

# THE NOVA SCOTIA MEDICAL BULLETIN

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## HISTORIC GRADUATION

L. B. Macpherson,\* M.B.E., Ph.D., D.Sc.,

*Halifax, N.S.*

All organizations like to mark notable events by recording them publicly, so I was pleased when your Editor asked me to comment on the unique features of the Dalhousie Medical Convocation this year.

For the first time the M.D. degree will be granted to one class following only four years of studies. Twice as many M.D. degrees will be conferred as have been granted at any previous Dalhousie Convocation because two classes are graduating. Factually, the Fourth Year Class (87 graduates) will be required to take a 12-months internship before they can be licensed to practice; the final Fifth Year Class (91 graduates) have already had their internship as undergraduates and will be eligible for licensure on graduation.

This anomalous situation arises because Dalhousie has believed that the best way to maintain educational quality in the internship was to have it under university control. That we were right is shown by the fact that, finally, all internships approved by the Canadian Medical Association must be in university-affiliated and integrated hospitals. As an advantageous consequence our graduates can now interne in many other places in Canada and graduates of other medical schools can and are taking advantage of the long-established Dalhousie integrated internship.

These two classes of graduates are notable in other respects. They were admitted to the Faculty in 1970 and 1969, respectively, during a period when for the first time in many years, the number of well-qualified Maritime applicants began to exceed the number of places available here. There is much pleasure in the Faculty that the loss and failure rate in these two classes has been remarkably low compared to former times, a trend that undoubtedly will continue.

Furthermore, these students came to us with an apparently enhanced social awareness of and concern for their community. There is every reason to believe that they have retained these attitudes and we are completely confident that our training has developed them still further.

These two classes have been entirely trained under the new systems-oriented curriculum, which places a heavy expectation on the students to assume some of the responsibility for their own education. They have responded with a highly developed concern for the content and experiences of their education and with a welcome new impatience with Faculty and the University when their concerns have not been quickly followed by action.

I predict that these graduates will make their mark in a way none of their predecessors have. They are thoughtful, socially concerned and they will keep up-to-date in whatever sphere of medicine they settle in.

On behalf of the members of Faculty I congratulate them most heartily and wish them well. The Faculty is proud to have had the opportunity of having them as students. □

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\*Dean, Faculty of Medicine, Dalhousie University, Halifax, N.S.

# ARE YOU FIT ENOUGH TO BE IN THE ARMED FORCES?

J. C. Dunfield\*/Col.,  
Halifax, N.S.

Female personnel of the modern services are required twice a year to run one and one half miles in at least "GOOD" time or better according to the following chart. How do *you* compare with the girls in uniform?

CATEGORY	UNDER 30 YRS	30-39 YEARS	40 & OVER
Very Poor	Over 17.30 Mins.	Over 18.30 Mins.	Over 19.00 Mins.
Poor	17.30 - 15.31	18.30 - 16.31	19.00 - 17.01
Fair	15.30 - 13.01	16.30 - 14.01	17.00 - 14.31
Good	13.00 - 11.00	14.00 - 11.39	14.30 - 12.01
Excellent	Under 11.00 Mins.	Under 11.39 Mins.	Under 12.01 Mins.

If you can do as well as the girls, try yourself on the basic fitness required for all male personnel in non-combat trades. (Passed at "GOOD" time or better). Same 1.5 miles as the girls.

CATEGORY	UNDER 30 YRS	30-39 YEARS	40-49 YEARS	50 & OVER
Very Poor	Over 16.30 Mins.	Over 17.30 Mins.	Over 18.30 Mins.	Over 19.00 Mins.
Poor	16.30 - 14.31	17.30 - 15.31	18.30 - 16.31	19.00 - 17.01
Fair	14.30 - 12.01	15.30 - 13.01	16.30 - 14.01	17.00 - 14.31
Good	12.00 - 10.16	13.00 - 11.01	14.00 - 11.34	14.30 - 12.01
Excellent	Under 10.16 Mins.	Under 11.01 Mins.	Under 11.31 Mins.	Under 12.01 Mins.

Still with it? Very good. Could you handle the basic physical fitness required of a soldier who has just completed his first stage recruit training?

ITEM	DETAIL	REMARKS
1	10 mile forced march in 2 hours 10 minutes	Full battle-dress with weapons
2	Climb a 12 ft. rope, traverse a 20 ft. rope, descend a 12 ft. rope.	Full battle-dress with weapons
3	Running broad jump 9 feet	Full battle-dress with weapons
4	Scale 6 ft. wall.	Full battle-dress with weapons
5	Carry a man 200 yds. in 2 min.	Full battle-dress with weapons
6	Remain in place, by floating or treading water or using "drown proofing" skills for 10 minutes.	Trousers, shirt and running shoes

TO BE DONE CONSECUTIVELY ON THE SAME DAY.

Congratulations on your excellent performance! You have passed all the basic tests required of military personnel. Now, no doubt you would like to try something more advanced. One such rewarding trophy is the "Award of Excellence For Aerobic Performance". This is a linen paper scroll embellished with a gold coloured seal. To obtain it all you have to do is to run seven thousand two hundred land miles. □

\*Commanding Officer, Canadian Forces Hospital, Halifax, N.S.



# A Way of Life\*

Sir William Osler

*What each day needs that shalt thou ask,  
Each day will set its proper task.*

Goethe.

FELLOW STUDENTS—Every man has a philosophy of life in thought, in word, or in deed, worked out in himself unconsciously. In possession of the very best, he may not know of its existence; with the very worst he may pride himself as a paragon. As it grows with the growth it cannot be taught to the young in formal lectures. What have bright eyes, red blood, quick breath, and taut muscles to do with philosophy? Did not the great Stagirite say that young men were unfit students of it?—they will hear as though they heard not, and to no profit. Why then should I trouble you? Because I have a message that may be helpful. It is not philosophical, nor is it strictly moral or religious, one or other of which I was told my address should be, and yet in a way it is all three. It is the oldest and the freshest, the simplest and the most useful, so simple indeed is it that some of you may turn away disappointed as was Naaman the Syrian when told to go wash in Jordan and be clean. You know those composite tools, to be bought for 50 cents, with one handle to fit a score or more of instruments. The workmanship is usually bad, so bad, as a rule, that you will not find an example in any good carpenter's shop; but the boy has one, the chauffeur slips one into his box, and the sailor into his kit, and there is one in the odds-and-ends drawer of the pantry of every well-regulated family. It is simply a handy thing about the house, to help over the many little difficulties of the day. Of this sort of philosophy I wish to make you a present—a handle to fit your life tools. Whether the workmanship is Sheffield or shoddy, this helve will fit anything from a hatchet to a corkscrew.

My message is but a word, a *Way*, an easy expression of the experience of a plain man whose life has never been worried by any philosophy higher than that of the shepherd in *As You Like It*. I wish to point out a path in which the wayfaring man, though a fool, cannot err; not a system to be worked out painfully only to be discarded, not a formal scheme, simply a habit as easy—or as hard!—to adopt as any other habit, good or bad.

I

A few years ago a Xmas card went the rounds, with the legend 'Life is just one "dermed" thing after another', which, in more refined language, is the same as saying 'Life is a habit', a succession of actions that become more or less automatic. This great truth, which lies at the basis of all actions, muscular or psychic, is the keystone of the teaching of Aristotle, to whom the formation of habits was the basis of moral excellence. 'In a word, habits of any kind are the result of actions of the same kind; and so what we have to do, is to give a certain character

\*This historic Address was given to Yale students by Sir William Osler on April 20, 1913. A copy of this presentation was made available to the Bulletin by the Bibliotheca Osleriana, McGill University, Montreal.

to these particular actions.' (*Ethics*.) Lift a seven months old baby to his feet—see him tumble on his nose. Do the same at twelve months—he walks. At two years he runs. The muscles and the nervous system have acquired the habit. One trial after another, one failure after another, has given him power. Put your finger in a baby's mouth, and he sucks away in blissful anticipation of a response to a mammalian habit millions of years old. And we can deliberately train parts of our body to perform complicated actions with unerring accuracy. Watch that musician playing a difficult piece. Batteries, commutators, multipliers, switches, wires innumerable control those nimble fingers, the machinery of which may be set in motion as automatically as in a pianola, the player all the time chatting as if he had nothing to do in controlling the apparatus—habit again, the gradual acquisition of power by long practice and at the expense of many mistakes. The same great law reaches through mental and moral states. 'Character', which partakes of both, in Plutarch's words, is 'long-standing habit'.

Now the way of life that I preach is a habit to be acquired gradually by long and steady repetition. It is the practice of living for the day only, and for the day's work, *Life in day-tight compartments*. 'Ah,' I hear you say, 'that is an easy matter, simple as Elisha's advice!' Not as I shall urge it, in words which fail to express the depth of my feelings as to its value. I started life in the best of all environments—in a parsonage, one of nine children. A man who has filled Chairs in four universities, has written a successful book, and has been asked to lecture at Yale, is supposed popularly to have brains of a special quality. A few of my intimate friends really know the truth about me, as I know it! Mine, in good faith I say it, are of the most mediocre character. But what about those professorships, &c.? Just habit, a way of life, an outcome of the day's work, the vital importance of which I wish to impress upon you with all the force at my command.

Dr. Johnson remarked upon the trifling circumstances by which men's lives are influenced, 'not by an ascendant planet, a predominating humour, but by the first book which they read, some early conversation which they have heard, or some accident which excited ardour and enthusiasm'. This was my case in two particulars. I was diverted to the Trinity College School, then at Weston, Ontario, by a paragraph in the circular stating that the senior boys would go into the drawing-room in the evenings, and learn to sing and dance—vocal and pedal accomplishments for which I was never designed; but like Saul seeking his asses, I found something more valuable, a man of the White of Selborne type, who knew nature, and who knew how to get boys interested in it.\*\* The other happened in

\*\*The Rev. W. A. Johnson, the founder of the school.



the summer of 1871, when I was attending the Montreal General Hospital. Much worried as to the future, partly about the final examination, partly as to what I should do afterwards, I picked up a volume of Carlyle, and on the page I opened there was the familiar sentence — '*Our main business is not to see what lies dimly at a distance, but to do what lies clearly at hand.*' A commonplace sentiment enough, but it hit and stuck and helped, and was the starting-point of a habit that has enabled me to utilize to the full the single talent entrusted to me.

## II

The workers in Christ's vineyard were hired by the day; only for this day are we to ask for our daily bread, and we are expressly bidden to take no thought for the morrow. To the modern world these commands have an Oriental savour, counsels of perfection akin to certain of the Beatitudes, stimuli to aspiration, not to action. I am prepared on the contrary to urge the literal acceptance of the advice, not in the mood of Ecclesiastes — 'Go to now, ye that say to-day or to-morrow we will go into such a city, and continue there a year, and buy and sell and get gain; whereas ye know not what shall be on the morrow'; not in the Epicurean spirit of Omar with his 'jug of wine and Thou', but in the modernist spirit, as a way of life, a habit, a strong enchantment, at once against the mysticism of the East and the pessimism that too easily besets us. Change that hard saying 'Sufficient unto the day is the evil thereof' into 'the goodness thereof', since the chief worries of life arise from the foolish habit of looking before and after. As a patient with double vision from some transient unequal action of the muscles of the eye finds magical relief from well-adjusted glasses, so, returning to the clear binocular vision of to-day, the over-anxious student finds peace when he looks neither backward to the past nor forward to the future.

I stood on the bridge of one of the great liners, ploughing the ocean at 25 knots. 'She is alive', said my companion, 'in every plate; a huge monster with brain and nerves, an immense stomach, a wonderful heart and lungs, and a splendid system of locomotion.' Just at that moment a signal sounded, and all over the ship the watertight compartments were closed. 'Our chief factor of safety', said the Captain. 'In spite of the *Titanic*', I said. 'Yes,' he replied, 'in spite of the *Titanic*.' Now each one of you is a much more marvellous organization than the great liner, and bound on a longer voyage. What I urge is that you so learn to control the machinery as to live with 'day-tight compartments' as the most certain way to ensure safety on the voyage. Get on the bridge, and see that at least the great bulkheads are in working order. Touch a button and hear, at every level of your life, the iron doors shutting out the Past — the dead yesterdays. Touch another and shut off, with a metal curtain, the Future — the unborn to-morrows. Then you are safe — safe for to-day! Read the old story in the *Chambered Nautilus*, so beautifully sung by Oliver Wendell Holmes, only change one line to 'Day after day beheld the silent toil'. Shut off the past! Let the dead past bury its dead. So easy to say, so hard to realize! The truth is, the past haunts us like a shadow. To disregard it is not easy. Those blue eyes of your grandmother, that weak chin of your grandfather, have mental

and moral counterparts in your make-up. Generations of ancestors, brooding over 'Providence, Foreknowledge, Will and Fate — Fixed fate, free will, foreknowledge, absolute', may have bred a New England conscience, morbidly sensitive, to heal which some of you had rather sing the 51st Psalm than follow Christ into the slums. Shut out the yesterdays, which have lighted fools the way to dusty death, and have no concern for you personally, that is, consciously. They are there all right, working daily in us, but so are our livers and our stomachs. And the past, in its unconscious action on our lives, should bother us as little as they do. The petty annoyances, the real and fancied slights, the trivial mistakes, the disappointments, the sins, the sorrows, even the joys — bury them deep in the oblivion of each night. Ah! but it is just then that to so many of us the ghosts of the past,

## Night-riding Incubi Troubling the fantasy,

come in troops, and pry open the eyelids, each one presenting a sin, a sorrow, a regret. Bad enough in the old and seasoned, in the young these demons of past sins may be a terrible affliction, and in bitterness of heart many a one cries with Eugene Aram, 'Oh God! Could I so close my mind, and clasp it with a clasp.' As a vaccine against all morbid poisons left in the system by the infections of yesterday, I offer 'a way of life'. 'Undress', as George Herbert says, 'your soul at night', not by self-examination, but by shedding, as you do your garments, the daily sins whether of omission or of commission, and you will wake a free man, with a new life. To look back, except on rare occasions for stock-taking, is to risk the fate of Lot's wife. Many a man is handicapped in his course by a cursed combination of retro and intro-spection, the mistakes of yesterday paralysing the efforts of to-day, the worries of the past hugged to his destruction, and the worm Regret allowed to canker the very heart of his life. To die daily, after the manner of St. Paul, ensures the resurrection of a new man, who makes each day the epitome of a life.

## III

The load of to-morrow, added to that of yesterday, carried to-day makes the strongest falter. Shut off the future as tightly as the past. No dreams, no visions, no delicious fantasies, no castles in the air, with which, as the old song so truly says, 'hearts are broken, heads are turned'. To youth, we are told, belongs the future, but the wretched to-morrow that so plagues some of us has no certainty, except through to-day. Who can tell what a day may bring forth? Though its uncertainty is a proverb, a man may carry its secret in the hollow of his hand. Make a pilgrimage to Hades with Ulysses, draw the magic circle, perform the rites, and then ask Tiresias the question. I have had the answer from his own lips. The future is to-day — there is no to-morrow! The day of a man's salvation is *now* — the life of the present, of to-day, lived earnestly, intently, without a forward-looking thought, is the only insurance for the future. Let the limit of your horizon be a twenty-four-hour circle. On the title-page of one of the great books of science, the *Discours de la methode* of Descartes (1637), is a vignette showing a man digging in a garden with



his face towards the earth, on which rays of light are streaming from the heavens; beneath is the legend '*Fac et Spera*'. 'Tis a good attitude and a good motto. Look heavenward, if you wish, but never to the horizon — that way danger lies. Truth is not there, happiness is not there, certainty is not there, but the falsehoods, the frauds, the quackeries, the *ignes fatui* which have deceived each generation — all beckon from the horizon, and lure the men not content to look for the truth and happiness that tumble out at their feet. Once while at college climb a mountain-top, and get a general outlook of the land, and make it the occasion perhaps of that careful examination of yourself, that inquisition which Descartes urges every man to hold once in a lifetime — not oftener.

