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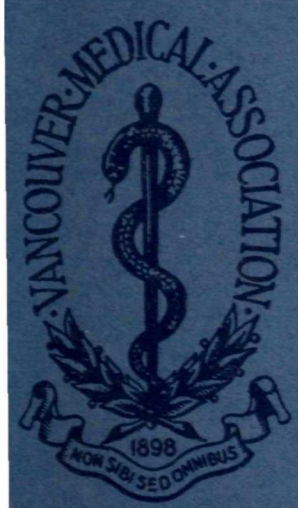

With Which Is Incorporated
Transactions of the

VICTORIA MEDICAL SOCIETY
the
VANCOUVER GENERAL HOSPITAL
and
ST. PAUL'S HOSPITAL

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ANNUAL SUMMER SCHOOL
VANCOUVER MEDICAL ASSOCIATION
May 29th to June 1st, 1945 (incl.)
Hotel Vancouver

VOL XXI. NO. 4 — JANUARY, 1945

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THE VANCOUVER MEDICAL ASSOCIATION

BULLETIN

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VOL. XXI JANUARY, 1945 No. 4

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VANCOUVER HEALTH DEPARTMENT

STATISTICS—NOVEMBER, 1944

Total Population—Estimated	299,460
Japanese Population—Estimated	Evacuated
Chinese Population—Estimated	5,728
Hindu Population—Estimated	227

	Number	Rate per 1,000 Population
Total deaths	289	11.8
Japanese deaths	----	Population Evacuated
Chinese deaths	12	25.6
Deaths—residents only	247	10.1
BIRTH REGISTRATIONS:		
Male, 275; Female, 256	531	21.6
INFANT MORTALITY:	Nov., 1944	Nov., 1943
Deaths under one year of age	16	17
Death rate—per 1,000 births	30.1	28.6
Stillbirths (not included above)	15	16

CASES OF COMMUNICABLE DISEASES REPORTED IN THE CITY

	October, 1944		November, 1944		Dec. 1-15, 1944	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Scarlet Fever	24	0	50	0	25	0
Diphtheria	0	0	1	0	0	0
Diphtheria Carrier	0	0	0	0	0	0
Chicken Pox	29	0	43	0	43	0
Measles	74	0	153	0	90	0
Rubella	2	0	9	0	4	0
Mumps	20	0	0	0	2	0
Whooping Cough	32	0	37	0	8	0
Typhoid Fever	0	0	0	0	0	0
Undulant Fever	0	0	0	0	0	0
Poliomyelitis	1	0	0	0	0	0
Tuberculosis	40	8	53	18	--	--
Erysipelas	1	0	1	0	3	0
Meningococcus Meningitis	0	0	0	0	1	0
Paratyphoid Fever (Carrier)	0	0	0	0	0	0
Infectious Jaundice	6	0	1	0	2	0
Typhi-murium (Carrier)	6	0	0	0	2	0
Dysentery	2	0	0	0	0	0

V. D. CASES REPORTED TO PROVINCIAL BOARD OF HEALTH
DIVISION OF VENEREAL DISEASE CONTROL

	Vancouver	Rich-Richmond	North North Vancr.	Burnaby	West West Vancr.
Syphilis	59	0	0	0	0
Gonorrhœa	116	0	1	1	0

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Ipral Calcium is considered as belonging to the class of barbiturates which possess a moderately long duration of action. Administered orally, approximately an hour before sleep is desired, one or two 2-grain tablets are usually sufficient to induce a 6 to 8-hour sleep from which the patient awakens generally calm and refreshed.

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* * * *

PROGRAMME OF THE FORTY-SEVENTH ANNUAL SESSION

GENERAL MEETINGS will be held on the first Tuesday of the month at 8:00 p.m.

CLINICAL MEETINGS will be held on the third Tuesday of the month at 8:00 p.m. These meetings will continue to be amalgamated with the clinical staff meetings of the various hospitals for the coming year. Place of meeting will appear on the agenda.

General meetings will conform to the following order:

8:00 p.m. Business as per agenda.
9:00 p.m. Paper of the evening.

