THE

BULLETIN

OF

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VOL. XXVI — MAY, 1950 — NUMBER 8

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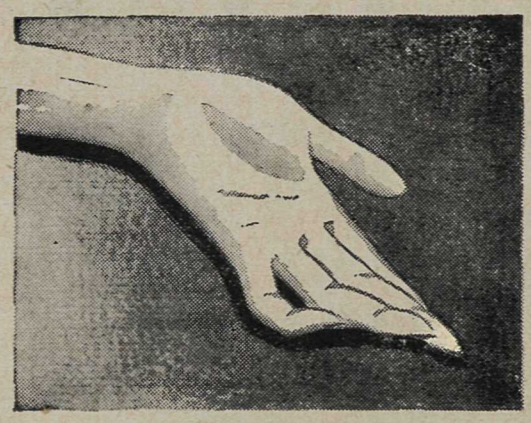

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Goodman, L., and Gilman, A.: The Pharmacological Basis of Therapeutics. New York, The Macmillan Company, 1941, p. 1110, 1115.

†Reznikoff, P., and Goebel, W. F.: J. Clin. Investigation 16:547, 1937.

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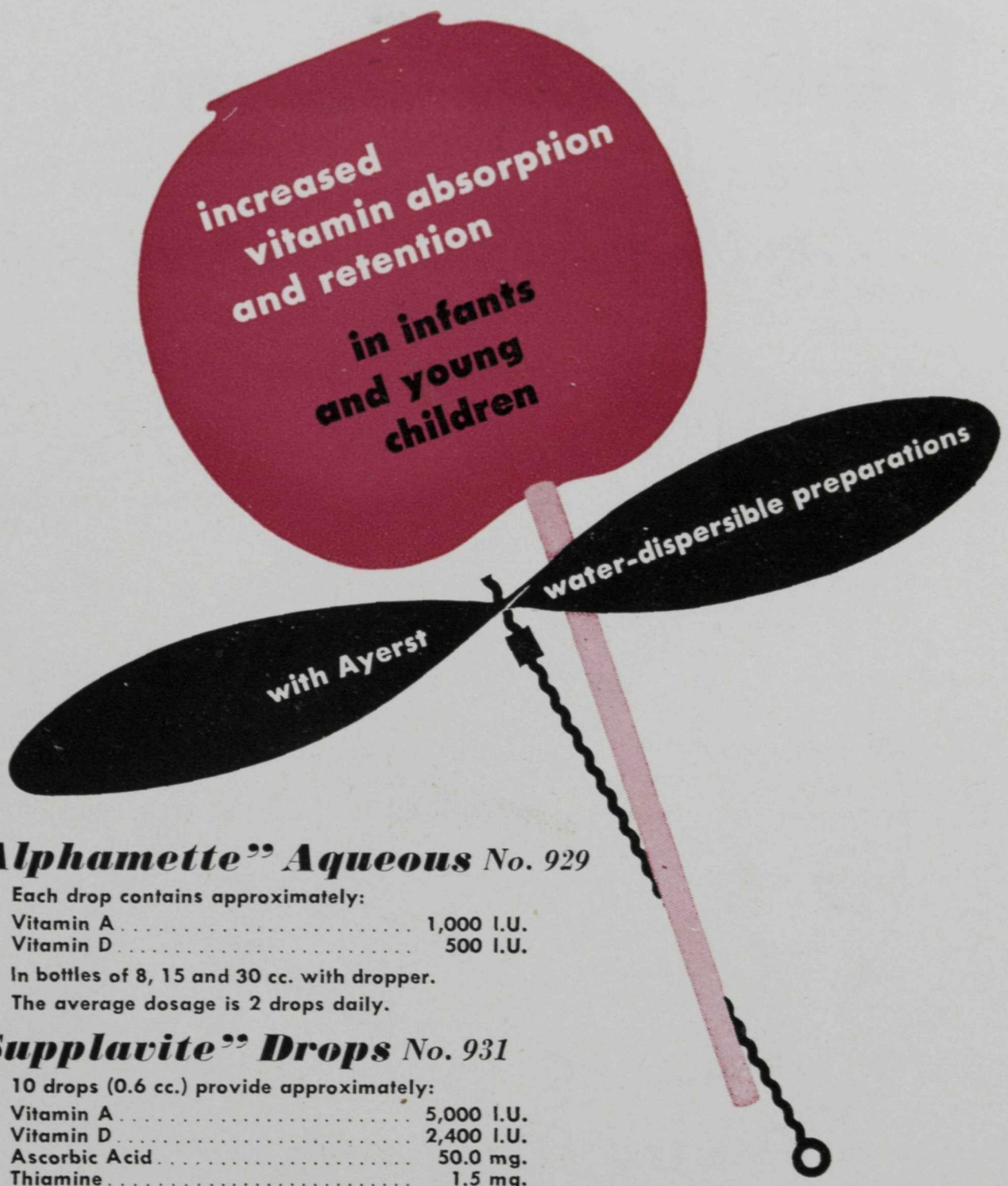

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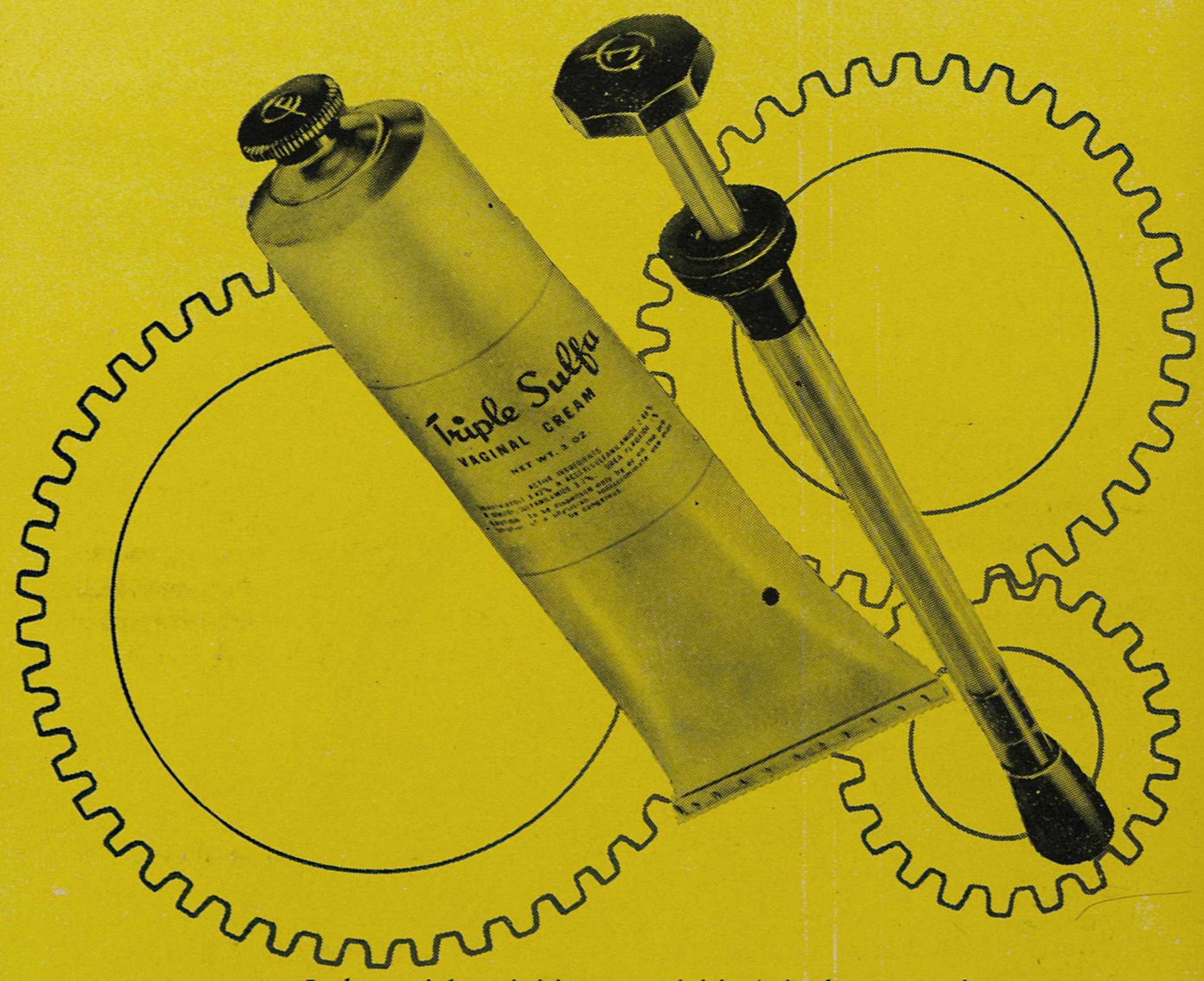

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VANCOUVER MEDICAL ASSOCIATION

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PROGRAMME FOR THE FIFTY SECOND ANNUAL SESSION
(Spring Season)

MARCH 2nd—SPECIAL MEETING Speaker—Professor F. H. Bentley, Department of Surgery, University of Durham Medical School, England.

MARCH 6th—SPECIAL MEETING, Lecture by Sir Reginald Watson-Jones, title: "The New World of Orthopaedic Surgery."

MARCH 8th (WEDNESDAY) "OSLER LECTURE"—Presented by DR. GEORGE A. DAVIDSON, HOTEL VANCOUVER Title: "Men of Osler's Time."

MARCH 28th—SPECIAL MEETING—"Lecture by Dr. Cecil Watson, Professor of Medicine, University of Minnesota, Title: "Some Fundamental and Clinical Aspects of the Problem of Hepatic Cirrhosis."

APRIL 4th—GENERAL MEETING—"The Problem of the Prostate", Dr. L. G. Wood.

MAY 2nd—ANNUAL MEETING.

It has been the practice in the past to hold a meeting of the Clinical Section of the Vancouver Medical Association on the third Tuesday in each month. These meetings were held at alternate hospitals and owing to this fact, often two Clinical meetings were held at a hospital in one month. To overcome this situation a plan has been worked out whereby the members of the Vancouver Medical Association are invited by the various hospital Directors to attend their Clinical Staff meetings. These meetings will be held as follows:

Second Tuesday—Shaughnessy Hospital

Third Tuesday—St. Paul's Hospital

Fourth Tuesday—Vancouver General Hospital

Notice and programme of these meetings will be circularized by the Executive Office of the Vancouver Medical Association.

All special and general meetings will be held in the Tuberculosis Institute Auditorium.

THE BULLETIN

Publishing and Business Office — 17 - 675 Davie Street, Vancouver, B.C.

Editorial Office — 203 Medical-Dental Building, Vancouver, B.C.

The Bulletin of the Vancouver Medical Association is published on the first of each month.

Closing Date for articles is the 10th of the month preceding date of issue.

Manuscripts must be typewritten, double spaced and the original copy.

Reprints must be ordered within 15 days after the appearance of the article in question, direct from the Publisher. Quotations on request.

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VANCOUVER HEALTH DEPARTMENT

CASES OF COMMUNICABLE DISEASE REPORTED IN THE CITY

STATISTICS—FEBRUARY, 1950

Total Population—Estimated	385,500
Chinese Population—Estimated	6,877
Hindu Population—Estimated	133

JANUARY, 1950

	Number	Rate per 1000 Pop.
Deaths, residents only	389	12.1
Total deaths (by occurrence)	419	13.0
Chinese deaths	15	26.2

BIRTH REGISTRATIONS—RESIDENTS AND NON-RESIDENTS:
(includes late registrations)

	January, 1950	
Male	372	
Female	368	
	740	23.0

INFANT MORTALITY—Residents only:

	January, 1950
Deaths under 1 year of age	11
Death rate per 1000 live birth	21.2
Stillbirths (not included in above item)	15

CASES OF COMMUNICABLE DISEASES REPORTED IN THE CITY

	January, 1950		January, 1949	
	Cases	Deaths	Cases	Deaths
Scarlet Fever	12	0	10	0
Diphtherit	0	0	0	0
Diphtheria Carriers	0	0	0	0
Chicken Pox	154	0	531	0
Measles	117	0	123	0
Rubella	6	0	7	0
Mumps	284	0	17	0
Whooping Cough	14	0	0	0
Typhoid Fever	0	0	0	0
Typhoid Fever Carriers	0	0	0	0
Undulant Fever	0	0	1	0
Poliomyelitis	1	0	0	0
Tuberculosis	49	7	46	14
Erysipelas	5	0	1	0
Meningitis	1	0	0	0
Infectious Jaundice	0	0	0	0
Salmonellosis	3	0	2	0
Salmonellosis Carriers	0	0	0	0
Dysentery	5	0	0	0
Dysentery Carriers	0	0	0	0
Tetanus	0	0	0	0
Syphilis	28	12	31	1
Gonorrhoea	292	0	244	0
Cancer (Reportable)				
Resident	77	49	78	47
Non-resident	13	2	19	3

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The Editor's Page

In this issue of the Bulletin, we are happy to present the Osler Lecture for 1950. The lecturer this year was Dr. George A. Davidson of Vancouver, well-known psychiatrist and member of the Attending staff of the Vancouver General Hospital.

As regards the lecture itself, all who heard it will agree that it was a delightful experience to listen to it — our readers will have an opportunity here to read it at their leisure, and we can promise them a literary treat. Speaking for ourselves, we can only say we enjoyed every word of it and that it was a stimulation and an inspiration. The manner, like the matter, was unexceptionable.

Speaking for ourselves, at any rate, we have noticed with growing satisfaction the tendency that the Osler Lectures of the past few years have shown to get away from the purely scientific side of medicine, and to direct our thoughts to the history of the great men of that great profession. This is not to decry the splendid papers that have been given in the past by men who are masters in their own branch of the art and science of medicine, and have given us so generously of their knowledge, but we need too, and badly need, just what Dr. Davidson gave us this year, and what we have been hearing for the past few years, the history of the great men of our totem. History is a most sobering thing. It teaches us, if we read it aright, humility — it gives us a sense of proportion — it makes smugness and complacency impossible — it stimulates us, while it inspires us. And the sort of papers that our Osler Lecturers of these past years have been giving us do just that. Dr. Davidson, like his predecessors, has sought and found the material and the matter which do stimulate and inspire, and give us a vision of greatness and sincerity, and what these things can do to lead and elevate mankind, as well as to encourage and instruct the individual practitioner of the art of medicine.

And Dr. Davidson found this stimulus, as have many others before him, in the lives and work of the great men of medicine: the men whose vision and power to integrate facts and philosophy have led from time to time to the discovery and formulation of medical laws, to the widening of our fields of knowledge — have opened new fields for exploration and study.