Waste of energy, mental distress, nervous worries dog the steps of a man who is anxious about the future. Shut close, then, the great fore and aft bulkheads, and prepare to cultivate the habit of a life of day-tight compartments. Do not be discouraged — like every other habit, the acquisition takes time, and the way is one you must find for yourselves. I can only give general directions and encouragement, in the hope that while the green years are on your heads, you may have the courage to persist.

#### IV

Now, for the day itself! What first! Be your own daysman and sign not with Job for any mysterious intermediary, but prepare to lay your own firm hand upon the helm. Get into touch with the finite, and grasp in full enjoyment that sense of capacity in a machine working smoothly. Join the whole creation of animate things in a deep, heartfelt joy that you are alive, that you see the sun, that you are in this glorious earth which Nature has made so beautiful, and which is yours to conquer and to enjoy. Realize, in the words of Browning, that 'There's a world of capability for joy spread round about us, meant for us, inviting us'. What are the morning sensations! — for they control the day. Some of us are congenitally unhappy during the early hours; but the young man who feels on awakening that life is a burden or a bore has been neglecting his machine, driving it too hard, stoking the engines too much, or not cleaning out the ashes and clinkers. Or he has been too much with the Lady Nicotine, or fooling with Bacchus, or, worst of all, with the younger Aphrodite — all 'messengers of strong prevailment in unhardened youth'. To have a sweet outlook on life you must have a clean body. As I look on the clear-cut, alert, earnest features, and the lithe, active forms of our college men, I sometimes wonder whether or not Socrates and Plato would find the race improved. I am sure they would love to look on such a gathering as this. Make their ideal yours — the fair mind in the fair body. The one cannot be sweet and clean without the other, and you must realize, with Rabbi Ben Ezra, the great truth that flesh and soul are mutually helpful. The morning outlook — which really makes the day — is largely a question of a clean machine — of physical morality in the wide sense of the term. *C'est l'estomac qui fait les heureux*, as Voltaire says; no dyspeptic can have a sane outlook on life; and a man whose bodily functions are impaired has a lower moral resistance. To keep the body fit is a help in keeping the mind pure, and the sensations of the first few

hours of the day are the best test of its normal state. The clean tongue, the clear head, and the bright eye are birth-rights of each day. Just as the late Professor Marsh would diagnose an unknown animal from a single bone, so can the day be predicted from the first waking hour. The start is everything, as you well know, and to make a good start you must feel fit. In the young, sensations of morning slackness come most often from lack of control of the two primal instincts — biologic habits — the one concerned with the preservation of the individual, the other with the continuance of the species. Yale students should by this time be models of dietetic propriety, but youth does not always reckon the rede of the teacher; and I dare say that here, as elsewhere, careless habits of eating are responsible for much mental disability. My own rule of life has been to cut out unsparingly any article of diet that had the bad taste to disagree with me, or to indicate in any way that it had abused the temporary hospitality of the lodging which I had provided. To drink, nowadays, but few students become addicted, but in every large body of men a few are to be found whose incapacity for the day results from the morning clogging of nocturnally-flushed tissues. As moderation is very hard to reach, and as it has been abundantly shown that the best of mental and physical work may be done without alcohol in any form, the safest rule for the young man is that which I am sure most of you follow — abstinence. A better enemy to the bright eye and the clear brain of the early morning is tobacco when smoked to excess, as it is now by a large majority of students. Watch it, test it, and if need be, control it. That befogged, woolly sensation reaching from the forehead to the occiput, that haziness of memory, that cold fish-like eye, that furred tongue, and last week's taste in the mouth — too many of you know them — I know them — they often come from too much tobacco. The other primal instinct is the heavy burden of the flesh which Nature puts on all of us to ensure a continuation of the species. To drive Plato's team taxes the energies of the best of us. One of the horses is a raging, untamed devil, who can only be brought into subjection by hard fighting and severe training. This much you all know as men: once the bit is between his teeth the black steed Passion will take the white horse Reason with you and the chariot rattling over the rocks to perdition.

With a fresh, sweet body you can start aright without those feelings of inertia that so often, as Goethe says, make the morning's lazy leisure usher in a useless day. Control of the mind as a working machine, the adaptation in it of habit, so that its action becomes almost as automatic as walking, is the end of education — and yet how rarely reached! It can be accomplished with deliberation and repose, never with hurry and worry. Realize how much time there is, how long the day is. Realize that you have sixteen waking hours, three or four of which at least should be devoted to making a silent conquest of your mental machinery. Concentration, by which is grown gradually the power to wrestle successfully with any subject, is the secret of successful study. No mind however dull can escape the brightness that comes from steady application. There is an old saying, 'Youth enjoyeth not, for haste'; but worse than this, the failure to cultivate the power of peaceful concentration is the greatest single cause of mental break-



down. Plato pities the young man who started as such a pace that he never reached the goal. One of the saddest of life's tragedies is the wreckage of the career of the young collegian by hurry, hustle, bustle, and tension — the human machine driven day and night, as no sensible fellow would use his motor. Listen to the words of a master in Israel, William James:

Neither the nature nor the amount of our work is accountable for the frequency and severity of our break-downs, but their cause lies rather in those absurd feelings of hurry and having no time, in that breathlessness and tension, that anxiety of feature and that solicitude of results, that lack of inner harmony and ease, in short, by which the work with us is apt to be accompanied, and from which a European who would do the same work would, nine out of ten times, be free.

*Es bildet ein Talent sich in der Stille*, but it need not be for all day. A few hours out of the sixteen will suffice, only let them be hours of daily dedication — in routine, in order, and in system, and day by day you will gain in power over the mental mechanism, just as the child does over the spinal marrow in walking, or the musician over the nerve centres. Aristotle somewhere says that the student who wins out in the fight must be slow in his movements, with voice deep, and slow speech, and he will not be worried over trifles which make people speak in shrill tones and use rapid movements. Shut close in hour-tight compartments, with the mind directed intensely upon the subject in hand, you will acquire the capacity to do more and more, you will get into training; and once the mental habit is established, you are safe for life.

Concentration is an art of slow acquisition, but little by little the mind is accustomed to habits of slow eating and careful digestion, by which alone you escape the 'mental dyspepsy' so graphically described by Lowell in the *Fable for Critics*. Do not worry your brains about that bugbear Efficiency, which, sought consciously and with effort, is just one of those elusive qualities very apt to be missed. The man's college output is never to be gauged at sight; all the world's coarse thumb and finger may fail to plumb his most effective work, the casting of the mental machinery of self-education, the true preparation for a field larger than the college campus. Four or five hours daily — it is not much to ask; but one day must tell another, one week certify another, one month bear witness to another of the same story, and you will acquire a habit by which the one-talent man will earn a high interest, and by which the ten-talent man may at least save his capital.

Steady work of this sort gives a man a sane outlook on the world. No corrective so valuable to the weariness, the fever, and the fret that are so apt to wring the heart of the young. This is the talisman, as George Herbert says,

The famous stone  
That turneth all to gold,

and with which, to the eternally recurring question, What is Life? you answer, I do not think — I act it; the only philosophy that brings you in contact with its real values and enables you to grasp its hidden meaning. Over the Slough of Despond, past Doubting Castle and Giant Despair, with this talisman you may reach the Delectable Mountains, and those Shepherds of

the Mind — Knowledge, Experience, Watchful, and Sincere. Some of you may think this to be a miserable Epicurean doctrine — no better than that so sweetly sung by Horace:

Happy the man — and Happy he alone,  
He who can call to-day his own,  
He who secure within can say,  
To-morrow, do thy worst — for I have lived to-day.

I do not care what you think, I am simple giving you a philosophy of life that I have found helpful in my work, useful in my play. Walt Whitman, whose physician I was for some years, never spoke to me much of his poems, though occasionally he would make a quotation; but I remember late one summer afternoon as we sat in the window of his little house in Camden there passed a group of workmen whom he greeted in his usual friendly way. And then he said: 'Ah, the glory of the day's work, whether with hand or brain! I have tried

To exalt the present and the real,  
To teach the average man the glory of his  
daily work or trade.'

In this way of life each one of you may learn to drive the straight furrow and so come to the true measure of a man.

## V

With body and mind in training, what remains?

Do you remember that most touching of all incidents in Christ's ministry, when the anxious ruler Nicodemus came by night, worried lest the things that pertained to his everlasting peace were not a part of his busy and successful life? Christ's message to him is His message to the world — never more needed than at present: 'Ye must be born of the spirit.' You wish to be with the leaders — as Yale men it is your birthright — know the great souls that make up the moral radius of the world. You must be born of their spirit, initiated into their fraternity, whether of the spiritually-minded followers of the Nazarene or of that larger company, elect from every nation, seen by St. John.

Begin the day with Christ and His prayer — you need no other. Creedless, with it you have religion; creed-stuffed, it will leaven any theological dough in which you stick. As the soul is dyed by the thoughts, let no day pass without contact with the best literature of the world. Learn to know your Bible, though not perhaps as your fathers did. In forming character and in shaping conduct, its touch has still its ancient power. Of the kindred of Ram and sons of Elihu, you should know its beauties and its strength. Fifteen or twenty minutes day by day will give you fellowship with the great minds of the race, and little by little as the years pass you extend your friendship with the immortal dead. They will give you faith in your own day. Listen while they speak to you of the fathers. But each age has its own spirit and ideas, just as it has its own manners and pleasures. You are right to believe that yours is the best university, at its best period. Why should you look back to be shocked at the frowsiness and dullness of the students of the seventies or even of the nineties? And cast no thought forward, lest you reach a period when you and yours will present to your successors the same dowdiness of clothes



and times. But while change is the law, certain great ideas flow fresh through the ages, and control us effectually as in the days of Pericles. Mankind, it has been said, is always advancing, man is always the same. The love, hope, fear, and faith that make humanity, and the elemental passions of the human heart, remain unchanged, and the secret of inspiration in any literature is the capacity to touch the chord that vibrates in a sympathy that knows nor time nor place.

The quiet life in day-tight compartments will help you to bear your own and others' burdens with a light heart. Pay no heed to the Batrachians who sit croaking idly by the stream. Life is a straight, plain business, and the way is clear, blazed for you by generations of strong men, into whose labours you enter and

whose ideals must be your inspiration. In my mind's eye I can see you twenty years hence — resolute-eyed, broad-headed, smooth-faced men who are in the world to make a success of life; but to whichever of the two great types you belong, whether controlled by emotion or by reason, you will need the leaven of their spirit, the only leaven potent enough to avert that only too common Nemesis to which the Psalmist refers: 'He gave them their heart's desire, but sent leanness withal into their souls.'

I quoted Dr. Johnson's remark about the trivial things that influence. Perhaps this slight word of mine may help some of you so to number your days that you may apply your hearts unto wisdom. □

## THE ECOLOGY ACTION CENTRE NEEDS SUPPORT

The Ecology Action Centre urgently needs financial support.

The natural environment in Nova Scotia and special elements of the city environment in Halifax and Dartmouth are rare and invaluable. The Centre has provided useful, accurate information about many city planning questions, about the Stoddard Island nuclear power proposal and about recycling. Through working with community groups and government officials on these questions several beneficial changes have occurred.

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# The Financial Strategies of Dalhousie Medical Students

Rex S. Dunn\*,  
Halifax, N.S.

It is little wonder that new medical students face the financial aspect of their training with resignation and with varying degrees of trepidation. They are aware of the high tuition (\$815/annum) fees. They find out that Halifax is one of North America's most expensive places to live, and that costs everywhere are rising rapidly. They see from the calendar that during the first four years there'll be only 6 months (two summers) to try to earn to defray expenses. They will observe that entrance scholarships are few and relatively small.

Should prospective students seek clarifying statements from people currently enrolled in years I-V, they may hear the following opinions, among many others:

1. "If you really want to you may avoid debt altogether" - or -
2. "Despite your best efforts you'll eventually owe at least \$10,000, and some will be in there for \$40,000-\$50,000 before they graduate. Some will also exhaust their borrowing power."
3. "Why worry anyway? In comparison to the money you'll eventually make, any debts you run up now are chickenfeed. You work hard at medical school, so why not live a little as you go? And there's not much point working since the money you can earn while attending school hardly makes a dent."
4. "There's lots of reason to worry. Incomes of physicians may soon be limited and it might then take years to pay off a big debt. And if you should flunk out . . ."

For the prospective student, then, some fundamental questions need elucidation:

1. What do students *really* spend and how is this related to age, sex, marital status and year class.
2. What sources of non-borrowed income do students utilize to meet these expenses?
3. How much do medical students actually borrow?

**TABLE I**  
The Characteristics of the Surveyed Population

Year	Proportion of Forms Returned	Sex and Marital Status				Age
		Male	Female	Married	Single	
I	10/10	6	4	1	9	19-24
II	8/10	5	3	2	6	20-25
III	9/10	7	2	2	7	21-29
IV	11/15	9	2	5	6	22-31
V	5/30	4	1	2	3	24-26
TOTAL	43/75	31	12	12	31	19-31

\*Third Year Medical Student, Dalhousie University, Halifax, N.S.

It was to answer these questions that I conducted a survey of a 10% random sample of each 1973-74 year class at Dalhousie Medical School. The characteristics of the population surveyed are summarized in Table I. Overall 57% of survey forms were returned. 74% of respondents were male and 74% were single. The age range was 19-31 years.

Table II summarizes the expenditures by students in various categories. Some clear-cut differences were observed. Year I spent less than half of any other class (an age effect?) while years II, III, and IV had very similar expenditures; the most frugal group was that of single females (\$126/mo.) followed closely by young singles of both sexes (\$132/mo.). Married persons averaged almost twice the expenses of any other group. Single males (\$253/mo.) spent double the money that single females did.

**TABLE II**  
A Summary of Monthly and Yearly Expenses

Category*		Mean Monthly Expenditures**	Mean Total Expenditures for 1973-74
Year I	(10)	\$142.	\$2581.
II	( 8)	376.	5217
III	( 8)	330.	5145
IV	(11)	340.	4910.
V	( 5)	435.	6442.
Married	(12)	522.	7290
Single	(31)	223.	3579.
Single, 24 yr.	(18)	132.	2285
Single, 23 yr.	(13)	304.	4553.
Male, Single	(24)	253.	4050.
Female, Single	( 7)	126.	2298.

\*Numbers in brackets indicate the number of students in each category.

\*\*Tuition fees are excluded from these figures.

Table III illustrates the use made of sources of non-borrowed income. Of 12 married students, 8 had working spouses, usually with significant contributions. 23% received parental contributions usually less than \$1000, but also as high as \$7000. Scholarships and bursaries were a widely-used source (65%), with many receiving close to \$2000. 27 people had summers available for work and 82% of these did work, receiving variable amounts up to \$1500. The total of these sources was adequate for 47%, mostly in Year I or Year V, who were able to meet or exceed expenses in 1973-74.