February 6—GENERAL MEETING:
Carcinoma of the Cervix—Dr. Ethlyn Trapp.
Late Manifestations—Urological—Dr. L. R. Williams.
Rectal—Dr. A. T. Henry.
Neurological—Dr. Frank Turnbull.

February 20—COMBINED CLINICAL MEETING AND STAFF MEETING AT ST. PAUL'S HOSPITAL.

March 6—OSLER DINNER, HOTEL VANCOUVER:
OSLER LECTURER — DR. HOWARD SPOHN — "The Employment of Leisure."

March 20—COMBINED CLINICAL MEETING AND STAFF MEETING AT VANCOUVER GENERAL HOSPITAL.

April 3—GENERAL MEETING: Activities of a Field Surgical Unit: Major Rocke Robertson, R.C.A.M.C.

April 17—COMBINED CLINICAL MEETING AND STAFF MEETING AT ST. PAUL'S HOSPITAL.

May 1—ANNUAL MEETING.

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ESTABLISHED 1893

VANCOUVER, B. C.

North Vancouver, B. C. Powell River, B. C.

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Commencing January 1, 1945, the present 4-cc. and 12-cc. vials of Liver Extract Injectable will be discontinued, and the product will be supplied in packages containing *single* 5-cc. vials and in muliple-dose packages containing *five* 5-cc. vials. The larger package is for the convenience of hospitals and clinics. It is also available to physicians. The increase in volume per vial permits a reduction in price per cc. and means a saving per dose to the patient.

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DEPOT FOR BRITISH COLUMBIA
MACDONALD'S PRESCRIPTIONS LIMITED
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The Editor's Page . . .

The BULLETIN recently received a publication issued by the new Government of Saskatchewan. This little booklet sets forth in condensed form a summary of the programme that the Government plans to initiate in the coming years of its rule. A great deal of it is of general interest chiefly: dealing with economic questions, legislation of various sorts, education and so on: but one section deals with the new Health Services that the Saskatchewan Government hopes to inaugurate—"a Health Service for all." This is of interest for several reasons: *first*, because according to the section referred to, an agreement has been arrived at with the organised medical profession in Saskatchewan: as to fees, methods of payment, amount and kind of service given, and so on. We should be greatly interested in knowing just how this agreement was arrived at: how far it conforms with the minima laid down by the Canadian Medical Association; just to what extent medical service is to be given, and, quite an important matter, how it is to be paid for, and on what scale. We would expect that the Economics Committee of the B. C. Medical Association has already asked the Saskatchewan College of Physicians and Surgeons for details of the agreement: and if they have not yet done so, they will probably so do very soon. We should greatly like to know how any very great extension of medical services is going to be given anywhere, with our present acute shortage of medical personnel. But we must confess that in the absence of direct assurance from the medical profession of Saskatchewan that such an agreement has been arrived at, we are rather skeptical about such a possibility. We seem to remember some years ago reading in the public press that the B. C. Government was coming to an agreement with the medical profession of B. C. as to a Health Insurance scheme—when as an actual matter of fact, there was no possibility of agreement. We have an idea, that unless the medical profession of Saskatchewan is very different from its brethren elsewhere, or the Government of Saskatchewan has made a very different offer to any made by any government so far, there is an undue degree of optimism on the part of the said Government. But it is, of course, possible that a genuine and practicable offer has been made and accepted. Till we hear further details, we must suspend judgment.

Secondly: the plans put forward by the C.C.F. Government in Saskatchewan are based on the Sigerist Health Services Survey made some time ago, and the report made by Dr. Sigerist to the Saskatchewan Government. Dr. Sigerist is a very well-known and able man—and his Report will be of great interest and value. We do not know if a copy is to be obtained in the Library: but it should be easily possible to secure such a copy.

We are publishing a large part of this Section of the pamphlet in the BULLETIN. It may not be in this number, but will be in either this or the next one.