We cannot find any greater inspiration anywhere, it would seem to us, than in the study of the lives and work these men, our fathers and the prophets and seers of our line. We may think of that famous sentence "Let us now praise famous men, and our fathers that begat us." That sentence was written, not by Rudyard Kipling, as we once saw stated, but by an old Essayist, who many years before the Christian era, wrote as delightful a collection of Essays as one will find anywhere—and if the language in which he wrote was one-half as beautiful as is the English translation of the King James version, he must have been a best-seller in his time. His name was Ecclesiasticus, and he wrote many other fine things, notably that one beginning "Honour the physician, with the honour due unto him." We have often thought he must have been a physician himself. He was evidently a favourite of Osler's, who quoted him on several occasions.

In past years we have been reminded by our Osler Lecturers of the great spirits of bygone times — the Addisons and the Brights, and the Smellies and Chamberlens, and so on — and now Dr. Davidson takes us into another chamber of our Hall of Fame, and tells us of the great leaders in the realm of Neurology and Psychiatry.

These men worked under what we may feel to have been the handicaps of ignorance, limited scientific knowledge and equipment and so on, and we wonder how they did it, perhaps. But they had their eyes and their ears and their fingers and their noses and their tongues, and all other scientific equipment, no matter how modern, is just an extension of one or more of our five senses. It is not the equipment that makes a Banting or a Fleming or a Selye, any more than it was necessary to make a Harvey or a Syden-

ham or a Koch or a Pasteur. It is the vision, the power of integration, and the endless blessed gift of curiosity.

Another thing that struck us was what Dr. Davidson said of his own experience — that when he started to dig into their lives, it was hard to find the time — as he got deeper, it became a labour of love, and a delight to him — and at the last he must have found it hard to stop and get back to his own work. This may be perhaps, a hint and encouragement to others, to go and do likewise — theirs will be a like reward.

The story of these men and their lives and work is very good for us. In these days the rapid growth of technical facilities, of which these men knew nothing, tends to make us complacent, and perhaps a bit contemptuous of the old fogies of the past. But as we read of the work that Mackenzie did on the heart, that Sherrington did on the nervous system, that Jenner did with vaccine, that Simpson did with chloroform, we see that verily there were giants in those days — and only rarely in the March of Time do any men measure up to their stature. As Carlyle says: "In all epochs of the world's history, we shall find the great man to have been the indispensable saviour of his epoch— the lightning, without which the fuel never would have burned. The History of the World . . . is the Biography of Great Men."

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TENTH INTERNATIONAL CONGRESS OF DERMATOLOGY
PRELIMINARY NOTICE

The Tenth International Congress of Dermatology will be held in London during the summer of 1952, under the Presidency of Sir Archibald Gray.

A preliminary programme will be prepared during the current year.

As a result of the disruption produced by the last war, addresses of the Secretaries of certain Dermatological Societies are not available, so that all those interested are asked to communicate with me at the Institute of Dermatology, St. John's Hospital for Diseases of the Skin, Lisle Street, Leicester Square, London, W.C.2.

GORDON B. MITCHELL-HEGGS, M.D.,
General Secretary.

MEDICAL OFFICES FOR RENT

Accommodation is still available for general practitioners and specialists in the new centre on the corner of Broadway and Commercial Drive, the building will be ready in August, and heating and janitor services will be provided.

AGENTS

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LIBRARY NOTES

Hours:

Monday, Wednesday and Friday ..... 9:00 a.m.—9:30 p.m.
Tuesday and Thursday ..... 9:00 a.m.—5:00 p.m.
Saturday ..... 9:00 a.m.—1:00 p.m.

Recent Additions

American Medical Association, Section on Ophthalmology—Transactions of the 97th Annual Session, 1948.

American Urological Association, Western Section, Transactions vol. 16, 1949 (Gift).

Clinical Roentgenology of the Cardiovascular System by H. Roesler, 2nd edition, 1946.

Commonsense Psychiatry of Dr. Adolf Meyer, edited by A. Lief, 1948 (Historical and Ultra-Scientific Fund).

Hypertension and Hypertensive Disease by Goldring, W. and Chasis, H., 1944 (Gift of D. F. Busteed).

Malnutrition and Starvation in the Western Netherlands—S.H.A.E.F. Mission to the Netherlands, 2 parts, 1948 (Gift).

Manual of the International Statistical Classification of Diseases, Injuries and Causes of Death. Sixth Revision of the International Lists of Diseases and Causes of Daeth, adopted 1948. Published in two volumes, with an alphabetical index by the World Health Organization, 1949 (Gift).

Medical Clinics of North America—Symposium on Medical Therapeutics, Nationwide Number, March, 1950.

Medicine and Health in the Soviet Union by Henry E. Sigerist, 1947 (Committee on Medical Economics of B.C.).

Pavlov—A Biography by B. P. Babkin, 1949 (Nicholson Collection).

Phylogenesis of the Ear by Louis Guggenheim, 1948 (Gift of the author).

Pulmonary Edema and Inflammation by C. K. Drinker, 1950.

Tumors of Bone by Geschickter, C. F. and Copeland, M. M., 3rd edition, 1949.

For the convenience of members of the Association the Library Committee publishes here each month a list of the journals taken in the V.M.A. library, and the following are those taken in the field of Military Medicine and those medical journals published in Canada:

Military Medicine

Journal of the Royal Army Medical Corps.
Treatment Services Bulletin (Dept. of Veterans Affairs).
U.S. Armed Forces Medical Journal.

Canadian Journals

Alberta Medical Bulletin.
Bulletin of the Toronto Academy of Medicine.
Bulletin of the Vancouver Medical Association.
Canadian Journal of Medical Technology.
Canadian Journal of Public Health.
Canadian Journal of Research—Sections D and E.

Historical Bulletin—Calgary Associate Clinic.
Manitoba Medical Review.
Montreal Medico-Chirurgical Society Bulletin.
Nova Scotia Medical Bulletin.
Ontario Medical Review.
Saskatchewan Medical Quarterly.
Winnipeg Clinic Quarterly.

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BOOK REVIEW

DISEASES OF THE NERVOUS SYSTEM IN INFANCY, CHILDHOOD AND ADOLESCENCE

By Frank R. Ford, 2nd edition, 1948

This book was added to the library in January, 1949, but, was seriously considered by the Library Committee both in 1947 and 1948. On each of the two previous occasions it was not considered an absolutely necessary expenditure insofar as we had a fairly extensive coverage of the neurological field, and insofar as it had not been directly recommended by either the Pediatric or Neurological sections of the Society. However, when Dr. F. B. Walshe was in Vancouver some months ago, he noticed the absence of this book from our shelves, and he recommended it so highly that it was purchased by your committee. In many ways Dr. Walshe was completely correct. Beginning with Chapter III on page 183 which describes the Prenatal Diseases of the nervous system, this book is excellent. I do not know of any summary of these conditions which is more concise, factual and readable. The chapter on "Heredofamilial and Degenerative Diseases of the Nervous System" compares favourably to that of any modern text, and it is obvious that the author is the master of these subjects. The sections which deal with "Neurological Diseases of the Eye and Optic Nerve" are written by Dr. Walshe and, as one would expect from reading his book, they are superb. His illustrations are excellent and his descriptions are such that all students of neurology as well as Pediatricians should be familiar with them. The print itself is clear.

However, there are some rather serious defects in the book such as giving a long description of how to take a history at the beginning of the book, and during this history it advises that "the child should be completely undressed". At least half of the book is devoted to those conditions in neurology which are common to all ages and in such a definitive work as this book, they are not dealt with as adequately as in other neurological texts. The anatomy and physiology of the nervous system is certainly not on a neurological level and, even worse than that, it is not up to date. But, the statement that "Electromyography is of little clinical value" is suspect in view of more recent research in clinical findings. Such tables as are given on pages 86 to 89 are much more intended for students who must memorize such things for examinations than for practising Pediatricians or Neurologists. Those who have made scientific researches on the spinal fluid would not be entirely convinced about the value about some of the examinations recommended. On page 40, reference is given from the year 1922 which stated that Lipiodol is usually injected into the cisterna magna to diagnose tumors of the spinal cord.

The chapter on epilepsy is probably the worst in the book, and this is amazing insofar as this edition was reprinted in January, 1948. This chapter stated that "Bromides have been employed for many years and probably are as effective as any other medication". Also, "more recently phenobarbital has been employed". It states that "the dosage of phenobarbital for a child of two years is from one-half grain to one and a half grains a day" (p. 962). And again, "recently Dilantin has been recommended — unfortunatly a number of untoward effects have been described".

These are minor defects in a good book. This reviewer would certainly not wish to give the impression that this is not a very worthwhile book, but, it is chiefly worthwhile when it discusses "Diseases of the Nervous System in Infancy, Childhood and Adolescence".

OSLER LECTURE, 1950

Delivered by Dr. Geo. A. Davidson, at the Osler Dinner of the Vancouver Medical Association
March, 1950

MEN OF OSLER'S TIME

The medical profession owes a debt of gratitude and respect to Dr. Harvey Cushing for his superlative biography of Sir William Osler. It won the Pulitzer Prize for Biography in the year in which it was written, but more significantly, it accomplished the author's purpose. He dedicated the work "To Medical Students, in the hope that something of Osler's spirit may be conveyed to those of a generation that has not known him; and particularly to those in America, lest it be forgotten who it was that made it possible for them to work at the bedside in the wards."

The honour of portraying something of this spirit to my medical confreres makes me humble, though I am grateful that the same humility has made me more studious and more admiring of his life and work.

Why was Osler such a great man, and why was he so universally loved? Never having seen him, this question naturally intrigued me, for I had seen evidence of worship from others who had caught something of Osler's spirit. I have questioned some who knew him concerning the nature of this intangible quality, and one man put it this way: "What was there about Osler? Well, Osler had time for everything and everybody, and never seemed to be in a hurry." What manner of giant was this who, during his lifetime, wrote over 700 papers and articles; who saw his textbook go through eight editions; who edited a system of medicine, and who seems to have been forever writing letters and notes; a man who was constantly starting things going, encouraging their progress, and carrying so many along with him? Even while confined to bed with his frequently recurring bronchial condition there was still the incessant flow of notes of encouragement and suggestion.

The spirit of Osler! What was it? One man has said: "Nobody who ever met him ever forgot him . . . whose presence banished discord and suspicion."

Leonard W. Brockington, in addressing the students of Trinity College School at Port Hope, where Osler received some of his elementary education, quotes the following from a letter from a friend: "I was in Egypt with him once, and wherever he went he was followed by crowds of little dark children, attracted to him as Canadian, American and English children were, laughing at and with him although they did not understand a word he said." Brockington also speaks of how Osler was honoured in all countries, and of the memorial volume of almost one thousand pages which was published in England following his death.

The spirit of Osler! "He being dead yet speaketh." One has only to read *Aequanimitas* to realize how true are those words. In the past few months, how often have I wished that I had read and re-read these many fine addresses with their sound advice. How often have I felt that this should be prescribed reading for the medical student, and that anyone who hoped to be a part of the new Medical School should digest as many as possible of his teachings, particularly those contained in the talk on "Teacher and Student," which sets forth the qualities most necessary in the good teacher and in the good student—for the teacher:

1. Enthusiasm.
2. A full personal knowledge of the branch taught.
3. A sense of obligation.

and for the student:

1. The acquiring early the habit of detachment.
2. The virtue of method or system.
3. The quality of thoroughness.
4. The grace of humility.

The spirit of Osler! Read again his *Way of Life,* urging us to live for the day only, and the day's work: life in day-tight compartments. In this he says that "the chief worries of life arise from the foolish habit of looking before and after", and reminds us that "waste of energy, mental distress, nervous worries, dog the steps of the man who is anxious about the future."

Certainly Osler seems to have attracted many men, and yet in reading his biography, one is not impressed with a succession of remarkable men who were his pupils. Rightly or wrongly, one gets the impression of rather a diffuse spread of his influence on many, rather than on few chosen men. It may be that this is more apparent with Osler than with many of the British men of medicine, as he moved about much more than they are accustomed to do. I am rather amazed at the distinguished group of pupils of Sir Michael Foster (1836-1907) of the Cambridge School of Physiologists: Balfour, the embryologist; Gaskell and Langley, famous for their work on the autonomic nervous system; Sir Charles Sherrington, Sir Henry Head, Charles Scot Roy and John George Adami. One can trace here the influence of a powerful teacher.

One is almost overwhelmed at the stream of praise heaped on Sir William, and in the many articles which I read on the subject, I came across only one that suggests a personality varying even slightly from the one with which the majority of us have endowed him in our own minds. Robert Hutchison says: "Singer considered that Osler was fundamentally melancholy and I often had the same impression myself in spite of his habitual gaiety. More probable that a nature so sensitive as his could not escape from the sense of tears in mortal things and that his ears were always open to the 'still, sad voice of humanity.' " A few, Hutchison says, did not feel altogether at ease with him as his disposition was almost too sweet. If this be so, one might almost suggest that it is too bad that more of us were not "fundamentally melancholy" so that we might give stimulation and happiness to others no matter how we ourselves might feel. This type of personality I have always felt is greatly to be admired.

While the purpose of the Osler lecture is to honour the memory of Sir William Osler, I think that it may be accepted that he would have preferred that the total evening should not be given over to a discussion of him. I sense rather that he would almost prefer to have some of his friends discussed, and it is for this reason that I have chosen to talk on some "Men of Osler's Time." The three in particular whom I shall discuss are Weir Mitchell, Hughlings Jackson and Sir William Gowers.

SILAS WEIR MITCHELL, 1830-1914

One of Osler's friends, the man who was chosen to decide whether or not Osler would be suitable for the Professorship of Medicine at Philadelphia, was Silas Weir Mitchell, whose name has long been associated with the famous rest treatment. Mitchell it was who had cherries served to Osler to see how he would dispose of the stones.

In Cushing's biography of Osler there are 78 references to Weir Mitchell and there can be no doubt that Osler and Mitchell were staunch friends. At Mitchell's death, Osler wrote in a book written by Mitchell, "one of my dearest friends—had I been a son he could not have been kinder to me during the five years of my life in Philadelphia."

In many ways they seemed very different. Mitchell was twenty years older than Osler and there are some suggestions of vanity, conceit and arrogance in the writings about him. Nevertheless, he was a remarkable man and was evidently very highly regarded. Hughlings Jackson, in writing of Epileptic Mania, said, "perhaps the most valuable of all cases of the kind is one recorded by Weir Mitchell in a paper, on the use of Nitrite of Amyl. Everything this physician writes is of the best."

While it is claimed that others were unable to get the results that Mitchell got from his rest treatment, Mitchell himself insisted that his responsibility for the rest treatment lay merely in co-ordinating systematically various curative measures which had been indefinitely used for some time.

As a child, Mitchell was described as imaginative. At one time he had been put to bed on bread and water for twenty-four hours for sticking to it that he had seen a pink

elephant walking down Chestnut Street! His imagination frequently stood him in good stead, and in his later years he devoted much of his time to writing, and published at least six full-length novels. One of these, *Hugh Wynne,* was an historical novel written around the War of Independence and was regarded as one of the most historically correct novels ever written. Over 150,000 copies were published, and it was also put out in serial form.