Table IV tabulates debts incurred during 1973-74. 33% required bank loans, while 53% contracted loans from a variety of sources, mostly interest-free (Canada Student



**TABLE III**  
Sources of non-borrowed Income Utilized  
by Students in Each Year Class

Year	Spouse	Parents	Scholarship	Job	Income Expenses
I	*1/1 (\$500)	3/10 (\$300-2100)	8/10 (\$700-1750)	9/10 (\$480-2000)	9/10
II	0/2 (-)	6/8 (500-1700)	7/8 (400-2000)	6/8 (1200-1300)	1/8
III	2/2 (3000-7000)	2/9 (2100-3000)	6/9 (500-2000)	8/9 (358-1600)	3/9
IV	3/5 (6000-7000)	6/11 (200-7000)	7/11 (700-2100)	N/A	3/11
V	2/2 (8000-11000)	1/5 (300)	0/5 (-)	Interne Salary	4/5

\*These fractions indicate the number of students utilizing a source compared to the number to which the source was potentially available. The range of income in each category is contained in the bracket.

Loan, Dalhousie Financial Aid, parental loans, provincial loans, etc). Years I and V incurred far less debt in 1973-74 than students in other years.

Figure 1 represents graphically the frequency distribution of total debts (actual and projected) at time of graduation. About

There does exist a plan which is far superior financially, and which is available to most medical students, but which very few elect to join; this is the Medical Officers Training Plan, which will cover books, tuition, plus salary (about \$450/mo.) with only three years service required on graduation. The fact that so few do take advantage of this relatively lucrative support may reflect either a bias of medical students, or the quality of the military experience.

**TABLE IV**  
A Summary of Loans Contracted at Banks  
and Elsewhere during 1973-74,  
for Each Year Class

Year	BANK		OTHER	
	Proportion Utilizing	*Mean Amount	Proportion Utilizing	Mean Amount
I	0/10	\$--	5/10	\$1340.
II	4/8	1800.	5/8	2315.
III	2/9	2500.	7/9	1951.
IV	7/11	1800.	8/11	2210.
V	1/5	11000.	0/5	

\*These figures are means of the sums borrowed, and exclude those who borrowed nothing.

12% will have no debt at all. The majority (58%) will owe \$4,000-\$12,000. There is a peculiar gap in the distribution between 0 and \$4,000 which might reflect the attitude that if you have to borrow at all, you might as well borrow a little extra and be comfortable. The remainder of the curve suggests a long tail occupied by the residual 18%.

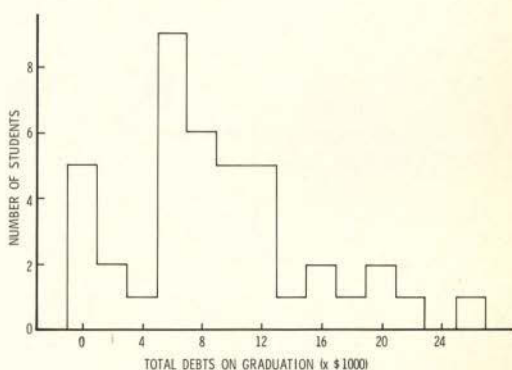
The survey did not reveal any debts in the \$40-\$50,000 range. Nor was any medical student surveyed ever refused a bank loan.

Only 8% felt that most students do not need to borrow somewhere along the line.

About two-thirds said that they felt uncomfortable with their indebtedness, and would have joined a government plan such as is offered in Newfoundland and Ontario, if one were available here. This is a surprising statistic when considered from a financial point of view, since these plans offer only \$2500-3000/year for four years, thereby contracting for four years of service immediately after graduation. It is questionable whether this money makes a significant difference to the student considering that he is now ineligible for much of the Federal, Provincial and University support which can total \$3500, if the need is established.

### Discussion and Summary

I believe that the key factor in keeping overall student debt at current levels is the Student Aid Committee, Chaired by Dr. Fraser Nicholson; this committee has 6 student members and 4 faculty, and meets every year to consider all requests made by medical students. Applications are rated A, B, or C, according to need. Those in category A, the largest group, all receive the maximum support available, which in 1973-74 was 75% of the shortfall claimed by the student. Although requests increase yearly, the fund available keeps pace, this year being \$40,000, of which 75% could be awarded as bursary, with the remainder as interest-free loan. It is the stated policy of the Dean's Office the no one shall have to leave the school for lack of financing.



Frequency distribution of total student debts at time of graduation.

**FIGURE 1**



It would seem then, that we can reassure our prospective students in their concerns of impending financial disaster. No one will quit for lack of money. Very few will have debts exceeding \$20,000 and fewer still (if any) will be denied at a bank. The "average" student may owe \$4-12,000 on graduation mostly in interest-free loans, a figure which includes debts contracted prior to medical school. While our "work-ethic" background has instilled in most of us (two-thirds, by my small sample) a desire to be un beholden to anyone, it should be kept in mind that a debt of \$20,000 is not excessive for someone whose lifetime earning potential is \$500,000-1,000,000.

Perhaps the day is not far away when students will be paid

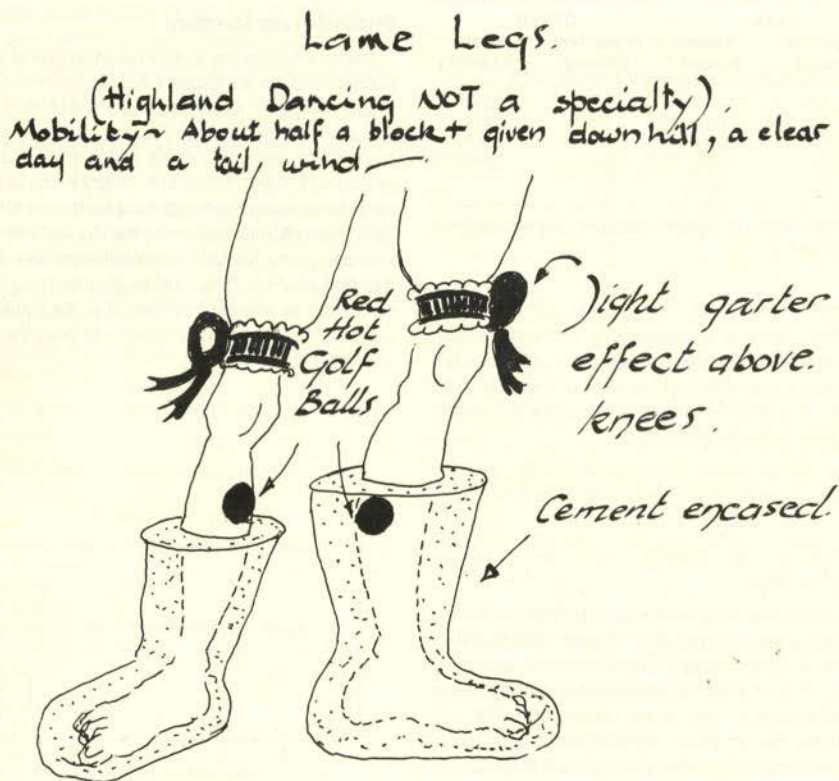
to attend medical school.

In the meantime, Dalhousie's medical students will be in good shape, provided that they keep their life style at reasonable levels, make intelligent use of available financial sources, and heed the advice of Dr. F. Nicholson, who says, "Keep things in perspective and you'll see that you don't need to worry about your debts, even though I worry about mine." □

#### Acknowledgements

My thanks to Anne-Marie Maddox who assisted in preparation and distribution of the survey forms, and to Dr. Fraser Nicholson, Assistant Dean of Dalhousie Medical School, for his helpful comments concerning student financial aid.

## What Is Your Diagnosis?\*



\*This pictorial description of a patient's symptoms was presented to Dr. F. G. Dolan, Halifax, N.S., for diagnosis and treatment.

(Please turn to page 122 for answers)



# Canadian Guide to Hay Fever\*

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Spring	April, May	Trees	Ash, beech, birch, cedar, hickory, maple, oak, sycamore, poplar
Early Summer	June, July	Grasses	
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\*Adapted from Sherman, W.B.; in P.B. Beeson and W. McDermott, (eds.), Cecil-Loeb Textbook of Medicine, 13th ed., Philadelphia, W.B. Saunders Company, 1971, p. 796.

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# Villous Adenoma

## THREE CASE REPORTS AND A REVIEW OF 7½ YEARS' RECORDS AT THE HALIFAX INFIRMARY†

P. C. Morse,\* B.Sc., and M. T. Casey,\*\* M.D. C.M., F.R.C.S.(C), F.A.C.S.,

Halifax, N.S.

A review of the Halifax Infirmary records from January 1966 through June 1973 revealed a total of 20 cases of villous adenoma alone and 37 cases of colonic adenocarcinoma with or within a villous adenoma. Carcinoma developed later in 2 patients treated for villous adenoma. Secondary electrolyte imbalance was not recorded in any case.

Three cases of villous adenoma, with varied presentation, are described.

Villous adenomas are broad-based sessile lesions in the colon, usually whitish in appearance and consist of friable finger-like projections. They are velvety to touch and because of their softness may be missed during rectal examination.<sup>1</sup> The reported development of adenocarcinoma in or with villous adenoma in 19-69% of cases<sup>2,4</sup> indicates the importance of correct diagnosis and prompt treatment. Villous adenoma of the colon and rectum comprises 2-5%<sup>1</sup> of colonic neoplasms; it is usually found in patients 60 to 79 years of age, equally distributed among men and women.<sup>2,4</sup> The patients most commonly present with a change in bowel habit, rectal bleeding,<sup>3</sup> constipation,<sup>5</sup> mucus discharge, diarrhea, tenesmus, or prolapse of tumor;<sup>2,4,5</sup> diagnosis is made by rectal digital examination (up to 70% of cases),<sup>1,6</sup> sigmoidoscopic biopsy (80-90%),<sup>2,6</sup> or barium enema. Mucus secretion from a large tumor may result in hypokalemia.<sup>1,7</sup> Treatment is surgical, presently tending toward local resection of the adenoma or anterior resection of the affected bowel segment;<sup>1,3,5,8</sup> more extensive surgery is reserved for adenomas found to contain carcinoma. Excision of the entire adenoma is curative,<sup>4,5</sup> but the condition shows a propensity to recur (21% of cases<sup>5</sup>).

A search of the Halifax Infirmary records from January 1966 through June 1973 revealed 20 cases of villous adenoma alone, including three in the first six months of 1973. The presenting symptoms and signs were common and appeared relatively innocuous; therefore, these three cases are described in some detail.

In addition, 37 cases of colonic adenocarcinoma with or within a villous adenoma had been diagnosed during the same 7½ year period and carcinoma had developed later in two patients treated for villous adenoma.

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\*Fourth Year Medical Student, Dalhousie University, Halifax, N.S.

\*\*Associate Surgeon, Halifax Infirmary, Courtesy Surgeon, Victoria General Hospital and Izaak Walton Killam Hospital for Children. Assistant Professor of Surgery, Dalhousie University, Halifax, N.S.

### CASE REPORTS

#### Case 1

This 48 year old female was first seen in the Emergency Department complaining of rectal bleeding starting that day. During the past year she had had a brownish-white clear anal discharge, her bowel habit had changed from twice weekly to once or twice daily, and she had been incontinent per anum three times in the previous six weeks. She had had slight, vague, abdominal pain occasionally, unrelated to meals, bowel movements, or time of day, but had had no diarrhea, nausea or fever. Family history and replies to functional enquiry were noncontributory, and the only previous illness of note had been diagnosed as psychosis.

Her abdomen was soft and nontender; no organs or other masses were palpable, and bowel sounds were normal. Rectal examination revealed some blood; sphincter tone was normal, no masses were palpable and tenderness was not apparent. Results of routine laboratory investigations were normal.

Sigmoidoscopy revealed a 5-cm. ulcerated mass, 4 cm. from the anal verge which bled freely when biopsied. Histologically, the biopsy specimen consisted of mixed villous adenoma of the colon, with areas of epithelial dysplasia in some of the glands and suppression of mucin secretion, but without invasion.

Under general anaesthesia and with great difficulty the tumor was excised per rectum. Two weeks later, when about to be discharged from hospital, the patient became acutely psychotic and therefore was transferred for psychiatric care. Excision appeared to be complete and on sigmoidoscopy nine months later no recurrence was noted.

#### Case 2

When seen in the Emergency Department this 84 year old female was complaining of painful bowel movements and bloody stools for the past few days; the blood was bright red and was not mixed with the feces. She had had hemorrhoids for several years and had a ventral hernia. The family history and replies to functional enquiry were noncontributory. Palpation revealed a nontender mass in the left side, thought to be a distended segment of descending colon. A soft mass was felt per rectum, three cm. above the anal verge and proctoscopy revealed a lesion three cm. in diameter. A biopsy of the lesion was reported as benign papillary villous adenoma with dysplasia of surface glands. Results of routine laboratory tests were normal.



Excision of the growth per rectum was carried out.

The pathology report was again villous adenoma with no evidence of malignant change. The patient became confused and agitated and her hemoglobin fell to 9 g.%. She was given chlorpromazine (Largactil) and was transfused with 1000 ml. of whole blood. Sigmoidoscopy 6 days postoperatively revealed an intact excision site and five weeks later revealed no abnormality.

### Case 3

This 62 year old male complained of "pain in the stomach" and "pencil-like stool" of recent onset. The pain, which was in the lower abdomen, was crampy and intermittent and passage of the stool was accompanied by tenesmus, partly relieved by laxatives. There was no associated nausea, melena, blood, or decrease in appetite. He had a midline epigastric hernia and his liver, which was smooth and nontender, was enlarged to 2 cm. below the right costal margin. Rectal examination revealed normal sphincter tone and a mass, 9 cm. above the anal verge, which was smooth, soft and very difficult to palpate. Results of routine laboratory tests were normal and a barium enema showed diverticulae in the sigmoid colon but no polyps. Sigmoidoscopy revealed a "velvety" mass, 2 cm. in diameter, a biopsy of which was reported to be part of a papillary (villous) adenoma with carcinoma *in situ*.

The tumor, which was excised per rectum, was a papillary (villous) adenoma, 1.7 cm. x 1.5 cm. x 2 cm., with carcinoma beginning to invade the stalk. The tumor and mucous membrane were not adherent to muscle and the growth was easily pulled down for excision: therefore, it was considered most probable that the tumor had not spread and was completely excised. Sigmoidoscopy six weeks later (July, 1973) revealed satisfactory healing at the excision site and no other abnormality. The patient was instructed to return for sigmoidoscopy at regular intervals.

### Discussion

The median age (60 years), age range (44 years to 84 years) and sex ratio (8 males, 12 females) in our series are similar to those reviewed by Zeskind<sup>1</sup> (Table I).

The presenting complaints in our series, as in others, were varied (Table I); differences between the series may reflect study size and reporting methods. In our series and that of Nicoloff *et al.*,<sup>3</sup> the commonest presenting complaint was rectal bleeding, whereas in Orringer and Eggleston's series<sup>5</sup> the villous adenoma was most often an incidental finding during digestive-tract investigation. In all three series, the passage of mucus per rectum was a common symptom and in the two earlier series<sup>3,5</sup> there was a high frequency of no presenting symptom (22%, 48%) or symptoms elicited by enquiry (13%, 27%). Villous adenoma is easily missed during clinical examination; therefore, careful digital examination of the rectum, supplemented by barium enema and sigmoidoscopy,<sup>3,5</sup> is recommended for patients with vague complaints of constipation, persistent diarrhea and the like.

The patients in our series differ from those in most studies as to tumor site and size (Table I), only 14% were within finger reach above the anal verge, whereas 70% is usually cited<sup>1,6</sup> (emphasizing the importance of digital examination). Hanley *et al.*<sup>6</sup> reported villous adenomas 3 to 6 cm. in diameter in most of his 217 patients; in our series almost 60% measured less than 2.5 cm.

