

DECEMBER 1961

## The NOVA SCOTIA MEDICAL BULLETIN

EDITOR-IN-CHIEF

Dr. E. H. Evans

MANAGING EDITOR

Dr. C. J. W. Beckwith

ASSOCIATE EDITORS

Dr. J. H. Quigley

Dr. W. A. Taylor

Dr. W. A. Cochrane

Dr. J. W. Reid

Dr. W. E. Pollett

CORRESPONDING MEMBERS—SECRETARIES OF BRANCH SOCIETIES

### EDITORIAL

#### THE WHITE CANE

At this colourful season of the year when the lights of the Christian world are turned full on, the green folder of the Canadian Institute for the Blind compels us to pause for a moment from the small annoyances of our visual existence to consider the lot of those who have been born with or overtaken by the catastrophe of complete or near blindness. Some may have read books written by people who have become blind. They relate first of the shock of deprivation from the world of light and colour that we take so casually for granted. Then there is the voyage of discovery into their new world of darkness—a marvellous triumph of discipline over emotion. And finally acceptance and rehabilitation into their new physical state. It may come as a surprise that what they least desire is pity or special consideration and what they most crave is a return of the ordinary to their lives, the simple things such as walking alone, reading and writing, listening to music and of being accepted as normal in their homes and among their friends, doing their own housework or being gainfully employed with their hands. It is this normalness that the Institute sets out to restore. In their own simple but comprehensive phrase its services are designed 'to make *life* easier for the sightless'. The scope of these services are briefly recounted here since it may well be that they are not generally known.

There is first the provision of the white cane that the sufferer may be recognized by those with sight, motorists and others. Then there is the training of the newly blind, undertaken by the visually handicapped themselves either in the home or district centre. The training offered is surprisingly broad, from type-writing and the learning of Braille to crafts such as knitting, rug-making, weaving and so on, and guidance in the handling of household duties.

Reading for the blind is organised from the CNIB library of touch type and recorded books mailed all across Canada on subjects as diverse as the Bible and Perry Mason. They also find in the library a service geared to their own study courses in school or university. Elderly and homeless blind persons are eligible to live in one of the modern CNIB *residences* for the blind (not Homes in the institutional sense) located in eighteen cities from coast to

# THE MEDICAL SOCIETY OF NOVA SCOTIA

NOVA SCOTIA DIVISION  
OF  
THE CANADIAN MEDICAL ASSOCIATION  
MEMBERS OF EXECUTIVE COMMITTEES

## OFFICERS

PRESIDENT	-	-	-	-	-	-	-	-	-	R. F. Ross
PRESIDENT-ELECT	-	-	-	-	-	-	-	-	-	D. F. Macdonald
IMMEDIATE PAST PRESIDENT	-	-	-	-	-	-	-	-	-	F. J. Granville
CHAIRMAN EXECUTIVE COMMITTEE	-	-	-	-	-	-	-	-	-	L. C. Steeves
HONORARY TREASURER	-	-	-	-	-	-	-	-	-	J. F. Boudreau
EXECUTIVE SECRETARY	-	-	-	-	-	-	-	-	-	C. J. W. Beckwith

## BRANCH SOCIETY REPRESENTATIVES

ANTIGONISH-GUYSBOROUGH	-	-	-	-	-	-	-	-	-	T. W. Gorman
CAPE BRETON	-	-	-	-	-	-	-	-	H. F. Sutherland & J. R. Macneil	
COLCHESTER-EAST HANTS	-	-	-	-	-	-	-	-	-	H. R. McKean
CUMBERLAND	-	-	-	-	-	-	-	-	-	J. C. Murray
HALIFAX	-	-	-	-	-	-	-	-	D. M. MacRae, F. J. Barton & K. M. Grant	
LUNENBURG-QUEENS	-	-	-	-	-	-	-	-	-	S. B. Bird
PICOU COUNTY	-	-	-	-	-	-	-	-	-	M. F. Fitzgerald
VALLEY	-	-	-	-	-	-	-	-	-	D. MacK. Archibald
WESTERN COUNTIES	-	-	-	-	-	-	-	-	-	C. K. Fuller

## OBSERVERS

REPRESENTATIVE TO CMA EXECUTIVE COMMITTEE	-	-	-	-	-	-	-	-	-	R. O. Jones
CHAIRMAN PUBLIC RELATIONS COMMITTEE	-	-	-	-	-	-	-	-	-	S. C. Robinson
CHAIRMAN MEDICAL ECONOMICS COMMITTEE	-	-	-	-	-	-	-	-	-	H. E. Christie

## CHAIRMEN OF STANDING COMMITTEES

COMMITTEE	CHAIRMAN	COMMITTEE	CHAIRMAN
ARCHIVES	C. M. Bethune	MEMBERSHIP	D. M. MacRae
BY-LAWS	H. J. Devereux	NUTRITION	W. A. Cochrane
CANCER	J. E. Stapleton	PHARMACY	R. M. MacDonald
CHILD HEALTH	R. S. Grant	MEDICAL	
CIVIL DISASTER	S. B. Bird	EDUCATION	D. C. P. Cantelope
EDITORIAL BOARD	E. H. Evans	PUBLIC HEALTH	S. Dunn
FEES	C. H. Young	PUBLIC RELATIONS	S. C. Robinson
HEALTH INSURANCE	N. K. MacLennan	REHABILITATION	G. J. H. Colwell
LEGISLATION & ETHICS	D. F. Smith	TRAFFIC ACCIDENTS	A. L. Murphy
MATERNAL & PERINATAL		W.C.B. LIASON	A. W. Titus
HEALTH	M. G. Tompkins, Jr.		
MEDICAL ECONOMICS	H. E. Christie		

## BRANCH SOCIETIES

	PRESIDENT	SECRETARY
ANTIGONISH-GUYSBOROUGH	J. E. MacDonell	C. N. MacIntosh
CAPE BRETON	T. J. McKeough	A. F. Govoni
COLCHESTER-EAST HANTS	R. F. Ross	H. R. McKean
CUMBERLAND	R. E. Price	R. A. Burden
HALIFAX	F. J. Barton	J. A. Myrden
LUNENBURG-QUEENS	D. C. P. Cantelope	G. D. Donaldson
PICOU COUNTY	J. A. F. Young	W. D. MacLean
VALLEY MEDICAL	J. P. McGrath	H. R. Roby
WESTERN COUNTIES	D. F. MacDonald	G. D. Belliveau

## AFFILIATE SOCIETIES

	PRESIDENTS
NOVA SCOTIA ASSOCIATION OF RADIOLOGISTS	A. J. M. Griffiths
NOVA SCOTIA SOCIETY OF OPHTHALMOLOGY & OTOLARYNGOLOGY	H. J. Davidson
NOVA SCOTIA SOCIETY OF GENERAL PRACTITIONERS	A. G. MacLeod
NOVA SCOTIA CHAPTER OF COLLEGE OF GENERAL PRACTICE	F. J. Granville
NOVA SCOTIA DIVISION OF CANADIAN ANAESTHETISTS' SOCIETY	C. H. L. Baker
NOVA SCOTIA ASSOCIATION OF PATHOLOGISTS	Dr. J. N. Park

coast. In all the major cities of Canada recreational clubs bring sightless persons together in new bonds of friendship and recreation rehabilitation is a feature of such clubs.

In brief, other services available are social services that deal with the problems that arise when blindness enters a home; vocational guidance; some forms of industrial training; the provision of home study courses, training with 'Seeing-eye' dogs; aid to blind musicians in the provision of a music library of Braille, the organising of theatre and concert passes, travelling fare reductions and passes; the training of blind babies from infancy onwards; the provision of games and appliances for the use of the sightless, the provision of radio and sound equipment at a substantial discount; And finally and most importantly the prevention of blindness, from the provision of specialist treatment to the establishment, in co-operation with eye specialists across the country, of the first Canadian Eye Bank.

The CNIB asks that those who desire to help may do so by contributing to the local financial appeals; by learning about the capabilities of the blind and telling friends about them; by employing the sightless where possible; by visiting your nearest CNIB office and seeing what it has to offer to the sightless of your community; and finally, of those unfortunates who have become sightless or in danger of losing sight, to put them in touch with the CNIB office nearest you. So hang one of those little white canes on your Christmas tree each year so that the splendid services of the Canadian National Institute for the Blind may not be forgotten among the bright lights of the Christmas Season.

E.H.E.

#### ERRATUM

#### DR. FREDERICK JOSEPH GRANVILLE

We greatly regret that due to a printer's error, the name of the late Dr. Frederick Joseph Granville was wrongly spelled in our Appreciation of him in the November issue.

# NICE MENU!



"You have a tasty choice today, sir -- "Fee For Service-a-la-State" or "Capitation Supreme."  
(Have you thought of these things, Doctor?)

# A BRIEF TO THE ROYAL COMMISSION ON HEALTH SERVICES FROM THE MEDICAL SOCIETY OF NOVA SCOTIA

## SUMMARY AND RECOMMENDATIONS

1. Our studies in preparing this brief have impressed on us the extent and multiplicity of the health services which are available in the interests of the patient as an individual and the public as a whole.

2. This section is based on "... recommending methods of ensuring that the best possible health services be available to all Canadians". We believe that, in the provision of medical services in prevention, diagnosis, treatment and rehabilitation, the physician has been and will be the central factor.

3. Our recommendations relate themselves to our proposals for priorities in the improvement of health services. We emphasize, however, that attention to any one element should not be so intense that other essential features are disregarded. In our view improvements should be proceeded with on a broad front. We recognize that neither public nor private financing will permit implementation of all the desirable extensions of health services at one time to their fullest extent. With these considerations in mind we submit the following recommendations.

### 4. Recommendation 1.

#### THE TRAINING OF HEALTH PERSONNEL

Deficiencies in the number of physicians available to serve the needs of the people of Nova Scotia have been disclosed in our studies. We are dependent in large measure on the graduates of the Faculty of Medicine of Dalhousie University for the general practitioners and specialists who practise in this Province. Our first recommendation therefore relates itself to aid to medical education and we propose a capital investment of \$4.5M of public and private funds to provide for the expansion of the Dalhousie Medical School. Details of the proposal are outlined in the narrative portion of our submission relative to terms.

5. The recruitment of medical students must be accelerated. In all its studies and recommendations it is our hope that this Commission will keep in mind that a career in medicine should be made more attractive by reason of any changes proposed.

6. The maintenance of adequate facilities for medical education will involve an annual sum of unknown but substantial amount. The support of the only medical school in the Atlantic provinces is worthy of increased financial participation of the four provinces concerned, as well as that of the Federal authority. Grants to medical undergraduates will be necessary to permit them to finance the long, expensive course and to ensure sufficient recruitment of suitable medical students.

7. Not less urgent is the need for increased numbers of para-medical workers of all types. In certain instances, training facilities in the Atlantic provinces will require enlargement and support. In other cases where no facilities exist, the establishment of schools and courses is necessary. We have outlined the deficiencies as we see them and we recommend the amplification of the Pro-

fessional Training Grant under the National Health Grants program to assist the training of these essential workers.

8. Closely related to the education and training of health workers is medical research and it is evident that the pursuit of new knowledge and better methods is fundamental to the improvement of health services. It is our view that funds for research should be provided largely through continued and increasing support of the Medical Research Council. However, it will be impossible and undesirable to separate completely clinical investigation from medical services or hospital insurance programs.

#### 9. Recommendation 2.

##### THE PROVISION OF PHYSICAL FACILITIES FOR IMPROVED HEALTH SERVICES.

Although we have designated the provision of trained personnel as our primary requirement, concurrent action in the provision of physical facilities must go forward. In our appraisal of the situation, we have stated that active and long-term treatment hospitals to a level of 6.9 beds per 1000 of our population is a valid objective. We recommend that the construction of 1,170 additional active treatment beds be proceeded with and we estimate the capital of construction to be approximately \$23.4M.

10. The construction of 920 beds for the care of convalescent, chronic and terminal patients, preferably located in close relationship to active treatment hospitals, is also necessary. We estimate the construction cost of these facilities to be \$9.2M.