* * * *

Later in this issue, we publish a Brief prepared on the matter fo a Medical School, and designed for the information of the members of the medical profession. We feel very strongly that every endeavour should also be made to educate the public at large, and give them the facts put forward in this Brief. We cannot expect the layman, the business man, the engineer, the teacher, the man in the street, to share our enthusiasm about a medical school, unless we tell them the facts, as fully and freely as we can, and arouse first their interest, then their willingness to co-operate towards this end. We feel that this is not a matter that specially benefits us as a profession, or if it does, it is only secondarily. It is a matter that vitally concerns the citizenry of B. C. They need better medical service, more of it, a better distribution, more prevention of disease, etc. They need openings for their sons, who may wish to study medicine. They need the strength that such a Faculty would add to their University. But they will not know this till they are told. Boards of Trade, Service Clubs, Women's Organizations. etc., should be told the facts. We feel that there is a definite job for each medical man here, to be a missionary in this line, and a source of accurate and convincing information.

LIBRARY NOTES

RECENT ACCESSIONS TO LIBRARY—

Managing Your Mind, 1944, by S. H. Kraines and E. S. Thetford.

Young Offenders, 1943, by A. M. Carr-Saunders, Hermann Mannheim and E. C. Rhodes.

Oxford Loose Leaf Supplements—

New Articles—

Dwarfism, by A. Grollman

Non-Bacterial Pneumonias, by H. A. Christian

Alcoholic Intoxication and Alcoholism, by E. A. Strecker and T. D. Rivers

Drug Addiction, by H. D. Palmer.

Revisions of Articles—

Diseases of the Aorta, by R. W. Scott

Diabetes Mellitus, by R. Fitz

Influenza, by H. A. Christian

Meningococcus Infections, including Cerebrospinal Fever, by W. W. Herrick

Poliomyelitis, by J. L. Wilson

Tetanus, by J. W. Williams and C. W. McClure

Unusual Diseases, by F. R. Taylor (part revision).

BOOK REVIEW

MANUAL OF MILITARY NEUROPSYCHIATRY, Harry C. Soloman and Paul I. Yakovlev, W. B. Saunders Company, Philadelphia and London 1944 (price $6.00 (U.S.).

This manual is contributed to by forty-five authors and contains about seven hundred pages and the index. The preface points out that the Manual had as its predecessor the "Collected Lectures" of the "Seventh Postgraduate Seminar in Neurology and Psychiatry, including a Review Course in Military Neuropsychiatry." It is intended as a reference text on topics of clinical neurology and psychiatry, especially for officers who have not access to libraries, textbooks, etc.

The Manual is divided into six sections as follows:

I. Introductory
II. Induction
III. Administration and Disposition
IV. Clinical Entities
V. Prophylaxis and Therapy
IV. Special Topics

Section One discusses neuropsychiatric experiences of the First World War and is followed by a description of the general organization of neuropsychiatry in the army during the current war.

This section as well as Section Two on "Induction" and Section Three "Administration and Disposition," describes the methods in use in the American services. While these sections are of more value to our American colleagues, they are of interest in giving us a quick resume of the organization in the American services. These sections occupy 127 pages of the manual.

Section Four on "Clinical Entities" is contributed to by seventeen outstanding men in the fields of neurology and psychiatry and many of the common but difficult problems are discussed in a very clear and satisfactory manner. In fact, in this section alone there are enough excellent articles to make the book well worthwhile. To mention a few of the subjects only is difficult but the sections of "Psychoneurosis and Psychosomatic Medicine" by Finesinger and Cobb, "Alcohol and Alcoholism" by Strecker, "Epilepsy and Paroxysmal Neuropsychiatric Syndromes" by Lennox, "Spinal-Cord Injuries" by

Munro and "Post-Traumatic Syndromes" by Denny-Brown give an indication of the quality of the contributors.

Section Five on "Prophylaxis and Therapy" will be of particular interest to those dealing with Military cases. Actually some of the articles deal chiefly with the question of whether or not certain treatments should be used while the patient is in the service or whether his discharge should be hastened so that treatment (if then indicated) may be undertaken under more favourable conditions.

Section Six deals with "Special Topics" such as "Neuropsychiatric Disorders in the Tropics," "Physiology of Flying," etc. While these subjects have a definite place in a manual such as this, they will, of course, have less general appeal than some other sections of the Manual.

All in all, the editors and authors are to be congratulated on the production of this Manual and on the gathering together of so much useful material by so many noted authorities in such a small space.

G. A. D.

The following was taken from *The Highland News* (Inverness paper) dated May 20, 1944.