Villous adenoma, when within reach of the examining digit and less than 6 cm. in size,<sup>1,5,6,9,10</sup> is usually readily resectable per anum. Less than half (45%) the adenomas in our series were resected by this route: few were as close to the anus as in other studies. Of those patients able to be traced (12 of the total 20 patients) no recurrence was noted in eight or 66% and in the remaining four patients (33%) recurrence was found, and in two of these patients or 17% of those followed up, developed frank malignancy (Table I I).

TABLE I  
Review of reported series of villous adenoma

	Zeskind <sup>1</sup> (literature review)	Morse and Casey (20 cases)	Nicoloff <i>et al.</i> <sup>3</sup> (55 cases)	Orringer & Eggleston <sup>5</sup> (54 cases)
Age (yr)	49-89 (average, 65 yr)	44-84 (median, 60 yr)	49-85 (median, 65.5)	30-83 (average, 61.9)
Sex ratio, male: female	1:1	12:8	all male*	31:34
<b>Presenting complaint:</b>				
Rectal bleeding		9 (45%)	56%	—
Abdominal pain		5 (25%)	—	30%
Mucus per rectum		3 (15%)	13%	39%
Constipation		2 (10%)	22%	17%
Diarrhea		2 (10%)	24%	—
Black stools		2 (10%)	—	—
Anal discomfort		2 (10%)	—	9%
Fatigue		2 (10%)	—	—
Incontinence		1 (5%)	—	—
Prolapse of anus		1 (5%)	5%	6%
None		1 (5%)	22%	48%
Complaint elicited by inquiry		—	13%	27%
Other		—	7%	—

\*Series from a Veteran's Hospital.



Co-existence with adenocarcinoma was similar in our series (65%) and that of Sunderland and Binkley<sup>2</sup> (69%), whereas others<sup>3 5 6</sup> have reported a lower incidence from 19% to (most frequently cited) 40%.<sup>4 6</sup> Adenocarcinoma of the colon developed subsequently in two of our patients who appeared free of malignancy at the time their villous adenomas were excised; in one, the carcinoma developed ten years later. Although the co-existence of villous adenoma and adenocarcinoma is well documented,<sup>1 5-9 11</sup> the 'malignant potential' of the former is controversial.

Biopsy is essential to determine the proper surgical treatment of villous adenoma, but a large percentage of foci of malignancy are small and very easily missed.<sup>1 5 10 11</sup> Boling *et al.*<sup>8</sup> and Hanley *et al.*,<sup>6</sup> who were very successful with biopsy (the latter's diagnoses were correct in 95% of cases), emphasized careful biopsy of discolored or nodular areas and of the edge rather than the center of any ulcer in the tumor. Others have found biopsy unreliable;<sup>1 10</sup> for example, Orringer and Eggleston<sup>5</sup> reported that, in 30% of large tumors found to

contain malignancy, examination of the biopsy specimens had revealed only the benign process.

Most villous adenomas are treated by local excision, usually per anum,<sup>1 5 8 10</sup> if biopsy shows no malignancy. Zeskind<sup>1</sup> concluded from his review of the literature that tumors larger than 6 cm. have a high incidence of carcinoma and therefore should be completely excised. Further, he suggested that large tumors and those above the middle rectum (where the peritoneum surrounds the rectum) should be removed by laparotomy, with end-to-end anastomosis. We have found that the sigmoidoscope permits us to remove some adenomas up to 20 cm. above the anal verge. Villous adenomas as far proximal as the cecum have been removed through a fibercolonoscope.<sup>10</sup> The danger of recurrence of the tumor demands periodic sigmoidoscopy postoperatively.<sup>1 5 8 10</sup> The rare complication of hypokalemia and dehydration,<sup>7</sup> leading to death in some cases, was not found in the Halifax Infirmary records.

### Conclusions

1. The frequent coexistence of adenocarcinoma demands prompt diagnosis of villous adenoma by digital examination and sigmoidoscopic biopsy. Definitive diagnosis excluding carcinoma can only follow careful histologic examination of the entire tumor.
2. Villous adenoma should be completely excised per anum if below the juncture of the peritoneum and the rectum and less than 6 cm. in diameter. Larger villous adenomas and those higher in the colon should be treated by anterior resection and end-to-end anastomosis. Radical surgery is restricted to villous adenomas shown to contain adenocarcinoma.
3. All patients should undergo sigmoidoscopy periodically thereafter.

TABLE II

Present series of 20 cases\* of villous adenoma

A: Site	Above anal verge	Discovered during	No. of adenomas
3 (14%)	8 cm.	Digital examination	
	8.1 - 20 cm.	Sigmoidoscopy	15 (68%)
	20.1 cm.	Barium enema	4 (18%)
			22*
B: Size	Diameter	No. of adenomas	
	1 cm.	6 (27%)	
	1.1 - 2.5 cm.	7 (32%)	
	2.6 cm.	9 (41%)	
			22*
C: Treatment	No. of Cases		
	Excision via sigmoidoscope		
	Excision at laparotomy		
	Anterior resection of colon segment		
	9		
	9		
	2		

\*Two patients had two adenomas each.

TABLE III

Follow-up of two series of villous adenoma

	Morse and Casey (20 cases)				Orringer and Eggleston <sup>5</sup> (54 cases)
	1 yr.	3 yr.	5yr.	Total	5 yr
Cure	2	4	2	8 (66%) +	78%
Recurrence	1	2	1	4 (33%)	32%
Lost to study	8 (40%)				0
Carcinoma of colon	1*	0	1+	2 (17% of 12)	0

\*Died after 2 yrs. from heart failure.

+Alive after 9 yrs.

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# Lecithin-Sphingomyelin (L/S) Ratios

## FETAL PULMONARY IMMATURITY OR MATURITY?

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### Brief Summary

Recently it has been shown that the phospholipid lecithin (L) is the major component of pulmonary secretions found in the amniotic fluid. On the contrary, the phospholipid sphingomyelin (S) is a very minor component. The two expressed as a ratio has been established to overcome the variability found in the volumes of the amniotic fluids.

It has been shown, that by densitometry, L/S ratios greater than 2.0 indicated fetal pulmonary maturity whereas those ratios less than two 2.0 indicated a high probability of respiratory distress in the neonate. In our initial research study described here, no false positives and one false negative (4.2%) from 24 deliveries were obtained. Our more recent experience indicates the false positive rate is 0%, and the false negative rate is 10% out of 500 deliveries.

### Introduction

Respiratory Distress Syndrome, essentially a disease of the premature, is defined clinically as chest retraction, grunting, and decreased air entry beginning at birth, and persisting beyond three hours of age, in an infant born without evidence of other disease.<sup>1</sup> The disease is believed to develop due to inadequate synthesis of the essential compounds required to stabilize the lung alveoli. With this defect, a residual volume cannot be maintained, resulting in a failure of respiratory function.

The initial breath of the normal infant involves a very high negative intrathoracic pressure which snaps open the compliant lung alveoli. A compromise gradually develops between the decreasing intrathoracic pressure and the stabilizing surfactant system, resulting in normal breathing. The surfactant system is necessary to keep the small alveoli patent by decreasing the surface tension, as well as keeping them clear of fluid by preventing leakage of plasma proteins.

If the amount of surfactant is inadequate, however, by nature the intra-thoracic negative pressure cannot compensate, resulting in a lung with a decreased compliance. Pathophysiology then involves a positive vicious cycle, with hypoventilation, hypoperfusion, shunting of blood, venous admixtures resulting, hypoxia, acidemia, edema, and interstitial hemorrhage occurring almost in sequence.

The X-rays characteristically show a "ground glass" mottling, fairly evenly distributed throughout the peripheral lung fields. The pathology at autopsy shows hyaline membranes, resorption atelectasis, edema, and interstitial hemorrhage.

At the Grace Maternity Hospital during 1970, this disease was responsible for fifty percent of the premature deaths.<sup>1</sup> Besides prematurity, additional fetal risk factors which affected the degree of severity of RDS include the following:

- (a) low birth weight after 37 weeks gestation (i.e. fetal malnourishment)
- (b) development of gestational diabetes
- (c) delivery by caesarean section
- (d) being born following an antepartum hemorrhage
- (e) being born following a sustained episode of maternal asphyxia, or cardiovascular shock.

In order to avoid the possibility of fetal death in utero, the obstetrician has to decide when to interrupt the pregnancy at the most optimal time of survival for the fetus outside of the womb, knowing the major risk of premature delivery is RDS. The laboratory guidelines which had aided him previously in this clinical assessment are described in Table 1. Even utilizing more than one of these, the false positive rate was as high as fifteen percent as none measure pulmonary maturity.

In 1971 Gluck et al<sup>2</sup> showed that the pattern of secretion of lecithin relative to sphingomyelin in the amniotic fluid reflected the development of the fetal lung and that a method of directly assessing fetal pulmonary maturity became available.

Figure 1, by Gluck, demonstrates the mean concentrations of the phospholipids lecithin and sphingomyelin found in the 302 amniotic fluid samples throughout gestation. Lecithin, being the major phospholipid, rose abruptly at 34-36 weeks, indicating the onset of physiologic activity in the fetal lung. This sudden lecithin surge was therefore interpreted as heralding fetal pulmonary maturity.

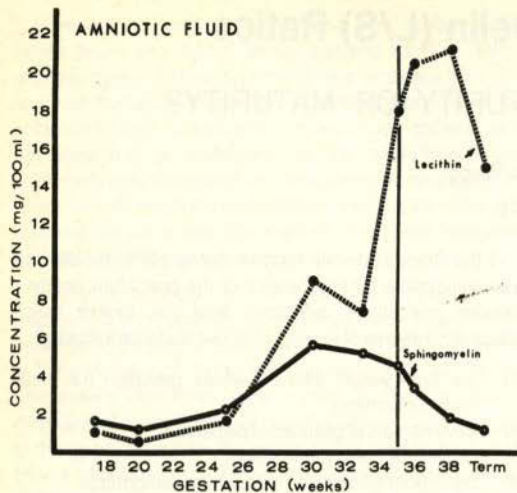
Subsequently, it was established that lecithin was the major product of two metabolic pathways, identified as follows:<sup>3 4</sup>

- (a) *Methyl transferase pathway* (22-24 weeks)  
phosphatidyl ethanolamine + 3CH<sub>3</sub> (From methionine) →  
palmitoyl myristoyl lecithin
- (b) *Phosphocholine transferase pathway* (35 weeks)  
cytidine-diphosphocholine + D-alpha, beta - diglyceride →  
dipalmitoyllecithin

The methyl transferase pathway appearing at 22 to 24 weeks allows premature births in only humans whereas it is absent in all other animals. This pathway has a very rapid rate of turnover, is very sensitive to acidosis, and is inhibited by a pH of 7.0 to 7.2. Clinically, this means that acidosis, hypoxia, and hypothermia must all be avoided if possible in the premature infant.

\*Third Year Medical Student, Dalhousie University, Halifax, N.S.





Mean concentration in amniotic fluid of sphingomyelin and lecithin during gestation. The acute rise in lecithin at 35 weeks marks pulmonary maturity. (Gluck, L., *Amer. J. Obstet. Gynecol.* 109: February, 1971<sup>2</sup>).

FIGURE 1

The phosphocholine transferase pathway appears in normal pregnancies at about 35 weeks and, in contraindication, is extremely stable once induced, and protects the newborn from RDS. It is therefore this pathway in which we are primarily interested clinically, and which is reflected by the L/S ratio greater than 2.0. This parameter which can now be determined prior to delivery, thus allows the physician to make a reasonable assessment of the fetal pulmonary status if delivery is anticipated.

During 1972, as an MRC summer research student, the aim was to establish the reality of these findings. A modified method of Gluck et al<sup>2</sup> and Hobbins et al<sup>5</sup> was utilized as well as some specific alterations we incorporated involving Thin-Layer Chromatography and Densitometry.<sup>6</sup>

#### Methods and Results

Sixty-seven amniotic fluid samples were obtained from 50 patients either by amniocentesis, at caesarean section, or vaginal delivery. All specimens were protected from degradation by freezing at  $-20^{\circ}\text{C}$  immediately. Those containing blood and meconium were excluded.

The results are shown in Figure 2. No infant with an L/S ratio of greater than 1.5 developed RDS so this was chosen as the lower limit of safety. It is of interest that one patient with a normal pregnancy delivered prematurely at 31 weeks and the infant survived with no evidence of RDS with an L/S ratio of 1.9.

Figure 3 outlines those patients who delivered within 24 hours of sampling. Only one false negative was observed in this series. The curves in Figure 4, consisting of serial samples on the same patients, demonstrate the rise in lecithin at 34 to 36 weeks. All these patients were suspected of having Rh

isoimmunization but later proved to have Rh negative infants and were thus useful as a control group.

Figure 5 shows an example of the chromatographic plate before Densitometry. The standard is shown in lane 5, the top spot being lecithin and the lower spot being sphingomyelin. Here, one can determine the ratio visually, which was the

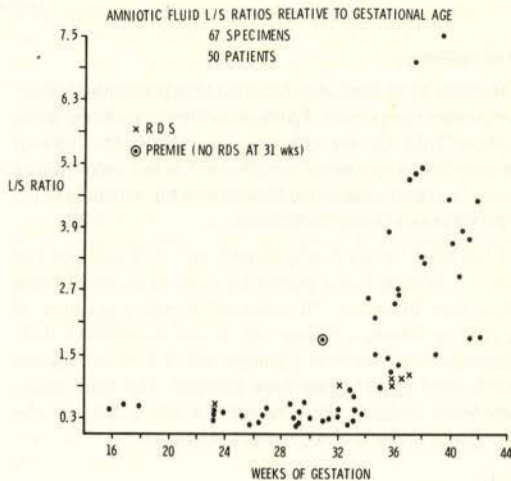


FIGURE 2

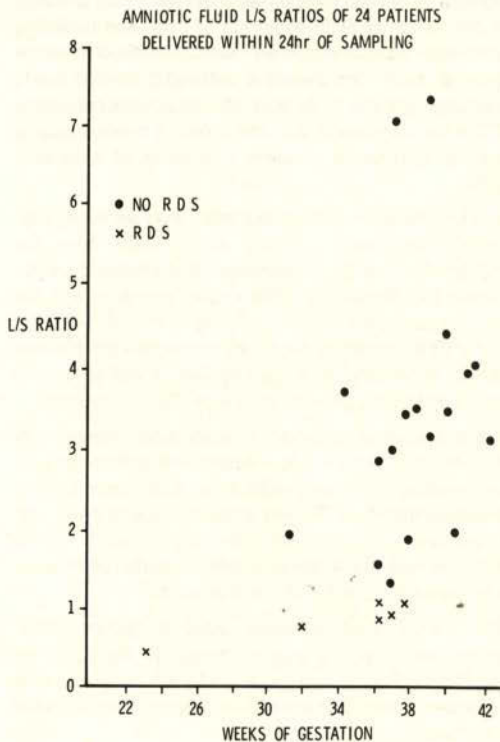
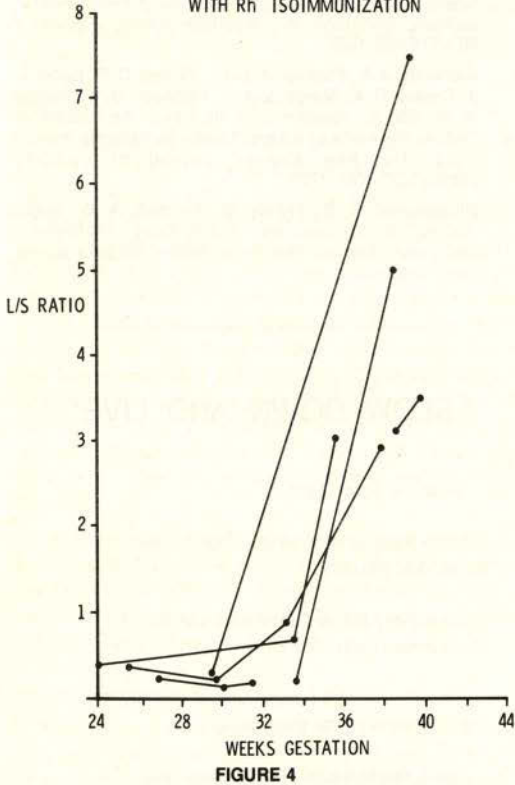


FIGURE 3

method used prior to Densitometry. However, if the standard (lane 5) were an actual amniotic fluid sample, one can see that visually, assessment would be different from that of a true L/S of 1.13. The introduction of Densitometry therefore made the assessment more accurate and quantitative.

