

Editorial Comment

For those readers of this journal who occasionally glance at the masthead, it will be obvious that there have been several changes in the Editorial Board. We hasten to emphasize that these changes have been the result of pressure of other work on the schedule of the previous incumbents. After having given valuable service for several years, Dr. Walter House has expressed his desire to be relieved of his duties as Associate Editor, with personal interest notes as his particular sphere of activity. His place has been ably filled by Dr. J. H. Quigley, who has already shown his mettle by devising a painless (we hope) method of extraction of personal interest notes from the Secretaries of the Branch Societies. It is with regret, also, that we announce the resignation of Dr. J. L. Fairweather, who has given so much of his time and effort to the Bulletin. His particular interest has been chiefly in the field of advertising and we are pleased to welcome as his replacement Dr. Cyril Bugden, whom we consider to be a particularly happy choice by virtue of his previous experience along these lines.

It remains but to add that these new appointments are in line with the improved quality of the various departments of the Bulletin which has been in evidence for the past few years and which, we hope, will continue.

S.J.S.

Address in Honour of Professors Emeriti

Delivered at

Faculty of Medicine Banquet

Medical - Dental Library

April 25, 1959

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Halifax, N. S.

Every year at this time the feeling deepens that we are at last in the Orwellian era and are living dangerously in a time of developing craftiness and relentless surveillance in high places. No doubt the contacts with the department of Internal Revenue are the basis for this apprehension, but when I learned that this building had been selected as the site for this gathering, I knew that my worst fears had been realized. Old Mother University had no intention, no matter what ruse was needed, of loosing these eminent professors from her apron strings without somehow ensuring that they should see the interior of the Medical Library!

If it is true, as has been said, that the value of a University to its community is the measure of its ability and willingness to tolerate and nurture on its faculties men who are brilliant to the point of eccentric genius, then these dear friends to whom tonight we give both cheer and honor, have, by their various and combined efforts over the years made of the Dalhousie Medical School a peer among the schools of Canada, and a jewel of great price in the crown of medical education.

However loudly these modest gentlemen deny any claim to brilliance, I, myself, will attest to their eccentricity! For the questions these men found in their minds to set on examination papers were, and I have it on angry, even furious, authority, continued to be over the years, of such obscure and unanswerable nature as could have emanated only from the depths of a most profound eccentricity! These are men who knew full well how to plumb the depths of ignorance in hopeful candidates, and it is a testament to their generosity and kindness of heart, that there are so many of us here tonight to do them honor!

No doubt this gentleness stemmed from the rigors and terrors of their own years of training. I had always, suspected quite wrongly, of course, that most of our professors had been trained under the old apprenticeship system, and learned their medicine from the sharp side of the doctor's tongue while washing his bottles, and in furtive reading while grooming the doctor's horse. This illusion was heightened by the way they cracked the whip and drove the internes! Even though this illusion was long ago dispelled by the impressive array of letters emblazoned on their stationery, the fact remains that the apprenticeship method of training had some good points in its day and is even being revived in these times as one of the rotations in the student's training.

The story is told of an old doctor who was training a student in one of these rotations, and after several weeks of contact in the office they started out to make some house calls, during which the old preceptor expostulated about

the importance of careful history, shrewd observation and thorough examination. "Now" said the old doctor, "Spit out your gum, my boy, and come in with me. I'll question the patient and make the examination. You watch closely everything I do and later question me on points you want cleared up." The first patient was an obviously obese woman propped up in bed, complaining of tiredness and shortness of breath and worrying about her heart. The doctor took a careful history and found that she ate hardly enough to keep a sparrow alive and never, never, never ate candy. After a thorough examination he reassured the patient about her heart, chided her for fibbing about her diet and cautioned her at once to give up overeating, and most particularly to stop eating so much candy. He promised to send a diet and some pills.

Outside the apprentice was flattering enough to the old man to make sure of a good report and then asked how he knew about her fondness for candy. "That was easy" said the doctor. When I was making the examination I noticed a box of candy under the pillow."

At the next house they found a thin man complaining of weakness, indigestion and loss of appetite. Here again the old doctor questioned him at length and, after counting the pulse, placed his watch by a glass of water on the bedside table. When he had finished the examination he recovered his watch and advised the patient. "My friend" he said, "You have a disturbance of the liver due to drinking too much alcohol. If you wish to live you must give up this hideous poison. I'll send you some pills and a diet."

Outside the student asked how he was so sure of the part alcohol played. "Well" said the doctor, "When I recovered my watch from the table I found that there was gin, not water in that glass."

"At the next house **you** will question and examine, and afterwards I will tell you the things you did incorrectly."

This patient was found to be a very nervous young woman all fixed up in a fancy night-dress and obviously very flustered and agitated. After introduction the young man questioned about worry, sleeplessness, anxiety, etc., and being a bit nervous himself, dropped his stethoscope to the floor when he started his examination. When he had completed the examination he advised the patient that her trouble was nervous, and her problem entirely psychiatric. He advised her to take a long holiday away somewhere with her husband and promised to send some pills for motion sickness and a timetable.

Outside the old preceptor was glowing in his praise of the lad's effort. "But tell me" asked the Doctor "How were you so sure that it was psychiatric trouble rather than thyroid disease?" "Well" said the lad, "That was not so difficult either. When I stooped over to pick up my stethoscope I saw the psychiatrist under the bed!"

In spite of all the inadequacies of the apprenticeship training, and of the three year course that could be completed in two, and of the four year course that could be completed in three, and of the five, six, and seven year courses that went quietly to their deaths at a nod of disapproval from our American overlords, the fact remains that their very brevity led to simplicity and this simplicity to a clarity of goal and purpose. The student may not have known much, but he knew for what he was being trained and whither he was going. He knew that his education was inadequate because of its brevity and many were thus inspired to spend the rest of their lives in study.

Things are different now. Knowledge is so much more profound about so many more things, not all of which, by any means are essential to the making

of an adequate, even a good doctor, that it behooves medical schools to take a new look at our teaching if we are going to be able to qualify men in medicine before they qualify for their old age pension.

One of our friends in a recent John Stewart Oration, dared to hint at shortening the medical course. This talk or seance, (I'll tell you about it as probably you were not there) was all about a pot! The speaker began muttering about this pot, which somehow he got up there on the platform. He stirred it a bit and then, in some way got a fire going under it, all the while mumbling along to himself. Presently he was joined by some other male hags connected with the University, and they all shambled around and around this pot, throwing bits of things into the smoke and steam which now seemed to obscure the platform, and all the while they were chanting something that sounded like:—

Eye of newt and toe of frog,
Wool of bat and tongue of dog.
Adder's fork and blind-worm's sting,
Lizard's leg and owlet's wing
For a charm of powerful trouble
Like a hell-broth boil and bubble.

I looked about for the fire marshal and then at the audience, but they were sleeping quietly as usual, and as I looked back at the platform, something seemed to be taking shape in the steam from that pot—but it wasn't the apparition of a warrior's helmeted head, nor yet the apparition of a crowned or bloody babe, but a hint, a suggestion of things to come!

I rubbed my eyes, for this seemed very strange to me. I knew most of those hags well enough to know that the kind of pots they were familiar with were not the kind that any one would stir, nor yet the kind that anyone would ever light a fire under, but rather the sort that is spirited out unnoticed, in the morning! Then when I looked again the smoke had cleared, the pot was gone, the speaker was yanking his glasses off and on rhythmically and the audience slept quietly on as if nothing strange had happened!

Yet out of this seance had come, I knew, the invocation of a new spirit for the teaching of medicine, and it came not with the soft clip-clop of the horse and the rattle of the buggy but with the shriek and whine of the jet age. It entails the adoption by teachers of medicine and medical science in all its branches, of a new discipline and a difficult sacrifice. The teachers of all these subjects must find and face the answer, not to the question, "How many more hours can be found in which to teach my all important subject," but rather to the question, "How little of my subject can be imparted to the student in a way that will help him most to comprehend the healing art of medicine as a whole?"

Gentlemen, there is the challenge! If we could but strike away the iron bonds of prejudice, if we could but calm the fears of adverse criticism, if we could but still the voices of the medical Colonel Blimps, who cry, "No lowering of standards!" The implication is that a machine, so altered and improved that it can travel eight miles in six minutes, is a poorer machine than the old model which needed eight minutes to travel those eight long symbolic miles. If we could overcome these things, it might be possible to achieve a quite significant shortening of the course, instead of continued lengthening, and we might even put a better doctor in the sick room than the razor-brained, rat-run, pseudo-scientist who mumbles his equations at the bedside today!

The B.M.A. has made several studies of the problem of medical education. The report of Cohen's Committee, now more than ten years old, made a number of valuable suggestions with a view to shortening the period of training, principally by a drastic reduction of the amount of detail and of laboratory periods. It seemed to them incongruous that the highly intelligent students, who alone were admitted to the study of medicine, should be subjected to hours and days of repetitive laboratory work demonstrating some fact or function which their quick brains permitted them to visualize, comprehend and relate in their mind's eye, almost in a flash!

This, of course, is part of the training in scientific method. But the student who is to be a doctor should only court, not marry, science in his undergraduate years. He should know her ways, but he should not be possessed by her. Somewhere the old fellow with the lamp who shows the way of medical learning, has strayed from the path in a dense fog of scientific minutiae, and has lost sight of the goal of the medical school, which is to train healers not scientists.

The Cohen Committee, recognizing the energizing and stimulating influence of a good research department, and being aware that a good research man might quite likely be a poor teacher of clinical medicine and vice versa, suggested the dual professorship. This idea, originally intended for one or two major departments in a school, soon grew to the place where every department within every department wanted its own research man, until the larger schools were able to put in the field a research team that began to compete seriously with the football squad for glamour and publicity. This indeed, is using an honorable discipline for something less than an honorable purpose! Furthermore it is costly. You must buy a good many hundred thousand tickets in the research sweepstakes before you even draw a horse, to say nothing of a winner! And though the drug companies can turn out the pockets of the sick of the world to pay for their research, we, in the University, can only tear out the entrails of one unfortunate president!

The A.M.A. is also studying the problem of medical education. They are much less concerned about time. Indeed they are not at all concerned about time, and their current thinking is that the one year internship is outmoded, and must be replaced by a two year rotation. This will bring the course to nine years and the training will be so arranged that there will be no more paediatricians, except a rare one, who will be a consultant. There will be no more internists, except a rare one, who will be a consultant. There will be no more gynecologists, except a rare one, who will be a bank president!

There we are, back where we were fifty years ago, except that the course is now nine years instead of four, and the medical schools will go on training specialists around their little nucleus just as they have in the past, and must continue to do, so long as they teach!

The effort to clarify the aims of medical education goes on. The battle to improve the care of the sick by better training, has been an unremitting and a wearing fight, and the men we honor here this evening have matured and come to retirement in the forefront of that conflict. I rather think they would like to be starting in again as young and vigorous as ever, and they may be a little mindful of the thoughts of the man who wrote the lines:

Ah, there's no joy in these gray years,
No cheer to ease the rheumy pain,
No drink to fill the cup, save tears
More dreary than December rain.

