

THE NOVA SCOTIA MEDICAL BULLETIN

EDITORIAL BOARD

Editor-in-Chief DR. A. J. BUHR

Members

DR. I. E. PURKIS
DR. M. E. BURNSTEIN
DR. B. O'BRIEN
DR. J. H. HALDANE
DR. M. GORELICK
DR. P. C. GORDON

DR. S. M. A. NAQVI
DR. S. V. ANAND
DR. J. C. VIBERT
MR. M. MCQUIGGE
MR. J. SANSOM

Managing Editor
MR. D. D. PEACOCKE

Editorial Assistant
MRS. T. CLAHANE

Dr. David Shephard

It is particularly fitting that this issue of *The Nova Scotia Medical Bulletin* emphasises the arts of communication and medical writing, since it offers us a unique opportunity to show our appreciation for our former Editor-in-Chief, Dr. D. A. E. Shephard, who has recently left us to join the medical editing staff of the Mayo Clinic.

For many years a valuable member of the editorial board of the Bulletin, Dr. Shephard became Editor-in-Chief in 1969, and immediately made his mark upon the Bulletin. A change of printer, and consultation with the Medical Society's Public Relations Committee, brought about a more attractive and modern format to the Bulletin. His happy knack of seeking the advice and opinions of a wide variety of people, in such a way that willing cooperation was obtained, brought him material from all over the province. Not only did this improve the already high quality of medical material in the Bulletin, but it also made the Bulletin more representative of the membership of the Society.

The ability to involve others was only part of his deep concern that physicians should not stand apart, but should become involved with their community. Not only did he personally become involved in community issues, but he stimulated the production of a series of articles on the major social issues of abortion, the environment and the physician's role in the development of community centres. Another series of articles on the doctor and his leisure

time, illustrated the diversity of interests and talents of the medical community.

During his tour of duty as Editor-in-Chief, Dr. Shephard became increasingly involved in questions of communication, and felt that his career in Anaesthesia did not offer him sufficient time to do all that he wished to do and felt himself capable of in the field of medical writing.

In taking the decision to make writing his full-time career, Dr. Shephard is in distinguished company. Such men as Sir Arthur Conan-Doyle, Somerset Maugham, and A. J. Cronin were physicians first before making their mark as writers. Richard Gordon wrote "Doctor in the House" when he, too, was an anaesthetist, and has now made writing his career. However, Dr. Shephard is not the first Editor-in-Chief of *The Nova Scotia Medical Bulletin* to make medical writing his career. Doctor John Godden, who also contributes to this issue, left *The Nova Scotia Medical Bulletin* to become Associate Editor of the *Canadian Medical Association Journal*, and now makes medical writing his career.

On behalf of the membership of the Medical Society, whom he has served so well, we wish to express our deep appreciation for the contribution Dr. Shephard has made as Editor-in-Chief of *The Nova Scotia Medical Bulletin* and wish him success, happiness and fulfillment in his new and highly specialised field. □

I.E.P.



Consider for

Now available for intravenous administration.

In suspected as well as documented gram-negative septicemia, or in imminent development of septicemia from serious respiratory or urinary tract infections, or wounds and burns complicated by sepsis . . . because of its broad gram-negative spectrum, its value in selected staphylococcal infections and its established clinical efficacy.

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

INDICATIONS:

GARAMYCIN is indicated in the treatment of serious infections caused by proven susceptible organisms.

In suspected or documented gram-negative septicemia, particularly when shock or hypotension are present, GARAMYCIN should be considered for initial antimicrobial therapy. In staphylococcal infections, GARAMYCIN should be considered when conventional antimicrobial therapy is inappropriate or when susceptibility testing and clinical judgment indicate its use.

ADMINISTRATION AND DOSAGE:

INTRAMUSCULAR/INTRAVENOUS†† ADMINISTRATION: A. Urinary Tract Infections

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

Garamycin^{*}

Initial therapy

in septicemia.[†]

†Due to gram-negative organisms

Systemic Infections — Normal Renal Function

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

Patients with Impaired Renal Function

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

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

INTRAVENOUS ADMINISTRATION

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

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

CAUTIONS:

Toxicity:

Gentamicin, like other aminoglycosides, has produced ototoxicity in experimental animals and man. It is manifested by damage to cochlear function and may be delayed in onset. Damage has occurred in patients who were uremic, had renal dysfunction, had prior therapy with ototoxic drugs or received higher doses or longer therapy than those recommended. The concomitant use of ethacrynic acid and furosemide should be avoided.

The physician should strongly consider discontinuing the drug if the patient complains of tinnitus, dizziness or loss of hearing. Serum GARAMYCIN levels in excess of 12 µg/ml should be avoided.

Nephrotoxicity:

Nephrotoxicity manifested by an elevated BUN or serum creatinine or a decrease in the creatinine clearance has been reported with

GARAMYCIN. In most cases these changes have been reversible.

Neuromuscular Blocking Action:

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

ADVERSE REACTIONS:

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

OVERDOSAGE:

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

PRESENTATION:

GARAMYCIN Injectable 40 mg/ml: GARAMYCIN Injectable is packaged in 2 ml multiple-dose vials containing 40 mg/ml of gentamicin base in aqueous solution at a pH of 4.5, for intramuscular/intravenous administration.

GARAMYCIN Pediatric Injectable 10 mg/ml: GARAMYCIN Pediatric Injectable is packaged in 2 ml multiple-dose vials containing 10 mg/ml of gentamicin base in aqueous solution at a pH of 4.5, for intramuscular/intravenous administration.

They are both heat stable and do not require refrigeration.

Full information and references are available on request.

*Reg. T.M.

Injectable IM/IV

Garamycin

(gentamicin sulphate)

An Approach to Medical Writing[†]

J. O. Godden, M.D., C.M.,* M.Sc. (Med.), C.R.C.P.(C), M.A. (Educ. Th.)*

Toronto, Ont.

Many physicians write badly because they have never been taught to write well. Except for those who have taught themselves, many write only in stereotypes, have a relatively meagre vocabulary outside the jargon of their craft, are insensitive to language and have little skill in evaluating text. Leaders of medicine have recognized the poor quality of much medical "literature" for many years; for example, in 1942, Alan Gregg, distinguished medical educator and Director of Research at the Rockefeller Foundation, said "the common level of medical and scientific writing in our professional books and journals already constitutes the most serious internal limitation to medical education and research".¹

During much of his medical education, the physician devotes himself to the accumulation of facts. Through this and through his experience in the laboratory and at the bedside, he becomes master of blocks of content but rarely does he receive any instruction or any practice in presenting his ideas. He has never been taught to look critically at form, even though content and form are inseparable. The physician-author needs a model which will guide him in manipulating content. Then, following simple rules, he can control the interaction of form and content so as to achieve an effective presentation of his ideas.

The physician and his language

Many physicians function best as verbal men. Here the emphasis is on personal contact, the reinforcement of gesture, intonation and other non-verbal clues, and the influence of an assertive personality. The speech developed here might be termed "automatic." Such speech makes great use of ready-made phrases and the jargon of the subgroup. But, whatever the objections, verbal communication does have built-in feedback, especially when carried out between two people motivated deeply enough to be frank with each other. However, as Aring pointed out, "Writing is a monologue and is not subject to the immediate correction of dialogue. Therefore he who aspires to write must be discerning."²

Many physicians deliver their ideas effectively and medicine has advanced in large part because enough such men appeared among the leaders of the profession from generation to generation. Men like Osler and, in the recent past, teachers like William Boyd, have exerted a wide influence on the life and thought of their contemporaries,

in large part because of their mastery of language. However, day-to-day communications in medicine — case notes, progress notes, letters of consultation and the like — are transfers of stereotypes, a highly ritualistic exchange between peers. These exchanges are often conducted in a jargon which "works" only because of the shared background of the speaker and audience.

The severe judgement rendered on scientific writing by Gregg¹ and repeated recently by Woodford³ and others⁴ is not new. In 1911, the first editorial in the maiden issue of the *Canadian Medical Association Journal* was entitled "Style in Medical Writing". In it, the editor said:

"There are three kinds of writers: those who never think at all; those who think only as they write; and those who have thought before they take pen in hand. Careful observers belong in the last category, and this is the reason why they write so well. Poor writers employ phrases. Good writers employ words; and they compel each word to give a proper account of itself. They put it to the question. They scrutinize it with the same care as they exercise toward the fact which they propose to describe. If it is weak, or worn, or superfluous, they cast it aside, as a good craftsman rejects imperfect material. Their writing, then, has symmetry and strength, and fitness for the work which it is intended to perform."⁵

The physician's ability to make language work for him depends first on his attitude to language. If he is insensitive and insists that because he knows what he means everyone else should, he may be in constant trouble without knowing it. Speech and writing make different demands but, in each, the physician succeeds insofar as he fulfills some such criteria as Woodford's: "Good scientific writing (and speaking) consists of five qualities: rational construction (logic); absolute accuracy (precision); ready comprehensibility (clarity); directness; and brevity."³ Each is an act of disciplined selectivity. "Selection," said Allbutt, "is an essential function, not for creative art only, but also, in no very minor degree for technical and scientific conception: as necessary as proportion and consistency, of which indeed it is a condition."⁶ The verbal symbols a speaker or writer selects depends upon the objectives of his presentation, his content, his skills and the character and needs of his audience. Assumptions *re* audience are rarely tested but, in a closed society, the author assumes that all members of the audience are his peers. Outside such societies, the author should examine his (presumed) audience with care because there is a vast difference between "acceptable" verbal presentation and the same content in a form suitable for scientific publication.

[†]Based in part on a thesis, "Interaction of Content and Form in Medical Writing", presented in partial fulfilment of the requirements for the degree M.A. (Educ. Th.), University of Toronto, 1971.

*Editorial Consultant, Faculty of Medicine, University of Toronto.

Content and form: keys to medical writing

Content consists of the topics, ideas, facts or statements in a paper. Form is shape and structure, as distinguished from the material of which it is composed.

Consider for a moment Blackader's paradox: "If you take care of the style, the sense will take care of itself."⁷ Blackader, the second editor of the *Canadian Medical Association Journal*, a contemporary and associate of William Osler and a founder of the specialty of pediatrics in Canada, was a patient, painstaking editor. To him, style was not the rambling, disconnected, repetitive, and frequently obscure or ambiguous way in which an author may habitually think and talk; style was an achievement that followed a long apprenticeship to the demanding discipline of medical writing. It is also paradoxical that "style" (effective form) succeeds perfectly only when it becomes invisible.

Physician-writers who adapt to their own use certain editorial techniques learn to reconcile content and form, not assuming, as many professionals seem to, that these techniques and skills were conferred on them with their degrees. Such physicians make the effort to master editorial skills because they have come to recognize that the management of facts depends upon the management of language — because men think in words.

The search for appropriate content starts with a trial of form. The author starts with a superfluity of content — runs through a series of trial-and-error experiments with forms — and ends with an appropriate model. In helping the author in his search for an appropriate form, the editor may use some such simple guide as "no unnecessary words." For example, an author, in an introductory paragraph on evaluation, said:

"The key concept in educational evaluation arises from the nature of the learning process itself. The fundamental realization is that a learning, of whatever variety, changes the learner into something he had not been before the learning experience. In order to identify whether such a change has occurred, some measure is needed which will allow two or more observers to agree that learning has been achieved. Without this measure, the recognition of whether an individual has learned something or not is left to conjecture and opinion."

The editor, seeking to come to grips with him, revised this passage to read:

"The key to educational evaluation is this: learning changes the learner. To identify the change, we need some measure that will allow two or more observers to agree. Without this measure, we cannot demonstrate that an individual has learned something."

This revision took less than 60 seconds, and the editor, even if he has not caught the author's meaning exactly, has brought the reader much closer to where that meaning might be found. This he did by giving clearly, in 40 words, what the author had buried under 85.

Consciously or unconsciously, the physician-writer must "get set" to write his paper: a preparation which might be called the psychological basis of scientific writing. Before he begins, the physician-writer should consider these questions:

Which task? Scientific writing is largely a matter of clear reporting. Concerning this skill, Woodford said:

"The outstanding characteristics of successful scientific writing are that it is logically constructed, clearly expressed, and precisely worded."³ Not only must the author have something to say, but he must say it effectively.

Which agent? The writer also must ask himself, Am I prepared for the task? Do I appreciate what it demands of me and am I willing to pay the price? As was suggested in the editorial "Style in Medical Writing" in 1911,⁵ many physicians may be intellectually or temperamentally unfit for scientific-literary synthesis. The "verbal" man — the energetic extrovert who overflows with ideas and images and who is stimulated by holding monologues with himself — finds it most difficult to grasp that what is clear to him may be obscure to another. Further, the myth of objectivity, which medical education inculcates and daily professional intercourse reinforces, raises the final bar to clear writing. How can ideas be stated accurately and succinctly when tradition couches everything in the passive voice, suppressing the agent?

For example:

Usual —

The urinary excretion of calcium is affected by changes in the filtered load of calcium or by altered renal tubular handling of calcium or by simultaneous changes in both factors.

Preferred —

The kidney excretes calcium by changing the filtered load or by altering renal tubular handling (of calcium) or by simultaneous changes in both factors.

What question? What question does the author set out to answer in his paper? If a laboratory or clinical study, what question has been asked, and what are the conclusions? His written and rewritten answers to these questions are his statement of purpose; they define the article's limits. At the outset, he must decide which data are relevant and which must be excluded.

Which Audience? The effectiveness of any piece of writing is in direct proportion to the writer's knowledge of his audience. Insofar as this is possible, the author must visualize his audience so that he can select appropriate language, determine how much background explanation must be supplied, decide how much detail is necessary, e.g., in materials and methods, and thus produce a paper that will achieve specific objectives with a specific audience.

Which Stereotype? His paper — the instrument he has chosen to convey his thoughts to the reader and so convince him of their validity — will take its form from one of several stereotypes: original article, case report, review

article, special article (clinical essay), short communication, or editorial.

If the beginner covets a clear style, he needs, in addition to native ability and desire, good models, a simple set of criteria like Woodford's four rules (Table), and continuous practice. To provide good models to counter the generally poor quality of medical writing, Roland⁸ searched the medical literature for brief selections that would illustrate principal criteria.* He found it difficult to track down good models. Asher,⁹ cited for his unorthodox but effective introduction, was one of Roland's discoveries.

