in respect to authorization and administration be observed. These procedures are as follows:

- (a) Acceptance of the responsibility for payment must be established with the local Unit, (or if no Unit exists, with the Divisional Office.)
- (b) The Pharmacist will submit to the local Unit or to the Divisional Officer: —
  1. Itemized statement or invoice showing dates on which prescriptions were filled and the prices charged for such prescriptions.
  2. Copies of prescriptions which shall indicate the brand of product dispensed.

\*January 7, 1975. Presented to the Provincial Services to Patients' Committee.

*Continued on page 173.*

# Garamycin<sup>\*</sup> Injectable IM/IV

(gentamicin sulphate U.S.P.)

GARAMYCIN Injectable (40 mg (base)/ml)  
GARAMYCIN Pediatric Injectable (10 mg (base)/ml)

SCHERING

#### INDICATIONS:

GARAMYCIN is indicated in the treatment of serious infections caused by proven susceptible organisms. In suspected or documented gram-negative septicemia, particularly when shock or hypotension are present, GARAMYCIN should be considered for initial antimicrobial therapy. In staphylococcal infections, GARAMYCIN should be considered when conventional antimicrobial therapy is inappropriate or when susceptibility testing and clinical judgment indicate its use.

#### ADMINISTRATION AND DOSAGE:

##### INTRAMUSCULAR/INTRAVENOUS†† ADMINISTRATION

###### A. Urinary Tract Infections

The usual dosage in lower urinary tract infections is 0.8–1.2 mg/kg/day in two or three equally divided doses for seven to ten days. For increased antibacterial activity, it may be advantageous to alkalinize the urine. Infections of the upper urinary tract, such as pyelonephritis, should be treated according to one of the schedules for systemic infections.

###### B. Systemic Infections—Normal Renal Function

The treatment of systemic infections in patients with normal renal function requires a dosage of 3 mg/kg/day in three equally divided doses. A course of seven to ten days of treatment will usually clear an infection due to a susceptible organism. In patients with life-threatening infections, dosages up to 5 mg/kg/day should be administered in three or four equally divided doses. This dosage should be reduced to 3 mg/kg/day as soon as clinically indicated.

###### C. Patients with Impaired Renal Function

In patients with diminished renal function or those undergoing intermittent hemodialysis, the dosage has to be adjusted depending on the degree of renal impairment.

For detailed information consult the product monograph or the Schering Representative.

##### ††INTRAVENOUS ADMINISTRATION:

The usual effective dosage of GARAMYCIN Injectable administered intravenously is 3 mg/kg/day in three equally divided doses.

For intravenous administration, a single dose (1 mg/kg) of GARAMYCIN Injectable is diluted in 100–200 ml of sterile normal saline or 5% dextrose. The solution is infused over a period of one to two hours and repeated two to three times a day. The usual duration of treatment is seven to ten days.

#### PRECAUTIONS:

##### Ototoxicity:

Gentamicin, like other aminoglycosides, has produced ototoxicity in experimental animals and man. It is manifested by damage to vestibular function and may be delayed in onset. Damage has occurred in patients who were uremic, had renal dysfunction, had prior therapy with ototoxic drugs or received higher doses or longer therapy than those recommended. The concomitant use of ethacrynic acid and furosemide should be avoided. The physician should strongly consider discontinuing the drug if the patient complains of tinnitus, dizziness or loss of hearing. Serum GARAMYCIN levels in excess of 12 µg/ml should be avoided.

##### Nephrotoxicity:

Nephrotoxicity manifested by an elevated BUN or serum creatinine level or a decrease in the creatinine clearance has been reported with GARAMYCIN. In most cases these changes have been reversible.

##### Neuromuscular Blocking Action:

Neuromuscular blockage and respiratory paralysis have been reported in animals. The possibility of this occurring in man should be kept in mind particularly in those patients receiving neuromuscular blocking agents.

#### ADVERSE REACTIONS:

Among other adverse reactions reported infrequently and possibly related to GARAMYCIN are elevated SGOT, increased serum bilirubin, granulocytopenia and urticaria. Reactions reported rarely and possibly related to GARAMYCIN include drug fever, hypotension, hypertension, itching, hepatomegaly and splenomegaly.

#### OVERDOSAGE:

Peritoneal or hemodialysis will aid in the removal of GARAMYCIN from the blood.