But I suspect that the author of those lines was in a bit of a depression, or had never heard of the "Joys of Retirement." You have all heard the old saying, that when the drayman retires, his wife cleans out the stables for a living. When the clergyman retires, his wife takes in washing for a living, and when the professor retires, his wife—ah well, let us not go into these sordid details. This is a different age and things are better now, particularly for retired professors. He has three principal "Joys of Retirement" (Is it not strange how things come in threes—you get three flat tires, three broken windows, three visits from the income tax inspectors!) A doctor friend of mine the other day was telling me of a young Newfoundland woman who came to his office not long ago. She was troubled and nervous and he did his best to put her at ease before asking about her complaints. I suppose you'll think me silly, Doctor" she said, "but in spite of being three times married I am still a virgin." "Tell me about it," said the Doctor, sensing something more interesting than the usual indigestion. "Well my first marriage" she went on, "was a noon wedding in a downtown church, and just as we were coming out after the ceremony there was a hold up in the bank across the street. There was some shooting and my husband was killed by a stray bullet." "My second marriage was an evening wedding in a small suburban church, and as we pulled out onto the main highway to start on our honeymoon we were sideswiped by a drunken driver and my husband was killed." "You have suffered terrible tragedy," said the doctor and then unctuously, "What carried away your third husband?" "Oh him," she sneered, "he was carried away by the Tory landslide of 1958. He's a member of the federal government now, and all he does is sit around and brag and break promises!"

To get back to these three joys of the professor's retirement: The first is the "Freedom of the Bins," the second is the "Elevation to the Status Triune," and the third is the "Anticipation of an Honorary Degree in Retirement."

The "Freedom of the Bins" is a significant honor, akin to, but slightly lower than the "Freedom of the City." It permits the professor to do openly, and with dash, what he has had to do furtively all his life, that is to scrounge among the garbage cans and trash bins for bits and pieces with which to augment his meagre living! In the old days they could be seen going about the streets in a rickety cart drawn by a spavined old horse, searching the likely places. Today they have become much more fastidious, and are apt to confine their activities to the premises of trust companies, banks and brokers' offices!

I'm sure that the vast achievements of our honored guests will assure for them that the rags and tatters of their cloak of retirement will be of the stuff Bliss Carman meant, when he wrote:

Make me over in the morning
From the rag-bag of the world!
Scraps of dream and duds of daring,
Home brought stuff from far sea-faring,
Faded colors once so flaring,
Shreds of banners long since furled!
Hues of ash and glints of glory,
In the rag-bag of the world!

The second great joy of retirement is the "Elevation to the Status Triune." In the first phase of the "triune" the retired professor is overwhelmed with

irresponsibility, choked with leisure and so smothered with freedom that he sits in his easy chair, gasping for a breath of hard work to do! This is known as the "Status Asthmaticus of Retirement." From this he can recover only by throwing himself wholeheartedly into physical activity so futile, so purposeless and so violent as to be precipitated into a clonitonic condition in which he can neither sit or stand, move or be still! This is followed by violent paroxysms of curling, gardening or golf and is known as "The Status Epilepticus of Retirement."

From this state, time, fatigue and sheer exhaustion forces him into the third phase of the "triune" in which he yields, relaxes, becomes docile and resignedly accepts the cloying, bitter-sweet honors of the "Status Emeritus!"

The third "Joy of Retirement" is the anticipation of an honorary degree. Almost any honorary degree may come to a retired professor, but there is one that they will almost certainly receive if they live long enough. The one I have in mind has always seemed to me very fitting to the personalities of many of the professors, under whose gimlet eyes I sweated in my youth. This degree is the A.R.S.S. (Hon.) The letters signify 'Ancient Recipients of Social Security.' This degree is conferred for timely presence at the point where the great tide of Socialism meets its fusty little estuary Paternalism and brings with it a lifetime emolument almost equal that of junior college staff of fifty years ago and greater than that of the rural school teacher in Nova Scotia less than twenty-five years ago. This rather reverses the usual monetary consideration in Hon. degrees. It is the most acceptable of the manifestations of Socialism which we, in our strange bewilderment, at once acclaim and deplore. For the socialism which Ferdinand Lassalle proclaimed in Germany in the 1860's has spread far and changed mightily in the intervening years, altering the way of life in every nation it touches, but in a different way in each. Now we see it as a many barbed jig upon which the nations of the world are held fast like fish to squirm out their little destinies in such wondrously varied ways. It was to be the great equalizer. There would be no rich and no poor, no strong, no weak. Yet wherever the party is strongest, there the distinctions become most sharply etched; for a little wealth plus absolute power equals immense riches, while a little less want, plus absolute regimentation still equals abject poverty! Thus, take Socialism, apply it with utter disregard for the individual, bind it with an iron discipline, rule it with a ruthless dictatorship and you have Communist Russia.

Or again take Socialism, season it well with liberty, serve it without the salt of personal or national discipline and you have La Belle France!

Or again take Socialism, add a dash of snobbery, alternate it with Conservatism of Liberal mien, and you see a once mighty empire dissolving into an unnatural and impotent commonwealth of nations, held together by the tenuous threads of trade, a common tongue, a Royal tour, and a touching naiveté!

Or again take Socialism, plant it in a young and vigorous country with untold wealth of natural resources and individual opportunity, govern it with rulers whose ancient orchids flutter at every scowl from an organized minority and you have the overtaxed, frustrated, neurotic nation that is Canada today—where business is afraid to look ahead, where governments are afraid to look back, and where the unions, who dictate to both and are responsible to neither, are building a fool's paradise.

What does all this Socialism mean to the medical profession?

If the flood continues, (and if we survive as a people it will surely continue) then it will mean something more to the medical profession than a gentle kick in the A.R.S.S. (Hon.).

It will demand a new type of doctor, turned out in double the previous numbers by a new type of medical education. It behooves the medical schools to make preparation for that change now! There must be new legislation to permit a new qualifying degree, and a broadly-integrated, less minutely detailed education.

So it is to men such as we honor here this evening, men of experience both in teaching and practice that we must look for guidance and advice. Already we owe them a huge debt for the many hours of patient teaching in the wards, and for the many years of helpful collaboration in the practice of medicine. This debt we cannot repay, but we will never forget.

Those of you who live near Coburg Road know full well how much dust can collect in a single day. Think, then, how much dust must have collected in the brains of these dear friends during twenty years or so of dreaming dreams in their professorial chairs! So it is that we beg of them to use some of the breath of their Status Asthmaticus to blow up a whirlwind of the dust and dreams of their years of incumbency (for it was from such a whirling cloud of cosmic dust that all the beauty and glory of this world at first congealed), and to direct some of the energy of their status epilepticus to transcribing their thoughts and dreams to paper and so recording their experience for the benefit of those who follow.

Thus it is we wish with them, in Carman's words:

Take my dust and all my dreaming,
Count my heart-beats one by one,
Send them where the winters perish;
Then some golden noon recherish
And restore them in the sun,
Flower and scent and dust and dreaming
With their heart-beats every one!

"Poliomyelitis—Past, Present and Future"

The First C. E. Kinley Lecture

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INTRODUCTION

It is a great honour indeed for me to deliver this first Cecil Kinley Lecture, and it gives me an opportunity to pay tribute personally to Dr. Kinley, who has contributed so much to the care of patients suffering from polio in this Province. I see in Dr. Kinley an example of the spirit of collaboration in the fight against polio, where the present happy position has been reached only by the combined efforts of voluntary organizations such as the "March of Dimes," various Governmental agencies, and individual physicians and scientists.

I am going to speak to-night about a subject, I might almost say a hobby, which has interested me for twenty-five years—the study of poliomyelitis. This infection was first recognized in 1905 in Scandinavia and has since become a world-wide scourge, so much so that recently the World Health Organization adopted poliomyelitis as one of their major fields of interest. A characteristic finding in recent years is that parts of the world such as India where polio was thought to be rare are now experiencing serious outbreaks. Nearer to home, Jamaica and Central and South America are now having very serious outbreaks comparable in scope to those which we had in North America until a few years ago. Poliomyelitis is still very much a world health problem.

During the fifty years history of epidemic polio, the disease has undergone many different biological changes. So much so that I have chosen as the subtitle for this address to-night "The Changing Picture of Poliomyelitis."

My particular aim to-night will be to show you how, over the last forty years, the problem of the prevention of polio has occupied the minds of many investigators, how a good deal of work had been done long before the introduction of polio vaccine, and finally how the present happy position has been reached.

To illustrate at the beginning of my talk how our concepts of thinking about polio have changed, I am going to say that the description by which this disease is known—"acute anterior infantile poliomyelitis"—is completely erroneous, as every single one of the terms applied represents an outmoded concept. For example, it is no longer a disease of infancy, but has shown a tendency to involve progressively older groups. No longer is it a disease in which infection is concentrated only in the ganglionic nerve cells, as suggested by the term "anterior poliomyelitis," on the contrary, the gastrointestinal tract bears the primary attack of the virus. In fact, only 1 per cent or even less of all infections with poliomyelitis virus present with signs of involvement of the central nervous system.

In view of this, it is quite commendable that the present idiomatic term "polio" has come to be so widely used. I am all in favour of "polio" because it does not tie us to any one of these outmoded concepts of the true nature of the disease. For the same reason, the term *poliovirus* is, to my mind, a good one, because again it does not involve any concept about the particular area in the body attacked by the virus.

Study of Poliovirus

I am going to discuss to-night five or six phases of polio in which the picture has changed during the last fifty-odd years. The first topic that I am going to take up is the changing picture in regard to the character of the virus itself. As a virologist, I shall not apologize for first discussing the properties of the virus, because so much has been learned from exploitation of major technical advances, advances that have been made somewhat infrequently in the history of the disease.

The first major attack on polio came in 1908 when two distinguished scientists, Landsteiner and Popper, discovered that the infectious agent could be transmitted to monkeys. For practically forty years, all information relating to the characteristics of poliovirus came from experiments on monkeys. It is really remarkable that so much was learned in forty years when we think that in Europe and North America, where practically all of the work has been done, the monkey is not an indigenous animal, and has had to be imported at considerable cost and maintained for long periods in reasonable health in experimental laboratories.

During most of the forty years following the discovery that poliovirus could be transmitted to monkeys, workers were almost obsessed with the concept that poliovirus was primarily a neurotropic agent—that is to say, an agent with a particular affinity for the nervous system. This is hardly to be wondered at, because experiments showed that the virus would travel to the central nervous system along nerve fibres, and having reached there, would spread in the central nervous system by nerve tracts. Furthermore, it was shown that when the virus was deposited in the nostrils of the monkey it entered the olfactory nerve endings, which lead directly back to the olfactory lobes, tracts, and brain. In other experiments, it was customary to deposit the virus directly into the brain. Following inoculation by this route, the virus does not spread widely throughout the monkey's body. We are not, therefore, surprised that for a great many years workers in this field regarded poliovirus as purely a neurotropic agent.

Slowly, evidence has accumulated that some other route of infection may be involved. For example, it had been known for a great many years that monkeys can be infected by the intravenous route. However, with the strains then tested, approximately one thousand times as much virus was needed to secure infection by the intravenous route as by the cerebral route. Accordingly, no very great significance was attached to this observation.