In choosing his own criteria, the physician-writer can profit from the example of teachers of English, working in the humanities and in science. The specific guidelines chosen are probably not important if the physician has come to appreciate the conditions necessary for effective medical writing and has practiced its fundamentals by writing and rewriting. A watchword like "no unnecessary words" may crystallize for an individual all the attitudes, skills, techniques and rules he applies in disciplining his own writing.

Author-editor interaction

The author is always in charge but the medical editor, knowing his mind sometimes better than he does himself, monitors his productions. This he can do because they are peers and, in addition, the editor has forms and criteria at his fingertips. However, the author is "boss." It is his paper; no one else makes decisions about its content. The editor is no more than an observer unless the presentation begins to falter. If the author is in full control, the editor reads through, checking certain mechanical aspects and applying his repertoire of criteria and, pleased with what he has read, retires. If the author has good content but has not the skills nor techniques to present it effectively, the editor must gently but firmly "intervene." In most papers, the editor can determine the author's competence as a writer after he has read the paper's title and its introductory paragraph. He then knows, within narrow limits, whether he can do his job by a straightforward "read through" or whether he must assess every sentence and possibly recast every second or third one.

The figure, author-editor interaction, shows the division of labour between the author and his helpmate, the editor. This model also helps to show how content and form interact to modify each other until a perfect accommodation is reached. In most writing, a single individual plays both roles but when the author has had little experience, especially when he is dealing with complex content, the labour is divided: content is left to the author; the editor supervises form. The entities "author" and "editor," although they are often two facets of a single mind, are treated as if they were separate individuals reacting quickly

to each other. Together, they discover a prototype for each individual paper.

Thus, the object of author-editor interaction is style: a form that is so fitted to its task that it is unnoticed. In Lewes' words, "(prose) that surrenders up its meaning as a mirror."¹⁰

AUTHOR-EDITOR INTERACTION: A THEORETICAL MODEL

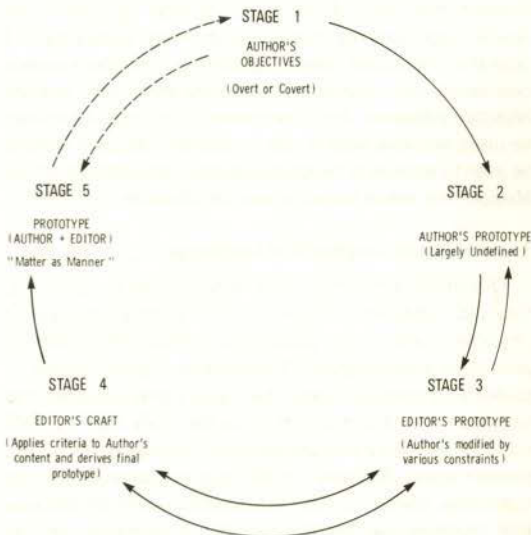


Figure was prepared by Mr. D. A. Gibson of the Audio Visual Department, Div. of Faculty of Medicine, Dalhousie University.

Concluding comment

Meaning is all important. Concerning the written word and the communication of meaning, Quiller - Couch went to the point when he said that good writing is a moral matter:

"It involves two: one to express the thought; the other to receive and apprehend it. Each must attend to the other's needs if effective communication is to be established. Hence the foundation of style is courtesy or good manners."¹¹

TABLE

<p>Woodford's Four Rules*</p> <ol style="list-style-type: none"> 1. Be simple and concise. 2. Make sure of the meaning of every word. 3. Use verbs instead of abstract nouns. 4. Break up noun clusters and stacked modifiers.
--

*These have now appeared in: ROLAND C. G.: *Good Scientific Writing*, Chicago, American Medical Association, 1971.

*From Woodford.³

Developments in Biomedical Communication

David A. E. Shephard, M.D., C.R.C.P.(C),*

Rochester, Minn.

"To live effectively is to live with adequate information." These words of Norbert Wiener¹ go to the heart of a problem that every physician has to face: the problem of how to cope with the growth of biomedical knowledge and with the information stemming from it. In Wiener's remark two words are significant: the adverb *effectively* and the adjective *adequate*. For a physician to practice effectively he must not only have access to information, he also must be able to acquire it selectively and to use it appropriately. Medical care would not otherwise be adequate.

The problem of the growth of knowledge

One must first question the nature of the problem. It is two-fold. The better known is the relative shortage of physicians, and as the population increases, the need for physicians steadily grows. Even though the enrollment of students in medical schools increases yearly (according to one estimate² the enrollment in the USA rose by 28% during a recent 12-year period), the shortage of physicians remains acute. Moreover, medicine grows dynamically and constantly changes. Simple retrospection confirms the view that medicine has become increasingly complex; we can each testify to the remarkable changes in medical practice by casting our minds back 10, 20, 30 years or more.

This aspect of the problem was recently quantified by Moore.³ He analyzed the increments in "valid clinical knowledge" for the years 1930-1970. To do so, he considered several factors: the volume of publications, the number of research workers, the duration of clinical training, the amount of continuing education, the extent of specialization, the number of drugs and biologicals, and the diversity of biochemical, radiological, surgical, and other procedures. He confirmed the opinion of many others that scientific knowledge increases exponentially; for medicine, Moore estimated the figure to be 10%. However, half of the new knowledge invalidates prior knowledge, while the other half adds to the total of valid knowledge. Thus the growth rate of "valid" clinical knowledge during this period could be put at 5% annually.

Such a conclusion has many implications. Moore was particularly concerned with the implications affecting the education of an admittedly insufficient number of physicians in such a way that medical care would remain adequate. In the context of continuing education, his argument is most disturbing. To satisfy this proviso, for the year 1969 the recent graduate, then *in practice*, should have mastered almost as much *new* clinical knowledge as the *medical student* of 1930 was expected to master by

studying *full-time* for one whole year. The practitioner of 1975 is likely to be faced with a requirement of twice this amount, by the early 1980's it will probably be 4 times, while by 1990 it will likely be 8 times this amount.

In addition to the quantitative nature of the problem, the qualitative aspect must be considered. Medical practice is increasingly technical and new medical knowledge is correspondingly complex. The complexity of new data and procedures is such that an analytic rather than an intuitive approach is required; an analytic method is required not only for the understanding of new information but also for its application. This is not easy. The training of most physicians has emphasized the intuitive faculty in solving diagnostic problems; indeed, as Moore pointed out, the natural preference of physicians is for intuitive methods, which are faster and appear to be more natural and, in a physician's busy practice, more useful for reaching diagnoses rapidly. And yet, in the future, total reliance on the intuitive approach, and neglect of the analytic, may harbor trouble.

The main problem is this: biomedical research has successfully delivered a remarkable body of knowledge, one which is constantly added to. At the same time, the physician has been slower to develop effective methods in acquiring, analyzing, applying, storing, and later retrieving, biomedical information.

Biomedical communication: software

Modern communications technology provides a variety of methods for the effective handling of information. Such methods are being developed continually, and there is little doubt that all aspects of medicine — teaching, research, and practice — will come to depend to an even greater extent upon communication devices which today supplement the standard medical text and journal. By the end of this century, the taped text and the photographed program will be as familiar as the written word and the printed page.

However, as varied and flexible as some of the 'hardware' is, much of the success to be expected from modern media depends particularly upon the intelligent use of 'software', that is, the methodology of control of information. The physician's individual needs will best be met if the means which physicians use to acquire information is considered carefully. There are many new techniques for bringing information to physicians, and there are many routes which they may take to acquire information. For much of the time, it must be admitted, this is a random process; physicians often use haphazard means to educate themselves (whether the means chosen is an informal meeting with peers, attendance at formal

*Department of Biomedical Communications, Mayo Foundation, Rochester, Minn. 55901.

meetings, reading textbooks, journals and pharmaceutical reports, or utilizing the newer media such as slides and tapes). As time progresses, a random approach to dissemination and acquisition will lack more and more in success unless it is all part of an organized approach to the central problem of ensuring that all engaged in medical care have the means to educate themselves effectively on a continuing basis.

An outstanding example of the methodological approach to the software of biomedical communication is the organization of medical libraries, which, after all, are the essential storehouse of information. In USA the National Library of Medicine is the hub of a nation-wide Biomedical Communications Network. This is divided into 11 regions, each of which contains a central Regional Medical Library. In each region there are other designated medical libraries which help to link the smallest hospital libraries to the national network. The National Library serves also to provide research and development required for the effective operation of the network. Better known is its expert bibliographic control of biomedical information, through MEDLARS (Medical Literature Analysis and Retrieval System); this was designed to provide rapid search of a data base of about 2,300 medical journals, covering some 177,000 articles. From this operation Index Medicus is compiled, and the literature can be readily searched either by individual physicians or libraries, or by groups having specific interests. Recently MEDLARS' second generation, MEDLINE, was born: through an on-line access phase almost instantaneous searching of the literature and retrieval of data is now possible.

In a useful review Cummings⁴ concluded that the technology exists to bring about significant improvements in biomedical communications; what is lacking is "performance." Indexing and cataloging of data, validation and selection of data and then the presentation of data, construction of new facilities to handle information and the training of personnel, these must all be mastered before the communication of biomedical information can be considered adequate.

But central to the software question is the consumer of information, for the communication of information is to no avail unless the physician, who is ultimately concerned with the delivery of optimal medical care, acquires and appropriately uses this information. Yet this is another major problem: pressure of work, the growth of knowledge, and the complexity of data, militate against this. A probable development in future will be the appearance in medical teams of information specialists', whose function will be the analysis of information and then the selection and presentation of data for the specific use of physicians. Information specialists will link the libraries to physicians, and, for their most effective utilization, these specialists may become incorporated into teams which are concerned with specialized forms of medical care. Their presence will free the physician from the need to leave his practice to search the literature himself.

The hardware of communications technology: the modern media

Physicians will, of course, continue to be concerned about their own postgraduate education at all times during their careers. For this purpose, either individually or under the aegis of departments of continuing medical education, they will become more and more familiar with the simpler forms of communications hardware. A brief review of the possibilities in this field is therefore relevant.

The variety of machines that may be adapted to the requirements of biomedical communication is almost endless. The computer, the telephone, radio, television, space satellites, the camera, the tape recorder, videocassettes, facsimile transmission, microwave transmission, microfiche printing, and sophisticated techniques of photographic reproduction, are just a few of these. All these are in use. The extent to which they become useful is dependent not so much on man's technical ingenuity as on his ability to apply them to his needs and to understand what, in fact, his needs are, and where priorities lie. Even so, certain trends are quite obvious.

In any new specialty it is preferable to develop techniques which are already understood and to utilize familiar machines, before reaching for highly sophisticated ones. The telephone is an example. In several areas the telephone is being used to provide physicians with a medium of communication of medical information. The Dial-Access program, initiated by the University of Wisconsin, is an excellent method of communicating information to physicians who require a rapid, brief, and current review of a particular subject, to enable them to practice as a result good medicine. The review by Meyer and his colleagues⁵ indicates that this program has been highly successful in making available information at any time of day or night, at virtually no cost; it is likely that it will become a common facet of postgraduate education for many years to come.

The telephone will be used in several other ways. The University of Wisconsin has also formulated telephone-radio conferences between peripheral hospitals and the main medical centers; these are coordinated at each institution with slide projectors and screens. The development of the picture-telephone at some future date might also serve the same purpose.

More sophisticated is the use of the telephone for the transmission of medical data, such as EKG findings, which may be interpreted at a diagnostic center.⁶ By simple modification, an EKG signal may be translated into analog voltage, capable of transmission by telephone. This has obvious possibilities, for use within the hospital, or from a doctor's office, or from a patient's home. Furthermore, transmission over distances will permit discussion at conferences, or even the transmission of data from "jungle" stations.

The telephone may also be used as an input-output terminal for computer analysis of data and communication

of information. Allen and Otten⁷ have described the way in which numerical data may be transmitted with ease via the telephone to a computer. The latter may readily be programmed to give assistance with such practical matters as drug compatibility, therapy for burns, diabetic acidosis, and poisoning, and for diagnosis. The possibilities are endless — and the requisite technology is presently available.

The videocassette, the movie projector, and the television set are other devices which are either used today or will become more widely used. The videocassette deserves attention because of its potential value for the self-educational needs of practicing physicians. The videocassette is in fact the 'visual paperback'. It is likely that the ease with which it can be transported and used in conjunction with a movie projector or television set will bring it great popularity in the future.

Mention should be made of television and of film as media of their own. Undoubtedly these will come to be increasingly important aids to communication, both in undergraduate and in postgraduate education. Television has much potential for groups of physicians, and its use, either in closed circuit or on open circuit, particularly with the use of coaxial cable, seems to have had limited popularity. Film also has many possibilities, and at present its value is well established. The same may be said of magnetic tape, which has achieved great popularity in the past five years.

The great revolution in medicine, however, remains the computer. Its development in the past 25 years has been meteoric, its usefulness perhaps unparalleled in the history of man, and its potential as yet barely touched. It is my belief that the computer will be used in every field of medicine; biomedical communication is just one of many. Because it serves as an extension of man's central nervous system, its value to communication, which itself is a natural function of man, is incalculable.

The two-fold problem facing the medical profession today is an important one to solve: the shortage of physicians and the exponential growth of knowledge. Both can be alleviated by the computer. Reference has been made to the concern, expressed by Meyer, that an analytic approach to medicine is sorely needed. The computer's use will encourage the greater development of this by physicians. The computer can aid the practice of medicine in so many ways, whether it be in the logistics of medical care or the daily practice of medicine. I believe that the computer, because it may so readily be applied to these matters, will be of the greatest help if physicians are indeed to "live with adequate information." □

References

1. Wiener, N.: *The human use of human beings*. Boston, Houghton Mifflin, 1954.
2. Lieberman, J.: In Foreword: Toward Improved Learning: A collection of significant reprints for the medical educator. Washington, U.S. Dept. Health, Education, and Welfare. Vol. 1, p. xi.
3. Moore, F. J.: Information technologies and health care. 3. The need for new technologies to support the conveyance and use of knowledge. *Arch Int Med* 125: 503, 1970.
4. Cummings, M. M.: "The biomedical communications problem." In Reuck, A.de, and Knight, J. (eds): *Communication in Science: Documentation and Automation*. Boston, Little, Brown and Company, 1967.
5. Meyer, T. C., Hausen, R. H., Ragatz, R. T., and Mulvihill, B.: Providing medical information to physicians by telephone tapes. *J Med Educ* 45: 1060, 1970.
6. Cooper, J. K., Abraham, S., and Caceres, C.A.: Telephone transmission of cardiac and pulmonary data. *Arch Environ Health* 19: 712, 1969.
7. Allen, S. I., and Otten, M.: The telephone as a computer input-output terminal for medical information. *J Amer Med Ass* 208: 673, 1969.