Since that time, further modifications have been made, especially with the new easy method of spot identification, thereby shortening the total time required for the original L/S assay. With more experience and utilizing a much larger number of amniotic fluid specimens, the ratio acceptable to eliminate false positives has been changed to 2.0. To date, 500 clean samples have been assayed of which 250 have

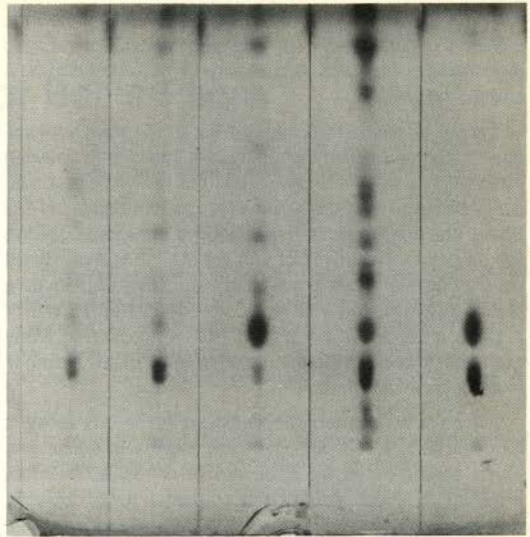
SERIAL AMNIOTIC FLUID L/S RATIOS IN 6 patients WITH Rh ISOIMMUNIZATION



been performed close enough to delivery, for correlation with the outcome. No false positives have occurred which means that if the ratio is greater than 2.0, RDS has not developed. A false negative rate of 10% exists of total samples analyzed and is consistent with the findings of other investigators.<sup>7 8</sup>

### Discussion

This initial report plus our additional experience has led us to agree with Gluck and others,<sup>7 8 9</sup> that the L/S ratio of the amniotic fluid is an extremely useful test in predicting pulmonary maturity and therefore the probability of respiratory disease in the newborn infant. It is now being used in many major clinical centres in the management of high risk pregnancies. There is some preliminary indication that certain



Lane	1	2	3	4	5
Gestation (weeks)	31	33	37 $\frac{1}{2}$	40	standard
L/S Ratio	0.21	0.28	6.72	bloody no inter- pretation possible	1.13

FIGURE 5

TABLE I

#### Laboratory Aids

1. creatinine values
2. bilirubin values
3. stained fat cells
4. X-ray (distal femoral and proximal tibial epiphyses)
5. ultrasound- fetal head biparietal diameter

#### Reflects Maturity of FETAL

- kidney
- liver
- skin
- bone
- (head size)

TABLE IIA

Diseases probably causing earlier maturity of the fetal lung (i.e. 33 versus 35 weeks) are:

- chronic toxemia
- hypertensive cardiovascular disease
- hypertensive renal disease
- sickle cell disease
- class D to F Diabetes
- narcotic addiction
- premature rupture of the membranes of greater than 24 hours duration
- chronic retroplacental bleeding (circumvallate placenta)

TABLE IIB

Diseases probably causing delayed maturity of the fetal lung (i.e. 35 to 36 $\frac{1}{2}$  weeks) are:

- Diabetes Mellitus (classes A, B, and possibly C)
- chronic nonhypertensive glomerulonephritis
- Rh isoimmunization?



maternal diseases<sup>9-10</sup> appear to significantly affect the fetal pulmonary status, either by inducing or causing delayed maturation of the lung. A summary of these conditions is outlined in Table II.

The mechanism of this phenomenon is not known but it has been hypothesized that there may be a relationship between maternal disease, fetal stress, and the fetal umbilical cord cortisol levels. This may explain the higher incidence of RDS where the pregnancy is terminated by caesarean section without previous labor. In fact, Liggins et al<sup>11</sup> has shown that if betamethasone is administered to the mother in premature labor prior to delivery (which was delayed for 24-48 hrs. with IV alcohol), a decreased incidence of RDS was observed. Many await with interest the further substantiation of this finding in much larger series of studies.

One must be aware of the limitations of the L/S assay. It requires both skilled personnel and expensive equipment. Fluids contaminated by blood are of no value, therefore requiring in most situations a placental scan prior to amniocentesis. Because of the risk involved in this procedure alone, it should be reserved for obstetrical problems where the probability of fetal jeopardy is as high as indicated by clinical assessment and other laboratory procedures.

Clements et al<sup>12</sup> have recently described the "Rapid Test for Surfactant" (Bubble or Shake test) for assessing the fetal pulmonary status, but to date, our experience has not shown a good correlation with the L/S ratio or the fetal outcome. Like Bhagwanani<sup>13</sup>, too many false positive results are encountered to make it of value in routine clinical practice. We are investigating modifications of this relatively simple procedure and hopefully it may become of value for utilization in the smaller hospitals. □

#### Acknowledgment

This work was done in cooperation with Dr. S. C. MacLeod (Obstetrics and Gynaecology), Dr. M. Spence (Pediatrics and Biochemistry) and Dr. A. A. Simpson (Physiology).

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## SLOW DOWN AND LIVE

Slow me down, Lord.

Ease the pounding of my heart by the quieting of my mind.

Steady my hurried pace with a vision of the eternal reach of time.

Give me, amid the confusion of the day, the calmness of the everlasting hills.

Break the tensions of my nerves and muscles with the soothing music of the singing streams that live in my memory. Help me to know the magical, restoring power of sleep.

Teach me the art of taking minute vacations — of slowing down to look at a flower, to chat with a friend, to pat a dog, to read a few lines from a good book.

Slow me down, Lord, and inspire me to send my roots deep into the soil of life's enduring values that I may grow toward the stars of my greater destiny. □



## The Treatment of Bell's Palsy

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Bell's Palsy is a peripheral facial nerve paralysis with no obvious underlying cause. The onset is sudden and the paralysis is almost always unilateral. Although most cases will recover spontaneously,<sup>1</sup> the severity of the cosmetic effects, the complications during the course of the disease and the danger of incomplete recovery warrants some form of therapy.

### Etiology

Facial paralysis of obvious cause, such as trauma, surgery or tumor invasion of the seventh nerve, is not called Bell's palsy, which refers to a spontaneous, "idiopathic" facial paralysis. The underlying cause of this disorder is unknown although several factors have been implicated. Exposure to cold or wind is suggested because taxi drivers more often get paralysis on the left side of their face. It was also noted during World War II that drivers of army trucks without windows frequently developed left facial paralysis. Hereditary factors may play a role as 30% of the patients have a relative with a history of Bell's palsy.<sup>2</sup> Because the disease sometimes occurs in epidemics, a viral etiology has been suggested. Two recent papers<sup>3,4</sup> implicate the Herpes group of viruses — specifically Herpes Simplex and the Epstein-Barr virus.

Mechanisms involved in the facial nerve damage may include such things as entrapment, edema, and ischemia of the facial nerve within the bony facial canal. Whatever the underlying cause, the pathology is most often found near the stylomastoid foramen.<sup>5</sup>

### Clinical Features

Bell's palsy is characterized by an acute attack of unilateral lower motor neuron flaccid paralysis of one side of the face. The onset is often accompanied by pain behind the ear and this reaches a peak within 2-3 hours. There may be associated fever, dizziness, tinnitus, decreased hearing and a stiff neck in an occasional patient.

All functions of the facial nerve may be affected. Motor paralysis results in the inability to wrinkle the forehead, and the weakness of the orbicularis muscle may result in a motionless upper eyelid and ectropion of the lower eyelid. The lower face is weak or paralysed with drooping of the mouth and drooling on that side. That side of the face has the appearance of flattening and loss of the nasolabial fold.

Hyperacusis may be present due to paralysis of the stapedius muscle. Sensory interference results in the loss of taste on the anterior two-thirds of the tongue. The effect on autonomic functions of the seventh nerve results in decreased lacrimation, decreased facial sweating and decreased salivation.

It should be noted that not all functions of the seventh nerve are affected in every case, and it may be difficult to assess some functions which are only partially affected.

Bell's palsy involves the seventh cranial nerve and evidence of other neurological deficit, such as decreased sensation over the face, should make one think of some other cause of the facial paralysis such as a stroke, tumor, or multiple sclerosis.

### Treatment

General supportive measures such as mild analgesics, and warm coverings for the face and ear can be started at the onset. The eyelid should be closed and covered. Artificial tears should be instilled twice daily to prevent drying of the conjunctiva. Gentle massaging and adhesive tape support of the affected side may prevent some sagging.

Surgical decompression of the seventh nerve as soon as possible was previously recommended in patients with total facial paralysis. This kind of major procedure could be expected to give good results when it is considered that 90% of Bell's palsy will undergo spontaneous recovery. Surgical decompression is now regarded as a questionable procedure for Bell's palsy. However, surgical autografting of the greater auricular nerve is of considerable benefit to some cases in which the facial nerve has been completely destroyed.<sup>6</sup>

The medical therapy for Bell's palsy has consisted of a variety of treatments varying from doing nothing because most will get better, to using vasodilators because ischemia probably plays a part in the nerve damage. The beneficial effects of cortisone had been commented on for many years, but only recently was there a large well-controlled study showing that steroid therapy is definitely beneficial.<sup>7</sup> The clinical trial involved 304 patients, 194 of which were put on decreasing doses of steroids. The patients on steroids did not develop any permanent complete paralysis.

The suggested course of therapy for an adult consists of 60 mg. Prednisone per day for four days followed by a ten day gradual tapering of the dosage. The patient should be evaluated twice weekly for the first two weeks and then weekly for four weeks. If symptoms worsen once tapering

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has begun or if the post auricular pain returns, the patient should be restarted at 60 mgs. a day and the same procedure followed.

### Complications and Prognosis

Although 75-90% of patients with Bell's palsy will undergo spontaneous recovery,<sup>1</sup> the physical and social disability of those that do not completely recover warrants immediate prednisone therapy of all cases of Bell's palsy. Recovery starts after about two weeks with the upper facial muscles recovering first. Complete recovery can take longer than two months. If recovery is not started by the eighteenth day, some disfigurement is likely. The loss of the sensation of taste is an indication of a poor prognosis.

The development of so-called "crocodile tears" occurs months after the initial palsy and is thought to be the result of regenerating fibres innervating the lacrimal gland instead of the salivary gland. If regenerating fibres reach the wrong muscles, abnormal associative movements may occur such as winking when the jaw is opened ("jaw winking"). Contractures of the facial muscles may develop if recovery is slow. Chronic facial hemispasm may also occur if recovery is incomplete.

### Conclusion

Bell's palsy is a common neurological disorder of unknown cause, which may result in severe physical and social disability in a small percentage of patients. Early treatment with prednisone can prevent complete paralysis and is therefore justified in all cases of Bell's palsy. In the event complete paralysis does occur, nerve autografting offers some hope for recovery. □

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## Physican Self - Assessment

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

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

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

258. For the past five days, a 23-year-old pregnant woman has noted malaise, myalgia and low-grade fever. Eight hours before admission, she experienced the onset of shaking chills, marked dyspnea and a cough productive of scanty but bloody sputum.

At the time of admission the patient appears acutely ill and is cyanotic. Temperature is 40.0 C (104.0 F). Physical examination and roentgenograms of the chest are compatible with a diagnosis of diffuse patchy bronchopneumonia. Sputum smear is not diagnostic.

Which of the following would be the most appropriate therapeutic measure for this patient?

- (A) Massive doses of penicillin G
- (B) Anticoagulants
- (C) Corticosteroids
- (D) Penicillinase resistant penicillin
- (E) Broad spectrum antibiotics of the tetracycline group

(Please turn to page 122 for answer)

□



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# Sickle Cell Survey in Halifax County

## A PILOT STUDY

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Ian Maxwell,\*\*\* B.Sc., M.B., Ch.B., F.R.C.P.(C)

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North America's treatment of its Black minority has always been neglectful and oftentimes actively suppressive. It is therefore in keeping with the behavior of our predominantly "white" society that a disease which primarily if not exclusively affects Black people has largely been ignored whereas diseases which affect non-Black persons such as progressive muscular dystrophy and mucoviscidosis, for example, have long received vigorous public support for investigation and treatment. About one in every five hundred Black Americans suffers from sickle cell anemia; one in thirty thousand White Americans from phenyl ketonuria, yet perhaps one hundred times as much money, or more, has been spent on routine screening for the latter disease. Senator John V. Tunney, (Democrat, California) has been quoted as saying: if sickle cell anemia were a White disease the government would have made a commitment years ago.

Things, however, have changed of late in the United States. In May, 1972 the American Congress passed the Sickle Cell Anemia Control Act authorizing the spending of \$115,000,000 over the next three years for the screening, research and treatment of sickle cell disease. Numerous private and public clinics have opened their doors and widespread screening and counselling of the population at risk is already taking place both north and south of the Mason Dixie Line.

In Canada, however, scant official notice has been paid to the disease. We have been unable to uncover any statistics concerning its frequency amongst Canadian Blacks, but it would be remarkable if the genetic frequency were to fall dramatically just north of the 49th Parallel of Latitude.

According to the 1971 Census,<sup>1</sup> the Black population of Canada that year was 34,445, almost 6,000 being residents of Nova Scotia. They represent somewhat less than three-quarters of one per cent of Nova Scotians but the proportion of Black people in Halifax County is approximately twice that elsewhere in the province. There are at least three main sources.

First, some 3,000 Black Loyalists, allies of the British in the American War for Independence, came to Nova Scotia from New York and Charleston in 1783. The migrating Blacks settled into small segregated communities throughout the colony. Blacks continued to arrive in smaller numbers and joined these communities so that by 1787 a total of

approximately 4,000 had migrated here from the United States. For many reasons the Black immigrants were unhappy with life in Nova Scotia and some 1,200 of them left Canada for Sierra Leone in 1792.

In 1796 a group of about 600 Blacks from Jamaica, designated Maroons, were exiled to Nova Scotia by the British. They were considered a problem and attempts were made to disperse them from their major settlement in the township of Preston to other areas in the colony. In 1798 some of them moved to Bedford Basin. Two years later they nearly all accepted an option to migrate to Sierra Leone only one hundred or so remaining.

The third important group who came to Nova Scotia were the "Refugee" Blacks who fled the United States during the time of the War of 1812. A few hundred came in 1814 and in 1815 nine hundred refugees moved into Halifax and Annapolis Royal.

The present Black communities in Halifax County reflect major past settlements; that is, Cherrybrook, North and East Preston represent the historical township of Preston; Refugee Hill is now the area known as Beechville; Africville, which existed on the banks of Bedford Basin from 1790 was relocated some six years ago.

As the Black population of Nova Scotia derives essentially from the same group of slaves who were the progenitors of the Black population of the United States of America, one would expect a genetic kinship between them and the Black people of the United States who are known to have a high incidence of sickle cell disease but none has previously been shown.