CANADIAN SURGEON FIGHTS AS PRIVATE

(By a Military Observer)

"Before the war I was by profession a surgeon in Vancouver, but when I came to England I gave up medical work and in 1941 enlisted in the British Army as a private and have taken part in the fighting in Sicily and Italy. I have no wish to change now," said Arthur Procter, a private in the London Scottish, who was awarded the Military Medal in Sicily for gallantry, in an interview recently. Private (Surgeon) Procter has relations in Inverness.

"Anzio was the dirtiest, toughest spot we have been in so far," he added. "Perhaps the worst aspect of it all was the weather which made conditions appalling."

Private Procter acted as a countersniper during the day and at night went out on patrol, mostly alone. One of his favourite hobbies in Canada was duck shooting and he has found his proficiency with a sporting rifle of great service. He declared that the fighting in the wadis at the bridge-head was so confused, especially at night, that they sometimes found Germans behind them as well as in front.

German snipers were particularly active during the day and it was his task to outmanoeuvre them and shoot at them when they revealed themselves. To do this meant keeping a lonely vigil for hours. Air bursts, he thought, made the wadis very uncomfortable at night and in many respects it was safer to go out on patrol armed with a tommy-gun and grenades.

"In five nights I heard the challenge "Hands up" seven times, sometimes in English and sometimes in German," he added. "It was always best to get away quickly because the Germans never wasted much time in firing. Maybe they were jittery."

Private Procter was awarded the Military Medal for gallantry at the Primoscle bridge, near Catania, Sicily. He went out sniping with his platoon commander and caused the enemy to reveal their positions. Fire from the platoon and a supporting tank was brought down on the enemy and, thinking they were outnumbered, nine officers and 112 men surrendered. "They were livid when they realised they had given themselves up to such a small force," said a London Scottish Officer.

Private Procter's home is at 1416 40th Avenue, Vancouver.

* * * *

The above will, we are sure, be of great interest to many Vancouver doctors who knew Dr. Procter when he practised here.—Ed.

ITEMS OF GENERAL INTEREST

The Hospital for Joint Diseases, 191 Madison Avenue, New York, has sent us a notice of several forthcoming vacancies to be filled on its general rotating service; the notice will be found posted on the notice board at the Vancouver General Hospital. There are twelve places—for nine months' interneship—beginning July 1, 1945.

Some of those appointed will be kept on as Junior Residents, and of these some as Senior Residents.

The schedules cover every branch of medicine and surgery, including also physical therapy and radiology.

The Hospital, which is approved by the A.M.A. and the American College of Surgeons, provides maintenance, uniforms and a stipend of $25.00 a month.

Graduating students and graduates of Class A medical schools are eligible.

This is a general hospital featuring orthopædic surgery.

* * * *

The Canadian Fuel Conservation Society of 31 Willcocks Street, Toronto 5, sends us reminders of the need of conservation of fuel. It urges the greater use of weather-stripping insulation, and deals with the respective values of hardwoods as fuel. It is of interest to know that 1¼ cords of heavy hardwoods, such as maple, beech, oak, yellow birch, is the equivalent of one ton of anthracite. Softer woods give much less heat—and the reference is to the use of wood in furnaces instead of coal. Probably, they conclude, "the automatic coal stoker represents by far the greatest step which the harassed home-owner can take. . . ."

* * * *

Dr. Laenger, the Technical Director of T. R. Geigy, the Swiss organization, which brought out the insecticidal properties of D.D.T., has been given the honorary degree of Doctor of Medicine by the University of Basle.

D.D.T. is the amazing insecticide which has done so much to remove the danger of mosquitoes, lice, etc., and so of malaria, typhus and other similar diseases among overseas troops. In Naples, typhus was most successfully combated by its use, and in the Pacific, malaria is being attacked.

* * * *

We referred some time ago to the importance of using proper colour schemes in tunnels and in traffic generally to cut down and forestall accidents. Another important question is light reflection, with a view to lessening lighting bills, in schools, homes, hospitals, etc. Careful experiments have been made along this line by the Canadian Paint, Varnish and Lacquer Association—and a circular from them goes into this. It concludes: "It has been proven by scientific tests that the eyes work most efficiently with less fatigue when the surroundings are not noticeably darker than the work that is illuminated—therefore lightly illuminated work in dark surroundings is not conducive to best results." In schools, factories, etc., workers and students are happier, more cheerful, and accidents and wastage are greatly lessened where proper colour schemes are worked out.