An Approach to Medical Writing (continued from page 27)

References

1. Gregg A.: "Language and the practice of medicine." *The Diplomat* 4: 117, 1943.
2. Aring C. D.: *Adventures in Medical Writing*. Springfield, Ill., Charles C Thomas, 1970, p. 36.
3. Woodford F. P.: *Scientific Writing for Graduate Students: A Manual Outline Teaching of Scientific Writing*. New York, Rockefeller Univ. Press, 1968.
4. DeBaKey L.: "Language and the physician." *Arch Surg* 92: 964, 1966.
5. Editorial: "Style in medical writing." *Canad Med Ass J* 1: 70, 1911.
6. Allbutt T. C. A.: *Notes on the Composition of Scientific Papers*. London, Macmillan, 1923, p. 18.
7. Blackader, A. D.: Quoted by MacDermot H. E.: Personal communication.
8. Roland C. G.: "Good scientific writing." *Arch Int Med* 123: 11, 1969.
9. Asher R.: "A woman with the stiff-man syndrome." *Brit Med J* 1: 265, 1958.
10. Lewes G. H.: "The principles of success in literature." In *Studies in Prose*, ed. A. Steffan, M. Doran, and H. Traibridge. New York, Rinehart & Company, 1939, p. 52.
11. Quiller-Couch A.: *The Art of Writing*. London, Cambridge Univ. Press, 1946, p. 163.

Something To Say . . . And How![†]

Helen Evans Reid, M.D.*

Toronto, Ont.

As a professional, you have knowledge and skills you must communicate, if you are to fulfill your complete role. Your concern for all patients is the imperative, the reason you must write.

What you have to say may vary from a simple description of a more efficient way to collect a sample or make a patient comfortable, to the detailed account of a carefully organized research project. How well your message is delivered is a compound of many things, including your enthusiasm for your subject and your knowledge of it, your ability to write, and the time you spend polishing your article before you consider it finished.

Know your reader

Obviously, you must know your reader before you begin to write an article. The form of your communication depends on his identity.

The following appeared in a scientific journal:

The Effects of Continuous Compression on Living Articular Cartilage

*The problem that prompted the present investigation arose from clinical observations of the sequelae of immobilization of joints in patients who were receiving various forms of orthopaedic treatment, etc.*¹

Suppose the same item had been written to appear in the local newspaper. It might have read like this:

Surgeon Claims Casts Damage Joints

Dr. A. C. Jones, surgeon-in-chief at Smithtown Children's Hospital said, in a paper delivered before the American College of Surgeons meeting this week in Atlantic City, that immobilization of a joint by the application of a plaster cast to a limb can cause deterioration of the cartilage lining the joint, and this damage can be permanent.

Or, written as a magazine article, it would go something like this:

The Cure That is Worse Than the Disease

Jimmy Doyle was just like any other boy of nine, racing with his playmates, playing baseball on the corner lot, climbing trees and riding his bicycle "no hands," until that February day disaster struck.

The writer would then go on to describe the accident in detail, and include the weary hospitalization, the perman-

ent cripple from immobilization, and then the punch line.

Dr. A. C. Jones of the Smithtown Children's Hospital estimates that at least 200 Canadian children suffer some permanent disability, etc.

The story in all three versions is the same; the reader made the difference. In the first case he was a scientist; in the second, probably a businessman or housewife who wanted news in a quick package; and in the last, a parent.

Capture the reader

You have identified the reader, now you must capture his interest. The title is the bait. For the lay press, a catchy title, strong and positive, is needed; for the scientific press, a precise title, complete enough that the communication can be readily retrieved from the stored medical literature, is often used, particularly for technical material.

The reader is captured. Now how do you hold his interest? There is a sign on my bulletin board that reads "All subject matter is boring if no ideas show through. — Thomas Mann." If you are not enthusiastic about what you want to say, don't say it. And don't bother to write it, for no one sells anything he does not care about, least of all an idea.

How well your message is delivered also depends on what it is you want to say. Write down in simple words — your words — what has been said in the past and what you have to add. This exercise will eliminate those things that are irrelevant. What you write is *your* theme, *your* message.

Choose the journal by examining its general quality and prestige and the subjects it has published in the past year. As competition for editorial space is brisk, it is wise to select a topic that has not been covered during the previous year. A journal is unlikely to accept an article on a particular subject more than once in a single year unless the submission is remarkable for its novelty or timeliness.

Then read the "Instructions to Authors" column that appears in all journals, although not in every issue, to learn the journal's preference for the length of the article, the number of copies to be submitted, the form of the references, and the acceptable number of illustrations, charts, and tables. Professional writers usually send an outline of their topic to the editor for approval before writing the article.

When you have chosen the form for your article, decide on the headings and write each on a separate sheet of paper. Read over the material you have collected. Ask yourself if the item is really necessary and where it belongs.

With your material now logically arranged, construct a sentence outline for each section. The skeleton of your

[†]Reprinted, with permission, from *The Bulletin*, Sinai Hospital of Detroit, 1970.

*Director, Department of Medical Publications, The Hospital for Sick Children, Toronto, Ontario, Canada.

article, the shape to come, will be apparent. You are ready, at last, to write the first draft. Write it continuously from beginning to end, always keeping your message clear.

At this point construct any tables or graphs you may wish to submit with your article, making them as complete as possible with headings, footnotes, and labels. Tables and graphs should be a synopsis of the entire work, complete in themselves without reference to the text. They obviate the tedious repetition of data in the "results" section of a technical or research paper, where only the unusual, the unexpected, the highlights, should be mentioned.

Polish your article

No author, not even the most experienced, produces a perfect manuscript at the first writing. Your article should be revised several times and polished before it is submitted for publication.

Usually a paper can be shortened considerably by careful, conscientious revision. This does not mean that you leave out relevant material as you revise; rather, you ruthlessly eliminate unnecessary words by dropping "wind-up phrases" — those expressions that indicate your difficulty in getting a paragraph or sentence started. For example, "It has been our observation that many consider measles a benign condition," would be better expressed by, "Many consider measles benign." Writing, rewriting, choosing the precise word, the perfect word, the apt expression — these are the tools of the competent communicator.

There are other ways of improving a text's quality. Avoid monotony, a literary sin guaranteed to bore your reader and make him turn to the next article. When all ideas are equal, none is important. The product is like food without spice, a nice cold porridge of thoughts. For interest, vary the structure and the length of the sentences. Since few readers can tolerate more than an occasional sentence over 25 words, try a short, sharp sentence to dramatize a point.

Master the mechanics of writing

Style in writing is a function of the writer, as personal and as characteristic of him as the clothes he wears. The sentences you build and the words you choose clothe your thoughts and identify them as yours. A good style makes dull prose literature, makes words and ideas sparkle and flow, and delivers your message accurately and effortlessly.

To achieve a good style you must master the mechanical details of writing. These are well set out in *The Elements of Style*, by William Strunk, Jr. and E. B. White.²

Though mastery of the mechanics of writing will never make you a literary giant, it may prevent you from becoming a boring scribe.

Here are a few reminders of how to achieve a good style in writing.

The verb you use may be in either the active voice (the subject is acting) or the passive voice (the subject is being

acted upon). For example, *John caught the ball* (active). *The ball was caught by John* (passive).

Use the active voice when possible to make your writing more concise and forceful. Consider this sentence: *The course of action will always be determined by the physician*. Very wordy. Change this so that the person taking the action is the subject. *The physician will always determine the course of action*. This is concise, precise, and straightforward.

You may wish to use the passive voice for variety, but remember it can confuse your reader and dull the lustre of your style.

Put statements in a positive form. "Not" is the warning word. *He did not remember that enlarged glands in the groin are not unusual*, would be better as: *He forgot that enlarged glands in the groin are common*.

Strive to use definite, simple words, choosing the concrete over the abstract. *The position with regard to food consumption exhibits a maximum of non-availability*. Why not just say, *Food is scarce?*

Many people who speak well bury their ideas in unnecessary words when they write. Consider: *Let me call your attention to the fact that*, would be better as: *I remind you*. If it is of interest to note then say what you have to say without this venerable preface. If what you have to say is uninteresting, you shouldn't say it!

Strong verbs make good writing. Unfortunately many authors hide good verbs in abstract nouns. For example, *Man has an appreciation of beauty*. The word "appreciation" is an abstract noun, so why not make it a verb? *Beauty is appreciated by man*. That's better. "Appreciation" has become a verb, but it is in the passive voice. Try, *Man appreciates beauty*. A vigorous verb, a vigorous sentence. From this example you can see that brevity is a by-product of vigor.

Avoid jargon. Whole vocabularies have been built up by the professionals of a particular discipline to facilitate communication among themselves. The danger is that these words become overworked, and "abuse may turn them into mere plugs for the holes in one's thoughts."³ Originally specific, such words lose their meaning and become jargon. Nouns, such as *evaluation*, *motivation*, *breakdown* (analysis); verbs, such as *structure*, *trigger*, *update*; and modifiers, such as *basic*, *key*, and *overall*, are weary words that should be laid to rest.

Submit your article

Naturally the things you write and the ideas you express are distilled from what you have experienced and what you have read. But to quote someone without due acknowledgment, or to repeat his words as though they were your own, is plagiarism and inexcusable. So indicate what you have borrowed and from whom by numbering and listing all the references in the manner approved by the journal.

Of course the manuscript you submit will be well typed, the illustrations apt, clean, and precisely labeled. Enclose covering letter to the editor of the journal and a self-addressed, stamped card on which the editor can indicate that the manuscript has arrived safely.

Then wait. Allow six weeks to two months to elapse before sending a courteous letter to the editor to find out if a decision to publish has been reached.

Don't be too discouraged if your manuscript is rejected. Few persons who write for publication have escaped the experience of having at least one paper turned down by a publisher. Try to determine why the paper was rejected, and resolve to avoid this particular pitfall in the future.

The writing and eventual publication of an article is satisfying experience for you, the author. As you transmit your personal experiences or research to others, you are truly fulfilling your role as a professional. □

References

1. **Salter, R. B. and Field, Paul:** The Effects of Continuous Compression on Living Articular Cartilage: An Experimental Investigation. *J. Bone Joint Surg.* 42-A: 31-49 (Jan.) 1960.
2. **Strunk, William, Jr. and White, E. B.:** The Elements of Style. New York, The Macmillan Co., 1959.
3. **Follett, Wilson:** Modern American Usage. New York, Hill and Wang, 1967.

"Anatole France, Nobel Prize winner in literature, said that for good writing, seven revisions are necessary, and an eighth is desirable "to make sure the seventh is understood." These revisions included in sequence: "enliven what was platitudinous"; "weeding out the dandelions," the whos, whiches, and whomes; eliminate semicolons; shorten sentences, and strike out phrases which merely link one sentence to another; improve the order and sequence of sentences and avoid repetition. Then take out unnecessary adjectives, phrases, chip away "pastry" which is the adventitious and redundant material. Finally, "a good writer planes his phrases smooth, like a good cabinetmaker." Sir Clifford Albutt made at least four revisions before it could be considered ready for the printer."

From *Medical Writing*, by Morris Fishbein (Blakiston, 1957) p. 176.

APPRECIATION

Duncan A. Campbell

Dr. Duncan A. Campbell died suddenly in his office in Bridgewater, N.S. January 7, 1972. Born in 1925, son of Dr. Duncan Campbell (deceased) of Bridgewater, he is survived by his wife, Shirley, seven children, his mother, two brothers, Dr. Robert C. of Halifax and Dr. John C. of Cleveland.

He graduated from Dalhousie University in 1950 and started practice in New Ross, N.S. using both Bridgewater and Kentville hospitals. He became chief of the volunteer fire department. In 1962 he moved to Bridgewater as a partner in the Hillcrest Clinic, and an active staff member of the Dawson Memorial Hospital Medical Staff. He became active in the Bridgewater Curling Club.

At different times he had been president of the Lunenburg-Queens branch of the Medical Society, President of the Medical Staff of the DMH, representative to the executive of the N.S. Medical Society, and had a continuing interest in medical politics.

A conscientious and meticulous practitioner, he enjoyed a continuing devotion from his patients, and would go to great lengths to see that they had adequate consultation time and investigation facilities.

F.W.P.

Physician Self-Assessment

Lea C. Steeves, M.D.*

Halifax, N.S.

Doctors have always been concerned with keeping up-to-date. Maimonides prayed "May there never develop in me the notion that my education is complete —".¹ The Royal Colleges in Britain exemplify over several hundred years, the banding together of doctors for their continuing medical education. The College of Family Physicians of Canada is one of a small group of professional societies that require evidence of continuing medical education as a condition of membership.² The Medical Society of Nova Scotia through the publication of scientific articles in its Journal, by its postgraduate levy, and by its forceful promotion of medical audit in regional hospitals³ has shown interest in quality medical care through continuing medical education. At a point in time when Medical Schools showed little or no interest in the competence of their graduates and the graduates of other Medical Schools in the area, the Dalhousie Refresher Course was introduced and is now in its forty-sixth year. Government through the Provincial Medical Board shows a specific interest in continuing medical education through the provision of the annual "Dr. John Stewart Memorial Lecture" and by an "Annual grant to provide or assist in the provision of postgraduate medical education".⁴ The major voluntary health agencies such as the Nova Scotia Heart Foundation, and the Nova Scotia Division of the Canadian Cancer Society, recognize the doctors' need for keeping current in their areas of interest through grants to the Division of Continuing Medical Education, Dalhousie University.

What does this support of formal continuing medical education by organizations external to the medical profession mean? It is undoubtedly a recognition of the importance of life-long learning in combatting physician obsolescence; but considering the lack of study credit requirements for continuing membership in most medical societies, the small proportion of their time spent by doctors in formal part-time education, the increasing numbers of complaints noted by the Chairman of the Society's Discipline Committee, and the tenor of the first volume of the LeDain Commission reports, perhaps we are being told with increasing bluntness and impatience that we are failing in our efforts to keep up-to-date.