Of much more importance has been the finding that certain species of monkey can be infected by feeding virus. The fact that monkeys can be infected in the brain was interesting, but had very little significance from the point of view of studies of the disease in man. When it was found that primates can be infected by eating poliovirus with their daily bananas, a really remarkable change in thought was initiated. It was soon found that such animals become infected in the intestines and excrete virus. The chimpanzee was found to be an extremely close model for human polio because very few of the infected animals become paralyzed, although practically all excrete virus in the stools and develop antibody in the blood.

Now, I will discuss current concepts of pathogenesis—the manner in which poliovirus enters the body and spreads therein. The modern concept comes largely from Dr. David Bodian of Johns Hopkins and Dr. Dorothy Horstmann of Yale. Virus is usually swallowed, and then there follows the

first of four distinct phases in pathogenesis. In the first or alimentary phase, the ingested virus proliferates in the tonsils and in Peyer's patches in the intestines. The infection may stop at the alimentary stage, and this represents the mildest form of polio infection. The virus may spread further, from the tonsils or Peyer's patches, to the regional lymphatic glands, to constitute the second or lymphatic stage. From the regional lymph glands, virus "spills over" into the blood—the phenomenon of "viraemia"; this is designated as the blood vascular stage. The virus circulates in the blood for a few days and then settles in the "target organs," the central nervous system, the lymphatic tissues, and a special tissue known as "brown" fat, present in monkeys and other primates. In the central nervous system, the virus spreads by nerve tracts and may also pass centrifugally into the sensory ganglia.

The key to this new concept of pathogenesis is that the presence of virus in the blood is an essential preliminary to invasion of the central nervous system. The whole objective of vaccination is to prevent this phase.

In 1949, there was tremendous interest aroused when Dr. John Enders, with his young associates Weller and Robbins, at Harvard, reported that poliovirus could be grown in tissue culture. Many people had tried to do this before, but had failed, because they had given up too soon. Enders showed that the secret of getting polio virus to grow in tissue culture was two-fold. In the first place, he used human embryonic tissue, minced it up finely, put it in small flasks, added suitable nutrient, and left the tissue intact in the flasks, for five to six weeks. The tissue metabolized and the supernatant fluid became acid, and it was necessary to refresh the tissue with new nutrient, leaving the tissue in the flasks. Nobody had done this before. Earlier workers had thrown the virus away by not saving the tissue fragments. Poliovirus established itself in the embryonic tissue and finally destroyed the metabolic capacity of the tissue. Eventually, after about four weeks, the flasks in which poliovirus was present showed no evidence of metabolism, and the tissue fluid did not alter in colour. In the control flasks in which there was no poliovirus the tissue still metabolized, produced acid, and changed the fluid to yellow.

Another fundamental observation of Enders was that poliovirus growing in cultures was liberated into the supernatant fluid. It was immediately evident that here at last we were on the way to developing a polio vaccine, because we had a means available for producing in tissue cultures in the laboratory, under sterile conditions, quantities of poliovirus.

This work of Enders, in which he found that poliovirus grows in non-nervous tissue, drove the last nail into the coffin of "poliovirus the neurotropic." No longer could anyone possibly claim that polio is primarily a neurotropic virus when it can be grown in little bottles of minced skin and muscle tissue, and kidney tissue. We now regard polio as a member of a group of viruses known as the "enteric group" rather than as a primary neurotropic agent.

Polio—The Clinical Picture

One of the most interesting developments of the last ten years, and I have had the opportunity of studying this in Toronto in The Hospital for Sick Children, has been the demonstration that nonparalytic poliomyelitis is a rare entity. Cases of meningitis may occur at the same time as paralytic polio and sometimes in close contacts of polio. Research in a great many different places, e.g., Toronto, South Africa, the United States and Sweden, has shown that it is not usual to recover poliovirus from more than 20 per cent of such

patients. In the other eighty per cent, the causal agent is either Cocksackie virus, Echo virus, mumps virus, herpes virus, or sometimes a leptospira. Some of us may question the existence of nonparalytic poliomyelitis and wonder whether there is not a minimal paralysis that our clinical techniques are too crude to detect. This possibility is borne out by the fact that in monkeys that do not develop paralytic illness, histological evidence of infection may be present throughout the whole brain and cord.

Antigenic Types of Poliovirus

The third field in which a change has occurred is in relation to the antigenic structure of the virus. This new knowledge has played a major role in the development of polio vaccine. It was originally thought that poliovirus occurred only in a single antigenic type. Dr. F. M. Burnet, the well-known Australian virologist, was the first to point out in about 1930, that there were at least two distinct types of poliovirus. He found that an Australian strain would not immunize monkeys against a strain obtained from the Rockefeller Institute in New York. The National Foundation for Infantile Paralysis, in the late 1930's, sponsored a collaborative study in which a great many virologists took part. My laboratory contributed by sending for study some Canadian strains, including some isolated in Nova Scotia. The group supported by the National Foundation reported that of two hundred strains tested, all fell into three major types. This was a fundamental discovery, and really laid the groundwork solidly for the development of a vaccine. These types are known simply as types 1, 2 and 3 or, for the names of the strains, as Brunholde, Lansing and Leon. More recently, thousands of strains have been typed, all over the world, and the same pattern has been evident.

The Protective Role of Virus Neutralizing Antibody

The fourth change in concept concerns the substance known as virus neutralizing antibody. It was recognized in the very early stages of polio research in 1910, that the serum of a monkey or man convalescent from polio, neutralized the virus *in vitro*. However, for various reasons, the key role of this chemical, a globulin, was not recognized for thirty or forty years. Some of the reasons for this tardy recognition are as follows. Antibody was frequently found in "normal" serum. Secondly, it was frequently found in serum of cases of polio early in the disease. Thirdly, and this was most puzzling, it was often found in tropical countries where at that time polio was not thought to exist. Fourthly, it was not regularly found in the serum of monkeys convalescent from infection secured by injecting virus directly into the brain.

It was only when tissue cultures came to be widely used that all of these difficulties were solved, and it was finally realized that in antibody we had the key to the major secret of the prevention of paralytic polio. Thus, it was shown that virus antibody was present in "normal" serum because those people were in fact convalescent from polio, mostly a subclinical infection. Secondly, it was shown that if serum was examined early enough, say in the first or second day of the disease, no antibody was present. Thirdly, polio infection was demonstrated to exist in those countries in which it was thought to be absent. In areas such as the Middle East, Africa, and India, virus was so heavily seeded that almost every baby became subclinically infected and solidly immune to the disease. Serum of adults and children in those countries, very naturally, had polio antibody. Finally, experiments on monkeys showed that

convalescent serum or gamma globulin, which is antibody in concentrated form, injected into monkeys would protect the animals from virus injected directly into their brains.

A very valuable piece of evidence that antibody is of protective value was produced by Dr. Hammon of Pittsburgh, when he carried out a large scale trial of gamma globulin in the United States of America in 1951 and 1952. The great significance of this trial was that it clearly demonstrated that a fairly small amount of antibody in human blood would protect a substantial number from paralytic polio.

Progress in Vaccines Against Polio

Now I come to my last topic, one in which considerable change has been effected very quickly—the development of a prophylactic vaccine. As long ago as 1910, certain workers treated infected monkey brain and spinal cord by heat or phenol and attempted to protect monkeys against the disease by injections of such material. A few years later, Brodie developed a vaccine which was treated with formalin, as later used in the Salk type vaccine. Dr. Brodie achieved a certain measure of success in protecting monkeys and, at the same time, Dr. Kolmer developed another product treated with ricinoleate. In 1934 both of these workers felt that they were ready for a large scale trial.

In this trial, approximately 20,000 children in various areas in the United States were injected with polio vaccine. Unfortunately, a dozen cases of paralysis developed, clearly attributable to the presence of live virus in the vaccines, because the limbs first affected were those which had been inoculated. Furthermore, the illness developed between five and ten days following the inoculation. This accident was a tremendous setback to the further development of a vaccine.

Fortunately, a group of workers in Johns Hopkins University continued to work on polio vaccine. Dr. Isabel Morgan and her colleagues showed quite clearly that monkeys could be vaccinated against Lansing (Type 2) poliovirus if live virus is injected into the muscles. Under these conditions, very few monkeys develop paralytic disease and most become strongly resistant to subsequent "challenge" by live virus.

Morgan showed that the determining factor in these monkeys was the level of blood virus neutralizing antibody. If the level of antibody in the blood could be raised to 1:1,000 then the monkeys did not become paralyzed when later challenged.

In 1949 came the next major development, with the discovery that poliovirus could be grown in test tubes without having to inoculate monkeys. It was quite evident at that time that a vaccine for polio was on the horizon, but there were three major obstacles in the way of developing such a product. The first obstacle was the mass production of polio infected tissue culture fluid. Secondly, some method of inactivating the virus was required. Thirdly, a large scale trial planned by statisticians was necessary.

It was my privilege in Toronto, first at The Hospital for Sick Children and later at the Connaught Medical Research Laboratories, to direct a group who worked out, in 1952 and early 1953, the method of growing polio virus in bulk which has been used by the Connaught organization ever since, and which is used by manufacturers in many other countries.

We little thought that seven years later, essentially the same method would be used to grow poliovirus. The principle of this method is to use minced

monkey kidney tissue in large bottles and to nourish it with Medium 199 of Morgan, Morton and Parker, which is a somewhat complex balanced salt solution with amino acids and other nutrients. Approximately 750 ml. were placed in these bottles, which were then rocked from side to side in an incubator and polio viruses were added; under these conditions, virus rapidly entered the monkey kidney cells, grew therein and was liberated into Mixture 199. The actual protein content of this vaccine is probably one of the lowest of any vaccine on the market.

About this time, Dr. Jonas Salk in Pittsburgh had developed a method for inactivating poliovirus by treatment with formalin. In 1952 and 1953, he injected several hundred children in the Pittsburgh area with a trivalent vaccine produced in his laboratory. He had most encouraging results, and good levels of antibody were developed.

At that time the National Foundation for Infantile Paralysis in New York City organized the mass production of polio vaccine. Virus was grown in tissue culture in the Connaught Medical Research Laboratories, University of Toronto, under the direction of Dr. R. D. Defries. In the second stage the material was shipped to two commercial firms in the United States for processing into a vaccine. This final processed vaccine became ready early in 1954, and was used in a large scale trial on school children in the United States and three Canadian Provinces, Nova Scotia being one. The results of this trial were analyzed by the well-known virus worker, Dr. Thomas Francis, Jr.

In this evaluation, most significant from the statistical point of view was the group of about 200,000 children who received three doses of the Salk-type vaccine, given over a period of a few weeks. This group of children was compared with another 200,000 of the same age group, who received only Medium 199. The two injections were indistinguishable, and the persons giving them did not know which children received the vaccine and which received the placebo. The 400,000 children were very carefully followed-up, and laboratory tests were done on those who developed a paralytic illness. When analyzed, it was found that there were seven times more paralytic cases in the group receiving the placebo than in those receiving the poliomyelitis vaccine—a satisfying tribute to the efficacy of the product.

The new vaccine was widely used in 1955 in the United States and Canada, and a few weeks later it appeared that again the clock had been set back, because the product of one manufacturer induced paralytic polio in some vaccinated persons. There were in fact 79 cases of polio in vaccinated persons, and 125 contacts developed the disease. In passing, it should be noted that this accident threw some additional light on the pathogenesis of polio, for it is evident that following peripheral inoculation of live polio virus, the virus must very quickly pass to the pharynx and intestines and be excreted.