11. We further recommend that a rehabilitation centre be constructed at an approximate cost of \$3M., that community health centres be provided in areas of need, that facilities for mental health clinics be considerably amplified and that a hostel for the accommodation of patients attending the Nova Scotia Tumor Clinic be constructed. We estimate the capital cost of the latter three facilities to be of the order of \$350,000.

12. The implementation of our recommendation for the reform of the mental health services will unquestionably require the replacement of facilities but we are not at this time prepared to estimate the cost involved.

13. We fully appreciate that expenditures of considerable magnitude will be required to bring our present health facilities up to a reasonable standard of adequacy and that their maintenance will involve substantial annual outlays.

14. Our thoughts on methods of financing are outlined later.

#### 15. Recommendation 3.

##### UNIVERSALLY AVAILABLE VOLUNTARY MEDICAL SERVICES INSURANCE

We have spelled out in considerable detail our belief that comprehensive medical services insurance should be available to every resident of Nova Scotia regardless of age, state of health or financial status.

16. We recommend that for 100,000 of our fellow citizens who may be classified as indigent, the total cost of such services be paid from public funds. For those above this level of economic status, who can prove need, we suggest that assistance be provided to enable them to purchase the coverage which they

require. For the self-supporting majority, we recommend that they be encouraged to continue to be responsible for personal health services by insurance coverage or from their own resources.

17. We recommend that one or more approved carriers of medical services insurance be identified and that the plan be subsidized to the degree required to provide service to the groups already mentioned and to permit the enrolment of individuals of any age or state of health.

18. We have estimated that the cost of providing comprehensive medical insurance coverage to the "medically indigent" would be \$2.5M per year.

19. No estimate has been made of the cost of subsidizing those who require partial assistance or the extra cost of enrolling those over 65.

#### 20. **Recommendation 4.**

##### REFORM OF THE PROGRAMS ON MENTAL HEALTH SERVICES, REHABILITATION AND CANCER CONTROL

In the body of our Submission, we have commented on the services available to the population in the field of mental health, and many deficiencies have been pointed out. In our view, there is urgent need for a new approach to the problems of mental ill-health, particularly with respect to institutional services.

21. Twelve recommendations are presented which are designed to accomplish the necessary reform. It has not been possible to estimate the cost of the improvements which we propose but they will undoubtedly involve a considerable outlay of public funds.

22. The rehabilitation of the sick and injured may be regarded as a neglected area of health services and the facilities available in Nova Scotia represent nothing more than a beginning. We have discussed the essentials of an adequate service and have incorporated several recommendations to achieve it.

Aside from a recommended expansion of the facilities of the Nova Scotia Rehabilitation Centre at an estimated cost of \$3M., we have not undertaken to project the expenditures necessary to provide adequate rehabilitation services throughout the Province.

23. Through the operation of the Nova Scotia Tumor Clinic an impressive start has been made in the diagnosis of cancer and its treatment by radiotherapy and surgery. Improvements in the service of cancer control and its extension throughout the Province are discussed later, and we recommend as an initial step the establishment of a hostel for the accommodation of patients attending the Nova Scotia Tumor Clinic to spare the use of active treatment beds. An expenditure of \$100,000 for this purpose would in the long run prove economical.

#### 24. **Recommendation 5.**

##### PUBLIC HEALTH

The foregoing recommendations each have a bearing on the public health. The Department of Public Health of Nova Scotia is an integral component in the provision of health services. There are areas of health care which

require a co-ordinated approach by the Department of Public Health, the medical profession and other interested bodies. We recommend that the following be considered in this context:—cardio-renal disease, traffic accidents, rheumatic diseases, maternal and perinatal health, child health, health of the aged and alcoholism.

## 25. Recommendation 6.

### MISCELLANEOUS IMPROVEMENTS

In our appraisal of the health services currently available in Nova Scotia, we have encountered situations where improvements should be instituted without fundamental change in the character of the service itself. In this category we recommend:

- (a) the better identification of eligible patients under the Indian Health Services and the promulgation of a more realistic schedule of medical fees.
- (b) the institution of freedom of choice of doctor by entitled Sick Mariners in place of the Port Physician system.
- (c) the extension of the current public program for the provision of drugs to the chronically ill, to include patients who are not under institutional care, including the mentally ill, the patients under the cancer programs and those who are being rehabilitated.
- (d) that the beneficiaries under the Federal Civil Servants Group Surgical Medical Insurance Plan be afforded a choice of carrier. If groups decide that the service benefits available under plans such as Maritime Medical Care are preferable, then the employer's contribution and the privilege of payroll deduction should be applicable.

26. Finally, Mr. Chairman, we wish to express to you and the Commissioners our full appreciation of the magnitude and importance of the task which, as a Royal Commission, you have undertaken. In the time available since the announcement of your terms of reference we have assiduously applied ourselves to a study of each item, resulting in the foregoing recommendations and the narrative which follows. The results of certain studies already initiated will be made available to you as soon as possible.

27. The Medical Society of Nova Scotia wishes you well in your inquiries and the formation of your recommendations and is prepared to offer your Commission any assistance of which we are capable.

(To be continued)



PHARMACOLOGY OF ANTIBIOTICS:  
AN EVALUATION OF SOME OF THE NEWER PREPARATIONS.\*

J. G. ALDOUS, Ph.D.\*\*

HALIFAX

For the general practitioner the problems posed by antibiotic therapy would seem to arise not so much from a lack of understanding the pharmacology of antibiotics, but rather from attempts to evaluate all the information which comes his way in the form of literature advertising new drug preparations. He is constantly bombarded with a verbal barrage which extols the virtues of "synthetic penicillins", of "penicillinase-resistant preparations", "higher blood levels", etc., etc., for here as in other fields of therapeutics, the drug manufacturers are playing the game of "Structural Roulette"—and they are playing to win. As Modell points out in his article "The Drug Explosion"—"already it is abundantly clear that the medical profession is one of the losers. It is gradually giving over its initiative in choosing drugs for its patients to the detail man because it cannot deal with the plethora of new drugs expertly, safely and effectively. Obviously, the public is an even heavier loser".<sup>1</sup>

It is my object, therefore, to examine some of the features of the newer antibiotic preparations and to assess them against the background of what we already have in this field.

PENICILLIN

It may be recalled that because of its very rapid absorption and excretion, the problem of maintaining an adequate blood level with penicillin has been likened to trying to fill the bathtub with water when the plug is out of the drain. This difficulty has largely been solved by producing water-insoluble forms of the drug which when given intramuscularly are only very slowly solubilized by the tissue fluids. In this group are procaine penicillin, and benzathine penicillin, i.e. penicillin G chemically modified by the formation of an addition product,—in the former case with procaine, and the latter case with dibenzylethylenediamine. Note nowever that the micro-organism still makes the penicillin. I would think that from the clinical point of view the problem of maintaining adequate blood levels with the modern repository form of penicillin has largely been solved.

However, it is sometimes desirable to administer penicillin by the oral route and here we run into the difficulty that penicillin is unstable in the acid environment of the stomach. Various means have been tried to protect the antibiotic, i.e. by using buffered penicillin tablets, but this has not worked out too well in so far as increasing the efficiency of absorption is concerned. There seems to be a certain amount of evidence to suggest that the acidity of the gastric contents is not the sole factor responsible for the inefficient absorption; for penicillin, like tetracyclines, by virtue of its chelating properties will be bound to material already in the gastro-intestinal tract, i.e. foodstuffs, and therefore when possible should be given on an empty stomach in order to increase efficiency of absorption.

Certain modifications of penicillin which do enhance absorption are phenoxymethyl penicillin (Penicillin V) and phenethicillin (Syncillin). Penicillin V is usually dispensed as 125 mg tablets equivalent to approximately

\*Lecture presented at the "Week in Infectious Diseases" program of the Post-graduate Division, Faculty of Medicine, Dalhousie University, Feb. 27 - March 3, 1961.

\*\*Professor of Pharmacology, Dalhousie University.

200,000 units. It again represents a chemical modification of the penicillin produced by the micro-organism. By chemical manipulation the phenoxy-methyl group is added to the penicillin molecule. There seems to be little doubt that this product is more efficiently absorbed from the gastrointestinal tract, for blood levels rise rapidly and attain a maximum in something less than an hour; but shortly after attaining this peak concentration, the blood level falls very rapidly, so much so, that in 4 hours there is practically none left. Let us examine this situation in a little more detail to see what price is being paid for the advantage of more efficient absorption.

First of all, an adequate blood level of penicillin would lie somewhere in the neighbourhood of 0.1 units per ml. An intramuscular dose of 300,000 units of procaine penicillin would maintain an adequate level for almost 24 hours, and would show a peak of about  $2\frac{1}{2}$  times this for the first 6 hours. 200,000 units of penicillin G orally would, in 1 hour, result in the blood concentration of 0.3 units/ml. and would persist for about 3 hours.<sup>2</sup>

A 300,000 unit oral dose of phenoxymethyl penicillin would produce a blood level of about 2 units/ml., which would fall rapidly so that in 4 hours the blood level could no longer be considered adequate.<sup>3</sup> Thus an equivalent dose of this product has resulted in about 20 times more penicillin in the blood than we need, but this excess would have to be tolerated in order to achieve a duration of action as long as 4 hours. This appears to be wasteful; but someone might say "penicillin is cheap these days—we can afford to waste it". But can we? The economics of the situation might suggest otherwise, for a penicillin G (200,000 units) oral tablet costs about 20 cents, whereas a 125 mg. tablet of penicillin V costs 45 cents (Halifax prices, 1961). Thus over twice as much has been paid for obtaining 20 times more drug in the blood than we need and all we have really achieved is roughly 1 additional hour of effective blood concentration.

More recently a "synthetic" penicillin was introduced into the U.S. under the name "Synicillin". (To call it synthetic is robbing the micro-organism of its birthright). As with the previously discussed preparation, this one is made by substituting a phenoxyethyl group in the molecule which was produced by the micro-organism. This drug therefore differs from penicillin V by having one more  $\text{CH}_2$  group.

The early claim that this drug was less allergenic than other forms of penicillin has been dropped for lack of evidence. Persisting however, is the statement that higher blood levels are attained per unit dose than with penicillin V or G. Since the duration of action is brief, I will not labour the question as to whether this is an advantage. Medical Letter<sup>4</sup> reports on a study which compared oral penicillin V and intramuscular penicillin G with phenoxethyl penicillin. "They also found that peak serum concentrations achieved with phenethicillin were somewhat greater than with equivalent doses of potassium penicillin G given parenterally. The higher serum levels of phenethicillin were, however, of brief duration; the levels produced by intramuscular penicillin G were sustained much longer, with significantly greater total amounts recovered in the urine. Phenethicillin showed appreciably lower antibacterial activity than either V or parenteral G against strains of hemolytic streptococci or pneumococci". The cost of 125 mg. tablets is 37.5 cents (Halifax price). In summary it would appear that if one takes cost into account no great advance has been made in overcoming the drawbacks to oral penicillin therapy.

Two other aspects of penicillin usage should be mentioned. The first of these concerns the allergenic properties of the drug. Penicillin O was introduced with the object of having a form of penicillin which could be used in patients sensitive to penicillin G. This is a biosynthetically produced material in which the allyl-mercaptomethyl group is attached to the penicillin molecule by the micro-organism synthesizing the antibiotic. The absorption and excretion characteristics of penicillin O differ very little from penicillin G, but clinical experience has shown it to be less sensitizing in its own right, and useful to a limited extent in patients already sensitized to penicillin G. These differences are relative—not absolute, for about 1% of patients with no history of penicillin sensitivity are sensitized to penicillin O.<sup>5</sup> Apparently a significant number of patients sensitive to penicillin G react unfavourably to penicillin O, but I am not able to quote exact figures here.