Mitchell was born in Philadelphia, attended the Jefferson Medical College, lived his life in Philadelphia, and died there. His father was a physician, but he died at a comparatively early age and Mitchell appears to have accepted the responsibility of caring for the family. He says that he was a dull student who developed late, morally and mentally.

He was a hard worker, and says that it was his habit to get through work at three or four o'clock; to leave his servant at home with orders to come for him if he was wanted, and then to remain in the laboratory all evening, sometimes up to one o'clock in the morning; on these occasions he would have a light meal sent in from a neighbouring inn. He is said to have had remarkable energy, seldom seen in a hurry, yet never wasting a moment. He boasts of having been in fifty-two houses in one day, and of having had *the* great practice. Even at seventy years of age it is said that he fished, rode and climbed as well as ever, and that he spoke and moved quickly.

Mitchell was a man who made large sums of money. About 1864 he drew from his practice $64,000 and, in a letter to his sister, he says: "Folks have paid up well but bless me how it goes—$400 for a substitute, $375 for a carriage, Etc." In 1894 his earnings from his writings averaged more than $10,000 a year from the Century Company alone, and in 1907, when he was seventy-seven years of age, he was paid $12,000 for the serial rights to his novel, *The Red City.* All this before the days of income tax!

While earnings are not regarded as an indication of a medical man's true worth, nevertheless, this sidelight is meant to give a more complete picture of this versatile man

Osler's life appears to have been remarkably free from sorrow until his later years. He at one time remarked "call no man happy until he is dead." Mitchell, on the other hand, had a good deal of misfortune in his life, and this seems to have had a considerable effect in moulding his career. His first wife died six years after they were married, of diphtheria contracted from one of her two sons. Mitchell, soon after, entered the United States Army, where he served in the Civil War for four years. It was at this time that he became interested in neurology, and during the War he wrote a textbook on *Nerve Injuries and Diseases of Nerves.* Following the War, he gave up general practice and confined his work to Neurology.

During this period Mitchell apparently suffered a good deal of loneliness, and in a letter to his son he writes: "Today I am awfully alone, a fate for which few men are so ill-fitted as I"; and again, referring to his approaching second marriage: "at first thought it will not please you, until you come to reflect on the sadness and loneliness of my life, and to know as you hardly do yet what an endless sacrifice it has been for others."

His second marriage appears to have been a happy one, and one daughter was born. Unfortunately, however, she died at the age of twenty-one, of diphtheria, the disease that had taken his first wife. It is said that his sorrow found voice in what was to prove his best poem, the "Ode to a Lycian Tomb."

Mitchell was very fond of Osler, and his letter written at the time Sir William was given his baronetcy, is of sufficient interest to record: "Tell your son that I netted a 45-pound salmon last week and two days before, three, 40, 30, 29 lbs. Of less importance is it that you are a Baronet. What is that to me, for whom you are long ago high in the peerage of friendship. A lessening number of survivors, four, only four . . ."

His vanity is shown in such statements as: "I think I should have gone to the top finally in any line of life"; "I had *the* great practice", and he tells that he was always certain that he would be a successful writer. One suspects that he worked almost com-

pulsively, as he says: "Indeed I have had great luck to have had to work hard always"; and again, in speaking of his novels: "I am never satisfied."

Probably more of the character of the man can be seen from some of the things he has said. In a letter written to his son, for example: "My dear Jack: I am pleased that you little row ended no worse. Next time take off your glasses when you mean to hit a fellow, and above all in a row, never slap anyone's face. If a blow be needed, strike hard with the fist. The insult is no more and it prevents or interferes with a return. If it be worthwhile to hit, it is well to hit hard. I remember your good grandfather giving me this advice and I hand it down for your benefit."

Osler appears to have enjoyed his golf and swimming, but Mitchell remarked: "No games attracted me, certainly not golf where one walks continually over the same ground. I prefer to kick the football of thought over hills, changing spaces."

In his earlier life it is said that he drew stimulus from good talk and good companionship and joined all those clubs where business is carried on by dining. Evidently as he grew older, however, his attitude changed, and he said of clubs: "You sit and dine or fall prey to someone. Men worth while are busy."

Mitchell was, at times, capable of rather vigorous treatment. On one occasion he had struggled for some weeks to persuade a woman to walk a certain distance daily. One day he invited her to get into his carriage, and the patient supposed she was to be taken home. However, when Mitchell was a considerable distance from her residence he stopped the carriage, and ordered her to get out and walk the rest of the way. Another woman refused to get out of bed, and when he was unable to persuade her to do so, Mitchell finally announced, "If you are not out of bed in five minutes, I'll get in with you." It is said that she permitted him to remove his coat and vest, but when he started to take off is trousers, she was out of bed in a fury. Tucker describes the legend of him setting the bedclothes afire at the Providence Hospital in Washington to make an hysterical woman not only get up and walk, but get up and run.

Mitchell wrote a great deal, contributing some 262 medical papers and several small but noted medical books. Probably his most famous book was one entitled *Fat and Blood—an Essay on the Treatment of Certain Forms of Neurasthenia and Hysteria.* This was published in 1884, and the copy that we have in our library evidently at one time belonged to Sir Thomas Lauder Brunton. Brunton was a physician to St. Bartholomew's, and became a master in the application of the physiological findings of pharmacology to internal medicine." How this book came into our possession I do not know, but it now bears the stamp of the Vancouver Medical Association.

Mitchell's rest treatment was based on seclusion (particularly exclusion of relatives), diet, rest in bed, massage and electricity. The type of case in which he was particularly interested he sketches thus: "A woman, most often between twenty and thirty years of age, undergoes a season of trial or encounters some prolonged strain. She may have undertaken the hard task of nursing a relative and have gone through this severe duty with the addition of emotional excitement, swayed by hopes and fears, and forgetful of self and of what everyone needs in the way of air and food and change when attempting this most tiring task. In another set of cases an illness is the cause and she never rallies entirely, or else some local uterine trouble starts the mischief, and, although this is cured, the doctor wonders that his patient does not get fat and ruddy again." Mitchell stresses the loss of colour and plumpness, the constant fatigue, and says that by and by she has a tender spine. Also, this quotation will be familiar to everyone: "all real sensations are magnified by women whose nervous systems have become sensitive owing to a life of attention to their ailments, and so at last it becomes hard to separate the true from the false."

May I remind you again that Mitchell insisted that he merely co-ordinated systematically various curative measures which had been independently used for some time. His attention to details was remarkable and his strong personality undoubtedly was a factor in his treatment. Osler attributed the success of the treatment to three factors:

a strong personality; his nurses; and the method itself. It is said that from 1878, for twenty years or more after the initiation of the Mitchell treatment, Philadelphia was the mecca for patients from all over the world. Sir William, in his article on "The Faith that Heals," says "I had the good fortune to be associated for five years with Weir Mitchell and saw much of the workings of that master mind on the sisters of Sir Galahad and the brothers of Sir Percivale, who flocked to his clinics."

In Cushing's biography of Osler the references show that there was a close bond of affection between Osler and Mitchell. This may have been partly owing to the fact that both were lovers of fine old books, and many of the letters have references to the acquisition of, or the sending on of some rare old volume. It is said that Mitchell donated more than $12,000 to the library of the College of Physicians, as well as many rare books. He was President of the College at different times, totalling six years in all.

Mitchell at times disturbed the medical profession, who criticized him for some of his writings, and particularly those for lay consumption. Because of his book entitled *Wear and Tear* he was branded as "popular," "charlatan," and "Dr. Wear." He proved, however, to be too great and too powerful a man to keep down, and received many honours in his life. Imagine a man publishing his first successful novel when he was sixty-eight years of age and his last when he was eighty-four. From the University of Bologna he received an Honorary M.D., and from Harvard, Edinburgh, Princeton, Toronto and Jefferson he received honorary L.L.D.'s. In 1908 he was elected Foreign Fellow of the Royal Society.

In 1911 he wrote: Getting out of the University relieves me from committees. In fact, I have said to my wife if I died, she must put over my grave, 'committed to the grave,' since it seems that I do nothing else except attend committee meetings."

His correspondence was remarkable and he appears to have had the ability to attract brilliant minds in the medical, literary and historical fields. He corresponded with at least four Presidents of the United States, namely, Cleveland, McKinley, Roosevelt and Taft.

At the time of his death in 1914, the *British Medical Journal* points out that Weir Mitchell attained the highest distinction in two widely different fields—Neurology, in which he was one of the foremost men of his time, and American fiction writing, in which he held a leading place.

Osler wrote at the time of Mitchell's death: "In a measure he regarded himself as responsible for me." He quotes from Walter Savage Landor, saying: "I have warmed both hands at the fire of life," and from Matthew Arnold: "Whose even-balanced soul business could not make dull, nor passion wild; who saw life steadily and saw it whole."

SIR WILLIAM GOWERS, 1845-1915

Hughlings Jackson was eleven years older than Gowers, and Jackson, Gowers and Sir Victor Horsley were a strong team in Neurology in London. It is said that neurology was inextricably bound up with Gowers' influence and the fruits of his endeavours. James Taylor Russell, James Collier, Bramwell, Farquhar, Buzzard, Holmes, Wilfred Harris, and Kinnear Wilson all had been his pupils or assistants.

Gowers was born just four years before Osler, and when Osler was twenty-eight years of age he writes: "At Queen Square I began a long friendship with that brilliant ornament of British Medicine, Gowers." It was Gowers who later lauded Osler to Weir Mitchell at the time of Osler's appointment in Philadelphia. It is evident that Osler had a profound admiration for Gowers, and in reviewing Gowers' *Manual of Diseases of the Nervous System* in 1888 he said that the work had placed the author at a comparatively early age among the highest living authorities on all matters relating to diseases of the nervous system. Their friendship continued throughout the life of Gowers.

MacDonald Critchley, who recently published a biographical appreciation of Gowers, stated that there was difficulty in gathering objective material about Gowers as he was not a man who had a wide circle of friends and correspondents. "He was reserved and apparently difficult to know. Warmness and conviviality were foreign to him and

he remained among his colleagues a lonely and unapproachable figure, admired but not understood." The year 1945 passed without recognition of the anniversary of the birth of Gowers, in spite of the fact that he was such a powerful influence in British Neurology.

This was probably owing to the fact that certain papers on Gowers were never published. Collier, before World War II, gave the Fitzpatrick Lectures upon the development of Neurology in the 19th Century. In these, Gowers figures prominently but unfortunately Collier died before their publication and the manuscript was lost. Risien Russell, in his presidential address to the Neurological Section of the Royal Society of Medicine, also touched upon Gowers, but his address was never printed.

Gowers was born and educated in London. He attended Christ Church College School until he was fifteen, and there learned French, German and Latin, and gained a mastery of incisive English He also learned shorthand and perfected this to a high degree. It is said that he attended church twice each Sunday, took down the sermons in shorthand, and became so proficient at this that he was able to do it automatically, while at the same time thinking through some quite unrelated subject.

At eighteen, after two years' apprenticeship, he entered University College Hospital as a medical student, qualifying in 1867. He then worked as assistant and secretary to Sir William Jenner and was said to have had a successful and harmonious relationship in spite of the fact that Jenner was described as the autocrat and despot of the medical profession.

Jenner lived from 1815 to 1898, served as President of the Royal College of Physicians for seven years, was the first physician to the Hospital for Sick Children in Great Ormond Street, and was for many years physician to Her Majesty Queen Victoria. Jenner is said to have spoken with fearless dogmatism and in an emphatic, terse manner which carried conviction. It is said that his influence on Gowers was considerable and that Gowers' method of reasoning was due to Jenner's influence. It is interesting to note that Hughlings Jackson and Sir Hutchinson also came under his teaching.

Gowers was closely associated with the National Hospital for Paralyzed and Epileptics. He began writing early, and drew his own illustrations for his papers. He did not indulge in philosophical conjecture nor compile data from the published work of others, but relied almost entirely upon his own clinical or clinico-anatomical experience. His literary style is described as simple, arresting and clear.

The interests of Hughlings Jackson and Gowers in many ways paralleled one another, and it is said that Jackson often remarked that he would always be grateful to Gowers because of the manner in which Gowers had expounded the Jacksonian theories.

We sometimes are disturbed because we are unable to be sure whether a condition is epilepsy or hysteria. The story is told that Gowers and Sir Russell Reynolds were walking in the street when a man in front of them suddenly fell in an attack. Neither could say whether the seizure was genuine or hysterical, although Gowers said the latter was probable, though the choice of spectators may have been unintentional. Gowers had given the Gouldstonian Lectures on Epilepsy on the study of 1450 personally observed cases. He later enlarged this series to 3000 cases, and these formed the material for the monograph published in 1881 on *Epilepsy and Other Chronic Convulsive Disorders.*

Gowers is credited with having first described the antero-lateral ascending tract which is often referred to as "Gowers' tract."

In 1887 Gowers made a diagnosis of spinal cord tumour—a diagnosis that was then rare. In this diagnosis he was supported by his chief, Sir William Jenner, and Victor Horsley, then a young surgeon of thirty years, was invited to operate. A fibro-myxoma of the fourth thoracic root was located and removed. This was the first spinal cord tumour treated surgically.

The patient was an army officer who had suffered for three years. The paralysis of the legs had become complete and the pain was intense. There was difficulty with bladder control. There was a good deal of prejudice about such an operation and by many it

was not considered within the range of practical surgery. It had been made a criminal offense by an act in 1876 to experiment on a vertebrate animal for the purpose of attaining manual skill. Horsley had already done the operation of laminectomy on animals, and removed the tumour in the officer successfully. The man completely recovered and died some twenty years later from another cause.

Horsley's first operation done at Queen Square had been done one year earlier. A Scotsman, aged 22, had been run over at the age of 7 and suffered a compound fracture of the skull with escape of brain substance. Seizures started when he was fifteen years of age. The mind was dull; there was partial paralysis of the right arm and leg and in the thirteen days before his second admission he had 2870 fits. Horsley removed the scar from the brain. The mental condition improved and the fits ceased.

The physicians watched the operation with keen interest, and when it was over, Hughlings Jackson let himself enjoy the relaxation of the strained mind. He beckoned to Ferrier: "Awful, perfectly awful," he said. Ferrier was shocked; the operation had seemed to him faultless. Again Hughlings Jackson murmured that an awful mistake had been made. "Here's the first operation of this kind that we have ever had at the Hospital: the patient is a Scotsman. We had the chance of getting a joke into his head, and we failed to take advantage of it."

Gowers' great work was his *Manual of Diseases of the Nervous System*. The first volume was published in 1886 and the second in 1888. All the bricks and mortar of this edifice were from his own case-notes and clinical memory, and this masterpiece is still highly regarded. Indeed, it is said that one should search the *Manual* before claiming originality for anything having to do with this subject

In 1889 Gowers gave the Lettsonian lectures on "Syphilis and the Nervous System." He was one of the first neurologists to regard Tabes as essentially a sequel of Syphilis. It will be remembered this this was sixteen years before Schaudinn discovered the spirochaete in 1905, and before the Wassermann reaction in 1907.