Needless to say, this accident led to a most intensive investigation, the manufacturing process was overhauled, and the safety tests carried out in government laboratories as well as in those of the manufacturers were made much more stringent. In particular, a new step in the production of the vaccine was introduced, in which the fluid was passed through a small pored filter in order to remove particles of virus clumped together, and therefore inaccessible to the destructive action of formalin. Following this experience, there has been a most excellent record in regard to the safety of the product. It has been given to many millions of people in all age groups, and I think it is not saying too much to state that Salk type polio vaccine is one of the safest biological products now used.

In regard to further tests on the efficacy of the vaccine, there has only been one other controlled trial, the one carried out recently in the United Kingdom, in which there were five times fewer cases in the vaccinated than the controls. We have recently completed in Ontario, under the auspices of the Department of Health for Ontario, a trial of the administration of vaccine to over two million children in the three years 1955 through 1957. I would like here to pay tribute to the various Medical Officers of Health and other physicians who conducted this program. Our estimate of the efficacy of the vaccine in Ontario was the same as that of Dr. Francis—a 7:1 ratio in favour of the vaccine. I personally feel strongly that polio vaccine is a safe and effective product.

This leads to my last point under vaccination. There is now abundant evidence that the administration of Salk vaccine does not prevent one of the important phases of the pathogenesis of polio, namely excretion of the virus in the throat and stool. Several studies have shown that Salk-vaccinated children who are exposed to polio virus in the family or institution, become infected, and excrete virus in the throat and stool.

It is important to know whether fecal transmission of poliovirus will continue in this new era in which the great majority of children and many adults have received Salk vaccine. At the moment, it seems probable that fecal transmission of virus will occur even in a community intensively vaccinated. Perhaps this is desirable, because re-infection acts as a booster and increases the level of blood antibody. However, we cannot be complacent about a situation in which large quantities of poliovirus still circulate in a community. This circulation is a risk to those who have not been vaccinated or whose resistance has fallen.

Manufacturers in Canada and the United States are now issuing a new product, a quadruple vaccine which contains polio vaccine, diphtheria toxoid, tetanus toxoid, and pertussis vaccine. This is a major advance in preventive medicine, and will reduce the number of visits that children have to make to doctors or clinics. It is recommended that quadruple vaccine be started at about three months of age, that recall doses be given during the first year of life, and again probably in the third year of life and certainly before entering school.

There are, needless to say, a number of objections to the Salk vaccine, and some of these objections are valid ones. Thus, the resistance may not last for very long, although studies reported by Salk suggest that antibody levels may persist for at least four years. Furthermore, it is possible that there may be children in the community who may not react nearly as well as does the average child. A second objection is that repeated boosters will be needed, of a product which contains antibiotics and monkey kidney protein. It is known that the antibiotics do occasionally lead to hypersensitivity. Although it does not appear that the monkey protein sensitizes, a substantial group of workers, including an expert Committee of the World Health Organization, has recommended trials of live polio vaccines. Such persons, are, of course, basing their advice on the fact that two of the most effective vaccines in human preventive medicine, the vaccines against yellow fever and smallpox are highly effective, reasonably safe, and give long-lasting resistance.

Among the several advantages claimed for a live polio vaccine is ease of administration. However, it has been shown that if all three types of virus are given together the phenomenon of "interference" will operate, for viruses will compete with each other for the available tissue in the gastro-intestinal

tract and not all will grow adequately. Accordingly, it is recommended that the three types be fed separately. A more significant advantage is that the use of a live vaccine should render the gastrointestinal tract resistant. The chief limitation of the Salk-type vaccine is that it stimulates only one part of the immune mechanisms against polio. While killed vaccine stimulates antibody to circulate in the blood, it does nothing to prevent superficial infection of the gastrointestinal tract or the throat. Following administration of live non-virulent viruses, a much more complete immune mechanism develops.

The live vaccine strains which have been used up-to-date have been developed by three main groups of workers, Dr. Cox of Lederle Laboratories, Pearl River, New York, Dr. Koprowski of the Wistar Institute, Philadelphia, and Dr. Sabin in Cincinnati. Of the various strains, those of Dr. Sabin appear to be the most ready for widespread trial. Dr. Sabin has developed, by tissue culture techniques, variants of poliovirus which have lost practically all their capacity to invade monkeys and chimpanzees and cause paralysis. We speak of these as strains with a low degree of neurotropism. These strains will still multiply in the gastrointestinal tract, yet they do not invade the blood, and do not localize in the central nervous system of man.

The Expert Committee of the World Health Organization has recommended a trial of Sabin's strains, particularly in tropical countries where epidemic polio is beginning to constitute a threat. Obviously, something has to be done urgently to halt the advance of the disease in such areas.

It has also been recommended that live vaccines might be tried on this continent in the face of a polio epidemic. If an epidemic is spreading in a community, it appears reasonable to release non-virulent viruses, as these strains could hardly make the situation worse and might well halt the progress of the infection.

The World Health Organization has also recommended the use of live viruses in persons who have already received basic immunity by the use of Salk-type vaccine. The major concern with these non-virulent attenuated viruses is in regard to the permanence of the state of lowered neurotropism. There have been instances reported in which children fed live viruses have excreted in their stools viruses which paralyzed monkeys. This finding is disturbing, but does not contraindicate continued active exploration of the role of live viruses, a procedure endorsed by the author.

Conclusion

This constitutes an historical review of poliomyelitis delivered in honour of Dr. Cecil Kinley. The last 25 years have constituted a most exciting period in which to have worked on polio. The various advances that have been made in this time have profoundly influenced not only research in poliomyelitis itself but have stimulated research in the whole field of virology. We have at the moment a safe and effective prophylactic against poliomyelitis, but there is no reason for complacency, as the disease is still a world-wide problem.

The State of Nutrition in Canada Today

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Some six years ago Dr. E. Gordon Young prepared with characteristic care and thoroughness an appraisal of Canadian nutrition. This was published in the Canadian Bulletin on Nutrition in July, 1953. I am sure that this appraisal received much less attention than it deserved. It is likely that it was not read by a considerable proportion of public health personnel in Canada. I propose to use this appraisal as a base-line for the present discussion and to add to it information which has become available more recently.

It is useful to begin the discussion by considering information on supplies of food available in Canada and to consider changes in food consumption in recent years. From 1935 on there have been only minor fluctuations in total food calories. The average for the Canadian population during the period 1935-55 has been 3000 calories per person per day. Protein consumption has ranged from 89 to 107 grams per person per day. It is interesting to note that the highest protein consumption was recorded in the years 1943-6 inclusive. The average intake of fat ranged from 112 to 132 grams per person per day. From 33 to 40 per cent of the total calories were secured from fat. I do not propose to examine each nutrient in detail. Data are available for calcium, iron, vitamin A, thiamine, riboflavin, and ascorbic acid. In every case the amount available was more than that recommended in the present Canadian Dietary Standard.

Changes in the average consumption of nutrients can be noted. Although there was no significant alteration in total calories, there were some fluctuations in amounts of protein, fat, and carbohydrate. For these three nutrients no trend, either increase or decrease, is evident. In 20 years, Canadians have not shown an increase in the average use of either protein or fat, nor has there been a decrease in the intake of carbohydrate. There has been no significant change in the average intake of iron or of niacin. There have been increases and definite trends of upward consumption are evident for calcium, vitamin A, thiamine, riboflavin and ascorbic acid.

Changes in intakes of these nutrients are explicable from a study of the consumption of various foods. The average use of milk increased markedly during the war years when the retail price was kept low by a government subsidy. Since 1947 the average per capita use of milk has kept fairly constant but at an amount greater than in 1935-39. The increased use of milk is responsible, of course, for increases in calcium, in riboflavin, and some of the increase in vitamin A. During the war years there was a large increase in the consumption of tomatoes and citrus fruits with a flattening out, more recently, at a level greater than for the 1935-39 period. This change is reflected in ascorbic acid intakes. The same general situation holds for all fresh vegetables and for meat. The average per person consumption of eggs, of sugar and of syrups has remained reasonably constant for 20 years. There has been a significant decrease in the use of bread and cereal products.

Recently from Ottawa there has appeared information on changes in food consumption up to 1957. Between 1935 and 1957 average per person disposable income increased from \$339 to \$1236. Throughout the period the average expenditure on food was 25 per cent of the disposable income; in this connec-

tion it should be noted that food prices have increased. The use of cheap foods, such as cereal products, potatoes and sugar have declined. The decreased use of bread has probably been responsible for a decrease in the use of butter. The changes in food use are all explicable as resulting from prosperity.

During the past 25 years the over-all picture for Canada has been one of abundance of varied food supplies. If food were equitably distributed and properly used, every Canadian could have a food intake which would meet all nutrition requirements.

We do not have reliable information regarding the availability of various food in different parts of Canada. It can be said that all foods are not available throughout the country. It can be said, also, that food prices are not uniform in all parts of Canada and that economic conditions are not uniform.

Since 1937 a number of food intake studies have been done in various parts of Canada. Every province has had several studies of food use of individuals. It can be said that conditions have changed appreciably since 1937, and that information obtained then is no longer applicable. In one sense that is true. It is also valid to remark that our view on the interpretation of food intakes have changed greatly. In 1937-8 we were all very conscious of the economic depression of the thirties and almost every bit of evidence was explained on the basis of economic circumstances. During the war we were concerned with food rationing, food prices, food subsidies and fixed incomes. Since the war the general state in Canada has been one of prosperity, coupled with very real increases in the price of foods and of almost everything else. The prosperity has not been uniform and has been much more evident in some areas than in others.

Another point in interpretation is a change in criteria used to evaluate food intakes. In the early studies in Canada, average daily intakes of calories and of nutrients were assessed against a dietary standard to determine whether the intake was adequate or inadequate. It became realized that at least some of the estimates of nutrition needs were based on guesses from insubstantial evidence. It became realized also, that the presence of an assumed deficiency in intake was not necessarily any proof of the existence of a physical defect. You will recall published statements that a large section of the population suffered from thiamine deficiency. This opinion was based on the assessment of calculated intakes of thiamine in terms of a very liberal standard of adequacy. This alleged wide-spread thiamine deficiency was used as the main argument for the addition of thiamine to white flour. This use of data from food intake studies helped to bring nutrition into disrepute in medical circles. Physicians could not see in their patients the wide-spread deficiencies which were said to exist.

In recent years it has been the custom in Canada to evaluate food intakes in terms of Canada's Food Rules. This set of advice has been in general use in this country for some years. This method of evaluating food intakes at least tells us whether or not people are following the nutrition advice which has been provided. It really does more than that. We can assume that people who do not use milk for more than whitening tea and coffee have calcium intakes of about 0.2-0.3 grams a day. However, we should not assume that we will be able to find physical defects in such people, defects which can be attributed to small supplies. A failure to use citrus fruits and a reliance on vegetables as sources of ascorbic acid may mean that intakes of ascorbic acid will be in the neighbourhood of 20-30 mg. a day. Such persons may not show any

physical signs of ascorbic acid deficiency. Incidentally, the failure to use citrus fruit may be due to the lack of citrus fruit in the community or even to the financial inability of people to buy it.