In view of the lack of information concerning the prevalence of this condition in Nova Scotia it was proposed, in the fall of 1972, to carry out a limited pilot study as part of the student Elective Program of the Faculty of Medicine, Dalhousie University. Studies of this sort, must be undertaken with care and sensitivity. Many Blacks in the United States have expressed a fear that the present sudden heightened interest in the disease in that country may really represent a covert racist conspiracy directed against them and they are suspicious of White testers.<sup>2</sup> This response is not without justification, since minority groups, particularly amongst the poor, are often the subject of investigations from which they do not benefit. There have been accusations of genocide put forward by Blacks as a result of genetic counselling which they see as discouraging them from having children. This element of Black mistrust is an important factor to be considered in sickle cell screening programs. The fact that it was Black

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"SCAT WEEK...  
HAVE YOU  
FORGOTTEN??"



**WHAT IS  
SICKLE CELL  
DISEASE?**

Sickle Cell disease is an inherited disease of the blood. In the United States it primarily affects Black people. The serious form of this disease is known as Sickle Cell Anemia. The mild form or carrier state is known as Sickle Cell Trait and occurs in about ten per cent of the Black people in the United States.

**HOW CAN YOU  
FIND OUT IF  
YOU HAVE SICKLE  
CELL ANEMIA OR  
SICKLE CELL  
TRAIT?**

A simple blood test will determine if a person has either of these conditions. In most cases, however, Sickle Cell Anemia causes so many serious symptoms that it is usually diagnosed in early childhood.

**Why is the  
Sickle Cell  
test important?**

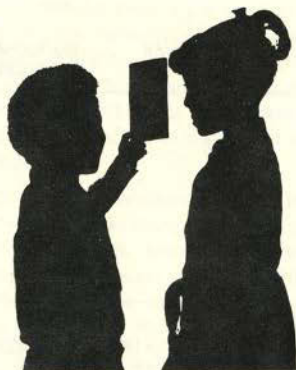
The Sickle Cell test is the only way that Sickle Cell Trait can be detected. Sickle Cell Trait usually causes no symptoms. However when two people who have Sickle Cell Trait have children there is an increased risk of having a child with Sickle Cell Anemia.

**"SCAT WEEK..."**

**WHERE WILL THE TEST BE GIVEN?**

AT GRAHAM-CREIGHTON HIGH SCHOOL  
FROM FEB. 26 - MARCH 2, 1973,  
BETWEEN THE HOURS OF 11.00 A.M.  
AND 2.00 P.M., EACH DAY.

**"WE HAVEN'T...."**



**"SCAT WEEK....."**

HAS BEEN ORGANIZED AS A FREE COMMUNITY SERVICE BY  
S. NORTON AND F. HAZEL, STUDENTS OF MEDICINE AT  
DALHOUSIE UNIVERSITY, AND MS. WINNIFRED NORTON,  
ASSOCIATE DIRECTOR OF NURSING, I.W.K. HOSPITAL  
AND

WITH THE COOPERATION OF DALHOUSIE UNIVERSITY,  
THE IODE AND THE ADMINISTRATION OF GRAHAM-CREIGHTON  
HIGH SCHOOL.



students who were undertaking the investigation afforded us some measure of acceptability but only to a degree, because any stranger from outside a small community in Nova Scotia, no matter what his color or creed, is viewed as an interloper. If community suspicion were to be allayed, two measures, in our opinion, would be necessary; first, to conduct a vigorous education campaign with respect to sickle cell anemia directed to the population at risk, particularly in the community which had been chosen for actual study, and second to recruit lay members from the chosen community to assist in the technical and clerical tasks of the survey, thereby converting what might have been a straight demographic or epidemiologic study into a community activity.<sup>3</sup>

As the problems posed by random sampling in the homes of one or other of the Black communities appeared to be insurmountable, it was decided to confine our investigations to the screening of a selected group of Black school children. Graham Creighton High School contains about 250 Black students. These students came from the North Preston, East Preston and Cherrybrook areas. They were chosen as our target population and efforts were designed to encourage as many as possible to volunteer for testing. Although we did not expect to encounter any cases of active sickle cell disease in a high school population, the opportunity to interest and inform the community by this approach and possibly to provide genetic counselling far outweighed this disadvantage. The Administration of Graham Creighton High School agreed to support and assist in carrying out a Sickle Cell Anemia Test Week. The acronym for this, "SCAT WEEK", developed in Hartford, Connecticut schools, was adopted.

During the six weeks prior to testing, various aspects of sickle cell disease were discussed by two of us (S.N. and F.H.) during two sessions of the local radio program, "BLACK JOURNAL". A third session of this program dealt with our elaboration on the Graham Creighton High School "SCAT WEEK". The CBC radio program INFORMATION MORNING also held an interview regarding this project and an article on the subject was accepted by the MAIL STAR. Specific "flyers", Fig. 1 were distributed to the students and their families and were discussed at a school Assembly of all Black students at Graham Creighton a week before testing. During this week a commercial slide-tape combination on sickle cell anemia purchased from Glen Educational Films, Inc., with a commentary by Ossie Davis, was shown to the students on a number of occasions.

Six members from the three Black communities represented in the school were recruited to carry out the clerical and technical tasks of testing under our supervision. None previously knew anything whatsoever about the disease. They approached their tasks with enthusiasm and stated later that they had found the experience a rewarding one.

Just prior to SCAT week the community recruits were invited to a training session comprising a showing of the slide-tape program, demonstration of metabisulfite sickling, hemoglobin electrophoresis and the use of the "Sickle-dex<sup>R</sup> test". The workers then performed the last named test

on one another and on unknown positive and negative blood samples.

At the time of testing the students presented their parental permission slips to the community workers who filled in the registration form with the name, address, age, sex and details of relationship to any other students in the study. Each student was supplied with a self-sticking pre-printed label which bore only the code number of his or her registration card but no other identification. Upon presentation of this label at the testing station a finger prick sample was taken and the Sickle-dex<sup>R</sup> test carried out on this.

Samples bearing the students' label with code number were collected by the reader who transported samples to a station behind a room divider, read the results after samples had stood 3 minutes and recorded them according to the coded number. The testers were not furnished with the names of the students and the registration clerks did not know the results of the tests. The complete identification key was available only to us and was not divulged to anyone else. We took venous samples later from those students with a positive Sickle-dex<sup>R</sup> test. These were sent to the Halifax Infirmary for further testing by the Nalbandian method<sup>4</sup> and by hemoglobin electrophoresis on agarose gel. Confirmatory electrophoresis on cellulose acetate was carried out at the I.W.K. Hospital for Children.

## Results

The actual testing, using "Sickle-dex" screening kits took place between February 26th and March 2nd, 1973. A total of 94 students were tested. Four of these showed a positive result to the Sickle-dex test (Table I). All were from the community of East Preston but they were from different families. Hemoglobin electrophoresis showed that they were all carriers of sickle cell trait. The families of the positive reactors were given genetic counselling in their homes with particular emphasis on the distinction between sickle cell anemia and sickle cell trait and on the hereditary features of

TABLE I  
Distribution of Students  
Tested During SCAT Week

Area of Residence	MALES	FEMALES
	34	60
	No. of Students Tested	No. found with Sickle Cell Trait
East Preston	51	4
North Preston	20	
Lake Loon road	7	
Cherrybrook	7	
East Dartmouth	6	
Porter's Lake	1	
Westphal	1	
Halifax	1	
TOTAL	94	4

In addition, five (5) other members of a family in East Preston, who were not students at the school, were found to be carriers.



the carrier state, stressing however that they could expect to lead normal, healthy lives. One of the families was tested in greater depth. Six of the ten children were also carriers, having inherited the defective gene from their mother, a carrier of sickle cell trait herself. A sub-group of 16 Blacks presently living in Nova Scotia but not native Nova Scotians was also tested. From this group three persons were found to be carriers of sickle cell trait. The fact that they were carriers of the sickle cell gene came as a complete surprise to all 12 of the positive reactors. The Black population of the area, in fact, had little or no knowledge of sickle cell anemia prior to this survey. When all the tests had been completed, each student was notified of his or her results by means of a personal letter. The letters to the positive reactors included a brief resume of the facts presently known about the heterozygous carrier state and the possible implications of this so that they could refresh their memories later if they wished. Their family doctors were also informed that these individuals were carriers of the sickling trait.

## Discussion

This pilot study, despite its limited character, confirms what we suspected all along; namely, that the Black population of the area in which the study was conducted was woefully ignorant of any real knowledge of sickle cell disease and that the incidence of sickle cell trait, 5%, detected in this small sample was of the same order as that which pertains in the United States of America. This being the case, then one would expect that the incidence of the homozygous disease is probably much the same as it is in the U.S.A., namely between 0.3% and 1.3%.<sup>5</sup> Homozygosity for the beta-S gene virtually always produces profound morbidity which can hardly be missed — pains in the joints, abdomen or chest, congestive heart failure, anemia, attacks of jaundice, leg ulcers, renal impairment or aseptic necrosis of bone — but the cause of these symptoms may not always be diagnosed correctly unless sickle cell disease has been considered in the differential diagnosis.

We have searched the clinical records in three large Halifax hospitals over the ten year period from January, 1963 to December, 1972 inclusive, representing a total of 368,338 discharges. This search has revealed only one case of proven sickle cell disease and one other case of probable sickle cell anemia unconfirmed either by a sickling test, by the Itano solubility test or by hemoglobin electrophoresis. Both these patients were at first thought to be suffering from infectious hepatitis. In one the true diagnosis was not made until four years later. In addition to these two patients, the heterozygous sickle cell trait was noted in six patient records during the same period.

Statistics are not available for the number of Blacks admitted over this period but perhaps it is possible to make a rough estimate. Black people represent 1.59% of the population of Halifax County and 0.74% of the total population of Nova Scotia.<sup>1</sup> If we apply these figures to the total discharges noted above then between 2,700 and 5,800 Black persons were probably treated in the three hospitals depending on whether most of the admissions were from the

County or from other regions of the Province. Of these anywhere from 135 to 600 would probably have shown the sickle cell trait *if they had been tested* instead of the six actually detected. Again, instead of only two cases of sickle cell anemia one would expect that from 8 to 20 would have been uncovered. In making these estimates we have assumed not only a minimal incidence of the two conditions in Nova Scotia vis-a-vis Black Americans but also that the Black section of the population is neither sicker nor more healthy than the White section and that the proportion of sick persons who are actually admitted to hospital is also the same for the two groups. Possibly neither of these is strictly true but any inaccuracy in this respect is unlikely to account for the gross discrepancies which we have noted above and one cannot help but conclude that cases undoubtedly have been missed.

Each Black person in Nova Scotia has the right to know whether he is a carrier of sickle cell trait or not and each case of sickle cell anemia has the right to diagnosis and treatment. Testing for sickle hemoglobin should ideally be a routine screening procedure for all Black Nova Scotians but there are a number of factors which militate against the realization of this ideal including White disinterest in and Black ignorance of the disease. There is a definite need to educate the Black communities with respect to this disease since when the members of a community fully understand the implications involved, they are more willing to participate in the testing program.

For maximum effectiveness, screening programs should be presented to the entire community by Black leaders including physicians, dentists, nurses and religious pastors. The logistics must be closely co-ordinated among the personnel in the local school system, the Health Department, local hospital laboratories and registered nurses. A particular effort should be made to involve high school students since affected individuals of reproductive age will benefit most from genetic counselling.

The testing program should be free and voluntary and must never under any circumstances be compulsory. Recently, in a headlong rush, at least a dozen States in the U.S.A. have passed laws requiring sickle cell screening tests for Blacks and these mandatory screening programs have stirred widespread and bitter controversy. Absolute confidentiality is essential in handling the information from testing programs because of racial overtones and the stigma that attaches to persons found to have sickle cell trait. In some cases, airlines have allegedly refused to hire Black stewardesses who have the trait, and some carriers have been turned down by life-insurance companies — or issued policies at high risk rates.

With what is known about sickle cell disease today, with the interest generated by individuals and organizations alike, sickle cell disease may be on the road to control. Two additional factors help to brighten the future. The first is the discovery of cyanate as a potent sickling inhibitor.<sup>6</sup> When administered orally or injected, cyanate displays a remarkable ability to inhibit sickling of red blood cells. The anti-sickling phenomenon persists for the life of the cell. Owing to the long



term ability of cyanate to inhibit sickling, the red cell survival rate is prolonged and the incidence of anemia reduced because of increased red cell survival rate. The second is that methods have been developed for the detection of the sickle gene *in utero* either by radiochromatography of mixed placental blood to detect beta S globin chain synthesis<sup>7</sup> or by detection of hemoglobin S-containing fetal red cells by amniocentesis and cytoimmunodiffusion coupled with fluorescence microscopy.<sup>8</sup>

With the availability of a simple test for sickle trait carriers which makes mass screening possible, this may be the first hereditary illness which could be controlled by genetic counselling. What is really needed at this stage in Nova Scotia is the interest and support of the elected representatives since comprehensive mass screening programs (diagnosis, treatment, genetic counselling) for sickle cell disease can now be mounted in any interested community with the automated, inexpensive testing techniques now available.<sup>9</sup> □

#### Acknowledgements:

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Mr. Wayne Adams	Mrs. Joyce Ross
Mr. Harris Barton	Ms. Virginia Colley
Mr. Raymond Johnson	Ms. Carolyn Tynes

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## 9TH CONJOINT SCIENTIFIC ASSEMBLY

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#### MARITIME CHAPTERS

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## The doctor and his "leisure"

# A Working Vacation in Jamaica

Ed Doherty\*

Halifax, N.S.

Under the direction of Dr. F. Russell Manuel of the Department of Preventive Medicine at Dalhousie University, arrangements have been made for students to experience medicine in an underdeveloped country. For this purpose a small country hospital on the eastern coast of Jamaica was chosen. Arrangements were made between Dr. F. R. Manuel, Dr. R. Lampart, Senior Medical Officer, Princess Margaret Hospital and the University of the West Indies for students to spend a one to two month elective period at the Princess Margaret Hospital in Morant Bay, Jamaica.

The hospital is situated on the eastern side of the island in a predominantly agricultural area. The soil is very rich, yielding large crops of sugar cane, bananas, and coconuts. This region is, perhaps, one of the poorer sections of Jamaica. The hospital sits on a small knoll overlooking the Caribbean, about one mile beyond the town of Morant Bay. Behind it is a huge plantation of bananas and coconuts. The hospital grounds cater to the quiet grazing of cows and goats. Chickens are everywhere. Often they are seen running in and out of the Casualty Department and roosting about the kitchen and the maternity ward. A nursing school, staff housing and a public morgue are also located on the hospital grounds.



Princess Margaret Hospital Morant Bay, Jamaica.

This is the hospital at which the author and most of the students worked.

The hospital contains 150 beds and is divided into male, female and paediatric wards. It is constructed around a central open court with corridors, covered only by a roof connecting the wards. This provides a resting area for both staff and patients. Occasionally a patient, with a very strong odor is

moved complete with bed to this area. The wards are very large and each contains about 30 beds. The windows are without screens and often at night, birds and bats would fly about the premises. Although voodoo is not prevalent in Jamaica, some patients felt that indeed these were spirits! The paediatric ward is housed adjacent to the main hospital. It could accommodate about 30 children. Generally, at least two children (separated only by a pillow) were in each crib. The children romped and played about the cement floors and were free to play out of doors. One of their favorite pastimes was to push an empty adhesive tape spool along the corridors by means of a stick. The maternity ward is a very active section of the hospital and includes a "nesting hen" in a nearby poinciana. All the deliveries were performed by midwives without the use of anaesthesia or episiotomies. The infants were placed in bed with their mothers; the more affluent patient would bring with her a small basket for the baby. Over 50 percent of all births in Jamaica are illegitimate and this is an accepted part of society. The majority of women have very large families, often by two or three different fathers. If they have had more than four children, a tubal ligation is strongly encouraged. This too can present problems, because often a woman meets another man and wishes to bear him a child.