Gowers wrote a monograph (1879) on pseudohypertrophic muscular paralyses, and his description is quite picturesque. "The disease is one of the most interesting, and at the same time most sad, of all those with which we have to deal: interesting on account of our powerlessness to influence its course, except in a very slight degree and on account of the conditions in which it occurs. It is a disease of early life and early growth manifesting itself commonly at the transition from infancy to childhood. It develops with the child's development, grows with his growth—so that every increase in stature means an increase in weakness, and each year takes his a step further on the road to a helpless infirmity, and in most cases to an early and inevitable death."

Critchley says that all the characteristic clinical features which today are a commonplace thing were described by Gowers with precision and originality.

Gowers also was responsible for the term "abiotrophy." "We do not apply the word death," he wrote," to slow decay of the elements; we speak of it as degeneration, but the process is in many cases, perhaps, an essential failure of vitality, a degeneration or decay in consequence of a defect of vital endurance."

As examples of cutaneous abiotrophies, he cites baldness and greying. The dystrophies represented muscular abiotrophies. Hereditary spastic paraplegia and Friedreich's Ataxia were examples of an abiotrophy within the nervous system. Leber's disease was an optic abiotrophy.

In 1907 he brought out his *Borderlands of Epilepsy*. Here he emphasized the similarity between epilepsy and migraine. In his manual he points out that migraine is strongly hereditary and that the inheritance is usually direct to other members of the family. He stressed as an exciting factor in bringing about an attack, excessive brain work, especially when combined with anxiety and loss or rest. His many descriptions of variations in the condition make mose interesting reading. One of Gower's last papers was entitled "A Case of Unilateral Optic Neuritis with Intracranial Tumour". Critchley says "This syndrome has, of course, since been associated with the name of his pupil,

Foster Kennedy, who described other similar cases later. Gowers not only deserves priority but he also succeeded in finding a comparable case report made four years earlier by Shultz-Zehden."

Osler's friendship with Gowers continued over the years. In 1894 he wrote that he had been with Gowers on several evenings on one of his visits to London. It was in this year that he dedicated the English edition of his monograph on Chorea to Gowers, while the American edition was dedicated to Weir Mitchell.

Gowers had a lengthy terminal illness, and in a letter to Weir Mitchell in 1913 Osler wrote. "You will be sorry to hear that Gowers is very ill—his own disease—Ataxic Paraplegia, it looks like, and ascending so that now there are bulbar symptoms"; and again in December to Weir Mitchell he wrote: "Poor Gowers is a sad wreck. I go in and have a chat with him as often as possible."

Gowers, however, lived until May 1, 1915. His obituary notices stressed his long association with the National Hospital for Paralyzed and Epileptics and his somewhat shorter one with the University College Hospital; his many writings on original subjects; his inventiveness. It was Gowers' Haemoglobinometer that was used almost altogether from 1878 until it was replaced by one invented by Haldane in 1901. The obituaries mentioned also that his favorite hobby was etching and that he exhibited in the Royal Academy. He was also keenly interested in mosses.

Gowers received a knighthood in 1897, and was honoured by many foreign societies during his lifetime. His wife predeceased him by two years. Two sons and two daughters survived, and rather quaintly it is stated: "It may be mentioned without impertinence that Sir William Gowers was peculiarly happy in his married life and a devoted husband and father."

JOHN HUGHLINGS JACKSON, 1834-1911

There are two references in Osler's *Life* to Hughlings Jackson, but in 1901 Osler wrote of himself, Dr. Weir Mitchell and Dr. James J. Putnam urging Jackson to make a list of his writings. At the time Osler was knighted he wrote: "These honours are very unequally distributed. Some of the most deserving never receive any recognition — Hughlings Jackson, for example, and imagine chucking at 80 a Knighthood to Jonathan Hutchinson."

Jackson, of course, was some fifteen years older than Osler, and probably because of this there was not such a close association between them as between Osler and Gowers. He has been described as the "Father of Neurology," and Horsley said of him that he was the father of Neurology in this country (England) and everywhere else. Jonathan Hutchinson said of him that his mental powers approached more nearly to what we call genius than almost any of his contemporaries. However, in spite of this, Weir Mitchell says that Jackson told him he was 42 years old before he was able to support himself and his wife.

The careers of Jonathan Hutchinson and Jackson paralleled one another for some time. Both were the product of the York Hospital Medical School and both had served apprenticeships. Hutchinson was a few years the elder of the two and probably advised, influenced and helped Jackson. At one time Jackson considered giving up medicine and it was probably due largely to Hutchinson's influence that he continued at it. Hutchinson wrote that the great thing that he had done for medicine was to keep Hughlings Jackson in it. However, he later wrote: "Great as had been the gain to medicine, it might yet have been a greater gain to the world at large if Hughlings Jackson had been left to devote his mind philosophy." Philosophy was the suggested subject to be followed when he was considering discontinuing medicine as a vocation. Brown Sequard also brought his influence to bear, and the decision was made after Jackson suffered an attack of Bell's Palsy.

It can probably be safely stated that Hughlings Jackson's chief interest was that of epilepsy and, further, those seizures of limited range and deliberate onset. Although these attacks were first described by Bravais in 1824 and also by Bright in 1836, they are now

universally known as Jacksonian. In the first Hughlings Jackson lecture (and he was invited to deliver this) he spoke on the "Relations of Different Divisions of the Central Nervous System to one another and to Parts of the Body." In this he suggested that in addition to studying nervous maladies by type, another profitable way of studying them was by comparing and contrasting the effects of a destruction lesion with those of a discharge lesion of the same centre or region, *e.g.*, the commonest variety of epileptiform seizures is, to a great extent, the mobile counterpart of the commonest variety of hemiplegia.

In his studies on epilepsy he saw in some cases disturbances of speech, word blindness and word deafness, and, as a result, was interested in aphasia and contributed many papers to the literature on this subject.

He was aware, of course, that many cases of epilepsy were due to syphilis and to cerebral tumour, and in his characteristic manner he studied these conditions fully and published many papers on syphilitic affections of the nervous system, both acquired and hereditary. It was natural that he should have become interested in localization, and he was undoubtedly the leading man in this field in his time. This work was done at a time when the common view was that epilepsy was due to some disturbance in the Medulla Oblongata.

Jackson became an expert in the use of the ophthalmoscope and did much to establish its use in the diagnoses of medical diseases. He stressed the use of the ophthalmoscope in kidney disease, syphilis, and in cases of cerebral disease, and again many papers were written both in the general medical and ophthalmological journals.

Another offshoot of his interest in epilepsy was his interest in vertigo. He recognized the so-called epileptic vertigo early; he himself was subject to labyrinthine vertigo, and his interest led him to investigate the whole subject.

It is said that even his most philosophical writings concerned with evolution and dissolution of the nervous system seem to be related to his early work on local convulsions. Dissolution he regarded as the reverse of evolution. Palsy, he said, resulted from destruction of fibres so that a lesion low down in the nervous system, *e.g.*, the corpus striatum or lower, results in marked paralysis. Ascending, however, the fibres become much more numerous so that a destructive lesion of the same extent is not nearly so paralyzing as one lower down in the nervous system. Destruction, or dissolution, he said, could not produce active symptoms, so that the symptoms which followed such a condition must result from the uncontrolled actions of the lower healthy levels. He also did a great deal to clarify the differences between voluntary and automatic action. Undoubtedly his contributions to Neurology were great, and he did much to bring order out of confusion.

It was said of Hughlings Jackson that there was always two sides to his teaching—the clinical and the philosophical. His writings are not easy reading, as a rule, and he was accused of being an involved and puzzling writer. A friend once told him that his pet theories had been likened to the love of God in that they passed all understanding. It is said that it was because he feared being accused of overstatement that he wrote in a laborious and explicit style.

Much of what has been said is today accepted as common knowledge, but Schorstein says: "It is not easy for us, to whom the idea of brain localization is as much a matter of course as the circulation of the blood, to realize the confusion and uncertainty that existed in 1864 when the only doctrine of cerebral localization was embodied in the fantastic tenets of the phrenologists."

Jackson was described as being gentle, polished, and of a tender and affectionate nature. Thomas Buzzard said of him that "he was energetic, courageous, cautious in drawing conclusions, but when convinced sturdily indisposed to change them except under the influence of more or less overwhelming evidence."

Jackson was never physically robust and never, even in youth, according to Buzzard, indulged in athletics. "Certainly he did not experience the need of physical recreation by

amusing exercise which appears to be considered necessary by very many at the present day." (Written in 1911). However, Jonathan Hutchinson describes their "Sunday walks when they would leave on Saturday noon and return not later than Sunday night." He also says that he was not "addicted" to any sport.

Curiously, Jackson disliked public society. It is said that few ever saw him at a public dinner or on a platform He did not smoke, and did not care about eating and drinking. He is described as having been constitutionally restless, and his dread of being bored was extreme. Frequently he would not reach a medical meeting until the discussion was opened. He often left the theatre at the end of the first act and would see the other acts at different sittings. He would break up a journey into several stages to avoid being bored. He was a voracious reader and read everything from the penny thriller up. Often he would leave off reading one of the "penny dreadfuls" to start work on a most philosophical subject. He had no love for books as such, and said that he valued them only for what was in them. He would tear pages from books to send to others, and Hutchinson says that often on their walks, after having discussed a certain subject, and after returning home, Jackson would tear pages from a book or article he had written on the subject and send them to Hutchinson. This was done to show how he had thought about a certain subject, and not in any boastful manner.

Between 1861 and 1894, a period of thirty-three years, he wrote 202 papers on neurological subjects, which is an average of better than six papers a year on original observations; and between the years 1873 and 1875 he made forty contributions to Neurology. It is little wonder that Risien Russell described him as a giant among pygmies and peculiarly different from the generality of men.

Jackson never had a nickname and never used one for another person.

In spite of not receiving recognition in the form of a Knighthood, he was respected and honoured by those who knew him. He received his Fellowship in the Royal College of Physicians in 1868, his Fellowship in the Royal Society in 1878, and honorary degrees from the Universities of Glasgow, Edingburgh, Leeds and Bologna. He was the first president of the Neurological Society in 1865, and in 1897 that Society "resolved to commemorate the great services which its illustrious member had rendered to humanity through his work on the functions of the nervous system, by founding the Hughlings Jackson Lecture." Hughlings Jackson was the man first invited to give the Hughlings Jackson Lecture. It would seem that he might well be classed among the immortals in medicine.

Hughlings Jackson, Weir Mitchell and Sir William Gowers were all great men in Osler's time. Each left his mark. To pause briefly each year to remember and honour such outstanding persons is a duty and privilege for which we are thankful.

And so to Sir William Osler and the men of his time we bid adieu, thankful for the understanding they have given us of many disorders and many problems in life, secure in the belief that ' though they are dead they yet speak."

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ADDRESS GIVEN TO MEDICAL STAFF OF ST. PAUL'S HOSPITAL, VANCOUVER

By MR. F. H. BENTLEY,
Professor of Surgery, Durham University, Eng.

May I say first how deeply I appreciate the honour you do me in allowing me to speak to you, and to inspect your hospital and see you at your work.

My only excuse for saying anything at all is the knowledge of the interest displayed in all countries in our British National Health Service, and the possibility, and may be probability, that you may develop something on similar lines in your own country.

I am going to start with the assumption that you already have a rough idea of the set-up of the Service, and that you have already heard much about it, both in its favour, and to its detriment, and in the short time at my disposal I feel I should confine myself to some observations as I myself see things (and I think many of my views are shared by others of our profession)—namely, as to the effect it has had on the profession, and as to some guide or warning when the time comes to frame conditions of service for doctors, so that you may be made aware of which things to avoid. In doing so, it may be found that my ignorance of your own ways of life as compared with those of Britain, may lead me into pitfalls—if so, I ask your tolerance and forgiveness. Next I realize I am speaking to a hospital staff, so what I have to say is more applicable to consultants and specialists, rather than to general practitioners.

You may argue that there is no sharp dividing line between these two groups, and so, up to 1948, we in Britain thought. But our cunning Socialist Minister of Health, Aneurin Bevan, thought otherwise, and has divided doctors into two sections. It used to be said that the British Medical Association was the strongest trade union in the world, but the fallacy of this can be shown in several different ways.

1. A trade union exists for the benefit of its member, without regard for the welfare of the rest of the public.

2. The B.M.A. is not a trade union, and cannot be so under its present constitution.

3. The strength of a trade union lies in the restrictive practices which it may impose, but if we keep faithful to our Hippocratic Oath, we could never conform to the extreme measures which the community is liable to suffer at the hands of other trade unions.

4. Doctors by training and tradition are individualists, and however readily they may join together in the furtherance of academic knowledge, there is a signal lack of unity when an attempt is made to get them to agree on terms of service. Members of an industrial trade union work under conditions which are frequently similar, so that any change in conditions is likely to affect all. In the case of doctors, conditions vary so widely, that changes would affect some beneficially, and others possibly in reverse to what had been expected or desired.

Our Mr. Bevan knew all this, and although he has been conciliatory in certain aspects, he has largely had his own way, and we doctors have now had to mould our lives to the new conditions. Furthermore, doctors as a class suffer from the disadvantage of receiving little support from any of the official parliamentary parties, so that the strongest political influence has been brought to bear on the whole framing of the N. H. Service. The effect of this has not only been the attempt, but the successful realisation by the prevailing political majority, of the levelling-down of the standard of living of members of the medical profession. This levelling-down has been considerably mitigated by the effect of taxation. You are probably aware that the Briton is the most heavily-taxed individual in the world. A net annual income of, say, $6,000, suffers a 45% tax, and the rate above this amount goes on increasing by means of surtax. Therefore, there is little inducement to earn a large income, and this factor in itself conduces to the breeding of a mediocrity of effort and achievement.

Some of you may have read a pamphlet issued by our own Ministry of Health prpuorting to give a review of the working service in its first year (or as some of us like to call it—"Anno Bevani II"). This pamphlet was, of course, intended to have propaganda value, not only among the public of our country, but in the Commonwealth, and foreign countries. I maintain that this pamphlet contains several inaccuracies or distortions of the truth, and I should like to draw your attention to some of them.

(1) The Ministry states that doctors may work inside or outside the Service, or in both, as they wish. You can quite imagine that in all except a few centres, private practice has almost disappeared. A strong reason why a doctor likes to retain even a little private practice is, among other reasons, that he may claim quite a considerable tax rebate for practice expenses. This the full-time N.H.S. doctor cannot do, except for the use of an automobile.