Despite changes in economic and other circumstances, despite differences in interpretation, all food intake studies done in Canada have provided some concordant information. They have all shown that many people are not following nutrition advice about food selection. You are familiar with observations from the food intake studies. However, I shall remind you of some of the observations.

In his report on Canadian nutriture, Dr. Young used a table summarizing surveys carried out by the Division of Nutrition of the Department of National Health and Welfare in the year 1946-51. The results of these surveys had been summarized in 1951 by Dr. Pett. Dr. Young summarized the results in one sentence: "An inspection of the data reveals that a relatively large percentage of the population surveyed was not consuming enough milk, cheese, citrus fruits, vegetables, or whole-grains cereals." This conclusion is applicable to almost every food-intake study done in Canada. There are, however, several things which can be added. In general, the consumption of meat (our most expensive food) has been found to be at least adequate. Moreover, a considerable number of children receive very little Vitamin D.

Let me add some recently-reported information to this general picture. A nutrition survey in Madawaska County in New Brunswick has recently been described. Ninety per cent of the surveyed group had enough bread, meat, butter and potatoes. Forty per cent of the group had enough milk, 30 per cent had sufficient citrus fruit or tomatoes. Twenty per cent had enough whole-grain cereal. Cheese was used sparingly.

In contrast to this information from New Brunswick, I quote figures from a study on men working in industries in a Toronto suburb. The following figures are percentages of the group receiving less than half of recommended amounts of certain foods:—

Milk	68 per cent
Citrus fruit	56 per cent
Other fruit	50 per cent
Vegetables	46 per cent (other than potatoes)
Breakfast cereal	62 per cent
Cheese	32 per cent

All of these men had intakes of meat in excess of current recommendations. One third of the men had very liberal intakes of eggs and the same proportion had very large intakes of bread.

I hope that you can see considerable similarity between the food intakes of the people in Madawaska County and the men industrial workers in the Toronto suburbs. There may be differences in food availability and in economic conditions in the two areas; the food pattern looks remarkably similar.

It was the custom around 1938 and 1939 to attribute customary patterns of food intake to economic circumstances. In most parts of Canada milk is a cheaper source of protein than meat. Oatmeal or wheat flake porridge is a most economical food. If we find people using meat generously and eating very little porridge, can we say that economic conditions are responsible? Many Canadian adults live on meat, potatoes, bread and pie. There is evidence that children shift to the adult pattern around the ages of 10 to 12. The

majority of Canadians select foods, not on the basis of meeting nutrition needs, but on the basis of personal taste conditioned by food habits. The reason is a combination of ignorance and indifference.

Food intake is the primary factor in deciding the nutrition status of the individual but not the only factor. Digestion and absorption may be inefficient. Nutrient requirements may be altered by the amount of exercise or work, by infection, by lack of rest. Our main concern should be with the health of the individual. What can be said about the health of Canadians as related to nutrition?

I quote from Dr. Young's appraisal: "Overweight in adults probably represents the commonest form of malnutrition and may be applicable in one-fifth of the population over 30 years of age." At the time, Dr. Young advocated a nation-wide anthropometric study. Since then, the Nutrition Division of the Department of National Health and Welfare and the Bureau of Statistics have cooperated in a study of Canadian heights and weights. The incidence of overweight, or rather obesity, was made more precise by measurement of skin-fold to estimate fat accumulation. I quote from the report by Pett and Ogilvie published in the Canadian Bulletin on Nutrition, September, 1957:—

"On the basis of overweight plus excessive skin-fold, 13 per cent of Canadian males and 23 per cent of Canadian females are 'obese.' Almost equal numbers of males (12%) are too thin, while only 10% of females are too thin on the basis of being underweight and with very little reserve fat in the subcutaneous tissue."

From the large insurance study on heights and weights published in 1912 we assumed the average weight of Canadian men was 154 lbs. The average weight now turns out to be 161 lbs. Similarly, we had assumed that the average weight of women was 123 lbs. The new figure is 135 lbs. It is worth noting that the 1912 average height of men was 5 feet 8½ inches; the 1956 average height is 5 feet 7 inches. The 1912 average height of women was 5 feet 4 inches; the new figure is 5 feet 1 inch. It should be made clear that the 1912 figures were not obtained for a statistically representative sample of the Canadian people; the 1956 figures are so representative. Hence, a comparison is unfair but the comparison is interesting. Recently I acquired a bit of information which has, of course, nothing to do with this discussion. It was reported that seats in the new opera house in New York would be two inches wider than the seats in the older opera house.

We should be concerned about the prevalence of obesity because of its relation to the development of several degenerative diseases and to shortened life expectancy. May I remind you of an earlier statement: average per capita calorie intakes in Canada have remained remarkably constant since 1935. I suggest that the calorie expenditures of many Canadians have decreased in the past 25 years. Obesity is a public health problem. While we should be concerned with the alleviation of obesity, I am sure that we should be more concerned with the prevention of obesity. The treatment of established obesity is difficult. Many obese persons have plenty of guts but no backbone. The prevention of obesity should start in childhood; it is much easier to prevent the development of the habit of over-eating than it is to change the habit. To those of you who are concerned with nutrition education, I point out that adherence to the advice in Canada's Food Rules is a valuable method of preventing obesity. This is another sound argument for Canada's Food Rules. One other point is added: our recommendations for calorie intakes have not kept pace with changes in living conditions.

When we turn from the problem of obesity to the question of nutrition deficiencies in Canada we find considerable difficulty. One aspect is the diagnosis, at least with certainty, of mild deficiencies. A low hemoglobin is not by itself indicative of iron deficiency. In iron-deficiency anemia the red blood cells are smaller than normal. To determine the likely presence of iron-deficiency a more detailed examination of the blood is necessary than only the estimation of hemoglobin. To cite another example: two signs of riboflavin deficiency have been described. Neither sign is specific for riboflavin deficiency. The coincidence of one or both of these signs together with a low intake might be used as a probable indication of riboflavin deficiency but even this coincidence would not make possible a definite diagnosis. A number of other examples could be given of the difficulty of ascertaining for certain the presence of mild nutrient deficiencies. Severe deficiency states can be diagnosed with more assurance if the person making the examination knows what to look for. In the outbreak of infantile scurvy in Winnipeg and in Toronto in 1954 most of the initial diagnoses were wrong.

Within these limitations I shall consider evidence regarding nutrition deficiencies in Canada. Underweight is, of course, indicative of a low intake of calories. You will recall that I quoted from a report by Pett and Ogilvie to the effect that 12% of Canadian men and 10% of Canadian women are too thin, as judged by weight and skinfold. In 2 recent surveys in New Brunswick, 10% of both groups were described as "thin." In some respects it is better to be thin than fat.

Frank deficiencies of vitamins are either rare or non-existent in Canada. In the five-year period 1926-30, there were about 200 deaths attributed to rickets each year. Prior to 1930, causes of rickets were fairly common. In 1948 there were reported in all of Canada 19 deaths for which vitamin deficiencies were held to be responsible. The last year for which complete information on causes of death is available is 1956. In that year 82 deaths in all of Canada were reported as being due to vitamin and other nutrient deficiencies. Those deaths were 0.06% of all deaths in Canada in 1956. It does not appear that nutrition deficiencies constitute a significant cause of death in Canada.

Reference has been made to a 1951 summary by Dr. Pett on the occurrence of nutrition deficiencies in a total of 6,000 persons examined in 9 surveys in various provinces. An examination of bone formation indicates whether or not people had had rickets. About 10% of the 6000 persons showed such evidence. Studies of food use by school children in various parts of Canada have shown that a large proportion of children do not receive sufficient vitamin D.

Considerable publicity has been given to outbreaks of infantile scurvy in Winnipeg and in Toronto in 1954. In that year 64 babies with scurvy were admitted to hospitals in those two cities. The outbreak was described as alarming and the Food and Drug Directorate was urged to permit the addition of ascorbic acid to evaporated milk. There are several interesting points about the increased number of scurvy cases in Toronto. Most of the doctors who initially examined these babies were unable to recognize scurvy. The cause of scurvy can be stated simply: the babies did not receive sufficient ascorbic acid. There were two reasons for the inadequate supply of ascorbic acid: doctors did not give simple, definite advice to mothers in many cases and mothers did not follow such advice as was given. It can be added that simple methods for the prevention of scurvy have been known for 400 years. The

incidence of scurvy in Toronto was not due to economic circumstances nor to any particular racial origin. The outbreak was due to ignorance and indifference.

In the recent nutrition survey in Madawaska County in New Brunswick the occurrence of overweight was nil in men and only 4% in women. On the other hand, 9% of men and 11% of women were thin. Thirty per cent of the examined group had low hemoglobins and 8% showed some sign of protein deficiency. The report gives the impression that many of the people had insufficient foods, both in quantity and in variety.

As Dr. Young pointed out six years ago the most prevalent type of malnutrition in Canada is obesity. There is spotty and not entirely conclusive evidence regarding adverse effects of nutrition deficiencies on health. The general picture is one of abundance of food. However, food is not equitably distributed in all parts of the country. All of the studies on Food use show that the majority of Canadians are not guided on food selection by nutrition and health considerations but by habits determined by taste, racial origin, religious practices, notions and advertising.

ABSTRACT

Efficient Reading. P. J. Seymour. Amer. Orth. J., 9: 1959.

The average professional individual deluged with printed material is able to become a better reader first by eliminating the three detrimental reading habits: subvocalization (inaudibly speaking as one reads), word for word reading, and regressing (going back over material just read).

"The Five-Way Approach to Better Reading" used at the University of Minnesota involves: 1. Harvard and Purdue Reading Films (project only portions of lines of print on screen). 2. Tachistoscopic Training (projects slides with selected items from 0.1 to 0.01 seconds). 3. Master Word Vocabulary Series (fourteen English words containing over thirty Latin and Greek prefix and root elements). 4. Timed Readings (both for speed and comprehension). 5. Faced Readings (reading at faster than average rate—one speaks less than 200 words per minute, but should read 500-1000 words each minute).

Efficient reading is not meant to produce better scores in speed or comprehension tests but rather cutting the time it takes to read one's own professional material and thus become the source of personal growth and enjoyment it is meant to be.

J.H.Q.

Cortisone and Emergencies

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The introduction of adrenal steroids to medical therapeutics over a decade ago has undoubtedly prolonged the lives of innumerable patients, particularly those with acute adrenal insufficiency. Its blessings have been mixed and, because of the failure of the clinician to appreciate the less obvious hazards of their use, other lives have been shortened. It is the purpose of this paper to discuss the recognition and management of emergency situations caused or corrected by steroid therapy.

The diagnosis and treatment of a patient with Addison's disease in crisis is well known, but this is a rare condition and the average practitioner may never meet this situation. Other more frequent emergencies arise in patients who have only partial adrenal insufficiency and therefore have none or only a few of the classic symptoms and signs first described so vividly by Dr. Addison. 1, 2. This group may have sufficient adrenal function to carry on a normal day to day living, but when they are presented with a severe stress such as a surgical operation, trauma or infection they may rapidly develop a profound, often unrecognized and fatal adrenal crisis. The cause may be due to incomplete destruction or atrophy of the adrenal cortex, disease of the pituitary gland or the use of cortisone and cortisone-like drugs for therapy. Today with ever increasing use of these medications the third group is gaining greater significance.