The other problem concerns the sensitivity of the micro-organisms whose eradication is sought. Many organisms maintain a natural resistance to penicillin by virtue of elaborating an enzyme—penicillinase—which effectively destroys the antibiotic. To cope with this situation the ever vigilant pharmaceutical chemist has come up with penicillin X-1497, known better by its proprietary name of "Staphcillin". Clinical reports on this drug<sup>6</sup> look promising. The drug is usually administered I.M. and when single doses of 0.5 - 1.5 gm. are given the blood level rises immediately reaching a peak in about 1 hour and declining to very low values in about 4 hours. No doubt some repository form of the drug will soon appear to lengthen this somewhat short duration of action. It is well to note that the activity of staphcillin toward pneumococci and group A streptococci is about 1/10th that of penicillin G. Resistance to staphcillin does develop. "Strains of phage type 80/81 staphylococci developed resistance to X-1497 somewhat more slowly than to penicillin G but moderately faster than to vancomycin"<sup>6</sup>, all of which means that this drug must be used intelligently if it is to remain effective in the years ahead.

#### CHLORAMPHENICOL

Chloramphenicol has had its nasty taste removed by combining it with palmitic acid. As soon as it reaches the small intestine, the palmitic acid is hydrolyzed and the antibiotic is ready to be absorbed having passed the taste-buds undetected. Perhaps of greater import is a word about the status of chloramphenicol which has enjoyed an up-and-down type of popularity since it was introduced in 1949. The caution characterizing the acceptance of this antibiotic centers around the fact that it is toxic to the bone marrow, but despite investigations and recommendations as to its use by the Council on Pharmacy and Chemistry of the A.M.A. this drug continues to be used indiscriminately. An editorial in a recent number of the J.A.M.A. <sup>7</sup> points out that aplastic anemia is still being precipitated by this antibiotic. "The tragic thing about all these seriously ill cases, most of whom died, is that the drug need never have been given". The author goes on to state that chloramphenicol is probably the most important single agent giving rise to aplastic anemia "and that the effects on the bone marrow can be the result either of toxic action or of a hypersensitivity reaction".<sup>8</sup> Clearly chloramphenicol should be reserved for the treatment of typhoid fever and H. influenza meningitis (combined with sulfonamide).

## STREPTOMYCIN AND RELATED ANTIBIOTICS

No pharmaceutical modifications of streptomycin have appeared and indeed if the report of the Council on Pharmacy and Chemistry of the A.M.A. is any indication, this antibiotic may be superseded by other therapeutic agents in the treatment of tuberculosis<sup>9</sup>. Isoniazid—PAS combination appears to produce the best results especially in advanced pulmonary tuberculosis and certainly the incidence of resistant organisms is lower with this drug combination than when streptomycin is used with either.

Certain minor antibiotics share many characteristics in common with streptomycin. Neomycin and Kanamycin are derived from sugars (as is streptomycin) and share with streptomycin the property of negligible intestinal absorption. They may therefore be used for treating local infections in the gut. All, with the possible exception of neomycin, are allergenic when applied topically; and all of them exhibit the neurotoxicity so characteristic of streptomycin—a reaction which severely limits chronic medication. Nothing very new from the pharmacological point of view has been achieved through the introduction of these newer agents.

## THE TETRACYCLINES

The tetracyclines have come in for some minor modifications mainly in an attempt to either increase absorption from the intestine or to gain a longer duration of action. The tetracyclines are all chelating agents and because of this property tend to form nonabsorbable complexes with food material in the gut, particularly with ionized salts of calcium and magnesium<sup>10</sup>. In order to overcome this chelating action in the intestine, many excipients have been utilized, four of which have received clinical trial: citric acid, a phosphate-tetracycline complex, sodium metaphosphate and glucosamine hydrochloride. Much of this early work has been severely criticized<sup>11</sup>, as being poorly controlled and evaluated. Later studies in which these objections were largely eliminated showed that the addition of these excipient substances resulted in increased blood levels which "although in some cases statistically different, were so small as to warrant the conclusion that for therapeutic purposes their addition was of no great importance".

Chlortetracycline (Aureomycin) with one of its methyl groups eliminated, yields the product demethyl chlor tetracycline (Declomycin). Its introduction into medical practice was heralded by much fanfare announcing that the "battle of the blood levels" was ready to commence. Laboratory information indicated that on a weight basis Declomycin was more potent than its parents against a majority of strains of pathogenic bacteria, but subsequent data plus sober reflection led to the conclusion that these differences were not very great and were of little clinical significance. Certainly the product was more stable to pH and temperature variations and was more effectively absorbed from the intestine, as judged from the concentrations attained in the plasma. However, it does not necessarily follow that higher blood levels means higher antibiotic concentrations in the tissues where the bacteria are hiding.

Jawetz and collaborators<sup>12</sup> have produced a clinical evaluation of this drug and summarize their findings thus: "This drug appears to be comparable to other tetracyclines in bacterial *in vitro* sensitivity patterns. Two superinfections with staphylococci occurred. A high incidence of minor gastrointestinal disturbances was noted. A suggestion of renal and hepatic toxicity requires further investigation". This chemical modification therefore does not

appear to offer much in the way of safe antibiotic therapy. A brief economic analysis of the situation, admittedly 18 months old now, will bear this out. The recommended dosage of Declomycin is 600 mg/day—an amount less than that used for the other tetracyclines. However, the cost to the patient is higher so that no economic advantage is gained by using this latest offspring.

### ERYTHROMYCIN

Another group of antibiotics which are structurally interrelated is the so-called macrolide or erythromycin group. Pharmacologically these drugs, erythromycin, oleandomycin, magnamycin (carbomycin) and spiramycin, may be thought of as second cousins of penicillin. The stability in the gastrointestinal tract, the bacterial spectrum and the cross-sensitization characteristics are very similar to those of penicillin.

Erythromycin has been modified in various ways in an attempt to stabilize it against the acid environment of the stomach. The stearic acid salt (Erythrocin stearate) and the lauryl sulfate salt of the propionic acid ester (Ilosone) do not yield freely absorbable antibiotic until the fatty acid is hydrolytically removed in the small intestine. Erythromycin is not very soluble in water and to overcome the difficulty which this property imposes on parenteral administration, the glucoheptonate and lactobionate salts have been produced. Lastly, erythromycin's bitter taste has been somewhat subdued with the introduction of the ethyl carbonate salt, which is used for the extemporaneous preparation of liquid forms of the drug.

With the exception of the more stable triacetyl salt of oleandomycin (Cyclamycin), little has been done to modify the other drugs in this group. Such changes as have taken place, have been designed to eliminate them completely (i.e. Carbomycin).

### POLYPEPTIDES

Lastly, the polypeptide antibiotics, Bacitracin, Polymyxin, and Tyrothricin, form a triad of similar substances, whose potential toxicity limits their field of usefulness to local application and, in the case of the first two, to careful parenteral administration.

### SUMMARY

In summary then, it appears that relatively few of the modified antibiotics offer a real advance in therapy. Perhaps, under these circumstances it is reasonable to hope that the fight against bacterial diseases will resolve itself into a tactical manoeuvre not so much at the chemist's bench, but at the bedside of the patient. We should not wait for new products to solve our problems, because we will soon find out that there is more than one drug which is the "best" for a given indication. As Modell points out this will rapidly lead to the situation where "we won't have enough diseases to go round"<sup>1</sup>. How much better it would be to learn to use an agent well, and to replace it by another only when *sound clinical evaluation* shows that an advance has been made.

## REFERENCES

1. MODEL, W. *Clin. Pharmacol. and Therap.* 2:1:1961.
2. DRILL, V., *Pharmacology in Medicine*, McGraw-Hill, New York, 2nd Ed. 1958, p. 1124.
3. ROBSON, J. M. and G. A. H. BUTTLE, *Brit. Med. Bull.* 16:35:1960.
4. *Medical Letter* 2:73:1960.
5. *New and Non-official Drugs 1961*, J. B. Lippincott, Philadelphia, p. 125.
6. ROBERTS, C. E., J. D. ALLEN, and W. M. M. KIRBY, *Clin. Pharmacol. and Therap.* 2:70:1961.
7. Editorial, *J.A.M.A.* 174:1853:1960.
8. *Medical Letter* 3:1:1961.
9. Council on Pharmacy and Chemistry, A.M.A., *J.A.M.A.* 162:471:1956.
10. KUNIN, C. M., and M. FINLAND, *Clin. Pharmacol. and Therap.* 2:51:1961.
11. See bibliography of (10), refs. 23 and 36.
12. VOSTI, G. J., F. M. WILLETT, and E. JAWETZ, *Clin. Pharmacol. and Therap.* 2:2:1961.

---

"BLOOD TRANSFUSIONS WITHOUT CONSENT"

This is a printed record of a symposium of the Medico-Legal Society of Toronto held at Osgoode Hall in April 1961, with Mr. Edson Haines, Q.C., as Moderator.

The meeting began with an explanation by the medical members of the panel of the type of condition which might necessitate urgent and life saving transfusion and the problems arising when such treatment was refused on religious or other grounds. Dr. Chute pointed out the particular difficulties encountered when permission to give blood was withheld by a parent for a child and cited some of the legal risks a doctor takes when he carries out transfusion in these cases.

To quote him. "In doing so he is breaking a rule of the hospital, and operating room nurses and attendants might refuse to assist him. I asked my superintendent what would happen if he was called by one of his surgeons in cases of that kind, and he stated that it would be his obligation to tell the attendants that they were not to assist the surgeon in the performance of transfusion.

The Medical Protective Association has stated categorically that they will not defend doctors in such cases if action is brought against them. If the court should find him guilty of assault he would be liable to suspension or removal from the list of registered practitioners by the Provincial College of Physicians and Surgeons, thus depriving him of his livelihood."

Dr. Chute explained for the legal members the special problems associated with Rh incompatibility and the absolute necessity of replacement transfusion in order to prevent cerebral palsy, mental deficiency and of course, death. It seemed to him unjustifiable to expect a doctor to stake the future of himself and his family on the possibility that a court would uphold his action in transfusing a child when parents had refused permission for the procedure.

On the whole the legal members of the panel had but cold comfort for their medical confreres. They were helpful, however in pointing out grounds on which an adequate defence might be made. What they did not point out was the fact that the doctor would presumably be paying for his own defence and that a great deal of time, anxiety and unpleasant publicity would be involved. The factor of "immediate urgency" was stressed as highly important in defending a suit and an example of this in a British Columbia court was cited. In this case, during a Caesarean Section, the surgeon discovered a number of fibroid tumours in the uterine wall and because of the hazard for any future pregnancy, he tied off the Fallopian tubes. The patient was awarded three thousand dollars because he was unable to show "immediate urgency" to the saving of a life and was considered guilty of surgical assault. In the case of replacement transfusion for Rh incompatibility of transfusion in severe accident this urgency factor would be of great importance in legal defence.

Another line of defence suggested by Dean Wright hinges on the fact that any person having a control of a child is under an obligation to supply that child with the necessities of life. The providing of medical or surgical care has been held legally to be a necessity of life and if the child dies as a result of the failure of a parent in this respect, the parent may be charged with manslaughter.

During the discussion the legal experts were of the opinion that there is very little likelihood of a statute being passed that will expressly authorize the physician to transfuse a child without the parents consent. It would therefore appear that we must be content with Dean Wright when he says "I think that in this case the doctor must make up his mind that he is entitled to act provided he can show the duly constituted organ of society—usually a jury, that a given child would have died had he not undertaken an unconsented invasion. Let it be remembered that in making up his mind he does not have to prove that death would have been a certainty, because nothing is certain in this world, but if he can convince a group of his neighbours that on a balance of probabilities, the child would have died unless he undertook the conduct in question, then in my opinion the physician or surgeon is in the clear."

The Moderator, Mr. Haines, pointed out also that if he complies with the parent's wishes, the physician may be guilty of a breach of duty. S. 188 of the code provides: Everyone who undertakes to do an act is under a legal duty to do it if an omission to do the act is or may be dangerous to life. Entry upon performance creates a duty to complete the undertaking. The physician who undertakes the care of a sick child cannot abdicate in the face of an unreasonable refusal on the part of the parent which may be an offence on the part of the parent under S 186.

As a practical suggestion mentioned by Dr. Chute the child might be kept going by blood volume expanders long enough to contact the children's Aid Society, to secure an injunction from a court to have the child taken over by the Society and then obtain permission from them to give the transfusion. The operative factor here is the time and in, for example, a serious accident, may not be possible.