The kitchen is under the direction of Elfreda, a dietitian from British Columbia, who is doing volunteer work in Jamaica. The meals are prepared in huge pots and then wheeled to the wards where each patient is served individually. When patients enter hospital they must bring their own dishes and wash them after each meal. The same is true of soap, toilet paper and wash basins.

The first floor contains an x-ray department which is capable of doing anything up to a cholecystogram; there is also a small laboratory in which basic investigations are carried out. The second floor contains two well equipped operating theatres. Unfortunately they are not air conditioned and often a large fan is required. Flies can be a problem but usually one of the nurses is handy with a swatter. Clinics are held in the outpatient department three times per week. Often patients will arrive as early as 5:00 a.m. waiting patiently to be seen by the doctor. Usually they bring along the whole family and are not content until they have at least gone home with some pills from Mr. Llewellyn's pharmacy.

Malnutrition is a big paediatric problem. Upon admission to hospital the nutritional status of each child is determined. Often the poor nutritional state is so advanced that skin sepsis and oedema are present. The children are placed on a protocol from the Institute of Nutritional Research, University of the West Indies. Worm infections are very common among children and often present as anaemias. In the adult popula-

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tion diabetes and sickle cell disease are major problems. Heart disease is very uncommon in Jamaica. In the Casualty room kerosene burns are commonly seen because most people cook with kerosene stoves. Severe lacerations are often seen as a result of careless use of the machette. This large knife is used to cut bamboo, husk coconuts, cut banana stalks and is frequently used to settle an argument.

Dr. R. Lampart, the Senior Medical Officer and Surgeon operates three times per week with the assistance of Sister Brown, a nurse trained as an anaesthetist. A typical day would include an orthopaedic procedure, one or two hysterectomies, perhaps a prostatectomy and two or three minor procedures. The incidence of post-operative infection is low and his patients do very well.

The Jamaican country folk are very fine people. Often they work hard in the cane fields or plantations and retire at night to their favorite "rum shop," which is equivalent to our tavern. Here they will engage in a very lively game of dominoes. The gaily dressed women tend to the children and go to market each Friday and Saturday. Generally the living conditions are very poor and often five to six people will share a small room, with, perhaps 40 sharing an outside toilet. The Jamaicans carry many things on their heads, and as a result have good strong backs. The children attend Government schools. Each level of learning is designated by a particular colour of uniform for the girls. The boys wear a khaki shirt and pants. Many of the schools have been built with the support of a special fund from the United Nations. Country buses are the main mode of



A Jamaican public health nurse reading a tuberculin test.

transportation. On market days, livestock is often brought along too.

Jamaica is an extremely interesting country and has a fascinating culture. In spite of limited facilities, Dr. Lampart and the staff at Princess Margaret Hospital provide excellent medical care to the area. Funds are very limited and often sacrifices have to be made by the staff for the benefit of the hospital. Hopefully the Canadian government and the medical profession will see the need to assist underdeveloped countries with the establishment and improvement of their health care systems. As a student I was thoroughly enriched by my experiences and hope that others will continue to enjoy and improve the program. □

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## Diet and Health Foods

### PART II

## VITAMINS, FOOD REFINING, AND FOOD ADDITIVES

J. L. Johnston,\* B.H.Sc., P.Dt.,

Halifax, N.S.

*Vitamins* are "chemically unrelated organic substances that are grouped together because each is essential in the diet in minute amounts and is required for specific metabolic reactions within the cell".<sup>1</sup> The accompanying table shows the function, recommended allowance, deficiency symptoms, and results of excess vitamin intake. Synthetic vitamins are biologically identical to the natural vitamins. The daily requirement varies with carbohydrate, protein and fat intake as well as sex, age, body size, degree of activity and physiological status. All vitamins are available from foods, with major sources being meats, especially glandular meats, fish and poultry, fruits, vegetables, whole grain cereals, fats and dairy products. Vitamin D may not be available in foods where fortification of dairy products is not practiced. If these foods are consumed as proposed in Canada's Food Guide, vitamin supplements are superfluous, expensive and even potentially hazardous. Such instances of hazardous use include the use of folic acid supplements, without Vitamin B<sub>12</sub>, in pernicious anemia where irreversible neural damage may result. Reports of risks from excessive use of Vitamin C include the danger of renal calcification<sup>5</sup> due to excess oxalate formation in people with unusually high capacity to convert ascorbic acid to oxalate, and ascorbic acid deficiency in habitual ascorbic acid takers after termination of the regimen, under otherwise normal dietary conditions.<sup>6</sup>

The prevalence of and justification for use of vitamin and mineral supplements by urban school children was studied in a recent large study in Montreal. It was found that the use of supplements was not related to the intake of the vitamins, i.e. the children most in need of supplements were not taking them, and those who took the supplements had no need of them since their food intake was adequate. The nutrients most frequently lacking in the diet were those most infrequently supplemented e.g. calcium and iron. To be effective, nutrient supplements not only should be selected according to the needs, but should be given in sufficient amounts to be considered a worthwhile addition.<sup>4</sup>

*Food additive* is a substance or mixture of substances, other than a basic foodstuff, which is present in food as a result of any aspect of production, processing, storage or packaging.

Food additives are used:

1. to maintain the nutritional quality of a food.

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2. to enhance the keeping quality or stability with resulting reduction in food wastage.
3. to make foods attractive to the consumer in a manner which does not lead to deception.

Food additives are not permitted:

1. to disguise the use of faulty food processing and handling techniques.
2. to deceive the consumer.
3. with the result of a substantial reduction of the nutritional value of the food.

The following is a report on the determination of amounts of additives:<sup>8</sup> In order to ensure that a chemical is safe for man, extensive feeding studies are conducted using experimental animals. The studies, using at least two species of animals, are required to determine the "acute toxicity", i.e. the short term effect of large doses; and the "chronic toxicity", the amounts of the substance fed over long periods. Reproduction studies are also carried out. At the end of the experiment, the animals are sacrificed and all major organs are examined to determine if the chemical had any injurious effects. The various levels of additives fed are compared on an amount consumed vs. body weight basis.

There must be a certain level at which there is no adverse effect, or the additive will not be allowed for use. This level is referred to as the "No Effect Level", and then the highest level which caused no harmful effect in experimental animals is divided by 100. This safe level of a chemical is referred to as the "Acceptable Daily Intake" and is defined by the World Health Organization as "the amount of a substance which may be consumed each and every day during an entire lifetime without appreciable risk." In Canada, the Food and Drug Directorate allows only certain additives which must be named, lists the foods in which it may be used, and for many compounds, the amount which may be used. From time to time some substances permitted in foods or procedures used in processing come under suspicion. Action is taken immediately to suspend the marketing of such foods. The use of additives is continually being studied and checked. Currently the nitrites of cured meats are being questioned.<sup>9</sup>

*Food refining:* When foods are refined or processed, is their food value depleted? The refining process removes some nutrients; however, those considered most important are put back during the enrichment stage. Most whole grains are nutritionally superior to their refined counterparts (i.e. whole

Vitamin <i>Fat Soluble</i>	Function	Recommended Daily Allowance Canadian Dietary Standard	Results of Deficiency	Excess
Vitamin A Retinol	<ol style="list-style-type: none"> <li>As a precursor of light sensitive pigments of the eye, rhodopsin, iodopsin.</li> <li>Regulatory role in mucopolysaccharide formation.</li> </ol>	50-55 I.U. per Kg body weight in children. 3700 I.U. for adults. 4200 I.U. in pregnancy. 5200 I.U. in lactation.	<ol style="list-style-type: none"> <li>night blindness.</li> <li>xerophthalmia.</li> <li>retarded growth.</li> <li>folliculosis of skin.</li> </ol>	Stored in liver and can lead to liver damage. Excessive intake 100,000 I.U. daily is toxic causing resorption of bone leading to spontaneous fracture.
Vitamin D calciferol, activated 7-dehydro cholesterol	<ol style="list-style-type: none"> <li>Catalyses the biosynthesis of a specific calcium-binding protein, facilitating calcium absorption from the intestine.</li> <li>Enhances retention of calcium and phosphorus in bone.</li> </ol>	400 I.U. from infancy to maturity, during pregnancy and lactation.	Failure of epiphysial new bone formation with consequent growth retardation and deformities characteristic of rickets.	Stored in liver. Prolonged administration of 100,000 I.U. daily is likely to cause hypercalcemia leading to irreversible renal damage.
Vitamin E- tocopherol	<ol style="list-style-type: none"> <li>As an anti-oxidant protects other nutrients from oxidation eg. vitamin A, polyunsaturated fatty acids.</li> </ol>	"Insufficient evidence for a valid estimate of human requirement. Deficiency unlikely with Canadian foods". American recommended daily allowance "up to 30 I.U. (20 mg) daily".	Deficiency is rare, but has been seen in Kwashiorkor, premature infants, malabsorption syndrome. Note re: heart disease and Vit E. Use of vit E as a treatment for heart disease has not been confirmed. Serum tocopherol of normal adults and those with heart disease is about 1 mg%. Biochemical deficiency, manifested by increased hemolysis of erythrocytes exposed to hydrogen peroxide does not occur until serum tocopherol falls below .5 mg%.	Rats fed very large amounts of Vit E had abnormally large quantities of hepatic cholesterol. Large amounts of Vit E could induce cholesterol deposition on the intimal lining of the aorta of rats.
Vitamin K- phyloquinone in plants menaquinone in animals	<ol style="list-style-type: none"> <li>Synthesis of prothrombin in liver cells, and other proteins specifically concerned with blood coagulation. The active form and specific metabolic role in the cell are not known.</li> </ol>	"Little known of requirements. Deficiency very rare."	<ol style="list-style-type: none"> <li>Increased blood clotting time and occurrence of hemorrhage disease. Deficiency states have been identified in intestinal diseases interfering with fat absorption and occasionally with newborn infants.</li> </ol>	When given to pregnant women just prior to delivery, may cause increase in hemolytic anemia, increased serum bilirubin and kernicterus, in the infant.
<i>Water Soluble Vitamins</i> Vitamin B <sub>1</sub> Thiamin	In the metabolism of carbohydrate as thiamin-pyrophosphate, a coenzyme, for the enzyme carboxylase: <ol style="list-style-type: none"> <li>In oxidative decarboxylation of alpha-keto acids to carboxylic acids.</li> <li>Transketolase reaction of pentose phosphate shunt.</li> </ol>	.3 mg/1000 Calories	<ol style="list-style-type: none"> <li>Beri-beri: extensive damage to nervous and cardiovascular systems and may be accompanied by severe muscle wasting or edema.</li> <li>Mental confusion, muscular weakness, loss of ankle and knee jerks, painful calf muscles.</li> </ol>	Only small amounts of thiamin, riboflavin, niacin, pyridoxine are stored, and excess beyond body needs is excreted.



Vitamin <i>Fat Soluble</i>	Function	Recommended Daily Allowance Canadian Dietary Standard	Results of Deficiency	Excess
Vitamin B <sub>2</sub> Riboflavin	In oxidative systems is a constituent of 2 enzymes, flavin mononucleotide (FMN) and flavin adenine dinucleotide (FAD). 1. Serve as carriers in the electron transport system leading to formation of ATP. 2. Participate in some amino acid oxidation and fatty acid metabolism.	.5 mg/1000 calories.	Cheilosis, glossitis, dermatitis. Deficiency does not produce a discreet syndrome in man.	
Vitamin B <sub>3</sub> Niacin	In cellular respiration, parallels energy expenditure. In the form of coenzyme nicotinamide adenine dinucleotide (NAD) and nicotinamide adenine dinucleotide phosphate (NADP). 1. Transfer of hydrogens eg. NADPH gives up its H most often to cellular biosynthetic processes eg. fatty acid synthesis.	3 mg/1000 Calories (assuming adequate dietary protein intake).	Major damage to cellular respiration. Dermatitis. In advanced stage produces pellagra which affects CNS and G.I. tract.	
Vitamin B <sub>6</sub> Pyridoxine	In non-oxidative degradation of amino acids: decarboxylation, transamination, deamination and desulphhydration.	"Insufficient evidence to make specific recommendations. Minimum requirement probably is in the range of .5 to .75 mg/day. Deficiency unlikely with the usual Canadian diet."	Deficiency state in humans difficult to produce due to abundance in food, and small requirement. However, use of a pyridoxine antagonist produces glossitis, cheilosis and stomatitis in man and animals.	
Vitamin B <sub>12</sub> cyanocobalamin Note: (1) B <sub>12</sub> requires intrinsic factor for absorption. (2) found only in animal products	1. Used by all tissues. 2. Reduction of one carbon fragments. 3. With folic acid is important in the synthesis of methyl groups. 4. Haemopoietic effect in patients with pernicious anemia, sprue, or G.I. disorders resulting in impaired absorption of B <sub>12</sub> .	"Requirement for normal individuals not known. Deficiency through dietary lack has never been conclusively shown" (in U.S. 3-5mcg/day, assuming 1-1.5mcg absorbed).	1. Neurologic symptoms may develop in strict vegetarians. 2. Pernicious anemia results from a lack of intrinsic factor.	800-11,000 mcg normally stored in liver.
Folic Acid	As a coenzyme, tetrahydrofolic acid, 1. as a carrier for single carbon groups. (single C units are important in the biosynthesis of purines and pyrimidines of DNA and RNA). 2. in some methylation reactions.	"Requirement not defined. Dietary inadequacy unlikely in Canada." (in U.S. .15 mg daily)	Glossitis, G.I. disturbances, diarrhea and reduced erythropoiesis appear to be due to inhibition of mitosis in actively dividing cells such as those of epithelial tissue and bone marrow.	
Vitamin C ascorbic acid	As an essential metabolite involved in the synthesis of collagen or mucoprotein, in hydroxylation reactions, eg. of proline to hydroxyproline, an unusual amino acid which occurs almost exclusively in collagen.	30 mg/day. Infancy to 6 years, 20 mg Pregnancy, 40 mg Lactation, 50 mg	Swollen sensitive gums, perifolliculosis, subcutaneous hemorrhage, scurvy.	There is no appreciable storage of vitamin C, and excess beyond saturation is excreted in the urine.

wheat vs. white flour). During refining of grains, some of the nutrients are removed in varying degrees, especially B Vitamins, iron and trace minerals. The B Vitamins and iron are added again in the enrichment process. The trace minerals and Vitamin E lost in refining are not replaced.<sup>10</sup> They are present in abundance in other foods.

Do organically grown foods have better nutritional value than those conventionally grown? There is no proven substantiated basis for claiming that plants grown with only organic fertilizer have a greater nutrient content than those grown by conventional methods. The type of fertilizer used, whether organic or inorganic, is not a determining factor in the nutritive value of the plant. The nutrient content of a plant is based on its genetic nature. Climate, including the amount of light, together with the kind and amount of nutrient material available to the plant for growth, and the stage of maturity at harvest, are the other chief factors involved. Nutrient material must be in the inorganic form to be absorbed by the plant. This means that organic fertilizer must be broken down into its inorganic components before the elements are absorbed. Also, most of the nutrients present, except for the mineral elements, are synthesized in the plant rather than being absorbed from the soil in the preformed state.<sup>10</sup>

Reliable resources, especially professional dietitians and nutritionists, should be consulted to translate and solve nutrition problems. In Nova Scotia, these resource people

may be found in most hospitals and with the regional Departments of Public Health.