People learn best in a variety of ways, all of which share in common the process of communication between a source of knowledge and the learner. The process of learning is complicated by many factors, one of the most intriguing of which is the human tendency to reinforce one's strengths while ignoring one's weaknesses. Considering the unique nature of each doctor and his practice, it is not surprising

that the recognition of a weakness — e.g. lack of knowledge, the presence of obsolete knowledge, or the same state concerning skills or attitudes — is a hazard faced by all doctors. How can one recognize what segment of their practice suffers from such a hazard?

One method is the use of Medical Audit in regional hospitals. This approach brings to light discrepancies between the practises of a group (the hospital medical staff or a specialized segment thereof) and norms of performance that that same group has determined for itself. The interested doctor can pick out from the group record in confidential fashion his individual performance. But the spectrum of hospital practice and of office and home practice is quite different, while at the same time the greatest proportion of medical services are provided in the office and home.

Over the past five years, educators using newer communications techniques have not only expanded and increased the efficiency of methods of learning, but have introduced assessment methods permitting one to pinpoint with considerable accuracy, specific defects in knowledge. These methods are known as Self-Assessment Programmes.

The first large-scale self-assessment programme⁵ was developed by The American College of Physicians in 1967 and offered in January 1968. Some twelve thousand physicians have participated, scoring themselves on seven hundred and twenty questions covering nine subspecialties of Internal Medicine. The results of the assessment are confidential to the person taking the test, who is free to take it at his own time and at his own rate. A second programme was offered in January 1971 and has been participated in to date by fourteen thousand. The correct answers are accompanied by a textbook reference and a journal or monograph reference so that correct answers can be readily followed up by remedial study. The value of the test is somewhat reduced by the inadequacy of most doctors' private libraries and the similar state of a majority of hospital libraries in this Province. Self-assessment programmes differing only in detail from the above are now available from The American Society of Anaesthesiologists, The American Academy of Paediatrics, The American College of Obstetrics and Gynaecology, The American College of Surgeons and The American College of Radiology. One of these programmes sends a monograph of abstracts elaborating on the answers to all questions. The American Psychiatric Association has produced two self-assessment programmes. A portion of the knowledge assessment and an additional element of skills assessment is attempted by a "rub-out technique" familiar to anyone who has sat The Medical Council of Canada examinations in the past two years. This form of assessment is known as a

*Director, Division of Continuing Medical Education, Dalhousie University.

Patient Management Problem or a "Clinical Simulation". Dr. Christine H. McGuire, an acknowledged authority in P.M.P., has recently published a fascinating text "Clinical Simulations"⁶ - Selected Problems in Patient Management, together with an atlas of illustrations which presents twenty clinical problems covering a broad range of diagnoses.

Of special interest to the general practitioner in addition to Dr. McGuire's Clinical Simulations is the "Core Content Review"⁷ published by The Academy of Family Medicine of Connecticut and Ohio. This is a continuing series of self-assessment tests covering the broad field of Family Medicine.

Self-assessment results are being used by the Alberta Medical Association and the University of Alberta to determine curriculum content for their joint programmes of continuing medical education in 1972-1973.⁸

There are a wide variety of opportunities to assess one's medical knowledge, and some developing techniques assessing interviewing skills. Further information concerning those above mentioned and others is available as a Consultant Service from the Division of Continuing Medical Education, Dalhousie University.

Hopefully, once one has completed a self-assessment, a specific programme of continuing medical education can be designed. In addition to reading at home, borrowing

tape-recordings, tape-slide presentations, movies and video tapes there is available for the doctor prepared to take two weeks or more away from home, a Clinical Traineeship. This is a personalized clinical tutorial and reading programme developed through the Division of Continuing Medical Education either at Dalhousie or at another Medical School.

The first step is your own confidential self-assessment. □

Bibliography

1. **Vollan, D. D.:** Postgraduate Medical Education in the United States. American Medical Association, 1955.
2. Letters Patent and By-Laws of the College of Family Physicians of Canada, as amended July 21, 1970.
3. Reports to Council - 118th Annual Meeting, The Medical Society of Nova Scotia p.p. 79-86. 1971.
4. *The Medical Act of Nova Scotia.* Chapter 15, para. 9 e-f. 1969.
5. *The National Board Examiners.* 19: 3. Dec. 1971.
6. **McGuire, C. H., Solomon, L. M.:** Clinical Simulations - Appleton, Century, Crofts - New York 1971.
7. *Core Content Review.* Connecticut and Ohio Academies of Family Physicians. 179 Allyn St., Suite 309, Hartford, Conn. 06103, U.S.A. 1969-1970-1971.
8. *Alberta Medical Bulletin.* 36: 1 p 1 1971, 36: 2 p 65 1971.

Brief Note

PRE-NATAL DIAGNOSIS BY AMNIOCENTESIS

It is now possible to detect the presence of a number of genetic disorders pre-natally, thus allowing the possibility of prevention by pregnancy termination in suitable instances. The principal use of these tests is in the detection of (a) chromosome disorders such as Down's syndrome (Mongolism) and (b) certain biochemical disorders.

Consideration of an investigation of this type may be made in any of the following circumstances:

- 1) Any pregnancy occurring in a woman aged 37 or more.
- 2) Pregnancy in a woman who has previously had a child with Down's syndrome.
- 3) Pregnancy in a woman known to be a carrier of a deleterious X-linked trait.
- 4) A pregnancy for which the parents are presumptive carriers of a designated metabolic disorder (though not all of these can be reliably detected in utero.)

Although the results of these tests do not enable the physician to guarantee that the resultant offspring will be 'normal', they frequently enable the specific condition under consideration to be excluded with a high degree of probability. It is expected that the judicious use of these new procedures will serve to significantly reduce the burden of incapacitating and distressing genetic disease.

These tests are now available through the Cytogenetics Laboratory in the Sir Charles Tupper Medical Building.

Further information may be obtained through Dr. J. P. Welch at the same address, or by phoning 424-3369.

- J. P. Welch, Halifax.

Syphilis Serology

Its Aids and Limitations in the Diagnosis of Syphilis[†]

R. S. Martin, Ph.D.,*

Halifax, N.S.

When *Treponema pallidum* causes human infection, it stimulates the host's defensive mechanism so causing the production of a complex antibody response. The detection of one or another of these antibodies is the basis of syphilis serology.

By familiarizing himself with two or three currently available tests, the clinician may more readily be able to diagnose syphilis in almost any stage of the disease. No other tests based on immunological principles have been so widely used as those applied to the diagnosis of syphilis. Consequently if uniform results are to be obtained strict standardization and attention to laboratory detail is of the utmost importance. Most laboratories now conform to standard techniques and have access to standard control sera of graded reactivity for all of the generally used test procedures; the result is a high degree of uniformity of test performance throughout the country.

Tests for Syphilis Antibodies

Tests for syphilis antibodies may be divided into two categories:

i. *Non-Treponemal Antigen Tests:*

In Canada, non-treponemal tests are those most often used. These tests are widely used, as in blood banks, hospitals, and public health laboratories.

a) *VDRL Test*

The test most commonly used is the Venereal Disease Research Laboratory (VDRL) test. Antigens for the non-treponemal test are non-specific lipid antigens prepared from extracts of beef heart and bear no direct relationship to syphilis. These antigens combine with an antibody termed "reagin" to produce a reaction. Reagin can be demonstrated in the sera of patients with syphilis about four to six weeks after infection. Its exact nature is unknown, but it is found in the immunoglobulin fractions of serum. The sensitivity and specificity of the modern non-treponemal tests for syphilis depend on the proper balance of cardioliipin and lecithin with

cholesterol which constitute the antigen; the originators of the VDRL test have worked out the optimal proportions for these components. All VDRL tests use the same antigen which is prepared from cardioliipin, purified lecithin, cholesterol, and alcohol of designated purities. The antigen is standardized by adjustment of the lecithin content.

Most public health laboratories routinely employ and recommend only one cardioliipin-cholesterol test: namely, the VDRL test. Additional non-treponemal tests on reactive sera offer little or no help to the clinician and may cause confusion when disagreements occur.

In addition to the general qualitative procedure, the VDRL test is capable of giving simple reproducible quantitative findings which may be helpful in making clinical deductions.

Non-treponemal tests are particularly useful for the testing of cerebrospinal fluid specimens. It has been shown that biologically false positive (BFP) reactions occur very rarely with cerebrospinal fluid. However, for reliable results the specimen of cerebrospinal fluid must be free of bacterial contamination or gross blood.

b) *Rapid Reagin Tests:*

Since 1957, several procedures called "rapid reagin tests" have aroused much interest. These were originally designed as screening procedures, with high reactivity, for the purpose of testing large groups of people rapidly, economically, and simply. The rapid reagin tests are performed on unheated plasma or serum, thereby simplifying the processing of specimens. The antigen is a modified VDRL antigen containing choline chloride which appears to enhance the reactivity of reagin in unheated specimens. Much of the equipment used in these procedures is disposable, which eliminates major glassware cleaning, making them especially suitable for field work. The following are the more widely recommended reagin tests:

- i. *Rapid Plasma Reagin (R.P.R.) Test.*
- ii. *Unheated Serum Reagin (U.S.R.) Test.*
- iii. *Plasma CrIT. (P.C.T.) Test.* This test is performed on the plasma portion of blood from a microhematocrit tube.

[†]From the Department of Public Health, Nova Scotia, and Pathology Institute, Halifax, N.S.

*Director, Division of Bacteriology, Pathology Institute, Halifax, N.S.

- iv. *R.P.R. (Teardrop) Card Test*. This is a field kit. It does not require the usual laboratory equipment and all components necessary are supplied in the form of a disposable kit.
- v. *R.P.R. (Circle) Card Test*. This is a modification of the above test for use in large scale testing.

ii. *Treponemal Antigen Tests:*

Treponemal tests make use of a specific antigen, which may be either the pathogenic *T. pallidum* or a biochemical fraction of the related but non-pathogenic Reiter treponeme, to detect treponemal antibodies in the serum of the patient. These tests are highly specific but vary in sensitivity. As with the non-treponemal tests, the treponemal tests merely give information on the serologic status of the patient. A reactive result is interpreted as indicating either present or past infection. Treponemal tests may be non-reactive to early syphilis but they generally remain reactive longer following treatment than do the non-treponemal procedures, depending of course upon the stage of the disease at which treatment was initiated. Using these tests alone, it is not possible to determine whether or not an individual is in need of therapy.

Treponemal tests are not designed for routine clinical use. They are expensive, technically more complicated, and can only be carried out in certain specialized laboratories. Their greatest value is twofold:

- i. To distinguish true syphilitic reactions from BFP reactions obtained in the cardiolipin-cholesterol tests.
- ii. To aid in establishing a diagnosis of syphilis in a patient with clinical or epidemiologic evidence of syphilis who shows a non-reactive cardiolipin test result.

a) *Kolmer Test with Reiter Protein Antigen (KRP):*

Next to the VDRL test, this is the commonest test employed. A method of preparing an antigen from the cultivatable, non-pathogenic Reiter treponeme using autolysis and subsequent precipitation of the protein by means of ammonium sulphate. It was shown that this antigen while being a protein was a treponeme-specific antigen common to the pathogenic *T. pallidum* and the Reiter treponeme. Also it was clear this antigen reacted with an antibody different from reagin in complement fixation tests for syphilis. Since that time, a number of tests using the Reiter protein and other extracts from the Reiter treponeme have been described. The most widely used of these tests is the *one-fifth volume Kolmer test with Reiter protein antigen (KRP)*. This test is the least expensive of the treponemal tests.

When the test is correctly performed according to standard methods using adequate controls and certified reagents, then the results obtained are generally more specific than those obtained using the cardiolipin-cholesterol tests. They are, however, less specific and sensitive than the results obtained by two other tests, the *Treponema Pallidum Immobilization (TPI)* or *Fluorescent Treponemal Antibody tests (FTA)*. The greater drawbacks

with the KRP tests are the difficulty in preparing a truly stabilized antigen and the lack of sensitivity in cases of syphilis of many years duration.

While a positive reaction with the KRP is highly indicative of syphilis, a non-reaction KRP test in a diagnostic problem is not in itself conclusive for the absence of syphilis and must be re-examined using a TPI and/or FTA/ABS, test. For this reason, the FTA/ABS, test has to a large extent replaced the KRP test.

b) *Treponema Pallidum Immobilization Test (TPI):*

Introduced in 1949, through long usage and the absence of a better treponemal test, this test has become the yardstick for measuring the efficiency of all other serologic tests for syphilis.

The TPI test makes use of an antigen consisting of living treponemes that have grown in the testicular tissue of a rabbit and have been harvested into a survival medium. The antigen, patient's serum, and complement are combined and incubated in an atmosphere consisting of 95% nitrogen and 5% carbon dioxide. The result is obtained by comparing the percentage of treponemes immobilized by the patient's serum with that of an elaborate set of controls. The TPI test is expensive, time consuming, and technically difficult and is presently only carried out in one or two centres in Canada. Moreover, the presence of antibiotics in the patient's serum will invalidate the test.

c) *The Absorbed Fluorescent Treponemal Antibody Test (FTA/ABS) Test:*

A more simplified, more economic and specific treponemal test designed to replace the TPI test is the FTA test; originally described by Deacon, *et al* it is less technically demanding and less expensive and has shown promise as a reliable procedure.

In this, the indirect fluorescent antibody is used for the identification of specific treponemal antibodies. The antigen for the test is a suspension of dead *T. pallidum* and the conjugate is a fluorescein-labelled antihuman globulin. The original procedure employed a 1:5 dilution of test serum in buffered saline. This showed good sensitivity but some non-specific reactions occurred. These non-specific reactions were in fact caused by treponemal antibodies associated with such treponemes as *T. microdentium*, *T. zuelzerae*, and the Reiter treponeme, which are normal and non-pathogenic free-living organisms found in the mouth.

The non-specific reactivity can be eliminated by absorbing the nonspecifically reacting sera with a fraction of Reiter's treponeme containing the group of common treponemal antigen, leaving only the specific antigen for the *T. pallidum*. This is the basis of the FTA/ABS test. This new test provides greater sensitivity in the serologic diagnosis of syphilis (both early and late).