The only conclusion one can draw from all this is that, like ancestors, patients should be chosen with care and if you are unlucky enough to have the wrong sort thrust on you, your best bet is Perry Mason.

S. CLAIR MacLEOD, M.D.\*\*

HALIFAX, N. S.

The incidence in woman of these two symptoms is not known but there is no doubting that they are common. That they occur together is well recognized, oligomenorrhea or amenorrhea accompanying hirsutism more frequently than "dysfunctional bleeding". Obesity and relative or absolute infertility are likewise often associated with hirsutism. Hirsutism is embarrassing and sometimes engenders anxiety. If it is marked, rapidly progressive or associated with *menstrual* disturbance or other evidence of virilization further investigation is indicated.

When the doctor encounters an hirsute woman there are definite major endocrine disorders he must think of in his differential diagnosis. Perhaps for descriptive purposes it would be best for us to divide the causes into two groups, those the pathogenesis of which is fairly well known and those which are poorly understood.

#### KNOWN CAUSES OF HIRSUTISM:

In the first group we would like to include hyperplasia or tumor of the adrenal cortex causing Cushing's Syndrome or the adreno-genital syndrome. The latter may be congenital in which case it will be associated with pseudo-hermaphroditism. In these syndromes adrenal hyperactivity might be produced by pituitary adenoma as well. Others less frequent are the *masculizing tumors of the ovary*; chiefly arrhenoblastomas and some of the theca cell tumors and adrenal rest tumors. In the known causes one should never forget that hirsutism and menstrual disorders may result from androgen *therapy*, often unavoidably in treatment of carcinoma of the breast but inexcusably in the management of menstrual disorders. It must be remembered that a growth of facial hair is common after the menopause and moderate hirsutism may be regarded as normal in many young women of *Mediterranean* stock.

#### POORLY UNDERSTOOD CAUSES OF HIRSUTISM:

The second group includes the *Stein Leventhal Syndrome*, the exact etiology of which is not known. This syndrome was first described by Stein and Leventhal in 1935<sup>1</sup>. Its cardinal symptoms are menstrual disturbance, sterility, hirsutism and moderate obesity, associated with bilaterally enlarged polycystic ovaries showing hyperthecosis and capsular thickening. Speculations regarding the etiology of this syndrome have included adrenal dysfunction, a form of pituitary basophilism, excessive secretion of luteinizing hormone and abnormal intrinsic ovarian response to several types of stimuli<sup>2</sup>. Adrenocortical function has been widely investigated (*vide infra*). The total neutral 17 ketosteroids (17 KS) excreted in the urine are normal in amount or slightly raised (above 13 mgs. but seldom above 20 mgs. per 24 hours)<sup>3</sup>. The ketosteroids are the only available method of measuring androgenic compounds produced by the adrenal gland.

Many cases fall into the group of so called *idiopathic* or simple hirsutism for which, until recently, there was very little evidence to suggest an endocrine disorder. Hypersensitivity of the hair follicles to endogenous androgen

\*From the Dept. of Obstetrics and Gynaecology, Dalhousie University and the Victoria General Hospital.

\*\*Research Fellow in Obstetrics and Gynaecology, National Research Council.



was put forward as a possible explanation. As in the Stein Leventhal syndrome the 17 KS excretion is normal in amount or slightly raised. When raised they can be readily suppressed by cortisone or its analogues (indicating dependence on the amount of circulating ACTH). This points to the possibility of an adrenal origin for the ketosteroids and yet differentiates them from the response that is obtained when the hirsutism is due to androgen secreting tumors for then the ketosteroids cannot be suppressed with the usual dose of corticoid used (eg. 2 mgs. dexamethasone daily).

*Menstrual* disturbance, obesity and infertility may occur with idiopathic hirsutism in the absence of palpably enlarged ovaries on pelvic examination. This group may be *intermediate* between idiopathic hirsutism and Stein Leventhal Syndrome (*vide infra*.)

New methods of investigation are disclosing minor errors of steroid metabolism in an increasing proportion of these cases with poorly understood causes of hirsutism, including those with *menstrual* disorders with and without the described ovarian pathology. For example, the urinary excretion of androsterone and etiocholanolone (metabolites of stronger androgens) may exceed normal<sup>4</sup> even though the total 17 KS are within the normal range.

Less commonly the urinary dehydroisoandrosterone, a weak androgen, may be increased.<sup>5</sup> Recently A. M. Moses and colleagues<sup>6</sup> have reported the infusion of adrenocorticotrophic hormone (ACTH) causes a disproportionate rise in the excretion of 17 KS over 17 hydroxycorticoids in hirsute women compared to normal controls and this has been confirmed by J. W. Goldzieker and H. Lartins.<sup>7</sup> The evidence though indirect, thus points to the possibility of the adrenal glands as the major secretion site of androgens.

Many investigators are now accepting the view that the Stein Leventhal syndrome and idiopathic hirsutism with or without *menstrual* disorders are of the same etiology, the former being the end of the scale of a gradual change which may take years to be fully accomplished. In fact the ovaries in some of these cases do show minor histological changes of hyperthecosis without the cystic enlargement and partial or no thickening of the capsule with the result that new names like "Steinesque" and "Steinish" ovaries are appearing in the literature.

Recently Dorfman<sup>15</sup> has devised a unique method of determining serum testosterone levels and in a preliminary report described higher than normal levels in females with hirsutism. A final report of his findings may be very interesting and throw new light on the pathogenesis of hirsutism.

#### INVESTIGATION OF HIRSUTISM:

Investigation of marked or rapidly progressive hirsutism, with or without other evidence of virilization, must include a search for ovarian, adrenal and pituitary tumour. It should include the measurement of urinary 17 KS excretion before and during the administration of dexamethasone or a related corticosteroid.

Chronic *menstrual* disturbance requires careful pelvic examination regardless of whether it is accompanied by hirsutism. It is not uncommon for patients with "Stein Leventhal ovaries" to show neither hirsutism nor obesity.

#### TREATMENT:

First, the treatment of the *known causes* of hirsutism, amenorrhoea, etc. depends upon the condition diagnosed. Adrenal tumours are resected. Hyperplasia of the adrenal cortex with Cushing's syndrome responds to partial

or total bilateral adrenalectomy. If both glands are removed this is followed by maintenance doses of cortisone and, for its salt retaining effect, fluorohydrocortisone. Congenital adrenal hyperplasia with pseudohermaphroditism responds well to cortisone. Plastic surgery of the genitalia is necessary. Masculinizing ovarian tumors are resected. Pituitary tumors causing Cushing's Syndrome may be treated by irradiation and possibly by hypophysectomy in resistant cases.

Treatment of those cases due to the *unknown causes*, as one would expect, is much more controversial. In the cases of Stein Leventhal Syndrome there are two choices of therapy; wedge resection of the ovaries and cortisone analogues in low dosage. Wedge resection of the ovaries usually corrects infertility at least temporarily and restores normal *menstrual* rhythm but seems to have very little effect on the hirsutism. Whether it suppresses the 17 ketosteroid excretion is controversial since not enough of these studies have been carried out after wedge resection. There is a tendency today in the younger group of females with Stein Leventhal syndrome to resect a wedge from only one ovary first thereby having the remaining one to fall back on if anovulatory or abnormal menstruation reoccurs.

In both the Stein Leventhal Syndrome and idiopathic hirsutism with *menstrual* disorders *cortisone analogues* are said to correct the *menstrual* disorder in over half the cases and correct the abnormality in excretion of 17 KS in virtually 100 percent of cases. W. H. Perloff<sup>8,9</sup> claims 80% correction of *menstrual* disorders and Jefferies<sup>16</sup> 70% correction of infertility. Perloff also claims some benefit to hirsutism but this has not been confirmed by others. Some workers have had less success with the steroids,<sup>10, 11, 12, 13</sup> but most agree that there seems to be some benefit.

From 12.5 to 50 mg. of cortisone daily has been recommended by different authors, usually divided into two or three doses at 8 to 12 hour intervals. The equivalent dose of prednisone would be 2.5 to 10 mg. daily. For general use not over 25 mg. of cortisone or 5 mg. of prednisone daily is recommended for these disorders. Even this dosage may be unwise where there is a history of peptic ulcer, tuberculosis or diabetes and, when used, the patient should be rechecked every few months.

It is controversial whether wedge resection should be carried out in the unmarried girl or the married women without at least a one year trial with cortico-steroid therapy if there are no contraindications. Many endocrinologists seem to agree that steroids should be tried first and wedge resection be withheld until one year of infertile marriage or failure to respond to steroids. It is also interesting to note that some of the cases that fail to respond to wedge resection, or respond for only a short time will later respond to corticosteroids.

In the case of idiopathic hirsutism with *menstrual* disorder but without the gross pelvic finding of Stein Leventhal syndrome, the consensus of opinion has definitely favoured corticosteroid therapy for infertility. Yet this may be disputed by some because of recent reports of normal gross pathology in the presence of the microscopic pathology referred to previously as hyperthecosis. A few of these cases have seemed to respond to the wedge resection even though only minor gross pathologic changes were evident in the ovaries.

It certainly is quite evident that the last word regarding etiology or treatment has not been said. One of the clinical research programs being carried out by the Department of Obstetrics and Gynaecology and Department of Medicine at Dalhousie University is concerned with this problem. M. G. Tompkins et. al<sup>14</sup> have reported clinical observations and data relating to

adrenal function in 45 cases of oligomenorrhea, hirsutism and or infertility seen at the Victoria General Hospital. There was suggestive evidence that the *menstrual* pattern was improved by prednisone therapy. However, it was felt that the natural course of the oligomenorrhea or infertility, and the effects of placebo (demonstrable by using the "double blind" method of evaluating a drug where neither observer or patient knows the medication) must be known in patients with these symptoms before interpreting reports of benefit from adrenal suppression. Since this initial publication, a double blind study has been carried on by these authors and at present about 10 patients have completed a one year course of treatment. This number does not permit conclusions and the series is being increased. The V.G. Hospital study indicated that intermittent therapy probably would be effective in maintaining the decreased level of 17 KS excretion in the urine and it is to be hoped it might maintain the improvement of the *menstrual* disorder as well. If this is so it will certainly be beneficial especially in lowering the cost and the risk of complications to the patients. In the above series of patients there were no major complications recorded. Three patients showed a slight facial rounding and one patient experienced temporary upper gastro intestinal discomfort. This seems to be the opinion of all investigators and the percentage of even minor complications is extremely low and especially so when one is aware of the contraindications to corticosteroid therapy.

It seems evident that regardless of the treatment used, whether surgery or corticosteroid therapy, the abnormal hair growth, especially facial remains a great problem. There are many methods advocated for the removal of facial hair including shaving, electrolysis and depilatories. The choice seems to vary with the patient's preference and financial means as well as the colour and amount of hair growth. The patients seem to benefit very little from electrolysis if the growth is heavy besides the fact that it is quite painful and costly. At the V. G. Hospital over the past year we have been using a commercially prepared wax for depilation called "Zip". If proper instructions were given including the use of powder before and a suitable astringent lotion after application of the wax most of the patients found this method to be more satisfactory than others they had used. The procedure was associated with a very minimal amount of pain. The frequency of treatments varied with the individual but were usually once every one to three weeks.

#### SUMMARY

A brief review of some of the literature and the experience at the V. G. Hospital regarding idiopathic hirsutism and menstrual disorders and or infertility has been presented. Recent investigation suggests that the adrenal and possibly the ovary are at fault in the production of abnormal amounts of some of the androgenic hormones even though the total urinary 17 KS are usually within the normal range.

The concept of a spectrum of disorders ranging from the normal to the true Stein Leventhal syndrome has been presented.

The present concepts of treatment has been outlined with special attention to the controversial issue of cortisone therapy vs wedge resection of the ovaries where ovarian gross pathology can be demonstrated.

Brief mention was made of the treatment of facial hair growth used at the V. G. Hospital.