* * * *

An interesting reference is made in another circular from the Association to the colour scheme of Canada's newest hospital ship, the *Letitia,* on which some of our B. C. medical men and nurses are now working, and which is recognized as one of the finest hospital ships in the world.

The wards are painted, not white, as was the former custom, but a soft green, of a light tint. The corridors of the ship are finished in a darker green. The ceilings are finished in a pleasant buff colour.

To use the words of Dr. C. Harvey Agnew, Secretary of the Department of Hospital Services of the Canadian Medical Association, colour is "an item of major importance" in the psychological treatment of a patient.

It is of interest, too, to know that two fire-resistant paints have been developed since the war began for use on ships. One of them, chiefly used on steel, will discolour but not burn—the other, for protection of woodwork, gives off a fire-smothering vapour when exposed to flame.

* * * *

We are indebted to Canadian Industries, Limited, for some of our items of general interest. One tells of an all-plastic artificial eye fitted to a Canadian soldier who lost an eye at Dieppe. This eye was developed by a Montreal dental technician, Russell Copeman. It has many advantages over the glass eye hitherto used—it is safer from breakage, lighter, less influenced by temperature or chemical reaction, and is more easily moulded to the shape of the individual socket so that it is more easily moved, and looks more natural. These things are of great significance to those who need artificial eyes.

* * * *

European type cheeses are now being made in Quebec and in the experimental factory at the Provincial Dairy School, Ste. Hyacinthe, Quebec, a great deal of work is being done that is contributing greatly to one of the main industries of Canada.

* * * *

Of interest to B. C. inhabitants, with our harbours and piers, is the new use of dynamite to destroy timber-eating teredo worms, and lengthen the life of the wooden piles, so widely used and which till recently had to be renewed so often on account of the destruction wrought by teredos. It was found that a severe shock, such as the dropping of a pile-driver hammer upon the head of the pile is highly destructive to the teredos in the pile. This, however, is not a good method, as being too damaging to the structure.

Accordingly, experiments were concluded with dynamite charges fired in the close vicinity of the piling. Charges are suspended in the water at 10 to 12-foot intervals, and fired at low tide. It is found that the life of the piling is lengthened by several years. One large operator on Vancouver Island does this at two-month intervals.

AMERICAN COLLEGE OF SURGEONS ANNOUNCES 1944 APPROVED LIST OF HOSPITALS IN U.S.A. AND CANADA

In 1918, the first survey included 692 hospitals of 100 beds or over—only 12.8 per cent (89) merited approval.

In 1944, 2,342 hospitals of 100 beds or over were surveyed. 93.1 per cent (2,182) were approved; of 1,119 hospitals, 50 to 99 beds, 70.3 per cent were approved; of 450, 25-49 bed hospitals, only 40.2 per cent were approved.

This represents an enormous improvement in hospital standards, and we have to thank the American College of Surgeons, through its director, our old friend Dr. Malcolm McEachern, for a great deal of this. This organization has high and rigidly controlled standards.

DR. JAMES

Has removed to Broughton street opposite the City Chambers. Philip James, M.D., Diplomatized Eclectic Physician. Extracts Polypus and Cancer without the use of the knife. Rheumatics cured in one hour without pain. He is now using the *Electric Magnetic Machine* with good effect in many diseases of Rheumatic, Palsy or Paralysis and Fits. N.B.—Special attention given to all diseases of women and children.

(From the *Daily British Colonist*, Victoria, B.C., Sept. 29th, 1876.)

A MEDICAL SCHOOL FOR BRITISH COLUMBIA

The following is addressed primarily to every medical man in British Columbia. If your representative in the Legislature asked you today, "Why do we need a Medical School in British Columbia?" could you, no matter how firmly you believe we should have such a school, give him five or six adequate and convincing reasons for your belief? or do you know anything of the facts which were presented to the Executive Council of the British Columbia Cabinet by Dr. K. D. Panton and his Committee on January 17th?