#### SUPPLIED:

Each ml of aqueous parenteral solution at pH 4.5 contains: 40 mg or 10 mg (pediatric) of gentamicin base. Preservatives, methylparaben U.S.P., propylparaben U.S.P., sodium bisulfite U.S.P., disodium edetate U.S.P. Available in 2 ml multiple-dose vials and 1.5 ml Unidose<sup>®</sup> ampoules containing 60 mg gentamicin base/1.5 ml. Solutions are heat stable and do not require refrigeration.

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- Product monograph available on request from . . .

## OFFICE SPACE AVAILABLE

Two completely finished offices will be available in the Medical Arts Building on 1st November and 1st January.

These offices are adjacent and may be joined into one if required. One consists of approximately 550 square feet while the other consists of approximately 1200 square feet.

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## HAVE YOU MOVED?

Since it takes three weeks to change our mailing lists, members are advised to give us early notice of any change of address. This will ensure continuity of your subscription to the **Bulletin** and enable the Society to give you the best possible service.

As notification of **C.M.A.J.** is not automatic, members are also requested to notify C.M.A. direct.

## The doctor and his "leisure"

# The Royal Flying Doctor Service

D. Duncan Murray, \*M. D., F.R.C.P. (C),

Halifax, N.S.

"V.J.C. this is 9 sugar sugar portable, come in please." A radio call from a mobile mineral survey unit reported a patient who was unconscious following a seizure, and another day began. With endless miles of shifting red sand for my territory and the hardy Outbackers as patients, times with the Royal Flying Doctor Service were never dull.

Started in 1928 by Reverend John Flinn and a primitive wireless link between outback sheep stations, the RFDS is now a sophisticated medical care organization which probably rivals most metropolitan medical services. In our area, based at Broken Hill in New South Wales, we had three turbo-prop aircraft, two of which were always operational and three qualified pilots. Occasionally two doctors, but often one doctor handled the medical load, with Broken Hill Hospital and its capable staff providing backup care. More difficult problems could be flown out to Adelaide.

There was a set pattern of medical clinics per month at which the people of various areas could be assured of medical attention for routine problems, and there were outback nursing stations at picturesque places such as White Cliffs (opal mines), Wilcannia (old gold mining town) etc. The nursing sisters in these places were of great assistance in the day-to-day business of medical practice. Usually I had patients in all these area hospitals which were checked by radio daily and visited as necessary.

0800 hours and 1600 hours were the scheduled times that anybody could radio the Flying Doctor for advice and treatment. These sessions had sort of a "twenty questions" format with all and sundry listening in. I tried to decide if a patient was a serious medical problem and if so made arrangements to fly out. If not they were referred to their standard medical kit wherein all drugs were numbered and they might be told to take No. 42 three or four times a day and call back with the progress report or see me at a routine clinic. These radio sessions with microphones, earphones, frequencies to change, maps to locate places, books to look up Australian product names, and so forth were great fun. Outside the temperature started about 90° F. rising to 110-120° F. as the day went on. Inside the radio shack, air conditioning on, mug of tea in hand, we sorted our way through the 20-30 calls a day making notes for our records and trying to sort the wheat from the chaff. My wife, an absolute non-medic, really enjoyed these sessions and before long I found myself having to explain why I used No. 36 instead of No. 52 and so forth. By the end of our time there, I had the uncomfortable feeling that she wouldn't need me much longer for the medical calls.

\*Assistant Professor, Department of Medicine, Dalhousie University. Associate Physician, Nova Scotia Rehabilitation Centre, Halifax, N.S.

It was hot, but it was dry. Interesting little things—you didn't wind up all the windows in the car because the air within would expand and pop out the front windscreen. Fluids in large quantities were imperative, as was salt. Pubs were accommodating.

Briefly sketching the way the RFDS was financed, apparently it relied on grants, donations, and money bequeathed for the bulk of its operating costs. As well, subscribers were expected to contribute annually an amount computed on the number of sheep they had on their properties (what else in the Outback). This was not enforced but if a patient had not kept up his "subscription" he would be charged an amount for an emergency call depending on how many air hours it required.

Most major stations had their own government-inspected air strips, and often they had their own aircraft. Occasionally we would have to buzz the air strip a couple times to get sheep or the odd kangaroo away before we could land. As our stalling speed was about 100 mph., we preferred to have the strip to ourselves.

Hospitality at a sheep station was almost beyond belief. The food and the company made each visit a memorable one. The attitude to the doctor seemed to be definitely that of old times and his visits to do a clinic for the area were social events on the calendar.

The stations themselves were immense. Where we were around Broken Hill, they needed about 20 acres to feed one sheep, and they had thousands and thousands of sheep. They calculated a big Merino sheep travelled all day to get his minimum of food and water. All the station owners had a strange assortment of bits of metal, rocks, etc. that were found in sheep's stomachs during the drought period. Rough country, for sure.