(2) The Ministry freely admits that there have *never* been sufficient hospitals, clinics, nurses, midwives and doctors of all kinds. When a service is made free suddenly, the demand naturally increases, and the pre-existing needs become aggravated. Those who need attention or treatment most, will of necessity, have to wait longer for relief.

(3) The Ministry admits that the full bill for the N.H.S. is costing half a crown (half a dollar at the old rate of exchange) per head per week. This is more than double the amount which was quoted by the Socialist Party when they gulled the public into putting them into power in 1945. The estimated cost of the N.H.S. for the current year is now agreed at £m.325 or about $m.800. By far the bigger proportion of this sum comes out of the taxpayer's pocket, and the taxpayer—equally with the poor man—has to pay insurance contributions as well, and of this contributions, only about 5% go directly to pay for the Health Service, the remainder being accumulated in a pool which pays the various pensions, and provides the free coffins to which we are all entitled when we die! The Ministry admits that all the services cannot be fully provided at once. They create the demand first, and then say they cannot deliver the goods. Yes, they say, all in good time! But surely it would have been better to build up to stock inside the shop first, rather than putting everything in the shop window.

They say that local bodies run the Service, with *sufficient resources to do their job properly*. What a travesty of the truth! Twice we have been called on to cut down our estimates. In my own area, not one single extra bed has been brought into commission in the 16 months since the Service started. And we have the personnel standing ready, not to mention the patients, as soon as the funds are permitted, in sufficient quantity to provide accommodation for all who need it.

They say, too, that every regional or local body, is not in charge of civil servants, but is composed *entirely* of voluntary unpaid workers. I challenge that statement, and ask them to explain away the huge bureaucratic pyramid of secretaries, administrators, and other pen-pushers, which has largely added to the expense of administration as compared with the services before the "appointed day".

Doctors are represented on the Regional Hospital Boards, but this representation only amounts to some 33% of the whole. The authorities see to it that the profession will never be able to have its own way when it comes to voting strength. At the start, the Minister forbade that the chairman of any statutory board or committee should be a doctor, but latterly there has been some relaxation of this veto.

Socialist principles frown not only on individual enterprise, but also charity and voluntary help. Yet they expect board and committee members, who are often busy professional men, to spend hours of their time in discussions,, the results of which (maybe) will receive no implementation. The Ministry states that an appropriate share of the Hospital Endowments Fund may be spent as each area likes on "extras", the nature of which is nebulous, and the payment for which is nearly always denied on the grounds of economy. They even naively suggest that voluntary gifts of money or property are very welcome!

Hospitals are, of course, normally staffed by specialists, but the Ministry states that hospitals will be provided where patients may be treated by their family doctors. This

principle can be considered as having been the normal one in country districts, but the tendency is to require the general practitioners not only to be supervised by specialists, but in some cases to be ousted by them. This factor is a sore point with the G.P.'s, who naturally complain that they tend to lose touch with, and professional interest in, the treatment of their patients.

The Ministry—having conceded to doctors the right to private practice, is making it increasingly difficult for such practice to survive. Many hospitals have private wards, the payment for which accommodation was frequently on a lower scale than that of privately-run nursing homes. For the privilege of using a private ward, the patient not only has to pay the full price per bed which it costs the State to run, but a surcharge of 25% on top of this. Very soon such a private room will cost its user at least $38 a week (at the new exchange rate). Only a few people can afford this sum when combined with the doctors' private fees; and the tendency is for these to be taken over for other purposes, and the accommodation of free patients.

Doctors who treat their patients in private wards of State hospitals have a ceiling placed on their fees. Thus, for the most lengthy and complicated operation, with all the additional treatment and attendance, a total of $210 is all that is allowed to be shared among the doctors concerned in the treatment of the patient. It frequently happens that after the pathologist, anaesthetist, and other members of the team have received their share, there is practically nothing left for the poor surgeon! The Ministry states that for a proportion of private cases the maximum can be waived by the hospital authority. In practice, this permission to waive is seldom sought.

Health Centres: When the Socialists boosted the National Health Service, they made much of the development of Health Centres. I am sure the profession as a whole would welcome the establishment of these centres, but it is quite obvious that these Centres, except for an odd specimen here and there, are simply a political dream, the fulfilment of which will take many years to develop, and the provision of which—in the required number—will not occur in the lifetime of most of us. They will, at any rate, add yet another burden to what is even now breaking the back of the British taxpayer.

Compensation: British general practitioners have, in theory, been compensated for the loss of goodwill, resulting from the virtual disappearance of private practice. Consultants and specialists get no such compensation. Three or four years ago, actuaries computed the total sum at £m.66. They argue that this result was agreed on with the profession at the time, but it was at the 1939, or pre-war values, and works out at an average of about $8,000 for each doctor who is eligible to be compensated. It therefore bears no relation to the alteration in the value of money in the interval. In fact, the amount for each individual practitioner is only just now being worked out, and it will, of course, not be a realisable asset except on the retirement of the doctor or his premature death. Even then, it only takes the form of a government security with rate of interest which, after taxation, will barely keep its owner in bread and margarine.

There is also the superannuation scheme which cannot be described as ungenerous and which, from the point of view of ultimate security, is, perhaps, one of the most satisfactory features of the scheme.

Another article in the shop window is described as grants for the doctor who takes time off to keep himself medically up-to-date by attending post-graduate refresher courses. I can only answer this by my own experience, that when I asked for a few dollars to enable me to visit you on post-graduate grounds, I was told that there was not the slightest hope of my getting them. And I am quite sure that at present no soft currency is available either. Perhaps for window dressing purposes permission may be granted to a few, but I cannot foresee that every application will be granted, unless the world turns upside down.

* * * *

It is a great pity that the Act, with its fine basic principle that no person shall, by lack of means, be debarred from any necessary medical advice or treatment, and which

has already lifted the burden of financial anxiety and brought to many of our poorest patients comforts and amenities quite beyond their reach, tends to be exploited and discredited by a noisy and self-seeking minority. We have all heard of the rush for spectacles, dentures, wigs and every form of surgical appliance. The fact has to be faced that very few, if any, patients will preserve and cherish appliances for which they pay by compulsory insurance, as they did those that they bought at some cost to themselves. There is, in fact, great need for all to realize that there is no such thing as a free service. We may agree as a community, to share the cost, but it is at the best an expensive item for all, and if the "grab all" elements in the community run up the cost too high, some modification of benefits for all may be inevitable, with the usual result—a tightening up of regulations that will mean irksome restriction for the genuine cases.

The majority of us doctors do not like the new N.H.S., and dislike still more its mode of introduction. On the other hand, we are oldfashioned enough to believe that an Englishman's word is still his bond. On graduating we subscribed to the Hippocratic Oath, and we are determined that, come what may, we shall always place in the forefront of our code the welfare of our patients. Canute demonstrated that you cannot stop the tide. Much as many of us dislike the idea, we must realise that the tide of human thought is now in full flood towards collectivism. We cannot correct that tide, but we can try to divert it into channels that will allow time for harnessing of its energy to the betterment of, and not, as is threatening at the moment, to the destruction of all those higher attributes which in the past have contributed so much towards the welfare of humanity.

The Service has been introduced with a rapidity of action and a lack of thought that have well nigh spelt disaster for the medical services of the nation. British doctors have always contended that the essence of success in this matter was evolution, not revolution. Had the political party at present in power been prepared to place the interests of the community above those of party, and to introduce the Service in a series of carefully co-ordinated moves they would have had behind them the whole-hearted co-operation of the vast majority of the medical profession. As it is, there can be little doubt that the medical services have been maintained only because of the action of the profession in sacrificing their personal interests in order that their patients should not suffer.

The Socialist Medical Association has also published what is in reality a resume of the first year's working, but takes the form of a "quiz". This Association claims to be responsible for the National Health Service, and states: "It is a political question as to how this great Service will develop . . . prevention of disease and promotion of health can only ensue from a nation which understands the problem, and gives the correct political answer." So now we know! If a political party other than the present, should become the King's advisers, the health of the nation will suffer! Further, we quote, "48 million people in Britain need never again pay doctors' bills; their doctor has become a friend and adviser since the N.H.S. arrived." How deluded many of us were in our belief that our patients were speaking the truth when they described us as their friends and advisers!

HOSPITAL PRACTICE

For the majority of consultants there has been relatively little change in the conditions of work in hospital. Committees have multiplied alarmingly, and have reached a level which interferes with the carrying out of clinical duties. Unless some means are found of delegating duties to individuals, the "committee man" will become a whole-time job. One cannot help feeling that the ultimate desire of the Ministry is slowly to eliminate the part-time consultant, and to create a body of full-timers. This is justifiable from the point of view of financial economy, but is bound to diminish the breadth of clinical outlook. When these whole-timers are appointed there will be an inevitable tendency for their part-time colleagues to delegate the bulk of the committee work to them.

CERTIFICATES

Doctors have been immunized against the new disease of certificates by war-time experience, so that it has become rather easier than it might have been to become adjusted to this new role of the doctor as the fount of free gifts. It is fully appreciated how much easier it is for the hospital consultant only seeing a patient once to take a firm line, compared with the G.P. who has to see the patient regularly, or, alternatively, lose him (or her) if the request for a certificate is refused. On the other hand, it is difficult enough at times to cope with the patient who is adamant in his contention that without an additional allocation of petrol, life will no longer be possible. The easing food situation has made the demand for certificates for extra rations somewhat lighter.

GRADING OF CONSULTANTS

This vexed question is another example of how the speed with which the Service was introduced has vitiated the best efforts of the profession to ensure an adequate medical service for the community. This problem was insoluble except as a long-term policy, and no one but a civil servant could possibly have dreamed of asking that, within a period of a few months, the senior consultants should comb through the dossiers of themselves and their colleagues, and decide who were fit and proper persons to be awarded the nebulous title of "consultant". With what, to the impartial observer, can only be described as smug complacency, the Minister and his satellites have persistently reiterated that in their wisdom they have decided that this is a problem which only the profession can decide, and that Whitehall would never dream of interfering in such a delicate matter. If only the same consideration for the ethics and status of the profession had been shown in other directions, the picture of the medical services might have been different. To define a "consultant" is almost impossible. In the past, he has established himself largely by the fact that he has been recognized as such by his colleagues in general practice, who, in turn, were guided by the fact that the consultant of their choice was a man whom they had found from experience to be a reliable opinion in difficult medical problems. Size of practice, however, is not the whole story.

An individual might be an excellent clinical opinion, but for personal reasons he may never have attained the financial success that a more popular personality has attained with a much less extensive knowledge of his specialty. Again, in certain areas a consultant may have become established not because of any outstanding ability, but simply because he happened to be the only consultant in the area.

Finally, there was the most difficult problem of all—the general-practitioner-consultant. Many a man in rural areas has come to be recognised by his colleagues as a useful second opinion and, if there has been a cottage hospital in the area, he may have acquired quite a sound knowledge of the more serious conditions which require hospitalization, or a fuller investigation than is possible in the patient's home. Is such a man to be placed in the same status, professionally and financially, as the world-famous consultant on the staff of a teaching hospital?

To sort out this tangle of rationalization was a task which could only have been satisfactorily carried out over a period of years, and the surprising thing is, not that some of the gradings have been criticized, but that so few have been. Even so, the invidious task placed upon grading committees has led to much unnecessary rankling, and there are not a few members of the profession who will find it difficult to overcome their sense of grievance at the way they have been treated. This applies particularly to some of the older men nearing the end of their active professional lives. It would have been a gracious act to have granted some of them the status of consultant until they reached the official retiring age. On the other hand, it must always be remembered that the grading committees had to bear in mind the horde of young ex-servicemen who, by liberal government grants, had been able to take a higher qualification, and thereafter remin attached to the teaching hospitals. Not unnaturally, most of these men were under the impression that on the "D day" of the N.H.S. they would find themselves immediately promoted to the grade of consultant. Those who were wise in their youth

took the advice of their teachers and sought appointments in non-teaching hospitals. Of the remainder, only a minority can obviously be accommodated, and it is to be hoped that those left over will be persuaded that general practice under the new regime need not necessarily be a round of form-filling. In this connection it must be admitted that many medical schools have failed in their duty by not encouraging their students to go into general practice, and by not impressing upon their newly-qualified graduates returning from the forces that only a small minority could ever hope to attain consultant status.

The paper work of the hospital doctor has increased enormously. There is hardly a day but some agenda, instruction, amendment, ruling or questionnaire is sent by the administrator to the division. Much of this paper work is repetitive, asking for details supplied on many previous occasions, and available by looking in the files of the department asking for it. The specialist is tending to have his stature and his self-respect lessened, and to lose those two indefinable assets—the sense of security of tenure while his work deserves it, and the pride in having a real say in the management of that work. However brilliant his record may be, however high his standing in the international spheres of medicine and surgery, however long and however hard he has struggled to attain his present position, he feels that in the eyes of the Ministry he is the same as the beginners, the hacks, those who have never read a book, attended a lecture, visited a clinic or written a paper since they obtained their diploma.

The ancillary branches of hospital work appear to have deteriorated to some extent. Radio-diagnosis is worse in quality and takes longer to achieve than formerly; the pathological services are split between several departments, and their reports are less informative, accurate and reliable. Admittedly, this change is largely the result of the increase in routine work, but in part it is due to the fact that the workers are now "ten to five office doctors" who have little personal interest in their relations with the clinical staff or their patients.

HOSPITAL STAFF PERSONNEL

If the Service is to develop as it should, and is to be supplied with the specialists it needs and deserves, the best men should be selected for training and they should be given the best training possible by the best teachers available, and when the ultimate establishment of all hospitals has been decided, these trainees should be able to pass straight to specialist appointments without a period of unemployment and frustration. The number of men accepted for training should therefore bear some relation to future needs, and the posts selected for training should be strictly scrutinized. At present there are too many men of second-rate calibre encouraged to sit repeatedly for higher examinations, the standard of which they are unlikely to reach.

To the mature surgeon who has attained a leading position, the Service has in many cases brought financial hardship. He has worked for many years at his hospital on an honorary basis, and has depended upon private practice for his income. He and his wife have struggled through long lean years, while he was working out his ideas, perfecting his operations, collecting his figures, writing his books. Later, having established his standards and trained his juniors in them, he has become the head of a Service. In addition, he had much committee and advisory work, and he has been obliged to cut down his private practice, limiting his work to those operations, usually ones of considerable length, difficulty and severity, in which he is particularly interested, or of which he is an acknowledged master, and charging proportionately high fees. He is now paid on a standard basis for official hospital sessions, with little for emergency or out-of-hours work and for lectures and teaching, and nothing for advisory or committee work. His operation fees, if they are in the hospital private block, are subjected to the low ceiling. Although he may be performing a task of the utmost delicacy and anxiety, taking from four to six hours, and although the patient may be a millionaire flown for this operation from a distant country, he may still charge no more than a junior may charge for removing an appendix. He may be eligible for a merit award, but he may have to wait an indefinite time before receiving it. In any event, the prospect of being rewarded

according to the assessment of a witanagemot of worthies, instead of, as heretofore, in proportion to the place they have made for themselves, is humiliating.