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## Practical Preventive Medicine in Children and Young Adults

Arthur H. Shears\*, M.D.C.M, F.R.C.P.(C),

Halifax, N.S.

That limb length discrepancy is associated with secondary osteoarthritis, (degenerative joint disease) at least in the hip and spinal joints, has been accepted by musculoskeletal physicians for many years.

Many clinical studies have been presented over the years and many practitioners have pragmatically approached it with prescribed lifts for correction.

"The final proof" with regards to later changes in the hip has been available for some time. Why then do we still see such problems related to unrecognized and unmanaged limb length difference?

The most likely reason is that primary contact physicians, both family practitioners and paediatricians have not been measuring limb length during growth. The growing child usually becomes an adult. Whether or not his comfort and life style will be altered by the pain and dysfunction of secondary osteoarthritis in adult life may well depend on whether you

measure leg length at relatively regular intervals and make corrections for discrepancies.

Perhaps it is not being done because of lack of confidence, secondary to lack of practice, in one's measurements.

How is leg length practically and accurately measured in the office?

A tape measure should be brought up from groin to the sharp beak like process of the anterior superior iliac spine, thence with leg flat to tip of medial malleolus.

What does one do to correct a significant difference?

Make an arrangement with your local shoe repair shop, after discussion with him, to accept your prescription blank with a simple request such as "Please supply a \_\_\_\_\_" lift to (appropriate heel); if the correction required is more than 3/8", then it becomes necessary to put some lesser amount of lift on the sole to balance the shoe and prevent tripping. Measure limb length as part of routine check-ups in all growing people.

It is one of the simplest types of preventive medicine. It will save the patient from preventable grief. It will also save dollars for our greater community over many years. □



# Of Things Remembered

J. W. Reid, M.D.,

Halifax, N.S.

The doctor's practise in the days prior to the first world war was something of a family affair and everybody was obliged to take some responsibility for tending the office door and phone, recording calls and messages and relaying these to the doctor if he was on country rounds. Telephones were not as numerous then as now but there would be one in every district, sometimes several and we would try to guess about where he would be at a given time and leave a message for him. In those days it was no joke to come home from a long drive with a tired horse and have to turn around and go back over the same road.

The doctor's telephone and office could never be left unattended and this chore was accepted by the family, including the children, as a natural way of life. Luckily there was no office appointment book as the office was open all day and all evening and people just came when they wished expecting or hoping to find the doctor in. It was sometimes as hard to catch him in as it is to get an appointment with him now, for in busy times he was on the road most of the day.

Looking back now after a lifetime in the profession, I am still not quite able to make up my mind whether all that travel with the horse and wagon was the dreadful hardship it seemed at times to be, or a benevolence from God. Certainly once committed to the road you were there for an hour or two or three, sometimes in fine weather and good roads, sometimes in pouring icy rain or driving, blinding snow, nearly always alone, relaxed with your thoughts. You travelled at the horse's pace and only in very bad road conditions did you have to be alert for trouble. Many a time my father was brought home, asleep in the wagon or sleigh, ten or fifteen miles to be wakened as the horse turned sharply into the stable yard and stopped in front of the barn door. The horse travelled smartly in either direction on the road, always a little smarter on the way home and with loose reins in my father's sleeping hands he would turn out with faultless good manners to give oncoming traffic their share of the road. This we were often told by amused fellow travellers.

My father always had fast and intelligent horses and in this respect he anticipated 'Women's Lib' by over seventy-five years. He would never have in his stable anything but a mare. They were, he would tell me, faster, stronger, steadier, more intelligent and more willing than the gelding. In the words of Professor Higgins in 'My Fair Lady' "Why couldn't a woman be like that?"

One of these horses, Topsy by name of which my father was very fond, had a fault. It was that when she came to the driveway into the stable yard, instead of turning in at her usual pace in a gentle curve she would put on a burst of speed and turn in at a sharp angle, putting the driver in

some danger of being turned out of the vehicle. This bothered the proprietor of the livery stable next door more than it seemed to bother my father. "That horse will kill you someday Doctor" I heard him say to him on one occasion. As it turned out this bad habit in Topsy was probably responsible for saving his life on several occasions a few years later.

When the horse made that fast left turn to go through the gate into the stable yard it would tilt the wagon enough to startle you. It was no problem in the sleigh. The stable yard was enclosed by a strong well built hoarding about four feet high. The gate was hung between heavy built-up posts a foot or so higher than the hoarding. One sunny winter day I was looking out a window that overlooked the stable yard when the horse turned into the yard, going flat out and struck her head against the post and dropped in her tracks. She lay there in the snow with a scarlet stain spreading around her head. Presently the proprietor from next door, the blacksmith from across the street and one or two others were gathered around the animal obscuring my vision.

I hurried downstairs to get into outdoor clothing to get closer to the action. This, before the Larrigan period, was a time consuming ordeal. First the rubbers, then the knee length, button up gaiters which required a button hook, then yards of muffler, the reefer coat and stocking cap. By the time I emerged into that bright sunlight with my eyes squinted almost shut against the glare, Topsy was already on her way to the fertilizer plant on bone mill hill at the edge of town. The men were gone and I had to content myself with gathering up the blood stained snow which seemed an ugly blot on the whiteness.

A few years later when we achieved aestival mechanization my father had difficulty in overcoming his custom of dozing on the road and it was the acute position sense Topsy had helped develop in his bottom which wakened him in time to pull the car back on the road and avoid a nasty accident.

In those far gone days we still drove on the left side of the road and when in 1916 (I think) the change was made to the right side it was achieved with remarkably few accidents and must have bothered horses more than men. I wondered for a year or two which side the horse would pull to when meeting oncoming traffic with a sleeping driver. I never heard of any accidents, but I remember nearly causing one myself at that time.

There was no such thing as a driver's license then and no age limit below which you could not drive. When you thought you could drive you did - if anyone would trust their car in your hands. I was driving a taxi at age 13. This



near accident took place in the Spring. The snow was gone and the frost was coming out of the ground. The switch to right hand drive had taken place in January or December I think to minimize the hazards to motor vehicle traffic and I had become accustomed to it. It was dusk, and the visibility not good. I hadn't put the headlights on and was driving well on the right side of the road, which was very muddy, when as we started down into a swampy hollow my father said, "Keep well to the left side here boy, There's a mire hole on the right". I pulled over to the left and slapped the hand throttle down to get enough speed to carry through the mud hole and just then heard a shout of alarm and saw the wagon. He had already pulled over to the fortunately shallow ditch and was hopping mad. My father knew who he was and from the tone of the conversation I gathered that he was neither a patient nor a political crony, and my ears burned with the heat of the accusations of dangerous driving which poured into them. Presently we drove on before we sank out of sight in the frost boil.

It would be remiss I think to leave this horse and buggy period without noticing the clothing of the day. This, for the doctor, was ample but for the child quite inadequate for sitting a long time in a wagon seat in cold weather. Childrens' clothes were designed for play in cold months. If you put that weight and thickness of cloth on a child he would hardly be able to walk, let alone bend or play.

The doctor wore in winter Stanfield's heaviest weight of double breasted woolen shirts and drawers of similar weight and material. His socks in winter were home knit of heavy wool, often a gift of some grateful patient. The shirt was white with a starched front and cuffs. The double breasted undershirt and the starched front would defy almost any wind and could be improved on only with a folded newspaper under the coat. The collar was either a high, starched dog collar or, for comfort a starched wing collar. Over this a plain dark suit was worn.

For the road there were five top coats in all for the various seasons. In winter for dry or snow roads there was a big, quilt raccon coat with a high collar. This was more often a raccoid affair made of dog skins. My own was in later years. For town calls in winter there was a neat fitting dark broadcloth with velvet collar and soft fur lining. This did double duty under the mud coat in cold muddy road conditions. The mud coat was a big garment of heavy brown canvas, closed by heavy metal clasps and with a high brown ribbed corduroy collar. It had a heavy wool lining. All these coats hung two thirds of the way down the lower leg to give good coverage to the knees in wagon or sleigh. For rain there was a big rubber slicker that went over the mud coat in cold weather. There was a dust coat for summer use but it was rarely worn. The mud coat and slicker were never cleaned except to have the great gobs of dried mud knocked off when it got too thick. There was a

hat for summer, a hat for winter and a hat for mud. The summer hat was usually a panama, the others felt.

In summer the underwear was of light cotton shirt and drawers. The top shirt was discarded in very hot weather and a starched dickey was worn under a white linen vest and at the wrists starched, detached cuffs.

Underneath all this clothing, winter and summer, night and day beat the heart of a gentle lion and this poor sketch of his milieu and transport can give no true picture of the character of the man, the unselfish way in which he spent himself in the service of the sick in his community, struggling alone and unaided to reach an accurate diagnosis; no colleague to consult with; no laboratory to give assistance. He had only his hands, his eyes, his ears, his nose and Time to aid and Time was often on the other side.

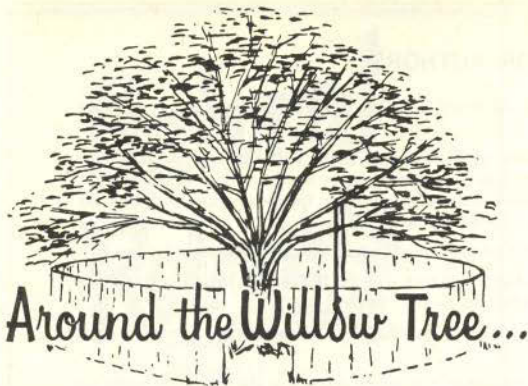
He coped because his dedication was to the care of the sick, not to cold scientific truth, not to his standing in the peer review league, not to the size of his bank account, not to keep at all costs a worn out old body leaning hopefully graveward but to the gentle, kindly care of the sick. To use what skill he had to ease their suffering and save their life if he could.

Thus I knew a few of the old country doctors as their stars began to set in the healing firmament. They knew their limitations. Knew that they were undeservedly adored by many of their patients; ridiculed and sometimes despised by their urban bred, hospital oriented colleagues whose favorite opening words in their teaching clinics were, "This patient came to us too late from a general practitioner", thereby hoping to enlarge their own miniscule image and brighten the shallow facade of their own narrow speciality. To those noblemen of whom a few still live, this tribute:

#### The Family Doctor

There is no music scored in paeans of joy,  
Which lilting cadences to heaven raise;  
No winged words thought worthy to employ,  
In their fond adoration or their praise.  
But in these days of universal fear,  
They only have the courage to embark,  
On seas where dangerous shoals foam far and near  
And sail undaunted toward the unseen mark.  
Of all the stars that form our galaxy,  
These shed the brightest and the truest light,  
The warmest glow of human sympathy,  
To cure an ill or turn a footstep right.  
God keep their brave and sturdy craft afloat;  
Their course safe charted in tumultuous seas.  
Man, in his weaknesses, can do without  
A thousand things — but surely, never these. □





### "THE TEN COMMANDMENTS"

- I. Thou shalt know that thou knowest nothing. What little knowledge thou hast is like unto a seed in a meadow. Nurture thy seed and it will grow into a vibrant living thing; do not and it will surely die.
- II. Thou shalt increase thy lore every day, in whatever way is at hand. And the ways are myriad and all about thee.
- III. Thou shalt attend unto the words of the unfortunate one, for he is telling thee what troubles him. Harken with the third ear upon the inner meaning of the words.
- IV. Thou shalt not seek after gold for its own sake. For ye who toil in the gardens of medicine shall be rewarded, and bountifully, according to thy tillage.
- V. Thou shalt beware of the seductress (M/F) who lays herself bare before thee. She is thy patient and thou shalt remember this and act according. Thou shalt not fall into the pit of temptation for thou art a physician.
- VI. Thou shalt not covet thy neighbour's goods. Rather through thine own toil thou wilt achieve the material things which thou desirest. And thou shalt put a portion aside for the tomorrows and for the Receiver-General; may he live and be well.
- VII. Thou shalt do only those things that thou art able. Thou shalt not attempt deeds for which thou art not suited — not ever through pride or greed.
- VIII. Thou shalt seek help from thy peers and from those more able in the varied aspects of thy trade, and without pause or shame. For there is none amongst thee who shall not need help.
- IX. Thou shalt abjure all drugs for thine own pleasure or the pleasure of others, and this, no matter what threats or blandishments. Thou shalt offer potions only for the obliteration of pain and disease, for that is thy purpose.
- X. Thou shalt be citizens and in every way partake of thy rights and of thy duties thereto. And thou shalt support thy Society and be critical of thy brother who practices the art falsely. And thou shalt remember that thou art made for only one purpose and that is to toil for the health of thy fellows.

M. E. Burnstein, M.D.

## SMOKING

Included in this issue is a tip-in which may be easily removed and used as a poster in your office, waiting room or whatever space you feel appropriate.

Notices endorsed by the Department of National Health and Welfare and the Canadian Hospital Association on cardboard 5" X 7<sup>1</sup>/<sub>2</sub>" bearing the following message are available on request to Dr. H. N. Colburn, Director, Smoking and Health, Health and Welfare Canada, Ottawa, K1A 1B6.

### "A MESSAGE TO CIGARETTE SMOKERS

Because of its effects on health and for other reasons many people are deciding not to smoke. For you, a stay in hospital is a change from the everyday activities of life with which your cigarette smoking may be intimately associated. It may also be a time when you are unable to smoke for several days because of an operation or illness.

We therefore believe this may be an excellent opportunity for you to quit smoking and urge you to give the matter serious consideration."

It is suggested that hospital administrators and representatives of medical staffs consider acquiring supplies of these notices.



## GUIDELINES FOR AUTHORS

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

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

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

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

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

- a) Front page, showing title, author(s) and degrees, whether the author is in family practice or the institution where the work was done, and address for correspondence.
- b) Brief summary.
- c) Introduction.
- d) Materials and methods, then Results; or Case report.
- e) Discussion.
- f) References.

Examples: **Journal papers** — EBBERT, A., Jr. Two-way radio in medical education. *J. Med. Educ.* 38:319-28, 1963.  
**Books** — MAJOR, R. H., and OELP, M.H. *Physical Diagnosis*, 6th ed. Philadelphia, Saunders, 1962, p. 51.  
**Contributions in books** — Voheer, H. Disorders of uterine function during pregnancy, labor, and puerperium. In: *Pathophysiology of Gestation*, ed. by N.S. Assali. New York, Academic Press, 1972, vol. 1, pp. 145-268.

- g) Tables (each, including heading and footnotes, on a separate page).
- h) Figure legends (all listed on one page); state magnification of photomicrographs.

### What is Your Diagnosis? — ANSWER

Arteriosclerosis Obliterans

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### Physician Self-Assessment — ANSWER

Question No.	Correct Answer
258	D

### IMPORTANT PHONE NUMBERS

Faculty of Medicine (Dean's Office)	424-3591
Division of Continuing Medical Education	424-2061
M.S.I. and Maritime Medical Care	429-9700

### VILLOUS ADENOMA — Continued from page 100.

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### NEW MEMBERS

The Physicians listed below have joined The Medical Society of Nova Scotia between March 1, 1974 and April 30, 1974. A most cordial welcome is extended from the Society.

Dr. Steven T. Cook  
Dr. William H. N. Covert  
Dr. John C. Crosbie

Truro  
Halifax  
Kentville

Dr. Gillian Lawrence  
Dr. D. Duncan Murray  
Dr. Roderick H. I. MacGregor

Amherst  
Halifax  
New Glasgow