Medically, I saw a bit of everything I'd ever heard about, I think—right down to a case of Henoch-Schönlein purpura. However, the real drama was with fluid and electrolyte problems especially in the Aboriginal babies. Confronted with a virtually moribund baby after diarrhea and vomiting for a few days and without immediate lab facilities, I sometimes had to top them up with an appropriate electrolyte solution and let the kidneys distil my treatment. The speed with which these children bounced back to the land of the living was truly amazing. In the terminology of today, Mother Nature was a handy resource person.

Snakes, scorpions, and spiders were in my mind before we went into the Interior, so I read up on the various poisonous critters. In a Country where plenty of these abound, serious illness was fairly rare, but we carried a variety of antisera in our kit.

And then there were the special problems. What do you do when a baby eats a few of the weighted magnesium-containing sheep depot mineral supplements and the sheep station is hundreds of miles away without an air strip? How do you get personal information to a patient over the radio when everyone listens in? How do you explain to an Outback Aboriginal family that the medicine for the baby shouldn't be taken by the whole family (why not — if it's good for one, isn't it good for all?) What should your air ceiling be when transporting a patient with a presumed myocardial infarction and you have run out of oxygen?

It was a great time. The excitement of the medical challenges, the harsh unforgiving but strangely beautiful Outback, and the warm friendly people are combined in our minds and hearts as a most unforgettable experience. In looking back we don't remember any day as being a chore or a job that had to be done. I guess Mark Twain was right in his definition of work. □

#### Physician Self-Assessment

Question No. 50	Correct Answer B
Question No. 51	Correct Answer D

## NEW MEMBERS

The Physicians listed below have joined The Medical Society of Nova Scotia between September 1, 1975 and October 31, 1975. A most cordial welcome is extended by the Society.

Dr. John D. Black	Digby, N.S.
Dr. Malcolm P. Burley	Windsor, N.S.
*Dr. Stephen C.-W. Chao	Montreal, Que.
Dr. Alan S. Dill	Annapolis Royal, N.S.
Dr. Edward J. Doherty	Antigonish, N.S.
Dr. Kenneth G. Gass	Pugwash, N.S.
Dr. Robert L. Gustafson	Middleton, N.S.
Dr. Raymond Hegarty	Antigonish, N.S.
Dr. Donald B. Langille	Middle Musquodoboit, N.S.
Dr. Alexander H. Leighton	Digby, N.S.
Dr. Peter C. Morse	Halifax, N.S.
Dr. Richard J. Raymond	Canso, N.S.
Dr. Gerald P. Reardon	Sydney, N.S.
Dr. Claudia C. Resch	Halifax, N.S.
Dr. David Y. Smith	Stewiacke, N.S.
Dr. John MacF. Steeves	New Glasgow, N.S.
Dr. John A. P. Sullivan	Inverness, N.S.
Dr. Dugald A. Taylor	Halifax, N.S.
Dr. Heather M. Wellwood	Wolfville, N.S.
Dr. Rosemary A. White	Halifax, N.S.

\*Interne — Dalhousie 1974-1975

## THE DIABETES DAY CARE CENTER

A referral center for the Education of diabetics and interested family members staffed by a registered nurse and dietitian.

Victoria General Hospital  
Outpatient Department  
Monday through Friday  
By appointment only  
Call 429-7573

## NUTRITION CLINIC

A clinic organized to meet the needs of both outpatient and doctor. Its purpose is to instruct patients in therapeutic diets and offer consultation on general nutrition problems.

Victoria General Hospital  
Outpatient Department  
Monday through Friday  
By appointment only  
Call 429-7492

*Attention all drivers! Are your safety belts fastened? The Medical Society of Nova Scotia wants to save a life ... yours. Have a safe and happy holiday.*

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## CANADIAN CANCER SOCIETY

### Continued from page 167.

Prices charged for such prescriptions shall not be more than the manufacturers' cost plus 10% and the professional fee as determined by the Pharmaceutical Society. (\$2.50)

Payment will be made directly to the Pharmacist presenting the bill and report sent to the patient concerned, of the amount of the drug bill that has been paid by the Canadian Cancer Society.

The Cancer Society, having regard to the limited resources of available, reserves the right to cancel or amend any or all of the above arrangements, and may do so by giving thirty days notice to the Secretary or the Pharmaceutical Society.

The Policy of the Nova Scotia Division concerning "Drugs" is reviewed from time-to-time by the Provincial Services to Patients' Committee, and by its special Sub-Committee on Drugs.