SOME SUGGESTIONS

Criticism, unless it is constructive, is merely useless grousing. The financial implications of the new set-up for individuals are of small importance compared with the need to build a first-class service for the nation; one in which the most important work will be done by the men best qualified and trained to do it; one in which the sick man will get the care his disability needs. Some suggestions are therefore added.

1. The N.H.S. should be freed from political bias.

2. Bureaucracy, and the flood of paper it engneders, should be reduced to a minimum.

3. Economy should be effected by cutting down waste rather than by cutting down facilities; by providing fewer and better skiagrams; by giving advice rather than actual medicaments, unless they are special drugs such as penicillin, streptomycin and hormones.

4. More might be done to make the Service the pride as well as the concern of those who use it, and those who work in it;

(a) by giving the patient a sense of personal responsibility in the use of hospital services by charging a token payment for what he gets;

(b) by giving some incentive to the "average" whole-time doctor. At present he has no incentive, only the security that he will be paid whatever happens, and however little he exerts himself.

5. A more elaborate system of grading, corresponding more accurately to the grades of specialists employed, and the work they are doing, should be instituted. This might well correspond to the grading which was found fairly satisfactory in the armed forces.

6. The automatic ceiling on fees chargeable in private wards should be abolished. If a ceiling is necessary, it should be related to the means of the patient, the standing of the specialist, and the magnitude of the service performed.

7. For the most effective use of medical manpower it is important that consultants should be encouraged to do all their work under the same roof with the same teams. From the point of view of national prestige, it is essential that foreign visitors seeking the best medical and surgical care should find such care in the hospitals of the country, knowing that the real hall-mark of excellence is attachment to such a hospital, rather than residence at a particular address (*e.g.*, Harley Street).

I cannot conclude without a few words on the obstetric services, in which not a few serious faults will be seen.

(1) From the administrative angle, the midwife, the general-practitioner-obstetrician, and the consultant, all form part of different organizations. Some may argue that there can be sufficient clinical liaison between them if it is exercised, but there is still far too much division in the consecutive care of the expectant and parturient woman. In practice, the picture is as follows:

(a) She receives antenatal care at the clinic.

(b) Having started labour she is attended by a midwife who may seldom have seen her at the clinic.

(e) Labour is slow, so the midwife advises the mother that she would like the general practitioner of the woman's choice—a G.P. who may take little interest in midwifery, or whose practical knowledge of it is sadly deficient. But there is an easy five guineas, or perhaps seven, if he attends this confinement, and if he has seen the patient twice before labour began. Perhaps he claps the tongs on through an insufficiently dilated cervix and fails to deliver. He gets a bit scared and decides to pass the buck. The patient is sent into hospital, and is seen by the resident, who finds an uncorrectable malpresentation, and who therefore sends for the specialist. At any rate, here are five separate organizations which have had a finger in the pie. Please do not

accept my derogatory remarks about the G.P. as representative of all of them. I know many of them who are most competent and successful obstetricians, but here again it is a very difficult an invidious task for a grading committee to sort out the good from the bad. A man may be a very popular maternity doctor, but at the same time a poor obstetrician.

The moral of all this, therefore, is that maternity work should only be performed by good obstetricians. This is at present an impossible ideal, because there are not enough to go around, and most doctors don't like seeing their patients being looked after by a neighbour.

But several steps might be made in the right direction if all the obstetric services could be co-ordinated in one organization, and that those doctors who are finally permitted to function in maternity work should have received a far higher standard of training, both in hospital and on district under supervision. In the past, it has frequently been the obstetric teaching which is to blame.

On re-reading this paper it sounds like one long grouse, and it may convey the impression that our National Health Service is bad. Quite emphatically, the service is not bad, and a careful study of its provisions may result for you in the evolution of something which is at the start quite good, and which could be bettered as it evolves further. I have, however, tried to show in my criticism a few of the aspects which could be improved, so that you may start on the right food and make the minimum of false steps in years to come.

Finally, there is no evidence that the health of the nation has benefited from the first year of the N.H.S. On the other hand, thanks largely to the integrity of an ancient and honourable profession, no great harm has been done. Statistics in Great Britain show that during the first year of the service, as compared with the last year before the service, the death rate increased by 5%. Who is to blame? It may be the weather. It may be the Ministry of Food. It may be anxiety neurosis. Or it may be the failure of the N.H.S. Take your choice! However, if politics can be subjugated to the principles of the Hippocratic Oath there are good grounds for believing that out of the present chaos there will come forth a medical service of which the country can be justly proud.

V. G. H. ANNOUNCEMENT

Dr. Charles D. May, Associate Professor of Pediatrics, University of Minnesota Medical School, will act as Visiting Chief of the Department of Pediatrics at The Vancouver General Hospital from June 19th to 23rd, 1950, inclusive.

Sessions will be opened to all member of the profession who are interested. Copies of the programme will be available at the hospital at an early date.

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RADIO-IODINE

By A. J. WOOD, B.S.A., M.S.A., D.Sc.

Laboratory of Animal Nutrition
Department of Animal Husbandry
The University of British Columbia
Delivered January 23rd, 1950.

INTRODUCTION:

It was with more than a little trepidation that I consented to Dean Weaver's request that I present a paper to your group on radio iodine. My interest in this isotope has naturally leaned towards its use in fundamental research designed to further the knowledge of iodine metabolism. If, as a result of this there is a dearth of therapeutic information in my remarks I hope that I may be excused.

A review of recent literature on radio iodine reveals that this material is being used as a research tool to study iodine metabolism and thyroid function, as an aid in the treatment of pathological states of the thyroid gland not associated with cancer, and for the treatment of thyroid cancer or of neoplasms originating with this gland. Perhaps time will permit consideration of the first two uses.

RADIOACTIVE IODINE:

Twelve radio-isotopes of iodine have been described (Table I) but only two of these have found extensive use in medical research. Thy are I^{130} and I^{131}.

In the cyclotron, the iodine isotopes are produced by bombardment of tellurium with deutrons. I^{131} yields of 50-100 millicuries can be obtained with bambardments of 5000 microampere-hours at 16 MEV. Higher yields of the short-lived I^{130} are obtained. With the tellurium target these quantities can be obtained in minimal or carrier-free amounts. I^{131} can be obtained with much higher yields as a by-product of the uranium pile reactor and hence it is likely that this will be the major source for the future. I^{130} must still be produced by using the cyclotron.

RADIOACTIVE IODINE IN STUDIES OF IODINE METABOLISM AND THYROID FUNCTOIN

In experiments with radioactive isotopes of iodine it has been customary to administer the tracer by injection in one of two forms. In the first I* is administered alone in minute amounts with the result that little or no change in the iodine content of the animal occurs. In the second I* is administered with I^{127} as carrier in amounts sufficient to alter body iodine levels. The results obtained differ and depend on mode of administration.

When radio-iodine alone is used it serves to label the iodine already present in the body and hence permits a study of normal iodine metabolism. When tracer doses of I* were administered by stomach tube to 120 gram rats it was found that more than 50% of the administered dose was deposited in the thyroid gland within 5 hours. Sixty-five per cent of the dose was still present in the gland after 40 hours indicating the tremendous capacity of the thyroid to collect inorganic iodine from the circulation. This performance is especially remarkable when it is recalled that the thyroid of the rat at this body weight is less than 15 milligrams. The release of the labelled iodine to the circulation was greatly prolonged as would be anticipated since it represents only a trace of the total iodine present in the gland. Other studies have shown that the other tissues of the animal retain only minute traces of the isotope. In experiments with the rabbit it was found that less than 0.1% of the administered dose was present in the liver, kidney, testes, brain and muscle five hours after dosage. Even when 500 microgram doses were administered only traces appeared in these other organs. By the use of radio-iodine it has been possible to confirm Harington's findings on the organic nature of thyroid iodine. Fifteen minutes after injection of I* it has been found that 95% of the injected dose is present in organic combination within the gland. At this early point most of the iodine

is present as di-iodotyrosine while after 50 hours more than half is present in the thyroxin form.

The iodine concentrating properties of the intact thyroid have been shown to be equally present in *in vitro* experiments with thyroid slices. On the other hand, it has been shown that liver, spleen and kidney slices do not possess this ability. *In vitro* synthesis of di-iodotyrosine and thyroxin has also been demonstrated using radio-iodine and thyroid slices. This synthesis only occurs when intact cells are used. Homogenization of the tissue slices destroys the synthetic activity and hence suggests that a specific intracellular enzyme system is involved in the physiological production of thyroxin.

In animals made goitrous by the administration of thiouracil-like drugs it has been found that the iodine concentrating power of the gland is still present even though the iodine is retained as inorganic iodine and is not converted to thyroxin. This finding, as will be shown later, has found therapeutic application. It has been found that the iodine concentrating capacity of the thyroid can be enhanced by the administration of thyrotropic hormone. This action is understandable when it is known that thyrotropic hormone inreases the level of protein bound iodine in the blood.

THE TREATMENT OF NON-CANCEROUS PATHOLOGICAL STATES WITH RADIO-IODINE

Early preliminary experiments revealed that the thyroid of animals such as the rabbit could be completely destroyed with large doses of radio-iodine without damaging other organs. This finding was anticipated since the work reviewed previously had shown that the thyroid was able to concentrate most of the administered dose within its own tissues and retain the dose with slow release. This slow release prevented excessive levels of radio-iodine from reaching organs such as the kidney.

The greatest handicap to the more extensive use of radio-iodine in thyroid disease has been the difficulty of controlling and ensuring adequate dosage. Early attempts relied upon estimates made by placing Geiger counters over the isthmus of the gland and noting the rate of increase on counts above the background level as the radio-iodine was absorbed. More recent studies have shown that careful laboratory control to check urinary output is necessary as well as accurate estimates of the size of the hypertrophied gland under treatment. Myxoedema or total thyroid depression has been encountered with dose of 7 to 8 millicuries of the isotope. The general impression which one acquires from the literature suggests that the fear of inducing cancer of the thyroid and of late kidney or bone marrow damage has tended to delay the use of radio-iodine for thyroid treatment. This is particularly so since a much safer and fairly satisfactory procedure has been evolved using propylthiouracil. As additional antithyroidal drugs are produced it seems likely that they will be used in preference to radio-iodine.

The uniformity or response in patients successfully treated with radio iodine permits a brief description of their clinical course. Rapid gain in weight parallels the disappearance of nervous and cardiovascular symptoms. A decrease in emotional instability is noted as the metabolic rate and pulse rate diminish. Usually 6 to 8 weeks or even longer are required to produce maximal remission of symptoms. Perhaps the most striking feature of the clinical response is the rapid decrease in size of the goiters. This reduction in gland size has even been noted in cases which had received prolonged treatment with propylthiouracil.

Since much of the work on the use of radio-iodine in the treatment of hyperthyroidism has been carried out at the Massachusetts General Hospital, it is perhaps best to present a summary of their results.

1. Isotope utilized	130
No. of patients treated	65
No. responding and continuing well	51
No. overtreated and developed hypothyroidism	11
No. improved but still toxic	3

2. The foetal thyroid begins to collect iodine at 12 weeks and hence the use of radio-iodine beyond this point of pregnancy is contraindicated.
3. Dosage recommended is 0.2 millicuries per gram of thyroid.
4. Myxedema has been produced in seven cases.
5. The possible late cancerogenic effects of radio-iodine must await later studies of patients treated.

Results from the Thyroid Clinic of the University of California Hospital show that "radioactive iodine I^{131} in adequate dosage will destroy the hyperfunctioning thyroids in patients with Graves' disease and thereby produce a satisfactory remission of symptoms and signs of hyperthyroidism."

The findings of the Columbia University group may be of interest. The following summary is taken from one of their reports.

1. Sixty cases of toxic goiter have been given 78 treatments with I^{131}.
2. The case remission rate is 83% for primary toxic goiter and 89% for recurrent toxic goiter not responding to other modalities of therapy by permanent remission.
3. The complications seen after I^{131} therapy are minor, except for one instance of apparently permanent hypothyroidism.

If I may be permitted a brief summary of my impressions of the present position of radio-iodine I would state that research is following two broad paths. The first, a careful study of iodine metabolism in normal and pathological tissues with particular emphasis on the fundamental mechanisms. The second, an equally careful exploration of the therapeutic possibilities of radio-iodine in thyroid pathology. After reading the already massive literature covering this field, one is left with the impression that routine use of radio-iodine for therapeutic purposes must wait:

1. A further elucidation of iodine metabolism.
2. A careful scrutiny of treated cases over an extended period.
3. The training of the essential highly skilled technicians needed for the assessment of radio-tracers in biological materials. This last requirement is essential not only for adequate and effective treatment of the patients involved but also for the protection of personnel involved in the handling of radioactive material.

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SOME RECENT ADVANCES AND THEORIES IN ANAEMIAS

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I Formation of Red Cells

A new hypothesis regarding the maturation of red cells has been suggested by workers in Sweden. They state that non-nucleated red cells are formed by budding off from the cytoplasm of noroblasts. This process they suggest takes place through the capillary wall; the normoblast remaining outside of the wall, a stalk-like process passing through the wall to the newly formed red cell within the vessel. They claim that the stalk-like process often seen on abnormal shaped cells is actually a remnant of this budding process. Normally the capillary wall is very thin and little or no stalk is needed. Red blood cells of abnormal shape and size they suggest result from an abnormal capillary wall.

They support their hypothesis by stating that there are not enough primitive red blood cells in the narrow to supply the daily peripheral need. If we accept the present theory of denucleation—that is, that one normoblast forms one mature red cell the daily requirement would never be met. Thus the budding hypothesis is put forward;

one normoblast can produce many red cells. Further evidence in favour of this hypothesis is suggested by the colour of the reticulocyte which is the same as that of the cytoplasm of the normoblast from which it buds. It is in the reticulocyte phase that the red cell passes out into the peripheral circulation. Rapid maturation would speed up the normal process and more reticulocytes would get into the peripheral circulation. The opposite would occur in a depression of the marrow by toxic substances. To further support this hypothesis they feel that the bulging out of bits of cytoplasm of the normoblast when there is intense red cell formation is actual evidence of the budding process.

The fate of the extruded nucleus in the denucleation theory is easily taken care of in this new hypothesis. They claim that there is no evidence in the normal marrow for the concept of dissolving or fragmentation and gradual fading of the nucleus.

This hypothesis leaves many questions unanswered but it would settle many of the time honoured problems, such as how the red cell gets from the marrow to the peripheral blood (the latter being a supposed closed symptom) and also whether erythropoiesis takes place intra- or extravascularly.

II Life Span of the Erythrocyte

The measurement of the life span of the red cell is not exactly new but the various figures associated with diseases are of some practical clinical value.

The methods of measurement are of some interest and will be mentioned briefly.