## REFERENCES

1. STEIN, et. al. *Am. J. Obs. Gyn.* 29. 181., 1935.
2. GALLAGHER, T. F., et. al. *J. Clin. Endo* 1956. 16. 517.
3. JAILER, J. W., *Gynaecologia* (Basel) 1954. 138. 276.
4. GARDNER, L. E., *Clin. Endocr.* 1953. 13. 6054.
5. ZACCO, M., *Endocrinology.* 1956. 10. 619.
6. MOSES, A. M., et. al., *Amer. Endocr. Society* June — 1960.
7. GOLDZIEBER, J. W., et. al. *J. Clin. Endocr.* 1960. 20. 967.
8. PERLOFF, wid. et. al. *Am. Arch. Internal Med.* 1956. 100. 981.
9. PERLOFF wid et. al. *J. Amer. Med. Assoc.* 1958. 167. 2041.
10. MATINGLY, D., et. al. *B.M.J.* 1960. 1. 1298.
11. DE MOWLERoy et. al. *A.M.A.* 1959. 2. 456.
12. BEHRMON, H.T., *J. Am. Med. Assoc.* 1960. 172. 1924.
13. LEDSETT, M. B., *B. J. Clin. Endo.* 1960. 20. 180.
14. TOMPKINS, et. al. *C.M.A.J.* Nov. 1, 1959.
15. DORFMAN, J. *Endo. and Met.* Feb. 1961.
16. JEFFERIES et. al. *J. of Sterility and Ferility*, Dec. 1960.

## BOOK REVIEW

BLOOD DISEASES OF INFANCY AND CHILDHOOD, by Carl H. Smith, 535 pages, 51 figures, 21 tables, Price \$17.00. Published by the C. V. Mosby Company, 1960.

The rapid growth of hematology and the particular problem presented by the younger patient with a blood dyscrasia fully justifies this recent book on Paediatric Hematology.

The opening chapters, Blood Changes During Growth-Postnatal Period, Infancy, and Childhood; Blood Dyscrasias in Relation to Maternal-Fetal Interaction, provide the background for discussion of hematological disturbances as seen in the pediatric age group. The text covers all aspects of Hematology including Blood Coagulation, Disorders of the Spleen and Reticuloendothelial System, Blood Groups, and the Hemoglobinopathies.

Particularly valuable are the chapters on Transfusions in Pediatric Practice; Jaundice-Differential Diagnosis in the Neonatal Period and Erythroblastosis Fetalis. The latter chapter in addition to fully considering the general principles of treatment of Erythroblastosis gives in detail the indications and technique of exchange transfusion.

This is an excellent, lucid, text and fulfils the stated purpose "to present the essentials of pediatric hematology in concise form". While written for the medical student and practitioner it will probably prove more useful to the post-graduate student and the practicing pediatrician.

## EXPERIENCE WITH CHLOROQUIN

J. MURRAY SNOW, M.D.

HALIFAX, N. S.

The physician treating rheumatoid disease has at his disposal an impressive armamentarium of pharmaceutical compounds that can be mainly classed as (1) salicylates (2) gold preparations (3) corticosteroids (4) phenylbutazone and its derivatives, or (5) antimalarials. It is not my intention to become involved with the many pros and cons of these various therapeutic agents, but rather to attempt to present an appraisal of the synthetic antimalarial chloroquin. These impressions are based on observations in private office practice as well as a "double-blind" study of the use of chloroquin in rheumatoid disease conducted through the Out-Patient Clinic of the Victoria General Hospital in cooperation with Dr. J. F. L. Woodbury and the Canadian Arthritis and Rheumatism Society.

Chloroquin has been used in the treatment of Rheumatoid Arthritis and the related entity or variant of Marie-Strumpell Ankylosing Spondylitis. It is produced as tablets of Chloroquin phosphate and the optimum dosage is considered to be one tablet of 250 mg. administered daily, although in a few patients a dose of 500 mg. may be more beneficial.

There is a latent period of action or a cumulative effect dependent upon the stage of severity of the disease and the duration. Subjective improvement is usually seen within six weeks after treatment is initiated but this type of improvement is often seen in a high percentage of patients with rheumatoid disease whenever a new form of treatment is introduced. It is the objective evidence of beneficial effects that tends to create the most favourable impression of the usefulness of chloroquin, although this evidence is not seen for a period of three to six months. It comprises both clinical modalities and laboratory measurements.

Functional capacity improves within six months in many patients and this is accompanied by improvement in the classical effects of the disease process. A decrease is noted in the warmth, swelling and tenderness of the involved joints and in the associated muscle spasm and morning stiffness, along with an increased range of movement of joints which were previously restricted to a measurable degree. By actual arthrometric determinations this increase may be fifteen to thirty degrees after six months, varying with the specific joint involved and the initial amount of restriction.

Laboratory tests can be used to confirm the improvement noted clinically although their extensive use is better adapted to research projects than to the regular follow-up of treatment in office patients. A group of patients at the Arthritis Clinic of the Victoria General Hospital were followed for periods of twelve to thirty months by a series of laboratory investigations including complete hemograms, urinalyses, sensitized sheep-cell agglutination titres (S.C.A.T.), and electrophoretic determinations of serum protein fractions. The results of these investigations confirmed the improvement noted clinically and details of this study will soon be published in a formal paper.

Erythrocyte sedimentation rate values are non-specific but they would be expected to decrease as the underlying disease process becomes controlled. High S.C.A.T. values are more nearly specific for rheumatic activity and these values exhibit a definite decrease in over half of the patients on chloroquin treatment. Depression of serum albumin levels is also an effect of rheumatoid disease and these values increased in two-thirds of the cases after chloroquin treatment of six months or longer. In the electrophoretic determination of the globulin fractions of serum proteins the alpha-2, beta and gamma frac-

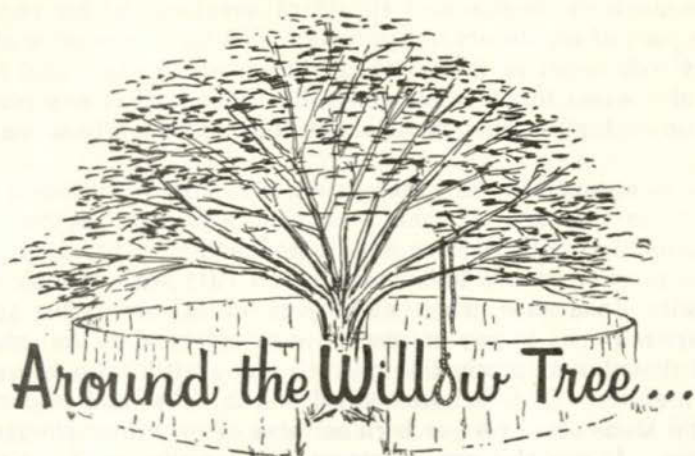
tions may be abnormally high and these too are seen to revert towards normal levels in about two-thirds of these patients. In the summation of these laboratory studies there is a general trend of reversion toward normal values in the applied tests and this trend begins after a minimum of six months treatment.

Adjunctive therapy is often indicated in patients to whom chloroquin is being administered. An integrated program of rest and physiotherapy may be advisable and analgesic drugs such as salicylate are usually required, especially during the initial period in which the chloroquin effect is latent. The anti-inflammatory corticosteroids may be used in the more severe cases if required. It is felt that phenylbutazone should not be given in conjunction with the antimalarial drugs

In office practice I prefer to initiate the treatment of a patient with rheumatoid disease by prescribing 250 mg. chloroquin daily at bedtime, and 60 gr. of sodium salicylate (enteric coated) daily in four divided doses. After symptomatic improvement occurs the salicylate dosage is reduced to 40 gr. daily, and later the patient can usually determine whether it is necessary or not. The more acute cases with greater disability and pain may require corticosteroid therapy but these constitute a relatively small percentage of patients seen in office practice or as ambulatory out-patients. Such patients need more specialized management and would benefit most from hospitalization, if possible.

Some reports in the literature limit the usefulness of chloroquin by virtue of its alleged high toxicity but this has not presented a serious problem in personal experience. The overall toxicity noted here is not more than five percent. The toxic effects of epigastric burning, anorexia, vomiting and the symptoms constituting the so-called "Seasickness Syndrome" occur occasionally, but administering the medication with food at bedtime is helpful in avoiding these symptoms. It is also wise from a psychological viewpoint to refrain from mentioning these possible effects when first prescribing this drug for a patient. Dermatitis may also occur occasionally, necessitating withdrawal of the chloroquin for several days before its reinstatement at a reduced dosage of 125 mg. If these effects do not prove to be transitory the substitution of another antimalarial compound hydroxychloroquin may result in relief from toxicity. Leukopenia and agranulocytosis may possibly be produced by chloroquin but no cases have been encountered here as yet, the white blood cell and differential counts remaining at normal values over extended periods of therapy. Other undesirable features such as blurring of vision, vestibular disturbances and bleaching of the hair are more likely to be found when the higher dosage of 500 mg. is required. If this dosage is used, extremely careful observation is mandatory since the visual disturbance may be due to a corneal epithelialization which is capable of reaching an irreversible stage. Although no evidence has been reported of hepatic damage, chloroquin is known to concentrate in the liver and hence contraindicated in severe liver disease. Unfortunately the exact mode of action of chloroquin is yet unknown.

In my experience chloroquin therapy is sufficiently effective to warrant its continued use in rheumatoid disease. It is accompanied in most cases by very low toxicity in the recommended dosage of 250 mg. per day. A concomitant program of restricted activity and physiotherapy as well as adjunctive drug therapy is essential for maximum benefit to the patient. A measurable degree of improvement can be anticipated in seventy to ninety percent of the patients encountered in general practice with definite Rheumatoid Arthritis or Ankylosing Spondylitis.



### LUXURY, COMFORT AND NECESSITY IN MEDICINE

A cross section taken at random through the social structure of any nation of the world would find, despite pious political affirmations to the contrary, a common, age-old stratification. On top is the thin crust of the ruling class of the day. A varying thickness of executive, professional and business people constitute the middle stratum, while the bulk of the ordinary folk from the artisan down to the manual labourer and the indigent make up the greatest proportion of the nation's population.

Short of perpetual anarchy, it seems likely that these divisions of society are permanent for *homo sapiens* though subject to sudden change by the convulsions of revolution and to inevitable transposition as the fortunes of individuals and families rise and fall with succeeding generations. A tacit acknowledgement of this state of affairs may be seen in any community great or small. In housing, in stores, in dress, often in speech, in attitudes to education, in transport systems by land, sea or air, in hotel accommodation—the tripartite divisions of society are clearly seen, understood and catered for, regardless of the shifts of personnel that occur with the passage of time.

Generally speaking the coherence and loyalties of each class is determined largely by the climate of habit and taste that an individual is subjected to from birth, by inheritance, by example and by a multitude of environmental influences that dictate his preferences and the neighbours he chooses on his way through life. In a democratic society its saving grace is that while all this is manifestly evident to any but the most determinedly blinkered, the gradations are gentle so that the cushion of contentment between highest and lowest that assures a nation's stability is bulky and resilient.

This being so it should not be surprising that in the practise of Medicine doctors have accepted with the realism of that their calling demands that while none shall be denied the best that modern medicine can offer it is nevertheless not possible that the *approach* to every patient can be the same.

This is at once evident on examining the accommodation structure of any modern hospital. There are the private rooms for the well-to-do, the so-called semi-private for the comfortably off and the wards for the necessitous.

All this may arouse envious mutterings from die-hard egalitarians, but the simple fact remains that by and large the first two categories are the source of the bulk of a doctor's income and the third a subject of his charity. Any failure on the part of legislators to appreciate this basic economic of a doctor's existence may well result in the doctor going out of business and the country running out of doctors for it is not generally realized that any practice must not only be run on high quality medical care but also as a business *in order to survive*.