Except in unusual circumstances, the FTA/ABS test should eliminate the necessity for TPI testing of problem cases.

d) *Darkfield Antibody Tests:*

A positive diagnosis of early syphilis can be made by

demonstrating *T. pallidum* in suspected accessible lesions or regional lymph nodes by the use of darkfield microscopy. In contrast, a search for *T. pallidum* in the late skin lesions or in gummas is useless, as there are so few treponemes, indeed if they are present at all, in relation to the degree of inflammatory reaction that examination is impractical.

A satisfactory darkfield examination requires proper microscopic equipment, adequately trained personnel, a properly taken specimen, and perseverance. An ordinary compound microscope may be easily fitted with a darkfield condenser. Among the variety of darkfield condensers available, the paraboloid and cardoid types are the most widely used. To identify *T. pallidum*, the following characteristics must be observed:

- i. Its morphological characteristics.
- ii. Its characteristic movement.

T. pallidum is a small spirilliform (corkscrew-shaped) organism with 8-14 regular rigid spirals. The length is usually 6-14 μ , averaging 10 μ , or slightly larger than the diameter of the average red blood cell (7 μ). The characteristic movements are a slow forward and backward (translation) rotation along the long axis like a corkscrew and slight bending, twisting, or undulation from side to side. The demonstration of treponemes of characteristic morphology and motility constitutes a positive diagnosis of syphilis in either primary, secondary, early congenital, or infectious relapse stages. In primary syphilis, it is possible to identify the spirochaete and to diagnose the disease prior to the appearances of antibodies.

We have been experimenting with a fluorescent antibody staining technique, the indirect fluorescent antibody dark-field test. To date, this test has given results comparable to the standard darkfield test. This test may be of some help to clinicians working in areas which are not close to a laboratory. The smear is allowed to air-dry, then fixed in acetone. The specimen can then be dispatched by regular means to the central laboratory for examination.

Serologic Course of Syphilis

While the primary chancre generally appears about three weeks after infection, non-treponemal serologic tests for syphilis may not become reactive for a further week or more. By the time the secondary symptoms of syphilis develop, all serologic tests for syphilis are generally reactive. This is usually about nine weeks after infection, although it may vary from six weeks to six months. After the lesions of primary and secondary syphilis regress, the disease then passes into the latent phase and eventually to late syphilis. During these latter phases, the non-treponemal tests may become non-reactive.

Since the VDRL test is the most frequently used non-treponemal test in Canada we may first study the pattern of reactivity of this test. Table 1 illustrates three different evaluations of the reactivity of the VDRL test.

These findings indicate that in untreated primary syphilis reactivity ranges from 68%-76%. In these surveys,

TABLE 1
Percentage Reactivity of Non-Treponemal Test (VDRL Slide) During Various Stages of Syphilis

Study	Stage of Syphilis			
	Untreated Primary	Untreated Secondary	Latent	Late
*SERA	68	100	88	80
Deacon et al.	76	100	73	77
Rockwell et al.	—	—		66

*Serology Evaluation and Research Assembly Study. (after WALLACE and NORINS)

all patients were reactive in untreated secondary syphilis, while in latent and late syphilis, a significant proportion of patients become non-reactive.

The more specific treponemal tests display very different patterns of reactivity. The Treponema Pallidum Immobilization (TPI) test is less reactive than the VDRL test in primary and secondary syphilis; however, on the other hand, it is more sensitive in latent and late syphilis as shown in Table 2.

TABLE 2
Percentage Reactivity of the Treponema Pallidum Immobilization (TPI) Test During Various Stages of Syphilis

Study	Stage of Syphilis			
	Untreated Primary	Untreated Secondary	Latent	Late
SERA	41	97	96	98
Deacon et al.	53	98	89	92
Rockwell et al.	—	—		91

(after WALLACE and NORINS)

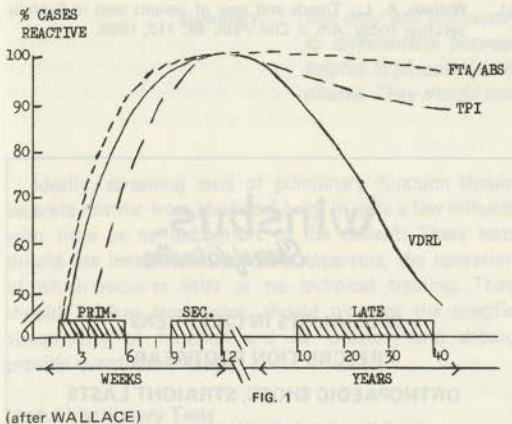
The Fluorescent Treponemal Antibody Absorption test (FTA/ABS) seems to display a greater degree of sensitivity in the primary stage of the disease. Generally, as illustrated in Table 3, it is fully reactive in secondary syphilis and maintains a high level of reactivity through latent and late syphilis.

TABLE 3
Percentage Reactivity of the Fluorescent Treponemal Antibody-Absorption (FTA-ABS) Test During the Various Stages of Syphilis

Study	Stage of Syphilis			
	Untreated Primary	Untreated Secondary	Latent	Late
Deacon et al.	86	99	95	95
Knox et al.	87	100		100
Rockwell et al.	—	—		97
Hunter et al.	81	—		100

(after WALLACE)

A comparison of the reactivities of the VDRL, TPI, and FTA/ABS tests is represented graphically in Figure 1.



The titre of "reagin", the antibody operative in the non-treponemal tests, commences at a low level during the primary stage of the disease and reaches its peak during the secondary phase; it may then stabilize at a level falling somewhere between 1:16 and 1:256 or possibly more. As the disease passes into the latent and late stages, the titre slowly declines. It is important to realize that these tests may be non-reactive in as many as one-third of patients with latent or late syphilis. If such patients present as a diagnostic problem, one of the treponemal tests should be performed, e.g. TPI or FTA/ABS.

If treatment is administered before the primary chancre appears or before the non-treponemal test becomes reactive, it is likely that the cardiolipin test will remain non-reactive. Once the cardiolipin test has become reactive in the primary stage, it will not become non-reactive for some six months following treatment. The test may require twelve to eighteen months to become non-reactive if treatment is given in the secondary stage, while in cases treated late in the disease, a certain proportion of patients never revert to non-reactivity and may remain "serofast" for the remainder of their life. This may also occur occasionally in secondary syphilis; in such cases, however, the titre usually stabilizes at a much lower level than existed before treatment. Additional treatment does not cause such a "serofast" patient to revert to non-reactivity.

In untreated syphilis, the treponemal tests, e.g. TPI and FTA/ABS, generally remain reactive for the rest of the patient's life. However, cases have been reported in which the TPI test became non-reactive in untreated syphilis. Rarely, the FTS/ABS test may be non-reactive in a patient known to have had syphilis and thought to have been untreated until the time of testing. If syphilis has not been diagnosed and treated before it reaches the late latent of late stage, then the TPI test which is normally reactive in these stages, will remain reactive for the remainder of the patient's life despite the administration of adequate

treatment. In a recent study, serologic tests were performed on patients called back ten or more years following diagnosis and treatment as late syphilis. Assuming re-infection had not taken place, the results were as follows: VDRL was reactive in about 30%, TPI in 90%, and FTA/ABS in about 99% of the patients. Thus, the FTA/ABS test is likely to remain reactive for life in either untreated syphilis or syphilis treated late in its course. Therefore, the TPI and FTA/ABS tests will not be of great help in the follow-up of the course of syphilis in assessing the adequacy of treatment and in differentiating between present and past infection.

The Significance of Biological False Positive Reactions

It is a well established fact that the serum of a number of patients with diseases other than syphilis may give a reactive non-treponemal serologic test for syphilis. Reagin may form in response to a number of acute and chronic conditions other than syphilis, e.g. infectious mononucleosis, malaria, leprosy, collagen disease, and some virus conditions; it is thus non-treponemal. A small percentage of apparently normal people also give reactive tests. Syphilis is certainly absent. These reactions are known as "biological false positive reactions" (BFP), since their underlying cause is not understood. As a result of the replacement of the older crude beef heart extract antigens by the more purified cardiolipin-lecithin-cholesterol antigen, these types of reactions have been greatly reduced. It has become clear that the chronic false positive reaction in the apparently normal person may be the first sign of an "auto-immune" or "collagen" disorder.

The sequential use of non-treponemal and treponemal tests to differentiate between biological false reactions and patients with syphilis, has been shown to be effective. Briefly, the patient is re-examined and questioned and a repeat blood taken. Should this second specimen show a rise in titre of two dilution units or more over the first specimen, then a diagnosis of syphilis is probable. If the titre has not risen and the history does not indicate infection, then the performance of a specific treponemal test such as the TPI and/or FTA/ABS is indicated. If these tests are reactive, then a diagnosis of syphilis may be established. Other treponemal infections such as yaws and pinta may also cause these reactions to be reactive, but these are unknown in Canada.

In some laboratories, the performance of the FTA/ABS or TPI tests is preceded by the Complement Fixation Test utilizing as its antigen an extract of the Reiter treponeme. If this test is reactive, the diagnosis of syphilis is usually established. However, insofar as this test is rather under-sensitive, particularly in late syphilis, a non-reactive result should be followed by the FTA/ABS or TPI test. □

ACKNOWLEDGEMENT: The author thanks Miss Francis Cook, Serology Department, Pathology Institute, for help in preparing this paper.

References

1. Andujar, J. J., and Mazurek, E. E.: The Plasma-Crit (PCT) test on capillary blood; unheated plasma screen test for Syphilis. *Am. J. Clin. Path.* 31: 197, 1959.
2. Atwood, W. G., Miller, J. L., Stout, G. W., and Norins, L. C.: Comparison of the TPI and FTA-ABS tests in treated late Syphilis. *J. Am. Med. Ass.* 203: 549, 1968.
3. Cannefax, G. R.: Immunity in Syphilis. *Brit. J. Vener. Dis.* 41: 260, 1965.
4. Darkfield Microscopy for the Detection and Identification of *Treponema pallidum*. Public Health Service Publication No. 990. Washington, U.S. Government Printing Office, 1962.
5. Deacon, W. E., Lucas, J. B., and Price, E. V.: Fluorescent Treponemal Antibody-Absorption (FTA-ABS) Test for Syphilis. *J. Am. Med. Ass.* 198: 624, 1966.
6. Kolmer, J. A.: The technic of the Kolmer complement-fixation tests for Syphilis employing one-fifth amounts of reagents. *Amer. J. Clin. Path.* 12: 109, 1942.
7. Nelson, R. A., Jr., and Mayer, M. M.: Immobilization of *Treponema pallidum* in vitro by antibody produced in syphilitic infection. *J. Exp. Med.* 89: 369, 1949.
8. Olansky, S., and Norins, L. C.: Current sero-diagnosis and treatment of Syphilis. *J. Am. Med. Ass.* 198: 165, 1966.
9. Pugh, V. W., and Gaze, R. W. T.: Automated screening method for the Wassermann reaction. *Brit. J. Vener. Dis.* 41: 221, 1965.
10. Syphilis, a synopsis. Public Health Service Publication No. 1660, January, 1968. Washington, U.S. Government Printing Office, 1967.
11. Wallace, A. L.: Trends and uses of various tests in Syphilis Serology today. *Am. J. Clin. Path.* 44: 712, 1965.

winsbus.
Shoes of distinction

SPECIALISTS IN CHILDRENS
PRESCRIPTION FOOTWEAR
ORTHOPAEDIC SHOES, STRAIGHT LASTS
OUT FLARE AND THOMAS HEELS

5512 Spring Garden Rd.
Halifax

56 Inglis St.
Truro

Brief Note

SOME THOUGHTS ON DUCHENNE MUSCULAR DYSTROPHY

Duchenne Muscular Dystrophy is a severe sex-linked disorder. Muscle weakness and characteristic gait are usually noticed in the first few years of life followed by progressive deterioration and death in adolescence or early adulthood. At the present time there is no cure, hence prevention through genetic counselling is important.

Sex-linked inheritance implies that the defective gene is carried on the X chromosome. Males have only one X chromosome and if this X has the defective gene the boy will be affected with muscular dystrophy. On the other hand, females have two X chromosomes and may carry the defective gene without being affected themselves. Thus, usually only boys are affected and females are "carriers".

Any woman who has an affected son and an affected brother or uncle, or a woman who has two affected sons, is a definite carrier.

- There is a 50:50 chance that the son of a carrier will be affected.
- Since there is an equal chance that any pregnancy will result in a boy or a girl, the chance of a carrier having an affected boy is one-quarter.
- There is a 50:50 chance that the daughter of a carrier will also be a carrier.
- A normal son of a carrier will not have affected sons or carrier daughters.

Females who have one affected son and no other affected relatives, or females who have an affected maternal relative but not an affected son, may or may not be carriers. By testing the serum creatine phosphokinase level and examining the family history, it is possible to estimate the risk of an individual being a carrier.

An attempt is being made to test all potential carriers of Duchenne Muscular Dystrophy. Physicians having patients with Duchenne Muscular Dystrophy or desiring further information should contact Dr. J. A. R. Tibbles (424-6145) or Dr. J. P. Welch (424-3369).

- J. P. Welch and E. J. Winsor
Halifax, N.S.

Screening Tests of Pulmonary Function



Summary: *Not only will pulmonary function screening tests help the physician to differentiate between heart and lung disease, but also may be helpful in pinpointing the location and extent of regional pulmonary disease. They should never be omitted in patients with dyspnea.*

Ideally, screening tests of pulmonary function should separate normal from abnormal lungs in only a few minutes with little or no discomfort to the patient. These tests should use inexpensive, portable apparatus, the operation of which requires little or no technical training. They should be free from error, should pinpoint the specific abnormality of function and its location, and should provide quantitative data.

Useful Ventilatory Tests

Vital Capacity and Maximal Expiratory Flow maneuvers are two of the simplest tests which are helpful in the early detection of pulmonary and cardiopulmonary disease.

Vital capacity may be decreased in both restrictive and obstructive pulmonary disease. However, the patient with completely restrictive disease can exhale rapidly; the patient with obstructive disease cannot.

Repetition of these tests after the patient has inhaled 0.5% isoproterenol provides further information. The aerosol will partially or completely relieve the obstruction due to contraction of smooth muscle in the airways, as in the case of asthma. It will not relieve obstruction due to destructive organic disease, such as emphysema or tumor.