Normally the secretion of hydrocortisone (the naturally occurring steroid produced by the human adrenal) in response to stress is controlled by a feedback mechanism whereby an increased bodily requirement for the hormone calls forth an increased secretion of pituitary ACTH by hypothalamic-pituitary pathways which in turn promotes the secretion of hydrocortisone. The increased circulating level of hydrocortisone then inhibits this hypothalamic-pituitary pathway and the production of ACTH decreases. Thus the plasma level of steroid appears to partially control its own secretion. If exogenous hydrocortisone (or cortisone and its newer more potent analogues) is added to the plasma by the physician this delicate homeostatic balance is disrupted. If the dosage of cortisone is 50 mg. or its equivalent per day, atrophy of both the adrenal cortex and the anterior pituitary begins within a few days and may be severe if therapy is prolonged beyond one month. This effect has two important therapeutic consequences:

- (1) Should the patient receiving a small or large dose of cortisone meet with a severe stress, the pituitary-adrenal mechanism will be unable to increase its output of steroids to combat the situation and unless the clinician increases the therapeutic dose of cortisone, crisis may ensue.
- (2) The atrophy of the pituitary and/or the adrenal may persist for many months and even up to a year or more following cessation of prolonged cortisone therapy.
3. A stress occurring in this post-treatment period of variable and indeterminate duration may precipitate acute adrenal crisis. These patients should be given supportive steroid therapy when undergoing surgical procedures during this period, or if unexplainable shock should occur, immediate treatment with intravenous steroids should be instituted. Such crises occur infrequently but

when they arise, they call for rapid and specific treatment and should be prevented by the alert clinician. However, such crises have occurred much less frequently than would be expected from the reports of adrenal tests performed during this period. Unfortunately not all instances of adrenal crisis can be recognized by a prior history of Addison's disease or the use of steroids. Patients with mild degrees of pituitary failure usually behave as do those with incomplete Addison's disease because their salt and water metabolism is not grossly deranged. The secretion of aldosterone, which controls electrolyte metabolism, is almost normal in panhypopituitarism for its production, unlike that of hydrocortisone is mainly controlled by extra-pituitary factors. 4. Therefore more severe degrees of stress are required to produce a crisis. Recognition of this group may be difficult for a careful history detailing suggestive features of the disease may not be obtainable because of the patient's condition at the time when the diagnosis is entertained. In this situation, a careful check of the pubic hair or testes should be made. An almost complete absence of pubic hair or small testes in the male should make a diagnosis of hypopituitarism likely and call for immediate steroid therapy. Rarely patients on anticoagulant therapy may have sudden severe vascular collapse due to massive bleeding into the adrenal glands. 5. It is easily recognized. This syndrome is similar in causation to the classical Waterhouse-Friderickson syndrome but there may be no hemorrhages into the skin. Occasionally patients with a suspected diagnosis of primary hypothyroidism are given thyroid replacement therapy with the resultant development of anorexia, vomiting, weakness, loss of weight and eventual collapse. These are in reality cases of hypothyroidism secondary to pituitary failure and the addition of thyroid extract in the presence of concomitant adrenal hypo-function has been sufficient stress to precipitate crisis. Deaths have been reported from this cause. 6. It is of course necessary to consider and rule out this diagnosis in every case of hypothyroidism not due to an obvious cause before instituting thyroid replacement therapy. Cortisone should be given in appropriate dosage with thyroid therapy if adrenal hypofunction is observed.

To these groups of complete and partial adrenal insufficiency must be added a third poorly understood group with "relative adrenal insufficiency." This includes those instances in which the adrenals produce the expected amount of steroid for the degree of stress experienced, but which is apparently not sufficient for the needs of the body defence mechanisms. Too few studies have been done to delineate this group as a separate type of adrenal steroid deficiency but innumerable instances have occurred in which strong clinical opinion has engendered this concept. Into such a category is placed the patient who has an overwhelming infection such as pneumonia or typhoid fever who develops vascular collapse unrelieved except by intravenous adrenal steroids. Limited and inadequate studies during this vascular collapse have revealed the blood steroid levels to be within normal limits for this type of stress. 7. Therefore the benefits derived from intravenous hydrocortisone must be due to a pharmacological effect of the drug or to a relative deficiency of these substances. It is more likely that the former effect, producing alterations in the inflammatory response, in the antigen-antibody reaction or some other unknown effect unrelated to adrenal deficiency is responsible for their efficacy in these situations. To this group also belongs the occasional case of surgical shock which remains unresponsive to pressor amines and replacement fluids until hydrocortisone is given. There is a synergistic action between adrenaline,

nor-adrenaline and like compounds and the adrenal steroids in their vasotonic effects. 8. All these situations occasionally call for immediate steroid therapy in large doses, yet adrenal insufficiency is actually not present. This group does not include those disorders such as status asthmaticus, rheumatic fever and acute gout in which large doses of steroids are occasionally used for treatment in the absence of vascular collapse.

The best treatment for these groups of adrenal insufficiency is of course preventive. If the history reveals that the patient has been on prolonged cortisone therapy up to six months before the proposed operation the schedule of treatment in table 1 should suffice. If definite adrenal insufficiency is present or if the patient is on 100 mg. or more of cortisone per day the schedule in table 2 should be adopted with a more rapid return to pre-operative doses if the procedure is minor. The schedules may be modified depending on the severity and duration of the procedure and the post-operative recovery period. Table 1 is a minimum dosage schedule and that in table 2 is the maximum therapy required for the severest stress.

If a patient with previously unsuspected hypoadrenalism or with vascular collapse not known to be associated with adrenal insufficiency and unresponsive to pressor amine therapy is first seen in crisis he should be treated as in table 2 after first giving 100 mg. of hydro-cortisone hemisuccinate intravenously in one rapid injection. If there is little or no response to this therapy in eight to twelve hours the diagnosis of adrenal insufficiency is unlikely. It is always best to give these drugs by the oral route as soon as possible for the intramuscular absorption is capricious and the intravenous route both expensive and troublesome.

If there is any doubt about whether to use steroids there are few contraindications to very short term periods of use and almost none to a trial of 100 mg. for a period of 8 to 16 hours. Adrenal steroids should not be given in the presence of infection until the organism is first treated with antibiotics in proper dosage and type. The presence of congestive heart failure or of pulmonary edema is not a contraindication to short term therapy and if the patient adheres strictly to the usual therapeutic measures they will present no real problem during long term therapy.

Steroid therapy has been used on an emergency basis in several situations not mentioned in the preceding paragraphs. They are status asthmaticus, anaphylactic reactions, severe allergic reactions, overwhelming hepatitis, systemic lupus erythematosus and other collagen diseases and acute leukemias. The dosage in these conditions has varied widely and has frequently been very large in an endeavour to obtain the maximum pharmacologic effect on the vascular, collagenous and hemopoietic systems. The mechanism whereby corticosteroids are beneficial in these states is very poorly understood.

Prolonged therapy with steroids can lead to rapidly developing complications other than those concerned with suppression of the hydrocortisone secreting mechanisms. A brief resumé of these well known difficulties which may require early treatment are as follows:

- (1) Peptic ulceration may develop very rapidly and with few symptoms if the dose of cortisone is 100 mg. per day or greater and may be heralded first by perforation. A modified ulcer regimen should be given to patients on this dose of cortisone.
- (2) Acute pulmonary edema may occur in susceptible patients if salt restriction has not been rigidly observed while on steroid therapy. Newer

analogues such as prednisolone, triamcinolone etc. are less prone to retain salt and produce acute heart failure.

- (3) Infections occurring during steroid therapy may be masked until an overwhelming septicemia has resulted. They must therefore be treated early and even the most trivial sepsis should be regarded with suspicion.
- (4) Potassium deficiency, manifested by weakness, polyuria, polydipsia and occasionally tetany, may appear if prophylactic potassium chloride is not given to those receiving large doses of cortisone or hydrocortisone.
- (5) Hypercorticism may occur but is easily recognized by an increase in blood pressure, glycosuria and Cushingoid features. Some individuals are surprisingly sensitive to steroids and these symptoms have been reported in patients receiving as little as 50 mg. per day. 9. They are reversible on reduction of dosage.

In summary an outline for the treatment of adrenal insufficiency has been given which with modification is applicable to the treatment of most emergencies in which adrenal steroids may be helpful or life saving. If there is no prior history of adrenal or pituitary disease the diagnosis of a patient in adrenal crisis may be difficult. Clues to its presence are:

1. Prior treatment with cortisone up to one year previously.
2. A fall in blood pressure unresponsive to volume expanders and pressor amines.
3. A fall in blood pressure greater than expected for that specific stress situation and without other obvious cause such as fluid or blood loss.
4. Treatment with anticoagulants at the time of vascular collapse.
5. Signs of pituitary failure such as absent pubic hair, small testicles and pale thin skin.
6. Careful observation for increased melanin pigmentation of Addison's disease in the mucous membranes and palmar creases.
7. History of (a) stress while on a constant dosage of cortisone without an increase in dosage with the illness or (b) history of abrupt interruption of treatment.
8. History of thyroid medication for supposed primary hypothyroidism.

For all these situations a trial of 100 mg. hydrocortisone hemisuccinate intravenously in one dose followed by an 8 hour drip of 100 mg. is warranted. If there is no response in that time it is unlikely that adrenal insufficiency is present and further steroid treatment is unnecessary. In these situations of complete vascular collapse there are no real contraindications to this short trial of therapy. It must be remembered that suppression of the pituitary-adrenal axis by steroid therapy may occasionally persist for periods up to at least one year after the end of treatment in certain patients and therefore all such patients should be carefully observed and treated if necessary during periods of undue physical stress.

TABLE I

100 mg. cortisone acetate i.m.	12 - 16 hours pre-operatively.
100 mg. " " "	4 - 6 " "
75 mg. " " "	q. 12 h. x 2 beginning immediately post-op.
50 mg. " " "	q. 12 h. x 2 and stop.

Have 100 mg. hydrocortisone hemisuccinate* available to give intravenously if a drop in blood pressure occurs or if it is a major procedure give it as in Table II only during the operation. See text for explanation.

*100 mg. of hydrocortisone as stated here is actually 130 mg. of the hemisuccinate salt.

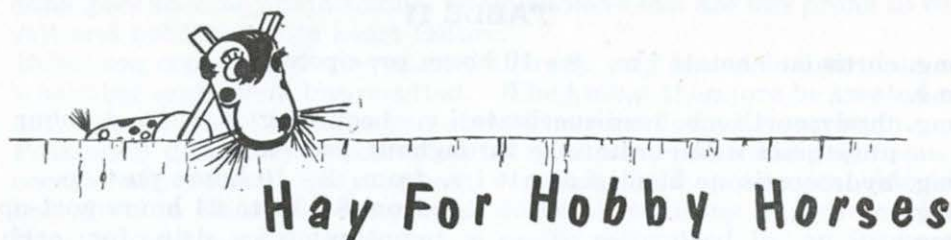
TABLE II

100 mg.	cortisone acetate i.m.	8 - 10 hours	pre-operatively.
100 mg.	" " "	4 - 6 "	" " "
100 mg.	hydrocortisone hemisuccinate i.v.	beginning 1/2 to 1 hour	pre-anesthesia and continuing throughout procedure.
100 mg.	hydrocortisone hemisuccinate i.v.	from 8 - 10 hours	post-op.
100 mg.	" " "	from 8 - 10 to 24 hours	post-op.
100 mg.	" " "	continuous i.v. drip for each 12 hours	during second 24 hours.
50 mg.	cortisone acetate by mouth q.8.h.	depending on circumstances	for the third 24 hours.
50 mg.	cortisone acetate by mouth q, 12. h.	for fourth 24 hours.	Then reduce by 25 mg. q. 2 days to maintenance dose of 25 to 50 mg. daily.