A failure to appreciate the differing requirements of different sections of the community in the form of their treatment was never better exemplified when the National Health Service was introduced in Britain in 1948. The shadow of the present system had its origins in 1911 with the introduction of National Health Insurance when employers of labour below an arbitrary wage level were required to pay an insurance rate per caput that was centrally collected and distributed proportionately to any doctor who chose to accept that type of practice. This list was called a 'panel' list and in densely populated industrial areas often rose as high as three or even four thousand 'heads' per practitioner. It was this panel system that foreshadowed the present day capitation method of payment that is the sheet anchor of general practice finance under the National Health Service. And it amounts at current rates to a little less than *three dollars per head per annum*. Before 1948 about a third of the employed population of the country were treated 'on the panel' or in the public wards of the hospital. When the system was extended to the whole country many people woke up on the morning of July the first 1948 to find that in *their estimation* and in the light of their past association with the doctor of their choice they had in fact no health service at all. No longer could the doctor suit their convenience for which in the past they had paid him and had thus enabled him to run a broad based practice for everybody. The capitation payments of themselves and families were but a fraction of their former dues and so to exist at all the doctor had opened wide his doors to all and sundry to get the biggest list possible in order to survive. Which meant of course "proessional medicine." And it was left to the doctor to let the patient know that he had now become panalized and socialized.

The architect-in-chief of the service, the late Aneurin Bevin, had injected into its very life blood his own peculiar brand of venom that clouded his whole political life. The wedge between the general practitioner and specialist he drove completely home by excluding the former from the remotest connection with the hospital whatsoever. Moreover since the specialist was then—and still is—partly paid by a secret, unaccountable and unpublished Machiavelian expedient called the Merit Award, and no longer depended upon the general practitioner for his introduction to his patients for his fees, the hierarchical severance was complete, permanent and utterly devastating. And of course political control became absolute because if Dr. this or Mr. that should express any disapproval then it may be found that his work that year has not warranted his inclusion in the Merit Award list—political castration to put it politely.

In our October issue we published the first manifesto of organized labour read to The N. S. Medical Society during its annual convention and entitled "Labour Looks at Medicine." \*Like all similar documents that preceded the launching of the National Health Service it is no more than a hash of sectionally inspired political digestese with the usual golden glow of socialism

\*Speech delivered by John H. Delaney to the N. S. Medical Society June 13, 1961.



running through it urging that everything currently established by long and painful trial and error should be discarded because "Labour is emphatic on the point that it is futile to wait until sufficient facilities are available before embarking on the plan." What plan? None is mentioned or even remotely suggested. Some of the statements are frankly outrageous. Regarding preventive treatment for instance. The preventive clinics are open to everybody though many people are too lazy to avail themselves of these services.

No, Labour is not looking at Medicine at all but at Ottawa and the next election and there is a carrot in it for every donkey prepared to swallow it. Even the doctors—

"Remuneration should reflect the status of the doctor as a member of a highly regarded profession . . . and so on *ad nauseam*."

Were it not for the imminence of the next election one could only draw the charitable conclusion that 'Organized Labour' is an ass to put into circulation such a monstrously impossible document that for its execution would draw on at least half of the labour force of the country.

It is this sectional approach that has so far bedevilled all attempts to extend and continue the improvements that Organized Medicine constantly puts into effect. The great dread of doctors is that they shall become the political playthings of the warring politicians and the pawn of sectional interests that will render their lives unlivable—already difficult by ordinary standards, when every whim of every crank or half-wit, in addition to the flooding woes of the sick, the neurotic, the maimed, the drunk, the crazed, the moaners, the malingerers, the certificate seekers from organized labour, the pregnant, the parturient, and a countless host of others are dumped in his lap by the pronouncement of some starched political patricians (who incidentally are the last people in the world to utilise the amenities they so roundly proclaim) in the name of a free Health Service for The People.

Necessity, comfort and Luxury exist in Medicine as in other walks of life. Any attempt to socialize some part of it would break the existing structure into a thousand fragments. The civilized aim is to level up not down. After all what is civilization but an attending to creature comforts so that the wondrous cosmogony before us may be enjoyed to its fullest before we take the Long Journey.

The lesson of life is that all things and systems of any durability have undergone long and sometimes painful evolution, but are yet imperfect. And that goes for Organized Medicine as well.

## COMMENT

### MEDICAL COLLEGES ESTABLISH SECRETARIAT

The problem of decline in acceptable applicants for medical training has resulted in the establishment of a Secretariat for Medical Colleges in Ottawa. Dr. Ettinger's statement is as follows:

Ottawa, June 15, 1961—Thirty-five of every hundred doctors now commencing practice in Canada are graduates of foreign medical schools, according to a statement today by Dr. G. H. Ettinger, Dean of the Medical College, Queen's University and President of the Association of Canadian Medical Colleges.

Dr. Ettinger cited the shortage as one reason for the Association's decision announced today, to establish a secretariat in Ottawa for its twelve member colleges. He announced that Dr. Wendell MacLeod, Dean of the Medical College, University of Saskatchewan will head the new secretariat as Executive Secretary of the Association. Dr. MacLeod will take up his new appointment January 1st, 1962.

The Secretariat will explore the problem of the decline in acceptable applicants for medical training and will work to devise ways and means to improve the situation. Steps will be taken to stimulate interest in medical careers among high school students.

"One problem may be the length of training and the cost of a medical education," Dr. Ettinger stated. "Through the secretariat, the Association will be able to study ways to improve this situation." At present, a medical education must involve 8 years of post-high-school training, plus a possible additional five years of specialist training.

Another problem to be tackled by the Association is that of obtaining in-hospital training for medical students.

"Medical education depends on the use of hospitals for clinical instruction" Dr. Ettinger explained. Formerly, such training had been carried out in public wards. The growth of hospital insurance had diminished this source. "We must now look for an agreeable formula by which instruction can continue in hospitals and this will be one task of the secretariat."

Curricula of medical schools will be studied with a view to standardizing training in all institutions.

Advice on the expansion of medical education facilities will be given by the secretariat to provincial Departments of Education and Health. The secretariat will also work to establish accreditation of Canadian Medical schools by Canadian standards. Hitherto, accreditation has been carried out by visiting teams of the Association of American Medical Colleges, U.S. counterpart to the Canadian association.

It is expected that an unidentified U.S. foundation will assist financially in establishment of the secretariat.

Ref: Dr. G. H. Ettinger  
Kingston, Ontario.

## PERSONAL INTEREST NOTES

October 30-November 1, 1961—The Federal Royal Commission on Health Services began its study of the country's medical facilities with sittings in Halifax, N. S. Seventeen briefs were submitted and as the medical brief will be dealt with elsewhere in this bulletin, it will not be touched upon here.

### HALIFAX MEDICAL SOCIETY

November 15, 1961—The regular monthly meeting of the Society was held at the Victoria General Hospital for the discussion of routine business and the agenda of the executive of the Nova Scotia Medical Society. This was followed by a panel discussion on Cardiac Resuscitation by staff members of the Victoria General Hospital.

Dr. Nelson Stott, announces the removal of his office to 112 Quinpool Road, Halifax, N. S. Telephone 423-6404.

### THE ATLANTIC SOCIETY OF OBSTETRICIANS AND GYNECOLOGISTS

October 28, 1961—A business meeting of the Council of the Society was held in Halifax. Members of Council present were Drs. George Flight, St. John's, Newfoundland; Frank Wanamaker, St. John, N. B.; Kenneth MacLennan, Sydney, N. S.; John Maloney, Charlottetown, P.E.I.; Carl Tupper, Halifax; and Donald Smith, Halifax.

### THE NOVA SCOTIA SOCIETY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

November 6, 1961—A combined meeting with the New Brunswick Society was held at the Victoria General Hospital Out-Patient Department followed by a luncheon meeting at the Lord Nelson Hotel. The luncheon was followed by a paper on "Glaucoma" by Dr. C. F. Keays, and comments on the recent meeting of the American Academy of Ophthalmology and Otolaryngology by Dr. J. H. Quigley. This was followed by several films on ophthalmic surgery.

Officers elected for the coming year were: Drs. R. H. Fraser, Antigonish, President; J. W. Moreside, Charlottetown, Vice-President; J. H. Quigley, Halifax, Secretary-Treasurer; and in addition the executive for the year will include Drs. H. J. Davidson, North Sydney, C. F. Keays, Halifax, J. P. McGrath, Kentville, and H. R. MacKean, Truro.

Dr. E. I. Glenister, Halifax, became the first Canadian President of the International Association of Secretaries of Ophthalmological and Otolaryngological Societies when he was elected to the post at the Association's Annual Meeting in Chicago in October.

### UNIVERSITY

October 27, 1961—Dr. M. K. Keech, Associate Professor of Medicine, Wayne State University, Detroit, Michigan, spoke on, "What is Collagen?" at the Victoria General Hospital Auditorium. Dr. Keech, one of the pioneers in electron-microscopy of Collagen, was sponsored by the Department of Medicine and the Post-Graduate Division, Faculty of Medicine, Dalhousie University.

November 6-9, 1961—The 35th Annual Dalhousie Refresher Course was held at Halifax. The Annual Meeting of the Medical Alumni Association of

Dalhousie University was held on November 7, 1961 at the Nova Scotian Hotel.

Dr. C. B. Stewart, Dean of Medicine, Dalhousie University was recently elected President of the Association of Canadian Medical Colleges.

#### BIRTHS

To Dr. and Mrs. Elmer MacKenzie (nee Lois Anderson) a daughter, Elizabeth Maude, at Twin Oaks War Memorial Hospital, Musquodoboit Harbour, on November 6, 1961. A sister for Kevin and David.

To Dr. and Mrs. Donald Seaman (nee Joan Campbell, R.N.) a son, at City of Sydney Hospital, on November 17, 1961.

#### COMING MEETINGS

May 21-23, 1962—109th Annual Meeting of The Medical Society of Nova Scotia, Nova Scotian Hotel, Halifax, N. S.

June 18-22, 1962—95th Annual Meeting of the Canadian Medical Association, Winnipeg, Manitoba.

June 10-14, 1963—96th Annual Meeting of the Canadian Medical Association, Toronto, Ontario.

---

#### POST GRADUATE COURSES

February 5, 6, 7, 1962 the Department of Pyschiatry are presenting their three day course for General Practitioners.

February 26, 27, 28, 1962 the Department of Surgery have arranged a clinical course in general surgery, emphasizing trauma. The mornings will be spent in the operating rooms assisting in technical procedure. A prominent guest surgeon is participating.

Neuro Surgery and Neurology are jointly conducting a two day programme immediately following on March 1st., and 2nd., at which Dr. H. E. Botterell, Neuro Surgeon, University of Toronto will be guest clinician.

---

#### SYMPATHY

The Editors of The Nova Scotia Medical Bulletin extend their sympathy to Dr. Anne Hammerling on the recent death of her mother.