A relatively inexpensive portable spirometer is all that is needed. No special training is required and calculation may be made within a few minutes. So these tests may be administered easily in the physician's office.

These simple ventilatory tests may yield values that are within normal limits in patients with some pulmonary disease, such as localized infection, carcinoma, or disease of the pulmonary circulation. So the clinician ought to consider some of the more definitive screens, including a *Single-Breath Screening Test* for pulmonary diffusing capacity.

A rapid, simple, safe, painless test, it helps to detect infiltrative lung diseases, pulmonary vascular diseases, and diseases that are associated with the loss of alveolar-capillary surface area, as in the case of emphysema. It is particularly helpful in signaling abnormalities in dyspneic patients with a normal vital capacity and a normal maximal expiratory flow rate.

J. H. Comroe, Jr., M.D.; and J. A. Nadel, M.D., *New England Journal of Medicine*, May 28, 1970 (Vol. 282, No. 22). Reprinted from the Abstracts of the National Tuberculosis Association, December 1970, and made available by courtesy of the Nova Scotia Tuberculosis Association.

A decrease in pulmonary diffusing capacity may be the earliest detectable abnormality in collagen diseases, in sarcoidosis, and in industrial diseases, such as asbestosis.

The most that is required of the patient is that he retain a breath of low, nontoxic concentration of carbon monoxide for at least 10 seconds before exhaling rapidly.

However, the test does require a skilled operator and expensive equipment, including a system for delivering the test gas, a spirometer, and equipment for measuring the concentrations of the expired gases. Approximately 10 minutes are needed to make the measurements and calculate the results.

It is easy and safe to measure diffusing capacity repeatedly, thus to evaluate therapy or spontaneous changes in the course of the disease. The test is also useful in identifying whether pulmonary capillaries are blocked.

Heart or Lung Disease?

A common diagnostic error is to place the label of congestive heart failure on all patients with dyspnea. Properly administered, ventilatory screening tests not only aid in differentiating cardiac from pulmonary disease but also may pinpoint the location and extent of regional pulmonary disease. Therefore, all patients with dyspnea — in cardiac or pulmonary clinics — should receive pulmonary screening tests.

Screening tests now available will show whether there is normal distribution of inspired air to the airways and pulmonary alveoli, normal distribution of blood flow to the pulmonary capillaries, or normal matching of gas and blood to the pulmonary alveoli.

A *Single-Breath Oxygen Test*, for example, which analyzes nitrogen concentrations in expired gas, can tip the clinician off to abnormality in the airways or in the lung structure. Abnormal concentrations of nitrogen indicate that some regions of the lungs are filling and emptying unevenly.

A simple, rapid, painless, and harmless test, it is useful for screening large segments of the population — especially those working in dusty trades. Nitrogen concentrations are measured by a rapid electrical analyzer.

Return to normal nitrogen concentrations after the patient has inhaled isoproterenol aerosol, suggests reversible airway obstruction, or asthmatic-type disease. Persistent

abnormal findings suggest organic disease such as bronchitis, emphysema, bronchogenic carcinoma. More definitive tests are needed to determine which one, also to locate abnormality within the lungs.

Scanning tests, such as the *Single-Breath Xenon Test*, which utilizes radioactive tracer material (^{133}Xe), may at least pinpoint the location of larger lesions. In this test an external stationary detector records continuously the distribution of radioactive counts during breath-holding and expiration.

The test gives important information about the distribution of gas to different regions of the lungs and the rate of ventilation of these regions. It helps to locate the bullae before surgical operations.

Although the radioactive gas and special recording apparatus are expensive, the test does provide specific information quickly on a large number of patients. There is no greater exposure to radiation than from a plain chest roentgenogram. And the test is painless; no injections or blood samples are required.

Screening: A Must

Complete pulmonary function tests should be given to every patient undergoing surgery — especially pulmonary surgery. Effective preoperative treatment of airway obstruction reduces the frequency of postoperative complications. Pulmonary function tests may also serve as useful guides to the physician in the safer use of risky diagnostic tests. They may also provide the physician with a reliable guide on the effectiveness of therapy.

Pulmonary screening tests should never be omitted in the periodic examination of workers in potentially hazardous environments.

If the hazard is inhalation of silica, the vital capacity and diffusing capacity of the lung should be tested since inhalation of silica dust may lead to development of pulmonary fibrosis. If the hazard is irritating fumes, the screening tests should be maximal expiratory flow rates and airway resistance, since some fumes (such as sulfur dioxide) produce bronchoconstriction or mucosal congestion or edema. □

Brief Note

PROVINCE OF NOVA SCOTIA

DEPUTY MINISTER OF PUBLIC HEALTH

The Province of Nova Scotia will appoint a Deputy Minister of Public Health following the retirement of the incumbent on June 30, 1972.

Applications are requested from interested and qualified professionals.

The Deputy Minister will be responsible to the Minister of Public Health for the administration of provincial health programs and will work closely with Provincial Health Commissions and the Council of Health.

Applicants should have knowledge of, and experience with, health systems and programs. Proven experience in management and administration is necessary.

Interested persons are invited to contact the Minister of Public Health, P.O. Box 488, Halifax, Nova Scotia.

FOR COMPLETE PROTECTION

LOSS OF INCOME

OFFICE EXPENSE

PREMATURE DEATH

RETIREMENT INCOME

For Service or Information
Write or Phone:

C. H. Stuart & Co. Limited
315 Roy Building
Halifax, Nova Scotia
429-6340

MUTUAL OF OMAHA INSURANCE COMPANY ■ HEAD OFFICE FOR CANADA, TORONTO, ONTARIO

Life Insurance

Level Term Protection is available in units of \$25,000.00 from a minimum of \$25,000.00 to a maximum of \$125,000.00. Upon attainment of age 66 the protection reduces by 10% of the face amount each year and terminates at age 75.

Age Limit. Any member of the Medical Society may apply, providing the member has not attained age 74.

Waiver of Premiums. If an insured member becomes totally disabled for six consecutive months before age 60, coverage will remain in force for the complete duration of disability without further payment of premiums.

Conversion Privileges. All or part of the term protection may be converted to any of the company's whole life or endowment plans without further evidence of insurability.

Complete Protection. Benefits are payable in the event of loss of life from any cause, even from suicide after two years, anywhere in the world, and in addition to any other insurance carried.

Beneficiary. You may designate anyone as your beneficiary and may change your appointment any time, subject to the provisions of the law.

Ownership. The owner may be yourself or a third party, such as your spouse. However, you are

always the life insured. If desired, the policy may be assigned.

Annual Rates per each \$25,000.00

<i>Age Last Birthday as at October 1st</i>	<i>Rate</i>
Under 31	\$ 60.25
31 - 35	70.75
36 - 40	76.50
41 - 45	98.00
46 - 50	127.00
51 - 55	199.50
56 - 60	272.00
61 - 75	422.00

Accidental Death And

Dismemberment

Accidental Principle Sum. Benefits are available from \$10,000.00 to \$100,000.00 in units of \$10,000.00

These Accident Benefits are Payable 100% of principle sum

loss of life
loss of both hands, feet, and sight of eyes

loss of one hand and one foot
loss of one hand and sight of one eye
loss of one foot and sight of one eye

75% of principle sum

loss of one arm or leg

50% of principle sum

loss of one hand, foot, or sight of one eye

25% of principle sum

loss of thumb and index finger from same hand

Worldwide 24 Hour Accident

Protection including while flying as a passenger in any certified aircraft.

Annual Rate, \$9.60 per each \$10,000.00 of principle sum.

Income Replacement

Long-Term Disability Protection.

Pays to age 65 or for life if disability is caused through injury.

Age Limit. Any member of the Medical Society of Nova Scotia may apply up to the attained age of 64.

Benefit Limits. You may select the Base Monthly Benefit of \$500.00 plus additional \$100.00 units up to a maximum of \$1,500.00 per month. Since benefits are not taxable, the amount selected should not exceed two thirds of regular gross income.

Elimination Periods. You may select the elimination period which best suits your needs - 15, 30, 60, 90, or 180 days. Benefits payments begin after you have been disabled for the period selected.

Liberal Total Disability Wording.

Unlike many individual plans, your Society defines "Total Disability" as the "inability to perform the duties of your own occupation" for the first five years of such disability. After the first five years, "Total Disability" means "the inability to perform the duties of any occupation for which you are reasonably fitted by education, training, or experience".

Waiver of Premiums. Premiums falling due after ninety days of continuous disability are waived for the entire duration of such disability.

Annual Rates per Each \$100.00 of Monthly Benefit

<i>Age Last Birthday as at October 1st</i>	<i>Elimination Period in Days</i>					<i>180</i>
	<i>15</i>	<i>30</i>	<i>60</i>	<i>90</i>	<i>180</i>	
Under 31	22.44	18.72	17.40	16.08	14.28	
31 - 35	23.88	20.04	18.60	17.16	15.24	
36 - 40	28.08	23.54	21.84	20.16	17.76	
41 - 45	35.52	29.76	27.60	25.32	22.56	
46 - 50	43.08	36.00	33.36	30.72	27.24	
51 - 55	50.88	42.60	39.48	36.36	32.16	
56 - 60	60.00	50.16	46.44	42.72	37.80	
60 - 65	69.84	58.32	54.00	49.68	43.92	

Business Expense Protection

Purpose of This Plan is to compensate for continuing expenses in connection with your practise during any period of disability, during which period the normal revenue which pays the expenses is interrupted.

Liberal Claim Certification. It is not necessary to itemize expenses, provide financial statements or proof of expenses at the time of claim. The full benefit is payable for the duration of disability to a maximum of eighteen months.

Income Tax Position. All premiums paid for this benefit may be written off against taxable income as a business expense. Benefits paid under the plan are taken into income for tax purposes.

Benefit Period. Payments begin on the fifteenth day of disability. You may choose a benefit period of twelve or eighteen months.

Age Limit. Any member of the Medical Society of Nova Scotia may apply, who has not attained the age of 69,

Annual Rates per each \$100.00 of monthly benefit

<i>Age Last Birthday as at October 1st</i>	<i>Benefit Period</i>	
	<i>12 months</i>	<i>18 months</i>
Under 50	18.00	20.00
51 - 60	27.00	30.00
61 - 70	36.00	40.00

General Information

Eligibility for All Plans. All members and employees of members of the Medical Society of Nova Scotia may apply subject to the attainment of age limits listed above, under each plan. This includes members in research, teaching, administration, intern and post-graduate training. Coverage will be maintained so long as the Master Group Policy is in force and membership in the Medical Society of Nova Scotia is maintained.

Portability. So long as membership is maintained in the Medical Society of Nova Scotia, and you are engaged in work related to medicine, coverage may be carried in any Province or Territory of Canada, and to any foreign country subject to the approval of the Society and the Insurance Company.

For those who Participate in the Plans Previously Sponsored by the Society

Coverage may be transferred to the Society's New Plans without evidence of insurability, providing application is made within thirty days of the expiry of the former plans, which contain the normal statutory thirty-day grace period. Providing this step is taken, transfer precluding loss of coverage is guaranteed. A reduction in premium rates will apply in most cases and no member will be obliged to pay a higher premium.

Society Owned Profits. The New Plans are designed to vest the profit realized through favourable claims experience with the Society. This surplus may be used at the Society's discretion to further improve the

insurance plans, broaden Underwriting Acceptance Standards to permit more members in the plans who would normally not be eligible for reasons of health, or reduce future premium rates.

Guaranteed Issue of Coverage. As soon as 50% of eligible members have applied for coverage in the plans, a minimum amount of \$25,000.00 term insurance, and \$300.00 per month disability insurance will be issued to all eligible members who have applied or wish to apply regardless of health.

Your support of the Society's Group Insurance Program, evidenced by application for one or more of these plans will contribute to the achievement of the Society's goals more quickly.

If you wish to apply for coverage; increase your present limits; or obtain further information, your inquiries may be directed to:
The Medical Society of Nova Scotia Group Insurance Program
c/o Murray G. Bulger and Associates Limited
Consulting Actuaries
6009 Quinpool Road, Suite 708
Halifax, Nova Scotia
Telephone: Area Code 902 - 425-3741.

Plans are underwritten by:
Term Life: Imperial Life Assurance Company of Canada
Disability: Income Disability and Reinsurance Company of Canada

Food for Thought

G. W. Turner, M.D., C.M.

Windsor, N.S.

Approximately thirty-two years ago, the first of the sulfonamides became available to the medical profession. Relatively soon, penicillin and other antibiotics were added to the physician's armamentarium.

Almost concurrently, significant advances were made in anaesthesia, surgery and the various sub-specialties of surgery and medicine including of course, the advances made in haematology, with the resultant safety of blood transfusion.

Preventive medicine in all its aspects has become an extremely important branch of medicine.

Advances and refinements in diagnostic and therapeutic radiology, nuclear medicine, cancer treatment, tissue and organ transplants and the numerous tests now available for use in the diagnosis and treatment of disease have placed the doctors of today in a unique position. Their paramount role is in the provision of health care and improving the quality of medical care. In addition, because they have contributed, to a major extent, to the escalation of costs of health care in Canada, there is increased pressure on them to control utilization of both medical care and hospital services. Increased utilization caused by requests for periodic medical examinations as a preventive health measure, personnel policies of industry calling for complete physical examinations at designated intervals and the new problems such as drug-injured youth, more leisure time accidents, increased demand for pregnancy termination and an increasing aged population contribute to further strain on medical manpower and escalation of health costs.

With Federal and Provincial Governments involved in the payment for hospitals, hospital care and medical services, they necessarily have become concerned with cost. Especially is this true since governments have indicated they are contemplating involvement in more comprehensive health care.

The Federal Government has made available the Task Force Report on the Cost of Health Services in Canada and recently the Provincial Government has published a report on an Integrated System of Hospital Facilities and Related Services. Both of these reports are most important and should be studied thoroughly.

The Medical Society of Nova Scotia has indicated its desire to increase the availability of quality medical care to the people of Nova Scotia while attempting to maintain the cost of such services within the financial resources of the taxpayers. In my opinion, I believe this applies to all members of the medical profession.