If possible the patient should be taking oral cortisone acetate by the second postoperative day but if this impossible intravenous hydrocortisone hemisuccinate may be used in the same dosage or cortisone acetate may be given also in the same dosage except that it must be administered beginning at least twelve hours before the cessation of intravenous steroids. See text for explanation.

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“HAIL! HAPLESS PUPPET”

Moonshine is defined by Webster as “the light of the moon. Hence, show without substance or reality; empty show.” Our daily round is filled with jargon which is accepted as true by common consent but which no one, when put to the test, tries to maintain. Professor Edward J. Wayne, the Regius Professor of the Practice of Medicine of Glasgow recently showed us how much of what we have accepted as tried and true in therapeutics rests upon an insecure foundation. However, I will not touch on the delicate matter of medical moonshine again in this discourse. This atmosphere of fantasy is dangerous even for the cautious and critical. The unreflecting mistake these polite fictions as fact and act accordingly, often to their detriment and loss. A man in business misrepresenting his wares may say “No one in his right mind would expect to get a new vacuum cleaner for \$17.50” but the innocent who buys the machine assumes that the upright publisher who carried the advertisement, the city council who gave the fly-by-night operator his license and the Chamber of Commerce who tolerates his activity all stand behind this “wonderful bargain.” It is estimated that the average Canadian is exposed to 5,000 advertising messages per day. These messages surround us as water surrounds a fish, and they all have but one aim—to persuade us to **want** something. It is idle to ask if the advertisements “tell the truth.” The advertiser has little interest in truth and values it only from his auditor at the end of the business year.

In the first of the Madison Avenue novels the old barbarian who is master of a soap empire is made to say “I’ll tell you a secret about the soap business, Mr. Norman. There is no damn difference between soaps. Except for perfume and colour, soap is soap. Oh, maybe we got a few manufacturing tricks but the public don’t give a damn about that. But the difference, you see, is in selling and advertising. We sell soap twice as fast as our nearest competitor because we outsell and out-advertise him.” Soap is soap, automobiles are automobiles, cigarettes are cigarettes, breakfast food is breakfast food. If this simple fact would sink home with 80 per cent of the consumers our whole pattern of advertising and merchandising would have to change. However, it is unlikely that this will happen because **the average human being loves moonshine**. The most we can expect from the best of the hucksters is a modicum of good taste and restraint whether he is persuading us to “give—once and for **all**” or to try the newest safe smoke for “the man who thinks for himself” or to accept the latest Detroit creation as being necessary for our happiness.

The exasperating part of the whole business is that the man who designs the advertising is indifferent to the effect produced by much of his message. The important thing is that the name of his product or the echo of his slogan

becomes embedded in our subconscious. Surely anyone who has heard that hideous rhyme "You'll wonder where the yellow went" realizes that he is often irritated into remembering and asking for Pepsodent when the moment comes to buy toothpaste. So the Madison Avenue executive plays upon us like a television villain playing upon the fears and fantasies of the children under his spell. If we were resigned to the perpetuation of the fantasy worlds of advertising and popular entertainment would the present state of affairs make much difference?

Briefly this is the background. The problem of production has been solved. The technician-elite of our society can mass produce anything from deep freezers to atomic weapons. The key to our economy is now the consumer. Every effort is being made from infancy onward to persuade the individual to consume continuously without reference to natural needs. His appetites are tickled, stroked or flagellated to demand more and more of an endless variety of products. There is no end in sight. Our society sees no alternative to the unceasing expansion which we confuse with progress.

When my three-year old comes to ask me to buy Red Rose Tea or Milko or Flunkies so that she may have the premium offered with these products I recognize that the hidden persuaders are already at work on the child and will continue to torment her throughout her life. Thoreau, as usual, says it better "A very ancient slough called by the Latins, *aes alienum*, another's brass, for some of their coins were made of brass; seeking to curry favour, to get custom by how many modes only not state prison offences; lying, flattering, voting, contracting themselves into a nutshell of civility or dilating into an atmosphere of thin and vaporous generosity that he may persuade his neighbour to let him make his clothes or his hat or his coat or his carriage or import his groceries for him." It is a blessing that we are so benumbed that we no longer notice this disgusting seduction.

Here is one consumer who is fed to the teeth. I am determined to resist and if possible try to save my children from the siren voices of Detroit, Hollywood and Durham, N.C. The young should be told in unmistakable terms that much of our community life is make-believe. It is important to inform the child that it is a mad world which awaits him. It is proper to say to him "No way of thinking or doing, however ancient, can be trusted without proof. What everybody echoes or in silence passes by as true to-day may turn out to be falsehood to-morrow." "Come now" says the reasonable man "There is no harm in this make-believe. The ad-men are like children with a game. What you see at \$1,500 a page in your magazine is an elegant kind of finger-painting. The worst you can say of this doodling is that it causes essential goods to be much more expensive than they need to be and makes the naive mistake luxuries for essentials."

However, there is much more subtle evil in being a helpless appendage to the distant production line. I repeat what Hippocrates said long ago. "What is used grows. What is not used withers." Man was born to create and any consumption is secondary to that end. The current craze for hobbies is an expression of the deeply-felt need to do something for oneself. It is still important to be as self-sufficient as possible. We have fallen, in three or four decades, almost completely into the hands of the technicians and can do little without applying to some nit-picking specialist for assistance. How can a man think for himself or have independence enough to do for himself in this atmosphere? "The mass of men lead lives of quiet desperation. What is called

resignation is confirmed desperation. From the desperate city you go into the desperate country, and have to console yourselves with the bravery of minks and muskrats. A stereotyped but unconscious despair is concealed even under what are called the games and amusements of mankind. There is no play in them, for this comes after work. But it is a characteristic of wisdom not to do desperate things. When we consider what, to use the words of the catechism, is the chief end of man and what are the true necessities and means of life, it appears as if man had deliberately chosen the common mode of living because they preferred it to any other. Yet they honestly think there is no choice left." (Thoreau)

"The Brave New World" of Huxley is not any more inviting to me than the totalitarian state of 1982 foreseen with chilling clarity by the late George Orwell. As a parent I covet neither of these for my children. I look back with longing to Thoreau's pastoral existence despite the epidemics of scarlet fever and tuberculosis through which he lived. It is not surprising that many men look back with regret to another way of life as does George Orwell in this passage from "Coming up for Air." "It's quite true that if you look back on any special period of time you tend to remember the special bits. That's true even of the war (World War 1). But it's also true that people had something that we haven't got now. What? It was simply that they didn't think of the future as something to be terrified of. It isn't that life was softer than now. Actually it was harsher. People on the whole worked harder, lived less comfortably and died more painfully. And yet what was it that people had in those days? A feeling of security even when they weren't secure. More exactly, it was a feeling of continuity. All of them knew they'd got to die but what they didn't know was that the order of things could change. Whatever might happen to themselves, things would go on as they had known them . . . Its precisely in a settled period, a period when civilization seems to stand on its own four legs like an elephant that such things as a future life don't matter. Its easy enough to die if the things you care about are going to survive. You've had your life, you're getting tired, it's time to go underground—that's how people used to see it. Individually they were finished but their way of life would continue. Their good and evil would remain good and evil. They didn't feel the ground they stood on shifting under their feet."

Yours for the simple life

BROTHER TIMOTHY

FEDERAL CIVIL SERVICE WELFARE PROGRAM:

Difficult Specifications Prevent T.C.M.P. Coverage Tender *

It now appears that a medical insurance plan for employees of the Federal Government will come into effect early next year. The basic plan is designed to include members of the Civil Service and their dependents, dependents of members of the Armed Forces, and dependents of members of the R.C.M.P. This group, numbering in the vicinity of three hundred thousand employees, will have the cost of its coverage contributed to in part by the Government, as announced by the Prime Minister last January.

A second program has also been planned to provide benefits to retired employees and to retired members of the regular forces, and the R.C.M.P., as well as their dependents; also, certain other persons not eligible for the basic plan.

Late in August final specifications for coverage for this group were issued from Ottawa, and the Member Plans of T.C.M.P. through their negotiating plan (P.S.I. in Ontario) received a copy of such specifications for which the closing date for submission of tender was September 15.

It is now a matter of record and, no doubt disappointment and regret, that T.C.M.P., whose Member Plans now cover approximately four million Canadians, including some sixty thousand members of the present Federal Government employees, and with a long history of experience in providing a high standard of medical care coverage, should have found itself unable to submit a bid on this coverage.

In any such situation, therefore, it is extremely important that the reasons for such difficulty be examined.

These were the principle roadblocks encountered in the specifications:

1. The use of a single national fee schedule which allowed payment up to but not beyond the fees specified in such schedule.
2. The inclusion of a certain amount of routine medical care, usually provided in a doctor's office and including such items as consultations, as part of a major medical package subject to an overall \$25.00 deductible arrangement.
3. An alternative specifications in the medical benefits providing that in the home and office call section the first two calls would not be covered.

It will be quickly seen by those familiar with the service type programs involving provincial fee schedules and contractual agreements with doctors, as well as a whole host of working arrangements developed over a period of years, that such Plans found themselves in a position where the required specifications went beyond their capacity to contract for.

As it appeared that the specifications finally developed seemed unduly restrictive and opposed to the concept of service coverage at the provincial level, it was felt to be in the public interest that some effort should be made to seek some modification in such specifications to allow service programs to be included. Final advice received shortly before the deadline for submission ruled out this possibility and T.C.M.P. thus found itself in the unfortunate position outlined.

In assessing the situation it can be accepted without question that the physician sponsored plans have adhered to existing principles of medical philosophy.

While no announcement has yet been made concerning the successful carrier, it is hoped that the Government might yet see the wisdom of adopting an arrangement somewhat similar to the United States and allow room for the non-profit programs as well as the commercial carriers.

* From T.C.M.P. Newsletter. - Oct. 1959.

Personal Interest Notes

Cape Breton Medical Society

Doctor John Cormier has recently returned from a two months trip through the British Isles and Continental Europe, accompanied by Mrs. Cormier and son, Claude. While in Scotland he attended the sessions of the British Medical Association and Canadian Medical Association.

Doctor C. Uhma attended the conjoint British Medical Association and Canadian Medical Association meetings in Edinburgh and prior to his return visited countries in Central Europe.

Doctor N. K. MacLennan, Chairman Standards Committee City Hospital, Doctor A. Calder, Chairman Standards Committee St. Rita Hospital and Doctor H. R. Corbett, Radiological Consultant Hospital Insurance Commission attended the meetings of the Hospital Institute held in Halifax on September 22nd and 23rd, 1959.