*It is important to note that experimental and treatment medications, are not included in the policy.*

*Should a unit receive an application for drugs not covered by the policy, advice and suggestions may be obtained from the Provincial Welfare Committee if desired as other sources of supply in the case of treatment and other special drugs may be available.*

### Procedures

1. Applications for assistance in the payment of drugs covered by this policy should be made to the Services to Patients' Chairman in the approved manner, and the appropriate form, etc. completed.
2. The name of the drug, dosage, and pharmacy where the prescription is to be filled and the cost of the drug per prescription should be recorded.
3. The amount of assistance to be given will depend on the individual circumstances of the patient and family and the length of the time assistance will be required may be determined by consulting the doctor or the Medical Advisory Chairman.
4. With all information obtained the Chairman will recommend to the Unit Executive at its regular meeting that the patient be assisted for a period of thirty days or longer at a certain fixed amount per week of month (Assistance should not exceed on an average \$25.00 per month per individual). Approval of the Unit Executive must be obtained.
5. If the patient or family is able to pay for the prescription at the Pharmacy, the bills should be submitted to the Chairman so that the approved amount of reimbursement may be arranged with the Unit Treasurer. The Bills should be initialled by the Chairman and the name of the drug should be noted on each bill.

6. If the patient or family is unable to pay for the prescriptions as obtained, the Chairman should in advance advise the Pharmacist of the amount of assistance the Unit has approved and the bills may be sent to the Services to Patients' Chairman who will initial them, mark in the name of the drug and deliver them to the Unit Treasurer for payment.
7. Invoices for drugs charged by patients or other persons at Pharmacies **without the knowledge of authorization** of the Unit should not be accepted nor paid by the Canadian Cancer Society or any of its Units.
8. Applications for assistance in the payment of large, accumulated bills extending over a period should, with all necessary information and the bills in question be referred, before any decision of payment is made to the Provincial Services to Patients' Committee for review.
9. No individual **who is not an active officer, chairman or executive member operating with the full knowledge and approval of the Unit Executive as a whole** has the power to charge drugs or any other items to the Canadian Cancer Society. □

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## Personal Interest Notes

### CITATIONS FOR SENIOR MEMBERSHIP IN THE MEDICAL SOCIETY OF NOVA SCOTIA

#### *Dr. Arthur Middlemass Marshall*

Dr. Arthur Middlemass Marshall was born in Halifax, educated in the city schools and Dalhousie University, graduating in Medicine in 1922. He first practiced as a ship's surgeon and later did general practice in Pettitcodiac, New Brunswick and in Halifax. In 1932 he began postgraduate

training in surgery at Edinburgh, obtaining his F.R.S.C.(E) in 1934. This was followed by further training in Vienna and Hungary. He returned to Halifax and joined the staffs of the Victoria General and Halifax Children's Hospitals. Throughout the years he has been outstanding as a dedicated, skillful and concerned family physician. It is safe to say that Arthur Marshall never refused a call. His idea of a good time was to work all evening in the office until approximately eleven o'clock and then to make several house calls, some as far away as Sambro. He is always good natured which earned him the nickname of "Happy". His hobbies are sailing, curling, photography and music. Dr. Marshall is married and has two daughters and one son, Dr. Cleland Marshall of Upper Musquodoboit. He officially retired in the early 1970's however, Dr. Arthur, as his patients commonly called him, still responds to some of their calls. He is nominated by the Halifax Medical Society for Senior Membership in The Medical Society of Nova Scotia.

A. H. Parsons, M.D.

#### *Dr. Angus Edward Murray*

Dr. Angus Edward Murray was born in Earleton, Nova Scotia — a son of the Manse — one of a family of six, of whom there were four physicians, one clergyman and one teacher — a very outstanding family in any generation. He was educated in the public schools of Prince Edward Island and Prince of Wales College. He taught school in Labrador and afterwards entered Dalhousie University graduating in Medicine in 1930. He practiced medicine in Halifax, serving on the staffs of the Victoria General, Children's and Halifax Infirmary Hospitals. At the Children's Hospital he served as a physician, anaesthesiologist and surgeon. He is a past president of the Halifax Medical Society and a former member of the executive of the Nova Scotia Medical Society. He is a past president of the staff of the Halifax Infirmary and Children's Hospitals. He has been a medical examiner for Halifax and Dartmouth for twenty-nine years. He has a long and dedicated career as a family physician, compassionate, witty, wise and always available. He used to have a very large practice which came from the area of Ketch Harbour and Portugese Cove. He would think nothing of driving there at two o'clock in the morning to make a house call only to find there were four or five families waiting for him at the house. His hobbies are curling and golf. In the past years he has enjoyed himself playing in many of the senior tournaments. He also takes an opportunity during golf tournaments to arrange a few games of poker. Dr. Murray is married and has two daughters. He is nominated by the Halifax Medical Society for Senior Membership in The Medical Society of Nova Scotia.