Suggestions have been made that unless we are prepared to accept either a lowering of patient care or increased direct costs such as taxes, deterrent fees and the like, then we have no alternative but to find ways and means "to restrain the growth of cost increases through better operation of the health services structure now in existence, and serious consideration must be given to future major revamping of the entire system" to quote the Task Force Report on the Cost of Health Services in Canada. It is the opinion of the profession which will shape Nova Scotia's future health care delivery system. No one knows better than the physician, working alone or in a group, the efficiencies in the present system as well as the deficiencies. Through knowledge and experience, the profession can provide the information necessary to develop an efficient and effective health delivery system. It is imperative that we accept this responsibility.

It is also imperative that, if problems exist within our present system they be identified, and utilizing information presently available and the experience of others, solutions to these problems be obtained. Providing unlimited medical services alone cannot substitute for the correction of social, economic and environmental defects and such attempts will inevitably be disappointing and very costly. The family physician is a person who will be both frustrated by and blamed for failure to improve poor health caused by social and economic conditions which are not correctable by simply providing more medical care. The provision of primary medical care is a highly personal service and involves the relationship between the patient and physician and this is the reason why the organization of physicians, hospitals and allied health groups into a multi-service complex is very different from the problem of organization in business.

To provide effective and efficient quality medical care is essential. The quality of the care provided by physicians can be evaluated only by other physicians and it should be accepted that since optimum medical care will vary with the environment within which it is provided as well as the social, economic, cultural and educational factors affecting recipients, the physician's local peer group is in the best position to evaluate the quality of care in relation to the situation under which such care is provided. Development of such peer review mechanisms is necessary, not only for cost containment, but for improving the quality of medical care.

Innovation in medical care delivery according to local needs should be encouraged in an orderly and evolutionary

manner and any mechanisms that will suddenly disrupt all existing delivery systems should be avoided. A once famous general, during an intensive and active campaign stated "We are in a hurry; let us proceed slowly."

There are certain legitimate areas for cost containment which will not impair the quality of patient care. Some of these are: (1) the avoidance of duplication of services such as laboratory and x-ray procedures (2) encouragement of office and out-patient care when appropriate (3) establishment of patient and physician profiles (4) improved systems for documentation, retrieval and transmission of medical records (5) increased delegation of tasks to existing allied health workers. In addition to physician profiles, it must be realized that patient profiles are important not only in cost-control, but in educating the public to a more realistic relationship between the patient demand and medical needs. Public education on preventable health hazards and measures to eliminate such hazards offers potential for significant reduction in health care costs.

In determining medical manpower, it is necessary to realize that we are in a society moving to shorter work days and work weeks and it is unrealistic to expect physicians not to conform to this trend, but increasing physician productivity should receive equal emphasis with increasing the number of physicians. In the foreseeable future it is not likely that there will be a substitute for the well-trained, thoroughly knowledgeable physician who can evaluate and assign medical priorities and guide patients through the maze of consultative data gathering procedures so as to arrive at a sound, professional judgment. Inappropriate reduction of educational experience will eventually result in lower quality medical care but it is important that all proven methods for increasing manpower, efficiency and productivity be explored.

Of great importance in the improvement of the present and the development of future health care delivery in the province of Nova Scotia is the determination of hospital bed needs. Sources of information are numerous, but using the present bed to population ratio and projecting them to determine future bed requirements is fraught with probable error. The Kaiser-Permanente Program cares for more than one of every hundred Americans and has rationalized the mix of primary care and specialty resources and is likely to serve as a basis for a variety of programs to be introduced in the next few years. From them it is possible to obtain valuable data regarding the required ratios of physicians and supporting staff, age and sex of participants, specific hospital and doctors office visit utilization rates, and information on facilities and capital requirements.

Transferring the Kaiser-Permanente experience which has a relatively low risk, low demand, to the population as a whole is fraught with the possibility of severe miscalculation. Participants in this program are in the low risk age group with preadmission and subsequent physical examinations and most are in highly competitive occupations. Transferring data obtained from programs such as this to the general population where health care now begins in

utero and continues into the progressively increasing geriatric group who have now available to them sophisticated medical and surgical methods of rehabilitation, requires the use of accurate statistical data, medical knowledge and experience.

Community Health Care Centers are being considered. The exact definition of these centers is being formulated together with determination of ownership, whether by government, community, or the professional and the method of operation and remuneration. Knowledge of the formation and operation of Community Health Centers can be obtained by study of centers presently in existence. The Martin Luther King, Jr. Health Center affiliated with Montefiore Hospital, serves approximately forty-five thousand persons in the Bronx. It was started in 1967 and it was one of the first neighbourhood health centers sponsored by the Office of Economic Opportunity. A most excellent report — *The Martin Luther King, Jr. Health Center Fourth Annual Report January to December 1970, Bronx, New York: The Center, 1971* allows readers of the Report to share the experience of a dedicated group of health workers in approaching, but not solving the problems. Mistakes and changes in orientation are freely discussed. Everyone has his say — physicians, nurses, administrators, and community health workers. Obviously, they don't all agree.

All neighborhood health centers appear to be wrestling with two particularly vexing issues: how much "community" control and the training and utilization of indigenous health workers. Another question is posed: who represents the community in which there is a fifty percent turnover of residents every three years? One comment on the vaunted concept of health care teams is: "the fewer team workers the better; one is perfect!" It is most important that the medical profession view new concepts with an open mind and although a critical view is necessary, cynicism is not particularly constructive.

In Nova Scotia ambulatory health care is provided in different ways. Solo practitioners provide service in all types of communities and are the only source of such care in rural areas, small villages and some towns.

In larger communities there are small group practises while in larger centers there are larger group practise clinics which are in effect regional health centers providing a wide range of family practice and specialist services and do so in an effective and efficient manner. A large number of patients coming to the group clinics have their problems or illnesses dealt with on a one stop basis which often includes specialist consultation during the same visit. Nearby there are also Counsellors on child care and family planning, social workers, V.O.N., psychiatrists and psychologists; in addition outpatient and emergency departments of all hospitals operate on a 24-hour a day basis, staffed by rotating rosters of physicians. Although most ambulatory health care centers do not have integrated ancillary services, easy access to such services is often nearby. Pharmaceutical services are usually available in the vicinity and public health nurses operate out of Health Units which are

supervised by medical officers of health and these co-operate very closely with the physicians delivering primary care. It has been suggested that a basic profile of community health centers should include physicians, nurses or registered nursing assistants, or their equivalent, nurses aides and the potential involvement of some type of "nurse practitioner and/or medical assistant." There should also be included supporting office staff and other services which should be readily available and might include diagnostic laboratory, diagnostic radiology, physiotherapy and other medical rehabilitation services, specialists referral, mental health services, home nursing and other home care services, organized personal preventive services, health educational services, clinical psychology, social work services supporting or associated with health care functions, dental services with a preventive and restorative orientation and pharmacy. These services must be properly integrated into the work of the center. Services of an organized or institutional type such as the various levels and types of hospital and nursing homes should also be readily available.

The medical profession realizes that there is considerable merit in having greater association, co-operation and integration between the medical profession and para-medical groups which are appearing in great numbers. These groups look for direction and for ways in which they can fulfill a useful role in delivery of health services. Community Health Centers may represent a method by which the physician can better direct and co-ordinate the entire health team.

In considering the development of Community Health Centers, thought should be given to their development on an experimental basis only and preferably in an area or areas where there is a demonstrated need for improvement in the delivery of health care services, either where none exists at present or where there is an obvious need for a better system. It is imperative that compulsion, either direct or indirect in any form during all stages of planning, establishing, or operating such centers should be avoided.

The co-operation of the government, the public and the profession is essential and the consumer should never be denied the right to choose between different methods of health care delivery. Monopolistic situations should be avoided so that services are provided on a freely competitive basis with any other existing establishments providing similar services. A Community Health Center should not be the only method of delivery of health care allowed to operate in any geographic area. Sponsorship of such clinics should reside with health professionals but consumer participation should be encouraged. Although physicians may contract for their services they should maintain their rights to remuneration for fee-for-service. Great care should be taken in the establishment of Community Health Centers in rural areas since centralization of health services may deprive many small communities of their present health care services. It is imperative that such Centers be established on a purely experimental basis initially until they are proven to be workable, efficient and acceptable to all concerned. Adequate assessment and control mechanisms are essential if they are to be pronounced either a success because of a more efficient less costly system or a failure.

In evolving an improved, efficient system of delivery of health care at less cost, the knowledge and experience of the medical profession should be available. This is most important in the development of any new system or any modification of the present system of ambulatory health care delivery, and should be in co-operation with other interested parties.

As the medical profession, Government and consumer move towards the solution of these problems we should all avoid too much zeal for the new and contempt for what is old; we should avoid putting knowledge before wisdom, cleverness before common sense, and avoid making the end result more grievous than the endurance of the present system. □

Compliments of

The CAMEO RESTAURANT Ltd.

The Prestige Restaurant of Halifax

Established 1929

5511 Spring Garden Rd.

Student Membership in the Society

Don Johnston*

Halifax, N.S.

In November 1971, all students including interns became members of the Medical Society of Nova Scotia by a unanimous decision of the General Council. The inability of all but eight of the students to vote at the yearly General Meeting and the inability of any of the students to sit on five committees are the only restrictions placed on their membership status. The five committees are: By-Laws, Discipline, Mediation, M.M.C./Medical Society Joint Committee, and The President's Liaison.

There are three student representatives on the Executive Committee who have full voting rights at all Society levels. The only restriction on these three members is their inability to sit on the above-mentioned committees. The students are entitled to five other Society representatives with full committee rights and will be available to serve on the various society committees. This makes a total of eight student representatives to the Medical Society. There will be general elections held for the group of three Executive Committee representatives every two years but subject to yearly review. The group of five representatives will tentatively be the Class Presidents who may in turn appoint a substitute if he does not want the job. These are two-year appointments. The fee for student membership is as yet undetermined.

The students will not be able to provide a wealth of experience to the Society in its various representations but it is quite possible that the degree of vitality in the younger student may provide a stimulus for the established members. This force may not always move in the appropriate direction but at least it is a volatile force and ready to learn. The representation provides the students with information about medical life and problems which will confront them eventually. Not only will this prepare the student for the time when he is a physician but he will be able to observe the direction of medicine and act according to his beliefs. This is an investment in the future of the Society.

By means of availability of Society literature and by interviews and conversations the student representatives will be able to convey the feelings of Society members and information on subjects such as regionalization, quality of medical care, income and medical-governmental relationships to the other student members.

To date, interest by students has been good. The initial establishment of a Student-Society network and objectives of membership is a key factor in attracting and maintaining students' and established-physicians' interest. The cooperation of the Society has been excellent in this respect and a

good working-relationship is forming. Students will be participating in the Society insurance plan and the public relations office is available and being used. The Society provides loans to Nova Scotia students on the basis of need, interest-free until graduation.

Of late, there has been a trend towards student involvement in Faculty decisions. This began primarily on the undergraduate campus and has spread to the medical campus recently. The Dalhousie Medical Students' Society has several representatives on faculty committees considering such topics as ethics, granting an M.D. after four years and the different forms of medical student education. A system of interviewing first year medical school applicants by third year students is established and functioning.

It can be seen that student involvement is an investment in the future. Let us hope that the students will keep their part of the bargain and provide responsible representation. □

We want you to get your money's worth.

At the Bank of Montreal, we wish to be unique among banks. Unique in that we wish to serve not only as a place where you can deposit and borrow money. But we also want to show you how to get the most for your money.

After all, we've become one of the largest banks in the world, and who should know more about money? That's why all our efforts are dedicated to giving you advice that will help you in your depositing and borrowing. **We want you to get your money's worth.**



Bank of Montreal

The First Canadian Bank

Collecting agents for the
Canadian Medical Retirement Savings Plan.

*Medical Society of Nova Scotia Student Representative.

Dr. Locke and Restoration of The Old Mill*

Dr. Howard Locke estimates that he has driven through the hamlet of MacPherson's Mills at least five thousand times in his 25 years of medical practice. And on each occasion, the sight of the "weatherbeaten, old, gray gristmill" has drawn him into the past. He was so smitten by the combination of beautiful setting, historical associations and mechanical intrigue that he undertook personally to restore the 120-year-old mill on Sutherland's River, six miles from New Glasgow, with the idea of making it a memorial of rural life as it was four generations ago.

The plan is to maintain the mill and restore a kiln, barn and house of the 1850's era. To further create a "mill on the floss" atmosphere, 20 acres of land at the site will also be landscaped. Dr. Locke proposes to furnish the house as it would have been in the 19th century. The barn will be a museum, equipped with a workshop for the restoration of artifacts, in which will be displayed the mill and farm implements which Dr. Locke is tracking down throughout Pictou County.



The restored mill — the only water-powered mill still functioning in the county — should be an attraction for tourists as well as county residents, Dr. Locke thinks. "All this would perhaps have taken me ten years to develop but with the aid of the Local Initiatives Program it may be accomplished in a year," he said. The project is receiving nearly \$17,000 in federal government assistance under the Local Initiatives Program (L.I.P.). The L.I.P. is part of the federal Special Winter Employment Program and is admini-

stered by the Department of Manpower and Immigration. Six local men will be employed on the project.

"Strangely enough, there are probably not more than five hundred people living in the county who have ever seen the mill's amazing machinery," Dr. Locke said. "Yet, from this mill came the oatmeal and the wholewheat and buckwheat that provided the 'healsome porridge and staff of life' for many of the county's people for over a century."

Land surrounding the mill will be developed for recreation purposes, nature study, hiking trails and day camps. Some acreage will be set aside for the growing of oats and buckwheat to supply the mill. Any revenues from the project will be used for improvement of the picturesque site or other community betterment projects. Dr. Locke is encouraging the local Women's Institute to use the mill to raise funds through admission fees and the sale of oatmeal and buckwheat flour.

Boyd Dickie, who has operated the mill for the past 15 years, introduced Dr. Locke to the mill's wooden machinery — the variable-pitch turbine, the huge wooden gear systems that transmit the river's power to the two grindstones. The mill is in good structural condition and its wooden machinery, maintained with generous applications of linseed oil is fully operational.

Dr. Locke also knew William Fraser MacPherson, son of the mill's builder. "I can still recall him sitting in his kitchen, puffing on his pipe and talking about the old days." He remembers MacPherson saying: "There were just two of us in the grist mill, my father and me, but we had another man who kept the kiln fires going with maple wood for maple flavor . . . Oatmeal was two cents a pound in those days. We worked from seven in the morning 'til pitch black for about 16 hours, for fifty cents a day." And he knew John Cameron "who operated the mill for thirty-five years and recalls the pride he had in his products and how his face would light up as he talked of the mill."