The original work was done by transfusing patients and waiting until the previous levels of hemoglobin and red blood count was reached. This gave inaccurate levels of only two to four weeks.

By removing an enormous amount of blood from dogs in a short time and following the bile pigment excretin, a more accurate level was obtained. In this method almost about same time causing a sudden return to normal of pigment excretion. A normal average of one hundred thirty three days was obtained.

By the use of anti-M and N sera the life of a transfused cell can be measured. The average cell lasts about sixty days, the youngest about one hundred and twenty-four days.

Recent work with isotopic N15 containing glycine, gives the life span of the red cell to be one hundred and twenty-seven days.

The life span of transfused cell (using the youngest cell) in the various diseases is as follows:

Perniciouanemia—one hundred and ten days.
Malignancy—fifty-two days.
Severe infection—fifty-two days.
Hyperthyroidism—fifty-two days.
Jaundiced patient—forty-six days.
Terminal cases—no time stated but considered to be much less.

From these figures the possible needs of the patient may be calculated. The general body metabolism is mirrored in the life span of the red cell.

III Role of the Spleen in Anaemia

Hypersplenism is usually thought of in connection with leucocytes and platelets but it has a place in relation to certain anaemias. Whether there is a maturation arrest of the blocking of a hyperplastic marrow, the spleen is thought to be at fault mainly because its removal seems to cause or allow a return to normal. Whether the spleen liberates some hormone which acts on the marrow or whether it destroys the cells within itself still remains a problem. It is know that splenic extracts will cause an anaemia in animals.

The pathogenesis of the haemolytic crists in congenital haemolytic anaemia is the topic to be discussed under the title of the spleen and anaemia. Dameshek and Owren have been the two main contributors.

The trigger mechanism setting off the crisis and causing a marked increase in spherocytes. This is suggested because the condition is known to strike several members

of a family over a few short days. An upper respiratory infection would best fit this picture.

Normally the red count in these patients is between three and four million. There is a variable increase in reticulocytes. Spherocytosis and increased fragility are constant findings. The bone marrow normally shows an increase in activity of the red cell series. With the onset of the crisis there is a rapid fall in the haemoglobin and red cell count. This is followed shortly by a leucopenia and a thrombocytopenia. There is a complete absence of reticulocytes indicating a cessation of maturation of the red cells.

Owren has followed one case completely through a crisis and the marrow findings are interesting.

For the first eight or nine days after the onset of the crisis the white cell series predominate in the marrow, although there is a peripheral leucopenia. There appears to be a blocking rather than a maturation arrest in this case. The same is felt to happen to the platelets. There is, however, a maturation arrest of the red cell series at the erythroblast level. About the tenth day there is a marked increase in erythroblasts, followed in a few days by a marked increase in the normoblastic series. It is at this stage that the peripheral blood may show a reticulocyte count of thirty or forty per cent. Owren feels there is a sudden aplasia of the red cells which results in the crisis. He feels that there is no evidence of haemolysis or destruction of the red cell as suggested by the fall in icterus as anaemia gets severe. To explain the rapid onset of anaemia where there has been no haemolytic process or haemorrhage, he transfused the blood of patients having congenital spherocytosis into normal patients and found the life span of the spherocyte to be 15 days—half the cells being gone in six or seven days which is the time in the crisis when the anaemia is the severest.

Dameshek does not subscribe to the aplasia theory. He feels there is some autohemolytic activity going on. This he found in two of his cases. The sudden increase in spherocytes at the time of a crisis is due to an increase in haemolytic activity. This may be just an increase in normal haemolytic process always going on in these cases. As there is no evidence of spherocytosis suggested in the early red cell series he suggests that the spherocytosis is not due to an abnormality in the bone marrow, but the end result of an abnormal type of haemolytic mechanism. High faecal urobilinogen level is more in favour of a haemolytic process.

In the removed spleen there is a pooling of blood in the pulp with cells in various stages of haemolysis. The initial infectious trigger mechanism may increase the permeability of the sinusoids allowing the blood to leak out.

Regardless of the exact mechanism, the spleen is at fault. Its removal prevents any further crisis, although spherocytes remain as does the increase in fragility.

Somewhere between these two explanation may lie the role of the spleen in anemia.

II The Effect of the Endocrinopathies on the Red Cell

If the red cell is looked upon as an organ of the body like the liver or kidneys and not just as a haemoglobin-containing sac, the effects of the various hormones will be more easily understood.

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PRACTICAL PROBLEMS IN ERYTHROBLASTOSIS FETALIS

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To appreciate the complexities of Erythroblastosis Fetalis, one need go no further than blood typing. Whereas, formerly there were the major blood types of O, A, B, and AB only, many more sub-types have been recently demonstrated, such as C, D, E, Kett, Lutheran, M and N, and others. That which concerns us most is the CDE, or Rh, group.

This group may be pictured as follows: each individual has two chromosomes with three compartments for C or c, D or d, and E or e. If there are no C, D, or E factors in either chromosomes and only c, d, and e, the individual is considered Rh negative. If any one or more of the compartments contains C, D, or E, the individual in Rh positive. Any comibnation of C, D, E, or c, d, e may occur. The more common, after Snyder[1], for American whites are CDe/cde, CDe/CDe, CDe/cDE, cDE/cde, and cde/cde. There are, however, thirty-six possibilities. Only about thirteen percent are cde/cde, or Rh negative, and the rest are theoretically Rh positive, as they have at least one factor C, D, or E. Most of the individuals have D, as shown above, and for all practical purposes, only D is of importance, as it is the only factor which has antigenic significance. C and E are relatively ineffective antigens when acting alone. Even though the fetus may contain D and the mother is cde/cde, or Rh negative, certainly not all of the fetuses develop erythroblastosis. Fisher[2] has calculated from the data available at the Blood Grouping Laboratory of Boston, that statistical chances of an Rh negative woman being sensitized by the Rh factor through pregnancy alone, varies with the compatibility of the husband in the ABO system. His figures are as follows:

1. Husband Rh positive, ABO group and zygosity unknown—5%.
2. Husband compatible in ABO system, and Rh positive homozygous—11%.
3. Husband incompatible in ABO system and Rh positive homozygous—4.5%.
4. Husband compatible in ABO system and Rh positive, heterozygous—3%.
5. Husband incompatible in ABO system and Rh positive, heterozygous—1%.

Although these figures refer to sensitization by pregnancy, sensitization by transfusion may be a much more common occurrence so that it behooves the physician to avoid the administration of Rr positive blood to Rh negative women.

The level of antibodies which develop in the mother whose child has erythroblastosis has recently been shown by Vaughan and Allen[3] to be of prognostic and therapeutic value. Although it has previously been considered of no great value, his statistical analysis has demonstrated that there is a high correlation between the high titers in the mother and the severity and mortality of the disease. The level at which the titer becomes statistically significant is one to sixty-four. At this level the number of stillbirths, the severity of disease, and the incidence of kernicterus all are increased. It may be, therefore, of value in prognosis and therapy.

To turn to the patient with erythroblastosis, the establishment of a diagnosis is of prime importance and is not necessarily easy. Syphilis, sepsis, and congenital obliteration of the bile ducts must be considered in the diffferential diagnosis. However, in a suspected case, the Coombs[4] test is very useful. This consists of adding anti-human gamma globulin rabbit serum to a suspension of washed red cells from the cord. Agglutination occurs if coated cells are present. The demonstration of erythroblastemia may not be easy as it is in index of bone marrow response, and the diagnosis is not infrequently made without the typical smear.

Concerning the therapy one should tailor the treatment to the individual patient. Exchange transfusion as described by Diamond[5] is a very simple and easy method for giving blood to a baby and obviating the future necessity of repeated small blood transfusions. For the most part, it is probably not a life-saving procedure but it is the simplest method of transfusing an erythroblastotic baby and keeping a reasonable red

cell level for quite a long period of time. The procedure is usually done by passing a catheter into the umbilical vein and attaching the syringe to the catheter. An exchange of twenty millimeters of the donor's type O, Rh negative blood with an equal amount of he baby's blood is done, until about a half liter is transfused. It is followed by an installation of five to ten milliliters of calcium gluconate the citrate in the transfused blood. It is a simpler method with more lasting effects on the anemia, than repeated small blood transfusions, and so has gained a great popularity. The present indications for exchange transfusion are somewhat as follows:[6]

1. Any baby with clinical manifestations of erythroblastosis at the time of birth with a hemoglobin below twelve to thirteen grams, and a red count of between three and four million.

2. Any baby wih positive Coombs test, whose mother had an antibody titer of one to sixty-four or higher during pregnancy.

3. Any baby with a positive Coombs test and an early onset of jaundice or splenomegalia.

4. Any baby who is Rh positive, with a positive Coombs test and with a past history of kernicterus in the family.

These are the present indications for the exchange transfusion. It is felt that perhaps there is a decrease in the number of patients with kernicterus; perhaps there is a decrease of deaths; but certainly there is a marked decrease in the difficulty of handling a child as contrasted to the usual way.

The usual method of multiple small transfusions is used when the child has been delayed twenty-four hours in reaching an area where an exchange transfusion may be done, or who does not give positive indications for an exchange trnsfusion, but who has a gradual lowering of the blood count. Small transfusions, to maitain an adequate level, are given. These are, of couorse, more difficult as they usually have to be done by scalp transfusion in an edamatous child. However, the usual rule of thumb is to maintain the blood level above 3.5 million[7]. This allows the patient plenty of blood for metabolism, but does not give so much blood that it inhibits the stimulation that anemia gives to the bones marrow.

The third point in treatment, is the induction of labor. Should physicians undertake an early induction of labor to allow the child to be delivered before a high antibody titer is reached? This procedure has about been given up. It is strongly discouraged as a routine procedure because of the great increase in incidence in kernicterus in immature babies, as well as the increase in neonatal deaths from erythroblastosis where kernicterus does not occur[7]. There have been too many cases now in which a woman having had four or five or more successive stillbirths has produced a normal baby to warrant the early induction of labor. Any individual problem can be very difficult, but, for a general rule, labor may be induced after the thirty-ninth week, or later, if the baby is paricularly large.

Now what is the over-all prognosis of erythroblastosis? Twenty-five percent of Rh positive fetuses occurring in sensitized mothers die. Twenty percent, plus or minus, or born alive but die of kernicterus. However, seventy-five percent of the children who are born alive are normal[2]. I think it behooves the physician to evaluate adequately the possibilities of the development of erythroblastosis in any individual, and we can give the parents a fair idea of what is likely to happen from the statistics which are available. However, if we have a history of a previous child with erythroblastosis and the father is heterozygous, there is, of course, a fifty-fifty chance that the child will be completely unaffected. If homozygous and the previous child dies, the outlook is much less favorable. However, if one is able to determine the blood types of the parents, one is able to give some prognosis for future pregnancies.

THE BLOOD VESSELS OF THE STOMACH

A large audience listened with close attention and enjoyment to an address on the Blood Vessels of the Stomach by Mr. F. H. Bentley, Professor of Surgery at Durham University, at the Chest Institute Auditorium, on Thursday, March 2nd. A number who failed to be present, because, as we believe, the occasion was a special lecture to be delivered by a surgeon, while they themselves had no particular interest in surgical techniques, deprived themselves only.

Professor Bentley has a singularly youthful apparance, and his delivery has the deceptive ease of a pitcher who knows he will crease the plate every time—or to use a metaphor with which he is doubtless more familiar—a bowler who lifts the middle stump and sends the bails flying. His assumption at the onset that most people are content to know the stomach is supplied by two main arterial systems, the gastric and the gastro-epiplois, and that shifts of blood from viscera to skin and *vice versa* are qually commonplace acceptance, gave him a text to elaborate on. That is, what is commonplace should not be accepted without question. For instance we speak readily of the splanchnic area, and the fact that it may become a reservoir of practicallly the entire blood volume, without having any precise definition of the splanchnic vascular area and what it includes. We recognize tht raising the surface temperature of an extremity results in a normal shift of blood from visceral to skin vessels, but do not speculate on the reasons for and nature of abnormal shifts

The lecturer put forward as an hypothesis—and an hypothesis only—the possibility that the effector mechanism in peptic ulcer is a vascular aberration in the stomach wall. He then exhibited a series of beautiful microradiographs of the vascularization of the gastric wall, and dissections of the plexus of vessels in the submucous layer in which the vessels were displayed by the use of gelatine injections of appropriate dyes, culminating with the demonstration of arterio-venous anastomoses by which arterial blood is transferred to veins without the interposition of the usual capillary network. We use the expression "beautiful" advisedly, for these slides would delight the eye of any imaginative layman. Some of them would serve as ground patterns for fabric designs, while others suggested etchings of snow-scapes or Picasso-esque adventures in colour and form.

The surgical significance of anomalous structures and behaviours of the gastric submucous vascularization lies in the fact, as pointed out in his opening remarks by Professor Bentley, that surgical progress has about reached it's mechanical zenith, and that further surgical advance must wait upon the results of physiological research, which he so brilliantly exemplified.

The address deserved and received enthusiastic acclaim. At last one listener, whose knowledge of surgical problems and procedures is too small to permit him to appreciate fully the implications of Professor Bentley's work, found intense enjoyment in following his line of reasoning, investigation and resulting deductions. From this it can be seen how much it must have meant to the surgically-minded.

—D. E. H. C.

DR. W. A. WHITELAW

April 15th, 1950

Age 65

The death of Dr. Wilbert A. Whitelaw of Vancouver constitutes a major loss to the profession of that city, and indeed of British Columbia. To his legion of friends, it is a grievous calamity. Dr. Whitelaw was one of the outstanding internists of Western Canada, in addition to being a radiologist, whose ability and standing in that branch of medicine have long been recognized throughout Canada. Indeed, his reputation extended far beyond the boundaries of his own country.

Dr. Whitelaw was a very remarkable man. He had a photographic memory—read widely and constantly, and seldom seemed to have forgotten anything he had read—anything, that is, that he felt to be worth remembering. Many of us were constantly amazed at his feats in this regard. Consulted on some difficult or obscure problem of medicine, he would, after a minute of reflection, turn up "from the bonded warehouse of his knowledge", some article or monograph, often published many years before—would give the journal or book in which it appeared, with the exact date of publication, and send his interviewer away with exactly the information and help that he needed. To all who came to him with their problems, and they were many, he was a continual fount of help and counsel—and his own wide and wise clinical knowledge and advice were ever at the disposal of his fellows. To many of us who knew him well and went to him again and again for the wisdom and help he so freely and gladly gave, his loss is an irreparable one, if only for this one reason. He was generous to a degree, and it seemed that it was his greatest pleasure to be of help.

In his own chosen specialty of radiology, he, together with his able partner, set standards whihc will not easily ever be surpassed. His complete integrity, his endless industry and thoroughness, made his opinion in any case the final word. His gentleness and never ruffled courtesy, and the friendliness and charm of his manner, will always remain in our memory as even greater evidences of the character of the man.