A. H. Parsons, M.D.



Dr. A. H. Parsons, Halifax Branch President, left, is shown presenting the Senior Membership in The Medical Society of Nova Scotia to Halifax physician Dr. A. M. Marshall.



Well known Sydney physician and a past president of the Medical Society, Dr. A. L. Sutherland of Sydney, right, being awarded Senior Membership in The Canadian Medical Association by CMA president Dr. L. C. Grisdale.

Dr. A. E. Murray, right, receives a scroll recognizing his elevation to Branch President, Dr. A. H. Parsons of Nova Scotia. Senior Membership in The Medical Society

## OBITUARIES

**Dr. Ian E. MacKay**, 66, died in Stellarton October 22, 1975. Born in Stellarton he was the only son of the late Mr. & Mrs. George MacKay. He attended Dalhousie Medical School and McGill Medical School, Montreal, where he graduated in 1937. He was a medical officer with the RCAF during World War II, and began practicing medicine in his hometown in 1945, later specializing in anaesthesia. The Bulletin extends sincere sympathy to his widow and family.

The death of **Dr. Alexander J. Murchison**, Halifax occurred on May 4, 1975. Further to the Obituary published in our June 1975 issue, Dr. Murchison is survived by his three children, Alexander John, Andrea Susan and Christopher Malcolm to whom we extend deepest sympathy. □

## SMOKING

Once again there is a tip-in which may be easily removed for use as a poster in a place of your choice.

The Society's Drug and Alcohol Abuse Committee appreciates your co-operation in the Medical Profession's anti-smoking campaign.

## SENIOR MEMBERSHIP CITATION ASSOCIATION THE CANADIAN MEDICAL

*Dr. Arthur Lawrence Sutherland*

Dr. Arthur Lawrence Sutherland of Sydney, Nova Scotia, Soldiers Cove, Cape was born on December 15, 1904 at A. degree from the Breton Island. He received his in Antigonish before University of St. Francis Xavier his medical training. proceeding to Dalhousie University degrees in 1932. Ever He graduated with the M.D., C.M. practice in Sydney and since then he has engaged in general surgery) of the Nova he is on the specialist register (general career he has been Scotia Medical Board. Throughout Hospital and the St. Rita associated with the Sydney City Hospital and president of the Hospital. He has been chief-of-staff been President also medical staff of both institutions. He and the Cape Breton of The Medical Society of Nova Scotia is been President also Medical Review Board.

As relief from his professional responsibilities Dr. Sutherland enjoys his camp on the Bras d'Or Lakes. □

# THE MEDICAL SOCIETY OF NOVA SCOTIA

NOVA SCOTIA DIVISION OF THE CANADIAN MEDICAL ASSOCIATION

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Cape Breton	P. D. Jackson	M. E. Lynk
Colchester-East Hants	H. R. L. Martenstyn	S. T. Cook
Cumberland	D. R. Davies	I. F. G. Robinson
Dartmouth	D. M. Andrews	J. F. O'Connor
Eastern Shore	R. J. Fraser	D. P. Sinha
Halifax	A. H. Parsons	M. G. Shaw
Inverness-Victoria	J. A. P. Sullivan	N. G. Pillai
Lunenburg-Queens	Anna O'Neil	W. L. Phillips
Pictou County	A. H. Murray	C. R. Elliott
Shelburne	J. H. L. Robbins	F. Markus
Valley	D. L. Cogswell	C. Prakash
Western	R. P. Belliveau	G. K. Kini

### SECTIONS

Anaesthesia	D. K. Rushton	D. Imrie
General Practice	J. W. MacDonald	D. A. Weir
Internal Medicine	B. M. Chandler	L. K. Harris
Internes & Residents	B. R. Pretty	
Obstetrics and Gynaecology	C. Maley	R. H. Lea
Ophthalmology and Otolaryngology	E. V. Rafuse	G. J. Whiston
Paediatrics		R. S. Grant
Pathology	R. B. Abel	T. Hindmarsh
Psychiatry	E. A. Smith	C. E. Taylor
Radiology	D. R. Campbell	B. D. Byrne
Salaried Physicians		
Surgery	S. M. A. Naqvi	C. Bugden
Urology	F. G. Mack	W. A. Ernst