During the past few years, the kiln, used to dry newly milled grain, has been rebuilt. One side and end of the mill has been restored, and the sluice to the water turbine and the dam repaired. Boards taken from derelict farms were used as authentic period materials. The work was done by vacationing school students to supplement their summer earnings.

Sutherland's River, said Dr. Locke "has always been my favorite river and it has a beauty all its own. I have seen it in all seasons — walked along its rocky edges when the land was dry, and watched the water spill over the dam and under the mill when, swollen by rain, it raced on toward

*Reprinted, with permission from The Chronicle-Herald. This feature story was released by the Information Service Officer, Local Initiatives Program, Halifax, N.S. (Manpower and Immigration)

Merigomish Harbour. I have watched the maples change in autumn in front of the kiln with its background of spruce and fir, and photographed the snow and ice patterns on the dam and down the river. It is an artist's delight."

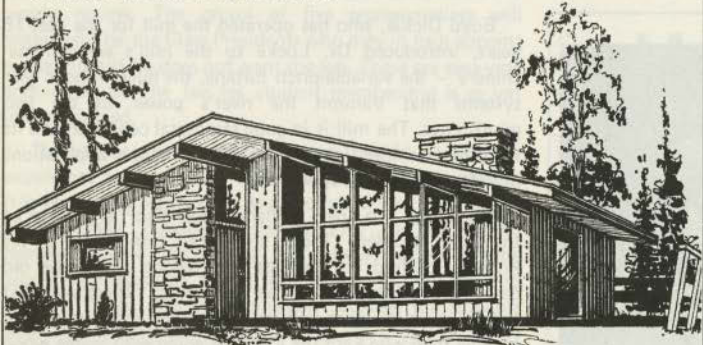
Looking to the future, Dr. Locke envisions hiking trails

along the river far up into the hills of its origin, "the mill and homestead visited by all ages to enjoy the peace and tranquility of its surroundings, by groups of children, by families, by people who remember when the mill housed the post office, store and barber shop. It will allow people to realize the good that was in the past. □

5 minutes

with our VACATION HOMES
catalogue may change your way of living

It's happening . . . perhaps even in your own circle of friends . . . there's a growing upsurge in the popularity of Vacation Homes! And do you know why? It's because there's nothing quite like having your own retreat for "getting away from it all" — and relaxing in the great outdoors! And the beauty of it is, today's Vacation Homes are meant for year 'round enjoyment — in Summer and Winter, too! Colonial/Sunnibuilt can make it happen for you.



ONE OF OUR MANY PLANS

6 Great Series — 50 Different Plans — Cabin, Contemporary — Chalet Designs — Ranch — Expandable Variations — Conventional, Panoramic, Modern & Traditional Stylings — Attractively Illustrated 4-Color Exterior & Interior Views.



THE
Colonial Homes
LIMITED

835-2606

VISIT OUR BEDFORD DISPLAY

Inspect our MODEL HOME and COTTAGE in Bedford near the Sunnyside Shopping Mall, where our full color catalogue and detailed price list is available.

BEDFORD DISPLAY COURT AND SALES OFFICE

Open 9:30 a.m.-4:30 p.m. Mon. to Sat.

Evenings 7:30 p.m.-9:00 p.m. Mon. to Fri.

MEMBERSHIP DUES

On the occasion of the Annual Meeting in November 1971, the membership approved a substantial increase in dues to cover anticipated increased operating costs for 1972 and onwards. In addition to "normal" escalation of costs in terms of supplies, services, salaries, postage, etc., the Society approved a recommendation that its staff be increased. The duties of the new staff member, known as Manager, Medical Economics and Membership Services Department, are self-evident.

As you know, the Society's fiscal year begins each October 1st. The Society's only source of revenue is from membership dues. Therefore, it was necessary to send out the first dues billing prior to the Annual Meeting and at last year's rate. For the vast majority of Society members who paid promptly, the result was an additional bill of \$45 to make up the balance. Please accept our apologies for any inconvenience or confusion we may have caused. It just couldn't be helped.

It would be appreciated if those of you who have not yet paid 1972 dues would give the matter your attention. Early payment represents potential investment for the Society.

Have you given careful thought to your participation in the Society's new Insurance Plans? Contact Mr. A. A. Schellinck at the Society office or phone 423-8166. □

D.D.P.



During the past year there has waged around us a battle between a professional group and a lay group. The issue has to do with oral medicine. The professional group comprises fellow members of the health team. Organized medicine must assume its responsibility to make known its position on this issue.

Certainly the N.S. Medical Society must be apolitical. The Society is, and should remain, neutral concerning nonmedical issues. However, the contrary is just as true. When health is the issue, then it is the duty of organized medicine to speak up. If doctors of medicine do not give their opinions concerning all matters of health, where then will the public turn? The answer to this not so rhetorical question has been spread over the local papers, and other media, for months.

I speak, of course, of the dentist question. Here we have a situation where a group of technicians who, until the resolution, followed the prescription of the trained professional. What is the difference between this and the pharmacist prescribing his own nostrums? The situation is fraught with danger. Certainly the dentist can take an impression and make a denture. Likewise, anyone can be taught how to remove an appendix. But the abdomen can be full of surprises and the technician who has been taught

only how to remove the appendix could find himself in serious trouble.

Let us not delude the public. Let us tell them the facts so that there can be no misunderstanding. The technician who takes the impression will miss any pathology that may exist in the mouth. He will fail to recognize, in his ignorance, the small signs that can stimulate investigation and early diagnosis of possible serious illness.

The bargain denture is no bargain. The public should know exactly what they are getting when they go to a dentist. They are getting a set of teeth which may be excellent cosmetically and functionally. They are saving money, ostensibly. They are not getting good medical care. The mouth is every bit as important as any other part of the body. They would be loathe to put their health in the care of untrained people. And yet this is precisely what they are doing when they by-pass the dentist and head for the dentist. The public should ask the guardians of their health just how many doctors would go to a dentist for dentures.

Unfortunately our fellow citizens have not asked, nor have we volunteered the answer. We can't tell a patient, who is perfectly happy with his dentist-made denture, that denturists are no good. We can, however, point out to the public the very real dangers of having a denture made without a professional examination of the mouth. Denturists may be superb in their construction of dentures, but they are as unsophisticated as their customers are in the knowledge of oral pathology.

It is the duty of organized medicine to speak up on this issue. It concerns us because it concerns our patients' health.

M.E.B.

"Procrastination is the art of keeping up with yesterday." — Marquis

**Health Care Evaluation Seminar
Saskatoon
April 23-28, 1972**

The University of Saskatchewan, under a National Health Grant, is sponsoring intensive, week-long seminar in health care research and evaluation. The format will include workshops and individual sessions with tutors, for "Canadian residents whose work in Health Departments, hospitals and other health facilities, private practice and universities, other community groups and government involves them in health care evaluation activities".

Scholarships and travel awards are available.

Write to — Mrs. Marjorie Bricker,
Department of Social and Preventive Medicine,
University of Saskatchewan,
Saskatoon, Saskatchewan.

Correspondence

To the Editor:

As an interne who will soon be entering general practice in the Maritimes, I have been giving some serious thought to ways of keeping up with new medical information. As you realize, it is impossible to read journals in all the fields encountered in a busy practice. Before review articles are written and reach the practitioner, the information contained may be several years old. It is this delay in reaching the general practitioner that concerns me.

Would it be possible for an organization, in some way connected with the teaching centre in Halifax, to publish, in brief outline form, a document covering changes in different fields of medicine? Each month a specific department or subdepartment could take turns summarizing one or two medical problems — their differential diagnoses, if relevant, and their up-to-date treatment. If, let us say, Neurology were asked to submit something in January, they might choose to summarize the modern treatment of Parkinsonism and/or the treatment of various types of headache. In each case, new approved means of therapy should take precedence over a topic in which there is nothing new.

These could be printed on a paper with holes already punched for easy filing. An index covering the previous four or five years could be supplied yearly. The document could be accompanied by items of medical news and advertisements, provided the sheet kept for filing was devoid of these things.

Financing this program could be arranged through the Division of Continuing Medical Education, Dalhousie University, the provincial medical societies, by subscription, or by a combination of these.

It is my hope that if such a publication were kept *brief* enough, it would serve to communicate *new* methods of treatment, and would review material already learned; it should, however, in no way be written in the detail of a textbook of medicine.

I hope these ideas will be of some use to you.

Yours sincerely,
Cyril Moyse

We hope that Mr. Moyse's excellent suggestions will stimulate other readers of the Bulletin to express their views on this subject, for publication in this column.

Dalhousie Graduate 11 years experience in General Practice desires Locum. April - July 1972 or any part thereof. Call 463-1509

To the Editor:

I have been advised by the Department of National Health and Welfare that the responsibility for Blind Persons Allowance has been transferred from the Rehabilitation Services Directorate to the Canada Assistance Plan Division. The attached letter is the information that I have received from the Director of Blind Persons Allowances.

It would be appreciated if reports covering eye examinations of patients being examined for Blind Person's Allowance be forwarded to: —

Medical Consultant
Canada Assistance Plan Division
Department of National Health and Welfare
Brooke Claxton Building
Tunney's Pasture
Ottawa, Ontario
K1A 0K9

Your cooperation will be greatly appreciated.

Sincerely yours,

I. D. Hambling
Director of
Provincial Social Assistance

THREE DECADES OF GRACIOUS HOSPITALITY



The LORD NELSON
HALIFAX
CANADA

Telephone 902 - 423-6331

Telex 014 - 422866

Personal Interest Notes

Dr. C. J. W. Beckwith, retired Executive Secretary of the Medical Society was nominated Alumnus of the Year at the annual meeting of the Dalhousie Medical Alumni Association.

Ewart Alexander Morse, third year medical student, son of Dr. W. I. Morse of Yarmouth, N.S., is the first recipient of the Dr. W. Sidney Gilchrist Prize in Preventive Medicine.

Eric Gozna of Yarmouth, N.S. and Roland Chaisson of Sydney, N.S. 3rd year Medical Students shared the Dr. J. Earle Hiltz Medical Education Award presented for the first time in 1971.

The award of "Professor of the Year" for 1972 was presented to Dr. Fraser Nicholson of Halifax by the Dalhousie Medical Student Society at their banquet. This is an honor awarded to the professor who, in the opinion of the 4th year class, has been their most outstanding teacher. Our congratulations to Dr. Nicholson.

Dr. Kenneth B. Shephard of Truro was elected president of the Truro and District Community Chest at the annual meeting held there.

Dr. D. C. Langille, Halifax, is attending a two-month radiologic-pathologic course at the Armed Forces Institute of Pathology in Washington, D.C. Dr. Langille is doing postgraduate work in diagnostic radiology with Dalhousie University and the Victoria General Hospital. □

AVAILABLE FOR LOCUM

June 1972 Dalhousie Graduate seeks one (1) month locum for June in Nova Scotia, preferably Halifax area.

Reply: — S. T. Cook. Phone 454-3279 (after 6 p.m.) or write: — 2925 Dublin Street, Halifax, N.S.

72ND ANNUAL MEETING CANADIAN TUBERCULOSIS AND RESPIRATORY DISEASE ASSOCIATION

and

14TH ANNUAL MEETING CANADIAN THORACIC SOCIETY

For the first time since 1959, the Canadian TB & RD Association will hold its national convention in Halifax at the Hotel Nova Scotian June 25th to June 28th inclusive.

Of particular interest to physicians will be the programme being developed by the Canadian Thoracic Society.

This is an invitation to all physicians to attend the sessions.

Full programme details will be printed in the June issue of The Nova Scotia Medical Bulletin.

Hosting the annual convention will be the Nova Scotia TB & RD Association.

\$\$\$ TAX FREE \$\$\$
INVEST
1972
 4,000.00 \$ 4,000.00
TAX FREE \$ TAX FREE
CMAIF
RSP
INSURED ANNUITY
INVESTMENT FUND

Contact: A. A. Schellinck
 The Medical Society of Nova Scotia

OF SPECIAL INTEREST TO THE MEDICAL PROFESSION

HALIFAX-DARTMOUTH IS NOW BEING SERVED WITH A PROFESSIONAL, QUALITY TELEPHONE ANSWERING SERVICE GEARED TO YOUR NEEDS.

FEWER LINES PER OPERATOR PROVIDES BETTER SERVICE BY OUR TRULY HIGHLY QUALIFIED STAFF.

CITY WIDE RADIO PAGING FREES UP YOUR "ON CALL" TIME.

FOR DETAILS CALL CHAN GILLIS ANYTIME—NO OBLIGATION

AIR-PAGE ANSWERING SERVICE LTD.

2979 Oxford St., Halifax

Ph. 453-2640

INVEST \$500 or more in ROYAL TRUST'S 4 FUNDS

FOR GROWTH OR INCOME
NO LOADING/WITHDRAWAL FEES



Call 429-2700

Mr. Fox or Mr. Moriarty

1648 Hollis Street, Halifax
Bayers Road Shopping Centre, Halifax
Holiday Inn, Dartmouth

Doctor, eight years experience different acute specialities, wide experience Anaesthetics, seeks Practice. Reply, The Nova Scotia Medical Society, Box 105.

Your European Headquarters

For Charters, Bus Tours, Individual Vacations



Lord Nelson Arcade
429-7970

Scotia Square
429-7974

ADVERTISERS INDEX

Air Page Answering Service	52
Atlas Travel	52
Bank of Montreal	46
Cameo Restaurant	45
Canadian TB & RD Association	51
C.M.A. Retirement Saving Plan	51
Colonial Homes Ltd.	48
Connaught Medical Research Labs	24
Eli Lilly and Co. (Canada) Ltd.	1
Encyclopaedia Britannica (Canada) Ltd.	Insert
Hillcrest General Leasing Ltd.	IBC
Lord Nelson Hotel	50
Mahon's Stationery Ltd.	IBC
Maritime Travel Service	IBC
Medical Society of Nova Scotia Insurance Plans	IV
Mutual of Omaha	III
Parke Davis & Company	OBC
Province of Nova Scotia	42
Robins, A. H. Company of Canada Ltd	11
Royal Trust	52
Schering Corporation Ltd.	22, 23
Wambolt-Waterfield Photography Ltd.	IBC
Winsby's Limited	40
Classified	51, 52