The last few years of his life were not easy for him—a serious illness left him badly disabled, and cut off from many favourite activities, notably golf, a game of which he was very fond. But the handicaps of illness and physical loss did not daunt him at all, and he carried on with full vigour—in fact, he simply worked harder than ever. He died in harness, working to the end, and we believe he would have preferred it so.

To his wife, to whose loyal help he owed so much in his fight against his disabilities, and to his family, we extend our sincerest sympathy and condolences. To him we say goodbye. We have been the richer and the better for knowing him, and we do not know what better tribute we could pay to our departed friend.

News and Notes

Dr. G. Marion, Senior in pediatrics at the Vancouver General Hospital will next year to the Queen Mary Hospital.

Dr. H B. Van Wyck, Toronto obstetrician, was a guest speaker at the Pacific Northwest Obstetrical and Gynaecological Conference in Vancouver this month.

Dr. D. Gunn has moved from New Westminster to Burnaby for general practice.

Dr. Pierre Wolfe of Victoria was married to Hilda Eileen Harris last month.

Drs. A. C. Ross, J. W. Wilson and *J. A. Sinclair* of New Westminster attended the meeting of the American College of Surgeons in Seattle. *Dr. A. M. Agnew, Dr. Frank Turnbull* and *Dr. A. B. Schinbein* of Vancouver were guest speakers.

Dr. K. K. Pump, of Vancouver, has been working for the past year in Montreal with *Dr. J. S. L. Browne* on ACTH studies.

Dr. Malcolm T. MacEachern, former head of the Vancouver General Hospital is now Director of Hospital Administration for the American College of Surgeons, Chicago.

Dr. W. S. Maddin of Vancouver is now studying in New York City.

Dr. Frank Turnbull of Vancouver has been named president of the Harvey Cushing Society.

Dr. E. L. McNiven has been elected head of the Medical Committee of the Victoria Children's Aid Society.

Dr. W. D. Panton of the Vancouver General Hospital will enter practice at Hope with *Dr. R. D. Morrison.*

Dr. L. Harville, resident in obstetrics at the Vancouver General is joining the Rockwood Clinic in Spokane.

Dr. W. S. Kergin of Prince Rupert narrowly escaped drowning in a fall from his boat while two miles from shore.

Dr. D. McC. Black, PHO for Prince Rupert, is now PHO for Terrace in place of *Dr. A. W. Large.*

Dr. David Mowat of Vancouver is now living in Toronto.

Dr. E. Gallant of Deep Cove was honoured at a public meeting there last month for his community work.

Dr. Edwin Lewison of Vancouver is now completing his training in otolaryngology at New York City Hospital.

Dr. R. E. Brown of California has begun a practice in Peachland.

Dr. D. J. Millar of North Vancouver has retired to Horsefly, B. C.

Dr. N. W. Strong of White Rock has also retired from active practice.

BIRTHS

Dr. and Mrs. R. C. Talmey of Lulu Island, a son.

Dr. and Mrs. D. K. Merkley formerly of Vancouver, a daughter.

Dr. and Mrs. W. H. Sutherland of Vancouver, a son.

Facts for Quick Reference

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"NOCTINAL"

"Frosst" brand of Butabarbital N.N.R.

FOR SEDATION, HYPNOSIS AND TO AUGMENT THE ACTION OF ANALGESICS.

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Noctinal sodium..... ½ gr. (32 mg.)

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Noctinal sodium.....1½ gr. (97 mg.)

DOSAGE

For mild, continuous sedation: ½ to 1 grain, 2 or 3 times daily. In insomnia: 1½ to 3 grains about one-half hour before retiring. In excited states: 1½ to 3 grains, 2 to 3 times a day. Children: according to age and physical condition.

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Bottles of 100 and 500 tablets.

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Noctinal sodium .....4 grs. (0.26 G.)

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Adults: 2 to 3 fluid drachms in a wineglass of water. Maximum daily dose, two fluid ounces. Children: according to age and physical condition.

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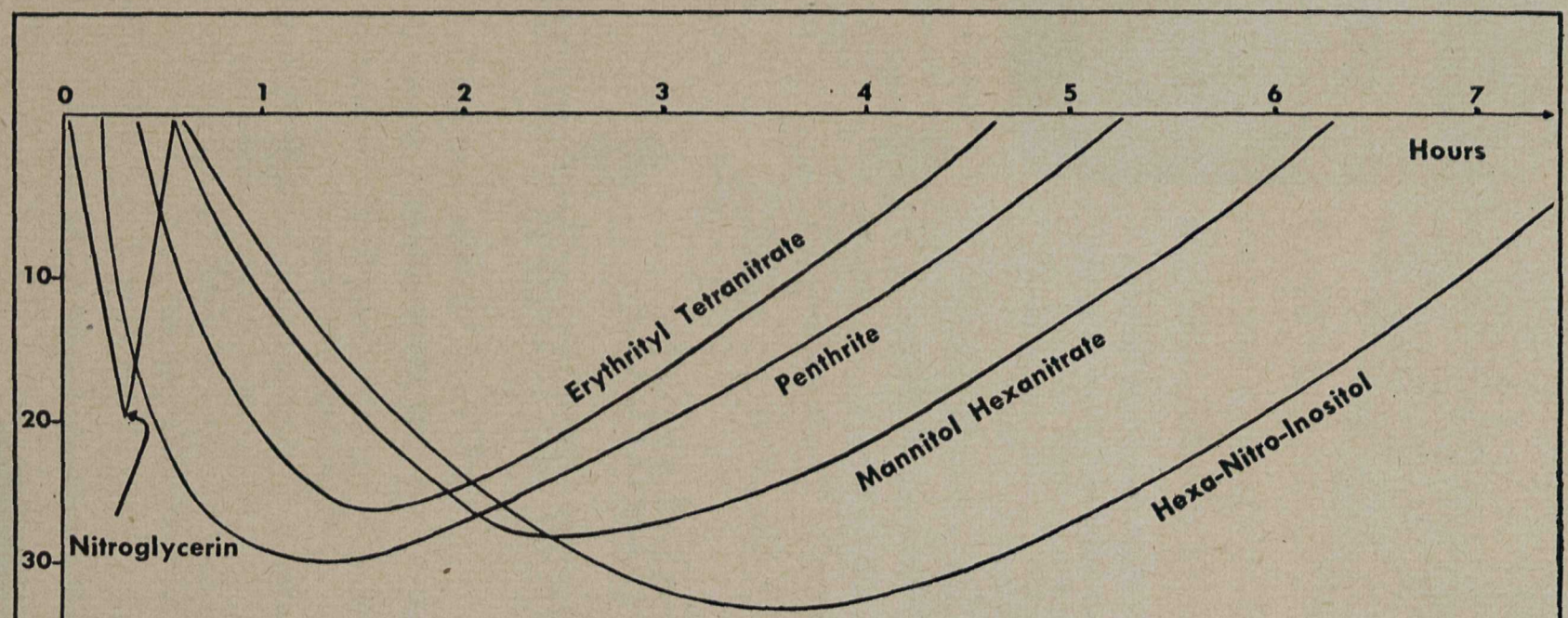

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One level teaspoon (2.8 Gm.) supplies:

Vitamin A	5000 Int. units
Vitamin D	1000 Int. units
Ascorbic Acid	50 mg.
Thiamine	1 mg.
Riboflavin	0.8 mg.
Niacinamide	5.0 mg.

Mead's
Mixed Vitamins Capsules

Each capsule supplies:

Vitamin A	10,000 Int. units
Vitamin D	1,000 Int. units
Ascorbic Acid	100 mg.
Thiamine	3 mg.
Riboflavin	4 mg.
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Soundly formulated
for reliable, convenient diet supplementation

For Infants and Young Children . . .

MEAD'S Polyvitamin Dispersion

6 important vitamins finely dispersed in a water-soluble powder.

Easily mixed with formula, fruit juice, cereal or other solid food.

Suggested daily dose: 1 teaspoon for infants; 1-2 teaspoons for children.

Available in 3 ounce jars.

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. . . "*Practically all of the patients in this series had previously used ergotamine tartrate to abort or relieve headache and they uniformly stated that E.C. 110 was more effective than ergotamine used alone*" . . .

(*Horton, Ryan & Reynolds, Proc. Staff Meet., Mayo Clin., 23: 105, 1948*).

. . . "*Although E.C. 110 (CAFERGONE) was developed primarily for the relief of the migraine attack, it is uniformly effective and has a much wider range of usefulness in the relief of headache of all other types, especially typical and atypical histaminic cephalgia*" . . .

(*Hansel, Ann. Allergy, 6: 155 — 161, 1949*).

. . . "*CAFERGONE . . . definitely seems to be an excellent preparation to use to abort headaches, especially those of the migraine and histaminic cephalgia types*" . . .

(*Ryan, Postgrad. Med., 5: 330, 1949*).

Literature and samples available on request.

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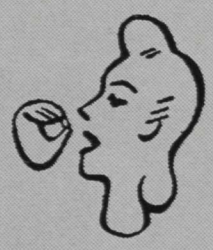
oral doses 
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Profound effect
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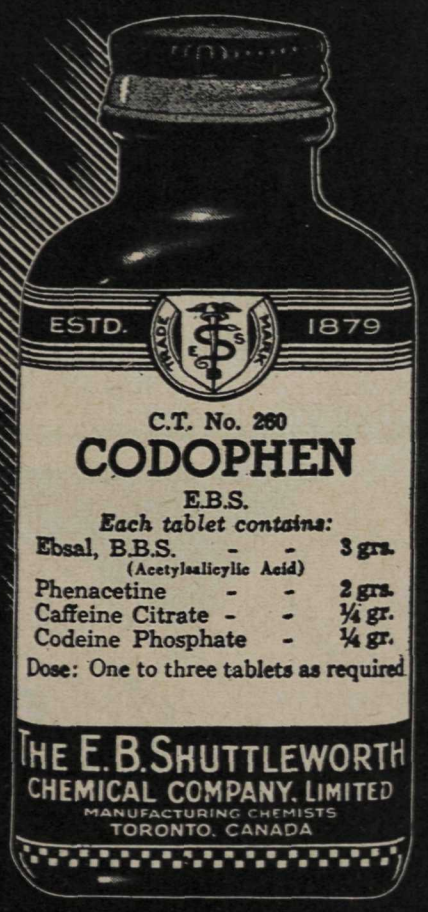

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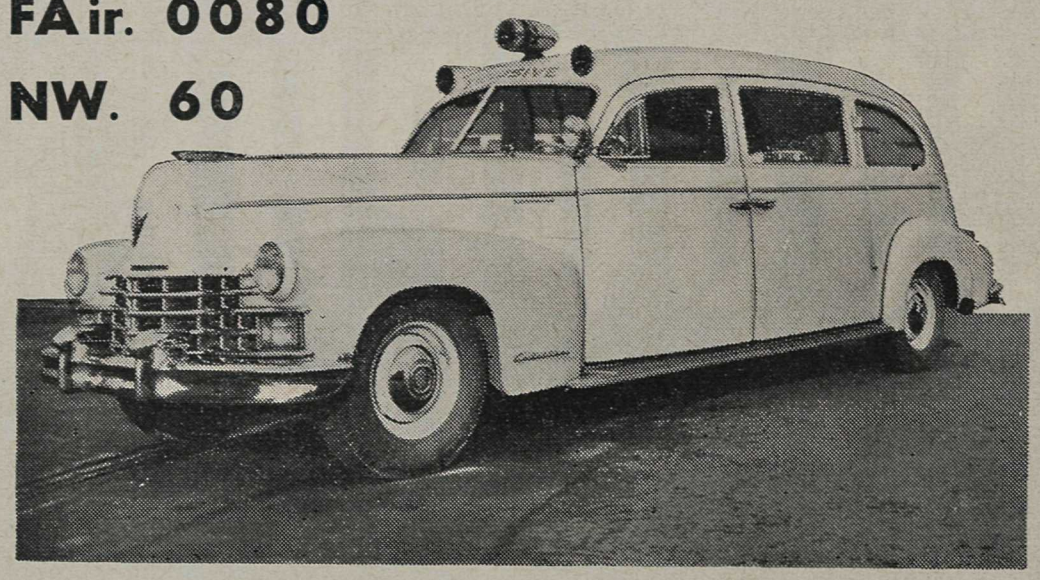

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Literature Available to Physicians Only.

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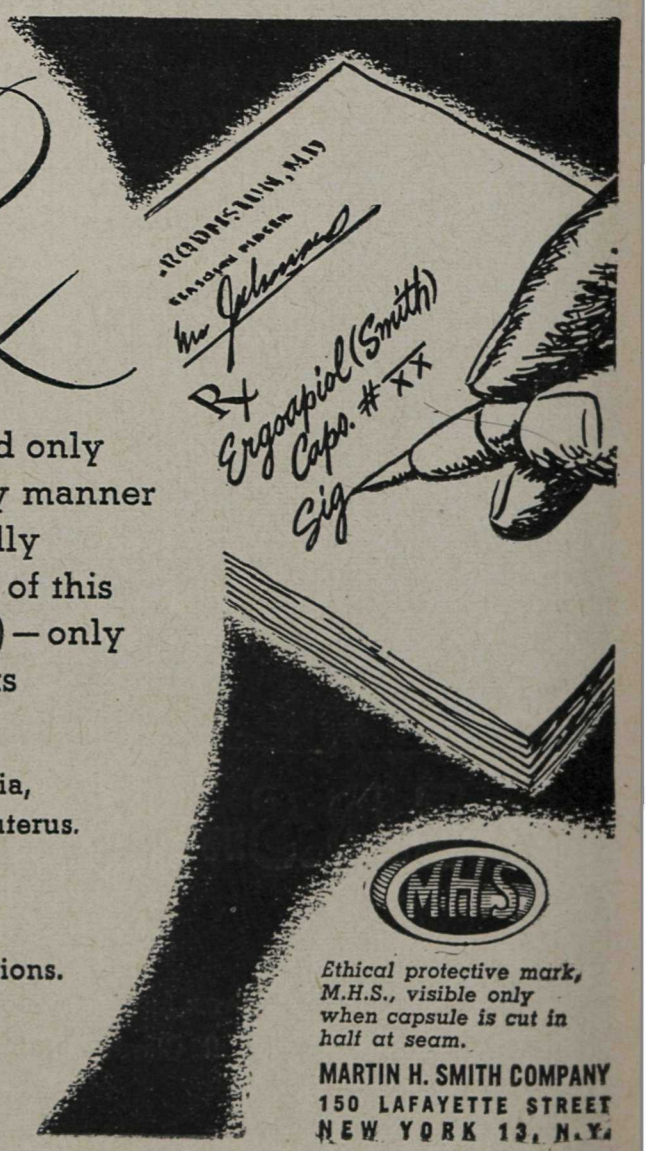

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