**INFECTIOUS DISEASES—NOVA SCOTIA**  
Reported Summary for the Month of August, 1961

Diseases	NOVA SCOTIA				CANADA	
	1961		1960		1961	1960
	C	D	C	D	C	C
Brucellosis (Undulant fever) (044)	0	0	0	0	6	11
Diarrhoea of newborn, epidemic (764)	2	0	0	0	5	13
Diphtheria (055)	0	0	0	0	5	0
Dysentery:						
(a) Amoebic (046)	0	0	3	0	1	0
(b) Bacillary (045)	1	0	0	0	79	124
(c) Unspecified (048)	104	0	0	0	226	13
Encephalitis, infectious (082.0)	0	0	0	0	0	12
Food Poisoning:						
(a) Staphylococcus intoxication (049.0)	0	0	3	0	3	0
(b) Salmonella infections (042.1)	0	0	55	0	77	0
(c) Unspecified (049.2)	0	0	3	0	22	134
Hepatitis, infectious (including serum hepatitis) (092, N998.5)	17	0	64	0	665	241
Meningitis, viral or aseptic (080.2, 082.1)						
(a) due to polio virus	0	0	0	0	21	0
(b) due to Coxsackie virus	0	0	0	0	6	0
(c) due to ECHO virus	0	0	0	0	0	0
(d) other and unspecified	1	0	0	0	33	171
Meningococcal infections (057)	0	0	0	0	5	14
Pemphigus neonatorum (impetigo of the newborn) (766)	0	0	0	0	0	0
Pertussis (Whooping Cough) (056)	6	0	19	0	373	586
Poliomyelitis, paralytic (080.0, 080.1)	1	0	0	0	41	429
Scarlet Fever & Streptococcal Sore Throat (050, 051)	17	0	223	0	381	490
Tuberculosis						
(a) Pulmonary (001, 002)	19	3	0	0	xx	420
(b) Other and unspecified (003-019)	5	0	0	0	xx	108
Typhoid and Paratyphoid Fever (040, 041)	0	0	0	0	10	21
Venereal diseases						
(a) Gonorrhoea —						
Ophthalmia neonatorum (033)	0	0	38	0	0	0
All other forms (030-032, 034)	18	0	35	0	1450	1512
(b) Syphilis —						
Acquired—primary (021.0, 021.1)	0	0	3	0	0	0
— secondary (021.2, 021.3)	0	0	0	0	0	0
— latent (028)	0	0	0	0	0	0
— tertiary — cardiovascular (023)	0	0	0	0	0	0
— „ — neurosyphilis (024, 026)	0	0	0	1	0	0
— „ — other (027)	0	0	0	0	0	0
Prenatal—congenital (020)	0	0	0	0	0	0
Other and unspecified (029)	1	0	0	1	203	182*
(c) Chancroid (036)	0	0	0	0	0	0
(d) Granuloma inguinale (038)	0	0	0	0	0	0
(e) Lymphogranuloma venereum (037)	0	0	0	0	0	0
Rare Diseases:						
Anthrax (062)	0	0	0	0	0	0
Botulism (049.1)	0	0	0	0	0	0
Cholera (043)	0	0	0	0	0	0
Leprosy (060)	0	0	0	0	0	0
Malaria (110-117)	0	0	0	0	0	0
Plague (058)	0	0	0	0	0	0
Psittacosis & ornithosis (096.2)	0	0	0	0	0	0
Rabies in Man (094)	0	0	0	0	0	0
Relapsing fever, louse-borne (071.0)	0	0	0	0	0	0
Rickettsial infections:						
(a) Typhus, louse-borne (100)	0	0	0	0	0	0
(b) Rocky Mountain spotted fever (104 part)	0	0	0	0	0	0
(c) Q-Fever (108 part)	0	0	0	0	0	0
(d) Other & unspecified (101-108)	0	0	0	0	0	0
Smallpox (084)	0	0	0	0	0	0
Tetanus (061)	0	0	0	0	0	0
Trichinosis (128)	0	0	0	0	8	0
Tularaemia (059)	0	0	0	0	0	0
Yellow Fever (091)	0	0	0	0	0	0

\*Not broken down

C—Cases    D—Deaths    xx—not available

Complete figures for Nova Scotia not available

# NOVA SCOTIA MEDICAL BULLETIN

## GENERAL INDEX

Vol. 40 - 1961

Abbreviations used:—Ab. for abstract; C. for correspondence; Ed, for editorial; Rev. for review.

- ABRUPTO PLACENTAE:** Hypo-Fibrinogenemia in Placental Abruption (Gaum) 195-201.
- ALDOUS, J. G.:** The Biochemistry and Pharmacology of Orally-Active Diuretic Drugs 36-40; Pharmacology of Antibiotics 365-369.
- ANESTHETICS:** Intravenous Lidocaine with Suxamethonium in General Anaesthesia (Burke) 46-47; Letter to the Editor—Re General Anaesthesia (C.) (Ruddell) 251.
- APPRECIATIONS:** Dr. John Cameron (Stewart) 28-30; Dr. James MacRitchie (Robertson) 31; Dr. Arthur E. Doull, Jr. (Schwartz) 125; Dr. Peter S. Campbell (Robertson) 219; Dr. Walter Leslie (Morse) 351; Dr. Frederick J. Granville (McDonald) 352; (359).
- AROUND THE WILLOW TREE:** Around the Willow Tree (Evans) 213-215; The Origin of the Postal Service (Schwartz) 243-245; Welcome by the Valley Medical Society to the Registered Nurses Association of Nova Scotia, at their Annual Dinner, Kentville, June 7, 1961 (McGrath) 282-283; The Parable of the Prosperous Farmer (Evans) 318-320; Letters to the Editor, Re-Dr. Atlee's Article in MacLean's Magazine 347-350; Luxury, Comfort and Necessity in Medicine (Evans)
- ARTHRITIS:** Consultant Clinics in Arthritic Diseases, Cape Breton Clinics 113.
- ATLEE, H. Bengé:** Education for Childbirth (Rev.) 317.
- BACK PAIN:** Back Pain in Nova Scotia (James) 279-280.
- BALLENGER, J. J.:** Experimental Effect of Cigarette Smoke on Human Respiratory Gilia (Ab.) 207-208.
- BETHUNE, Gordon W.:** Some Problems in Breast Surgery 78-81.
- BIOPSY:** The Management of the Small Biopsy (Chipman) 14-15.
- BLOOD COAGULATION:** The Failure to Clot (Ed.) (Robinson) 191-193.
- BLOOD TRANSFUSIONS:** Blood Transfusions without consent (Pollett) 370-371.
- BOURNE, F. Munroe:** Threatened Myocardial Infarction 72-77.
- BRADY, Arthur J.:** Letter to the Editor, Re—Brother Timothy (C.) 167.
- BROTHER TIMOTHY:** Hay for Hobby Horse—Bagdad in the Desert 21-23; The Vanity of Medical Wishes 55-57; Six Hours in Bagdad 89-91; Another Lamp, Another Bushel 118-121; By Guess and By God 156-159; There's One Born Every Minute 181-185.
- BURKE, Charles B.:** Intravenous Lidocaine with Suxamethonium in General Anaesthesia 46-47.
- CANCER:** Cancer Detection (Robinson) 108-110; Cancer Hazards in Our Environment (Roe) 134-146; (Erratum 212).
- CARTOONS:** 35; 67; 100; 120; 131; 168; 185; 192; 294; 328; 360.
- CHILD:** Infectious Diseases of Children (Rev.) (Roberts) 58; Blood Diseases of Infancy and Childhood (Rev.) (Langley) 376.
- CHILDBIRTH:** Education for Childbirth (Rev.) (Atlee) 317.
- CHIPMAN, Charles D.:** The Management of the Small Biopsy 14-15; Meningoencephalitis Due to Cryptococcus Neoformans 104-107.
- COCHRANE, William A.:** Vitamin Supplements (C.) 116.
- COLFORD, H. B.:** Recent Advances in the Epidemiology of Poliomyelitis 84-88.
- COMMENT:** Inside the Citadel 193; Pill-washing 238-239; Salk Versus Sabin, The Unfortunate Appendage, Bengé's Surgical Stew 311-321; I. H. Virus, Measles Inoculation 345; Medical Colleges Establish Secretariat 382.
- CUDKOWICZ, L.:** Respiration. Physiologic Principles and their Clinical Applications (Rev.) 281.
- COLLEGE OF GENERAL PRACTICE (MEDICINE) OF CANADA:** Annual Meeting, N. S. Chapter 27.
- DELANEY, J. H.:** Labour Looks at Medicine 295-299.
- DESTOUNIS, Nicholas:** Epidemiological, Psychological, Social-Economic Factors Affecting Life Adjustment and Pregnancy Complications in Newly Married Women 82-83.
- DIABETES:** Diabetic Neuropathy (Ab.) (Shane) 206.
- DIGESTION:** Experiments and Observations on the Gastric Juice and the Physiology of Digestion (Rev.) (Reid) 211.
- DROWNING:** The Medical Management of Drowning and Smoke Victims (Parlee) 338-340.
- DRUGS:** The Place of Corticotropin in the Treatment of Myasthenia Gravis (Ab.) (Shane) 13; The Biochemistry and Pharmacology of Orally-Active Diuretic Drugs (Aldous) 36-40; The Impact of the Newer Diuretics on General Practice (Wickwire) 41-45; Darenthin, A New

- Anti-Hypertensive Drug (Ab.) (Shane) 88; Letter to the Editor (C.) (Ruddell) 251; Circular Letter to Physicians re Controlled Drugs Regulations 292-293; Pillwashing (Evans) 238-239; The Management of Hypertensive Disease (Roy) 341-343; Pharmacology of Antibiotics (Aldous) 365-369.  
Experience with Chloroquin (Snow) 377-378.
- DUNSWORTH, Francis A.: A Cure for Ambivalence (Ed.) 129; The Power of Truth (Ed.) 325-327.
- EDEMA see OEDEMA
- EDUCATION: College of General Practice of Canada, Annual Meeting, N. S. Chapter 27; Post Graduate News 27; Short Courses 52; Coming Meeting 248; 249; Post Graduate Bursary 327; Medical Colleges Establish Secretariat 382.
- EVANS, E. Hugh: Inside the Citadel 193; Around the Willow Tree 213-215; Comment 278; Salk Versus Sabin 310; The Unfortunate Appendage 311; Bengo's Surgical Stew 311; The Parable of the Prosperous Farmer 318-320; Pillwashing 238-239; I. H. Virus, Measles Inoculation 345; Luxury, Comfort and Necessity in Medicine 379-381; The White Cane (Ed.) 357-359.
- EYE: The Significance of Lateral and Generalized Retinal Sheen (Ab.) (Shane) 110.
- FAULKNER, Ruth S.: Virus Infections of Current Interest 169-177.
- FELDMANN, F. M.: The Danish Tuberculosis Index (Ab.) 209-210.
- FRASER, F. Murray: Maritime Medical Care News 111-114; President's Report, Maritime Medical Care 148-152.
- GAVIN, W. F.: Meningoencephalitis Due to Cryptococcus Neoformans 104-107.
- GAUM, A. R.: Hypo-Fibrinogenemia in Placental Abruptio 195-201.
- GENETICS: Medical Genetics (Landrigan) 232-239; Recent Advances in Human Cytogenetics (Soltan) 300-308.
- GERIATRICS: Twilight of Man (Ab.) (Steeves) 77.
- GIFFIN, Audley A.: Unmet Medical Needs 103.
- GLAUCOMA: Glaucoma Clinic (Keays) 356.
- GODDEN, John A.: The Biology of the Para-Medical Publication (Ed.) 165; Ten Ways to Wreck Your Medical Society 99.
- GRANVILLE, Frederick J.: Presidential Address—1961, 270-273.
- HARLOW, Charles M.: High Fish Diet, Obesity and Blood Cholesterol 329-337.
- HEALTH SERVICES: An Order in Council Establishing a Royal Commission on Health Care 223; The Royal Commission on Health Service (Ed.) (Steeves) 253-255; The Business of Medicine (Ed.) (Quigley) 289-291; Labour Looks at Medicine (Delaney) 295-299; A Brief to the Royal Commission on Health Services, from the Medical Society of Nova Scotia 361-364.
- HEART DISEASES: Impending Cardiac Infarction and Non-Specific Electrocardiographic Abnormalities (Manning) 48:50; Threatened Myocardial Infarction (Bourne) 72-77; Prognosis and Anticoagulant Prophylaxis After Coronary Occlusion (Ab.) (Steeves) 81.
- HILTZ, Joseph E.: Tuberculosis—An Unsolved Problem 2240231;
- HIRUTISM: Hirutism and Menstrual Disorders (MacLeod) 372-375.
- HISTORY, MEDICAL: Source of Medical History (Rev.) Kemper) 211; Welcome by the Valley Medical Society to the Registered Nurses Association of Nova Scotia at Their Annual Dinner, Kentville, June 7, 1961 (MdGrath) 318-320.
- HYPNOSIS: The Healing Voice (Rev.) (Weil) 240-242.
- HYPERTENSION: Darenthin, A New Anti-Hypertensive Drug (Ab.) (Shane) 88; The Management of Hypertensive Disease (Roy) 341-343.
- INFANT MORTALITY: Resuscitation of the Newborn Infant (Rev.) (Robinson) 346.
- INFLUENZA VIRUSES: Observations on Influenza Virus Vaccine (Webster) 19-20.
- INOCULATION: Measles Inoculation (Evans) 345.
- JAMES, Rochard H.: Back Pain in Nova Scotia 279-280.
- KEYS, Claude F.: Glaucoma Clinic 356.
- KEMPER, Francis D.: Source of Medical History (Rev.) 211.
- LANDRIGAN, Paul L.: Medical Genetics 232-239.
- LANGLEY, George R.: Blood Diseases of Infancy and Childhood (Rev.) 376.
- LOBECTOMY: Radical Lobectomy (Ab.) (Shane) 340.
- MACK, Frank G.: The Treatment of Urinary Infections 313-315;
- MALPRACTICE: The Spectre of Malpractice (Ed.) (Steeves) 33; Our Legal Adviser Looks at Malpractice (MacTavish) 51-52.
- MANNING, G. W.: Impending Cardiac Infarction and None-Specific Electrocardiographic Abnormalities 48-50.
- MARITIME MEDICAL CARE INCORPORATED: Maritime Medical Care News (Fraser) 111-114; Officers 145; President's Report (Fraser) 148-152; Auditor's Report and Financial Statement 153-155; Annual Report of the President 265-269.
- MEASLES: Measles Inoculation (Evans) 345.
- MEDICAL SOCIETY OF NOVA SCOTIA: The 108th Annual Meeting 32; 62-63; And I With you Comrade (Reid) (Ed.) 65; Medical Services Insurance 68-69; A Guide for Individual Contributors 70; 71; Annual Meeting—1961, 101-103; Preliminary Programme 108th Annual Meeting 132-133; Re: Schedule of Fees 239; Annual Meeting—1961, 242; Executive Meeting—1961-1962, 245; The Nova Scotia Medical Society Report