Doctor Antonio Govoni is now associated with Doctor H. R. Corbett as radiologist to the Sydney City Hospital and St. Rita Hospital. Doctor Govoni has had extensive post-graduate training in all fields of Radiology in the centres of London, Birmingham, Paris and New York and for the past two years was assistant radiologist at the Herbert Reddy Hospital, Montreal.

A very successful social evening was held in the Isle Royale Hotel ballroom, Sydney, on October 22nd, when the members of the Cape Breton Medical Society and wives were guests at a Dinner Dance sponsored by the Society.

Fifty couples attended this event, representing the City, Glace Bay, the Northside areas and New Waterford. Music was supplied by the Acadians.

The Chairman of Committee on Arrangements was Doctor N. K. MacLennan assisted by Doctor G. Watson Sodero, Doctor H. J. Devereux, Doctor J. A. McDonald, Doctor Tom J. McKeough, Doctor H. J. Martin and Doctor H. R. Corbett.

Cumberland Medical Society:

Doctor and Mrs. J. Ralston Ryan, Springhill, have moved to near Jacksonville, Florida.

Doctor Tom Almond, formerly a surgical registrar in England has recently moved from Calgary, Alberta to Advocate Harbour.

Halifax Medical Society:

Doctor A. B. Campbell, who retired as Chief Medical Officer of the Workmen's Compensation Board of Nova Scotia in March of this year, accompanied by Mrs. Campbell, is on a trip to Hawaii. Accompanying them is Doctor Daniel W. Hoare who retired this summer as Head of the Medical Department of the Pennsylvania Mutual Insurance Company of Philadelphia. He was a classmate of Doctor Campbell on graduation at Dalhousie in 1922. They are at present visiting another classmate, Doctor Henry Dickson, in Honolulu, and expect to return about the end of November.

October 14, 1959 Semi-annual Dinner of the Halifax Medical Society chaired by President, Doctor John W. Merritt. Doctor George Grant, Professor of Philosophy at Dalhousie University spoke on Medicine and the Law, "while the medical profession has been wallowing around in a sea of technical

traditions, the legal profession has kept secure its participation in traditions and its deep sense of responsibility of human meanings." (Ed: No comment)

Doctor W. M. MacRae has recently returned from his second trip to Europe in two years.

Doctor S. T. Laufer recently attended a joint meeting of the American Heart Association and the American College of Cardiology in Philadelphia.

Doctor and Mrs. Malcolm Shannon, formerly of Llanbradach near Cardiff, South Wales, with their two children, Paul and Claire, arrived here aboard the Furness Withy RMS Newfoundland from Britain after spending a year in Germany. Doctor Shannon worked as a civilian with the RCAF in Germany and is now on the staff of the Victoria General Hospital as a diagnostic radiologist.

Doctor E. I. Glenister, Halifax, was elected to the executive council of the Canadian Ophthalmological Society at the organization's 22nd annual convention at Niagara Falls, Ontario.

Pictou County Medical Society:

On Wednesday, October 14th, 1959, the regular meeting of the Pictou County Medical Society was held in the Norfolk Hotel, New Glasgow. Twenty-one members were present. This was the first meeting chaired by the new president, Doctor J. A. Fraser Young of Pictou. Following the reading of the minutes of the last meeting, the discussion and the subsequent approval of them, Doctor Young addressed the meeting at some length on the aims of the Society and the benefits of good fellowship within the profession. Doctor E. B. Skinner from Pictou was welcomed as a new member of the Society. Correspondence was dealt with in the usual manner and following a steak dinner, the meeting adjourned.

Valley Medical Society:

Doctors G. D. Denton, H. A. Foley and V. D. Schaffner recently returned from a successful moose hunting trip in Newfoundland.

BIRTHS

Doctor and Mrs. B. Z. Aylward (nee Bernice Campbell, R.N.), a son, Darroch Lee, Whitehorse Hospital, August 23, 1959.

Doctor and Mrs. G. D. Denton, Wolfville, a daughter, September 8, 1959.

Doctor and Mrs. K. D. Gladwin, (nee Beverly McKinley, R.N.), a son, Gordon Alan, Grace Maternity Hospital, Halifax, October 11, 1959.

Doctor and Mrs. N. H. Glen, a son, Anthony Duncan, Highland View, Amherst, October 20, 1959.

Doctor and Mrs. E. E. Henderson (nee Gloria Mitchell), a daughter, Kathy Jane, Grace Maternity Hospital, Halifax, October 15, 1959. A sister for Nancy and Gary.

Doctor and Mrs. William A. MacCannell (nee Millicent Munn) a daughter, Charlotte Lynn, Prince Edward Island Hospital, Charlottetown, October 19, 1959.

Doctor and Mrs. D. D. Macfie (nee Ruth Hart), a daughter, Grace Maternity Hospital, Halifax, October 27, 1959.

Doctor and Mrs. Peter MacGregor (nee Carolyn Potter), a daughter, Grace Maternity Hospital, St. John's, Newfoundland, October 20, 1959.

Doctor and Mrs. Allan B. Morrison (nee Valerie Dymoke), a son, Grace Maternity Hospital, Halifax, September 17, 1959.

Doctor and Mrs. J. B. Sutherland (nee Lillian Thornhill), a son, David John, Prince County Hospital, Prince Edward Island, October 12, 1959. A brother for Faye and Debbie.

Doctor and Mrs. K. Tulie (nee Edith Lipsett, R.N.), a son, George Daniel, St. Joseph's Hospital, Dalhousie, N. B., October 8, 1959.

Doctor and Mrs. A. S. Wenning, a son, Andrew Stewart, Grace Maternity Hospital, Halifax, October 6, 1959.

MARRIAGES

July 17, 1959, Doctor Lilo Brown, Dartmouth to Lt. John Holland. Doctor Brown is now practising in Kingston, Ontario.

October 7, 1959, Doctor Harry D. O'Brien, Halifax, to Miss Jean Murray.

Congratulations:

September 23, 1959: To Doctor and Mrs. G. Watson Sodero, Sydney, on the marriage of their daughter, Jane Elizabeth, to Geoffrey Leonard Steele of St. John's, Newfoundland.

October 17, 1959: To Doctor C. M. Harlow, Director of Research at Camp Hill Hospital, Halifax, on his research grant from the Nova Scotia Fish Packers and Atlantic Fisheries By-Products Associations for original research into fish nutrition for atherosclerotic patients.

Coming Meetings:

December 9, 1959, Halifax Medical Society, Second Regular Meeting, Halifax Infirmary.

Practice Available

General Medical Practice in Halifax available December 1st—excellent location—small premium. Enquiries should be directed to the Executive Secretary, Medical Society of Nova Scotia.

NOTICE

General practitioner required for rural area, Port Hood-Judique, Inverness County. Approximately 425 families. Residence and office available. Subsidy of one hundred dollars (\$100.00) per month for one year paid by Provincial government.

Mrs. J. D. MacDougall,
Secretary,
Dr. Waters Memorial Inc.
Port Hood, Nova Scotia.

INFECTIOUS DISEASES—NOVA SCOTIA
Reported Summary for the Month of August, 1959

Diseases	NOVA SCOTIA				CANADA	
	1959		1958		1959	1958
	C	D	C	D	C	C
Brucellosis (Undulant fever) (044)	0	0	0	0	11	0
Diarrhoea of newborn, epidemic (764)	0	0	0	0	13	0
Diphtheria (055)	0	0	0	0	0	2
Dysentery:						
(a) Amoebic (046)	0	0	0	0	0	0
(b) Bacillary (045)	0	0	0	0	124	0
(c) Unspecified (048)	0	0	0	0	13	0
Encephalitis, infectious (082.0)	0	0	0	0	12	2
Food Poisoning:						
(a) Staphylococcus intoxication (049.0)	0	0	0	0	0	0
(b) Salmonella infections (042.1)	0	0	0	0	0	0
(c) Unspecified (049.2)	3	0	0	0	134	0
Hepatitis, infectious (including serum hepatitis) (092, N998.5)	13	0	34	0	241	0
Meningitis, viral or aseptic (080.2, 082.1)						
(a) due to polio virus	0	0	0	0	0	0
(b) due to Coxsackie virus	0	0	0	0	0	0
(c) due to ECHO virus	0	0	0	0	0	0
(d) other and unspecified	5	0	0	0	171	0
Meningococcal infections (057)	5	0	2	0	14	29
Pemphigus neonatorum (impetigo of the newborn) (766)	0	0	0	0	0	0
Pertussis (Whooping Cough) (056)	1	0	107	0	586	548
Poliomyelitis, paralytic (080.0, 080.1)	0	0	0	0	429	40
Scarlet Fever & Streptococcal Sore Throat (050, 051)	102	0	105	0	490	243
Tuberculosis						
(a) Pulmonary (001, 002)	23	1	30	5	420	467
(b) Other and unspecified (003-019)	4	0	4	0	108	45
Typhoid and Paratyphoid Fever (040, 041)	1	0	0	0	21	45
Veneral diseases						
(a) Gonorrhoea —						
Ophthalmia neonatorum (033)	0	0	0	0	0	0
All other forms (030-032, 034)	51	0	15	0	1512	1218
(b) Syphilis —						
Acquired—ordinary (021.0, 021.1)	0	0	0	0	0	0
— secondary (021.2, 021.3)	1	0	0	0	0	0
— latent (028)	0	0	0	0	0	0
— tertiary — cardiovascular (023)	0	0	0	0	0	0
— „ — neurosyphilis (024, 026)	0	0	0	0	0	0
— „ — other (027)	0	0	0	0	0	0
Prenatal—congenital (020)	0	0	0	0	0	0
Other and unspecified (029)	2	0	5*	0	182*	318*
(c) Chancroid (036)	0	0	0	0	0	0
(d) Granuloma inguinale (038)	0	0	0	0	0	0
(e) Lymphogranuloma venereum (037)	0	0	0	0	0	0
Rare Diseases:						
Anthrax (062)	0	0	0	0	0	0
Botulism (049.1)	0	0	0	0	0	0
Cholera (043)	0	0	0	0	0	0
Leprosy (060)	0	0	0	0	0	0
Malaria (110-117)	0	0	0	0	0	0
Plague (058)	0	0	0	0	0	0
Pittacosis & ornithosis (096.2)	0	0	0	0	0	0
Rabies in Man (094)	0	0	0	0	0	0
Relapsing fever, louse-borne (071.0)	0	0	0	0	0	0
Rickettsial infections:						
(a) Typhus, louse-borne (100)	0	0	0	0	0	0
(b) Rocky Mountain spotted fever (104 part)	0	0	0	0	0	0
(c) Q-Fever (108 part)	0	0	0	0	0	0
(d) Other & unspecified (101-108)	0	0	0	0	0	0
Smallpox (084)	0	0	0	0	0	0
Tetanus (061)	0	0	0	0	0	0
Trichinosis (128)	0	0	0	0	0	0
Tularaemia (059)	0	0	0	0	0	0
Yellow Fever (091)	0	0	0	0	0	0
N.S.U.	3	0	0	0	0	0

C — Cases D — Deaths

*Not broken down