- to the Annual Meeting 256-264; Presidential Address—1961 (Granville) 270-273; Transactions—1961 Annual Meeting 274-277.
- MENINGOENCEPHALITIS** see **MENINGITIS**
- MENINGITIS:** Meningoencephalitis due to cryptococcus Neoformans (Chipman) (Gavin) (McCauly) 104-107.
- MISCELLANY:** Hay for Hobby Horses see **BROTHER TIMOTHY**; The Best of Times and the Worst of Times (Ed.) (Pollett) 1; Reflections on the Natural History of Error (Pollett) 53-54; Letter to the Editor (C.) 54; Letters to the Editor (C.) 92; Physician, Heal Thyself (Ed.) (Quigley) 97; Ten Ways to Wreck Your Medical Society (Godden) 99; Unmet Medical Needs (Giffin) 103; Comparison of Canadian and United States Income Taxes on Representative Incomes (Quigley) 128; A Cure for Ambivalence (Ed.) (Dunsworth) 129; The Biology of the Para-Medical Publications (Ed.) (Godden) 165; Letter to the Editor—Re Brother Timothy (C.) (Brady) 167; Propositi Physicians and Papers, Annals of Internal Medicine (Ab.) (Steeves) 180; Around the Willow Tree (Evans) 213-215; Doctor's Wives (Ed.) (Pollett) 221; The Origin of the Postal Service (Schwartz) 243; The Unfortunate Appendage, Benges Surgical Stew (Evans) 312; The Parable of the Prosperous Farmer (Evans) 318-320; The Power of Truth (Ed.) (Dunsworth) 325-327; Letters to the Editor—347-350; Luxury, Comfort and Necessity in Medicine (Evans) 379-381.
- MORSE, William I.:** The Causes of Edema (C.) 117; Appreciation—Dr. Walter Leslie 351.
- MURPHY, Arthur L.:** The Surgery of Parotid Tumours 16-18.
- MYASTHENIA GRAVIS:** The Place of Corticotropin in the Treatment of Myasthenia Gravis (Ab.) (Shane) 13.
- MCCAULY, M. A.:** Meningoencephalitis Due to Cryptococcus Neoformans 104-107.
- MACDONALD, Joseph B.:** 108th Annual Meeting—1961, 32; 63.
- MCDONALD, Joseph A.:** Appreciation—Dr. Frederick J. Granville 352.
- MCGRATH, Joseph P.:** Welcome by the Valley Medical Society to the Registered Nurses Association of Nova Scotia at their Annual Dinner, Kentville, June 7, 1961, 282-283.
- MACLEOD, S. Clair:** Hirsutism and Menstrual Disorders 372-375.
- MACKINNON, Hector:** Preoperative Assessment 202-206.
- MACTAVISH, Duncan K.:** Our Legal Advisor Looks at Malpractice 51-52.
- NEOPLASMS:** The Surgery of Parotid Tumours (Murphy) 16-18; A Case History of an Unusual Abdominal Tumor (Smith) 309-310.
- NUTRITION:** Vitamin Supplements (C.) (Cochrane) 116; High Fish Diet, Obesity and Blood Cholesterol (Harlow).
- OBESITY:** Some Quantitative Observations on a Methamphetamine-Phenobarbital Anorexic Compound in Obese Outpatients (Ab.) (Shane) 45; High Fish Diet, Obesity and Blood Cholesterol (Harlow) 329-337.
- OEDEMA:** Symposium on Oedema (Read) 3-13; The Causes of Edema (C.) (Morse) 117.
- PARLEE, H. B.:** The Medical Management of Drowning and Smoke Victims.
- PERSONAL INTEREST NOTES:** 24-31; 59-60; 93-96; 122-125; 160-162; 186-189; 216-219; 246-250; 284-286; 321-323; 353-355; 383-384.
- POLLETT, William E.:** The Best of Times and the Worst of Times (Ed.) 1; Reflections on the Natural History of Error. Blood Transfusions Without Consent (Pollett) 370-371. (Rev.) 53-54; Doctor's Wives (Ed.) 221.
- POLIOMYELITIS:** Recent Advances in the Epidemiology of Poliomyelitis (Colford) 84-88; Salk Versus Sabin (Evans) 311. Re DPT Polio Vaccine 350.
- PUBLIC HEALTH:** Principles of Public Health Administration (Robertson) (Rev.) 212.
- PULMONARY DISEASES:** Prognostic Factors and Results of Treatment in Pyogenic Pulmonary Abscess (Ab.) (Shane) 201.
- PREGNANCY:** Epidemiological, Psychological, Social-Economic Factors Affecting Life Adjustment and Pregnancy Complications in Newly Married Women (Destounis) 82-83; Missed Abortion (Tupper) 178-180; Mitral Commissurotomy in Pregnancy (Ab.) (Shane) 201.
- PRENATAL CARE:** Adventure to Motherhood (Rev.) (Robinson) 20.
- PREOPERATIVE ASSESSMENT** see **SURGERY**
- QUIGLEY, John H.:** Physician Heal Thyself (Ed.) 97; The Business of Medicine (Ed.) 289-291.
- READ, Robert M.:** Symposium on Oedema 3-13.
- REID, James W.:** And I With you Comrade (Ed.) 65.
- RESPIRATION:** Respiration, Physiologic Principles and their Clinical Applications (Rev.) (Cudkowicz) 283.
- RESPIRATORY CILIA:** Experimental Effect of Cigarette Smoke on Human Respiratory Cilia (Ab.) (Ballenger) 207-208.
- RHEUMATOID DISEASE:** Rheumatoid Patients After Five or More Years on Clinical Steroid Treatment (Ab.) (Steeves) 231; Experience with Chloroquin (Snow).
- ROBERTS, Maureen H.:** Infectious Diseases of Children (Rev.) 58.
- ROBERTSON, John S.:** Appreciation—Dr. James MacRitchie 31; Principles of Public Health Administration (Rev.) 212; Appreciation—Dr. Peter S. Campbell 219.
- ROBINSON, Stuart C.:** Adventure to Motherhood (Rev.) 20; Cancer Detection 108-110; The Failure to Clot (Ed.)



- 191-193; Resuscitation of the Newborn Infant (Rev.) 346.
- ROE, F. J. C.: Cancer Hazards in Our Environment 134-146.
- ROY, Douglas L.: The Management of Hypertensive Disease 341-343.
- ROYAL COMMISSION see HEALTH SERVICES
- RUDELL, J. S.: Letter to the Editor—Re General Anaesthesia (C.) 251.
- SCHWARTZ, Hugh W.: Appreciation—Dr. Arthur E. Doull, Jr., 125; The Origin of the Postal Service 243-245.
- SHANE, Samuel J.: The Place of Corticotropin in the Treatment of Myasthnia Gravis (Ab.) 13; Some Quantitative Observations on a Methamphetamine-Pheno-Barbital Abnoretic Compound in Obese Outpatients (Ab.) 45; A New Anti-Hypertensive Drug (Ab.) 88; Mitral Commissurotomy in Pregnancy (Ab.) 201; Diabetic Neuropathy (Ab.) 206; The Significance of Lateral and Generalized Retinal Sheen (Ab.) 110; Prognostic Factors and Results of Treatment in Pyogenic Pulmonary Abscess (Ab.) 210; Radical Lobectomy (Ab.) 340.
- SMITH, Donald F.: A Case History of an Unusual Tumor 309-310.
- SNOW, J. Murray: Experience with Chloroquin 377-378.
- SOLTAN, H. C.: Recent Advances in Humon Cytogenetics 300-308.
- STEEVES, Lea C.: The Spectre of Malpractice (Ed.) 33; Twilight of Man (Ab.) 77; Prognosis and Anticoagulant Prophylaxis After Coronary Oclusion (Ab.) 81; Rheumatoid Patients After Five Years of Clinical Steroid Treatment (Ab.) 231; The Royal Commission on Health Services (Ed.) 253-255; A Local Outbreak of Trichinosis (Ab.) 286.
- STEWART, Harry L.: Appreciation—Dr. John C. Cameron 28-30.
- SURGERY: Some Problems in Breast Surgery (Bethune) 78-81; The Surgery of Parotid Tumours (Murphy) 16-18; Preoperative Assessment (MacKinnon) 202-206;
- THOUSAND (1000) Word Series: (1) Back Pain in Nova Scotia (James) 279-280; (1) The Treatment of Urinary Infections (Mack) 313-315; (3) The Management of Hypertensive Disease; (Roy) 341-343; (4) Experience with Chloroquin (Snow) 377-378.
- TRICHINOSIS: A Local Outbreak of Trichinosis (Ab.) (Steeves) 286.
- TUBERCULOSIS: The Danish Tuberculosis Index (Ab.) (Feldmann) 209-210; Tuberculosis—An Unsolved Problem (Hiltz) 224-231.
- TUMOURS see NEOPLASMS.
- TUPPER, W. R. Carl: Missed Abortion 178-180.
- URINARY INFECTIONS: The Treatment of Urinary Infections (Mack) 313-315.
- VACCINES: Observations on Influenza Virus Vaccine (Webster) 19-20; Salk Versus Sabin (Evans) 311.
- VITAL STATISTICS: Infectious Diseases Nova Scotia, Nov. 1960, 64; Jan. 1961, 127; Feb. 1961, 164; March 1961, 190; April 1961, 220; May 1961, 252; June 1961, 316; July 1961, 344; August, 385.
- VITAMINS: Vitamin Supplements (C.) (Cochrane) 116.
- WEBSTER, A. R.: Observation on Influenza Virus Vaccine 19-20;
- WEIL, Robert J.: The Healing Voice (Rev.) 240-242.
- WICKWIRE, John C.: The Impact of the Newer Diuretics on General Practice 41-45.



**WANTED**

General Practitioner, preferably with some surgical experience, for modern 25 bed hospital with Lab. Technician, X-Ray Technician and services of a Radiologist.

Town of 1,700—has a Regional High School, an Elementary School, Golf Course and Curling Rink.

For additional information contact V. R. Briggs, Chairman, Board of Management, Tobique Valley Hospital, Plaster Rock, N. B.

---

**DEPARTMENT OF PUBLIC HEALTH****Province of Nova Scotia**

Requires the Services of

**HEALTH UNIT DIRECTOR**

at

**Sydney, Nova Scotia****Qualifications:**

Qualified Physician with Post-Graduate Training in Public Health.  
Full Civil Service Benefits.

Further particulars may be obtained from Deputy Minister, Department of Public Health, Halifax, Nova Scotia

**Salary Range:** Commensurate with Qualifications and Experience.

Application Forms may be obtained from the Nova Scotia Civil Service Commission, P.O. Box 943, Provincial Administration Building, Hollis Street, Halifax, Nova Scotia.

**YOUR MONEY  
EARNS****4 $\frac{1}{2}$ %****ON DEPOSIT**

AT

**THE NOVA SCOTIA TRUST COMPANY**

55 SPRING GARDEN ROAD