We think the answer to both these questions is in the negative—and we think that it is of vital importance that every medical man should know these facts, and be able to give chapter and verse for his advocacy of a medical school. It is, we firmly believe, more firmly as we know more about it, one of the prime needs of this fair Province of ours—and indeed, it is a Canadian need, not merely a provincial one. But we ask you to read the following Brief carefully and keep it by you—the BULLETIN will keep the type set up for a time, and if there is a demand for it, we can furnish reprints of this Brief, for your use, and for circulation.*

A. *The present situation—in Canada as a whole.*

Canada needs more doctors than we have now. The present shortage is very acute. To some extent this will be remedied after the War, but by no means completely.

1. The population of Canada has increased by more than 1,100,000 in the past three years—and will continue to increase.

2. A large programme of social legislation is contemplated, and will, we are told, be put into effect after the War. This includes a programme of Health Insurance.

This is urgently necessary, we all agree. But a conservative estimate is that such a programme will require from 25% to 40% more doctors (more patients, more preventive medicine, mental hygiene, etc.) than are normally available. Where are they to come from?

No scheme of Health Insurance can possibly be put into effect with our present limited supply of doctors.

3. Refresher and postgraduate courses are to be given to all medical men returning from overseas. This will greatly overcrowd the present capacity of Canadian Medical Schools.

4. Canada has at present nine medical schools from which medical men may graduate. The total average annual output is somewhere between 530 and 550, not nearly enough to take care of all the needs. These schools cannot greatly enlarge their output. Other schools are necessary. *Two years ago the Deans of these schools strongly recommended that a new medical school be established in British Columbia.*

B. *The situation in British Columbia.*

1. The facts as given above, applicable to Canada as a whole, are equally true of British Columbia in particular.

2. There are at present 201 students in the University of B. C. who wish to study medicine, and are taking pre-medical work—where are they to finish their course? Of these a *maximum* of 38 *may* be accepted by Eastern Universities—not more—and certainly less—for they must all be high honour graduates, and must compete with entries from all over Canada. Probably not more than 25 or 28 will be accepted. Toronto has closed her doors to any but Ontario students; other universities will undoubtedly follow suit. These boys have spent from six to ten years preparing for their clinical years—and this will be a total loss to over 80% of them.

In any case we should not have to beg for places for our graduates—we should, and can, provide for their education ourselves.

3. *The cost.* Today about 150 medical students from B. C. are attending Eastern medical schools. The cost to each one is about $1500 per year—a total of $225,000

*Since the above was written, we learn that the B. C. Government proposes to devote a sum of money to the creation of a medical faculty in the U.B.C. The plan is not yet clear, but we naturally rejoice. But we are publishing the above as a brief summary of the salient facts and for future reference.—ED.

annually. This is, first of all, a very serious drain on their parents' resources, and is, further, a reason why many excellent students and potentially excellent doctors, are debarred from pursuing a medical course. The expense here would be greatly less, and the money would be spent in B. C.—and would go to the upkeep of a medical school. British Columbia students face especial difficulties of transportation, owing to geographical conditions.

4. B. C. has already the nucleus of a medical school. It can already supply the pre-medical education, and the Institute of Preventive Medicine now in process of construction would add further to our present equipment. Biology, Bacteriology, Public Hygiene and Preventive Medicine, together with Chemistry, Anatomy and Physiology are all within our present powers.

5. We have the population in B. C. both to justify the construction of a medical school, and to provide for its maintenance and equipment. We have an excellent University to which it can be attached.

6. We have ample hospital accommodation and facilities. These, in Vancouver especially, are now greater than are available in most of the university centres in Canada.

7. We have ample sources of teaching personnel in the way of specialists, well-trained medical men, bacteriologists, chemists, pathologists, etc., to form a faculty of teachers.

C. *What a Medical School would mean to British Columbia.*

1. It would be a very powerful addition to our University of B. C., indeed a very great asset to British Columbia. It would afford much-needed opportunities to our young men wishing to become doctors. It would greatly reduce the expense of medical education to our own students—it would do much to enable improvements in social legislation—it is vitally necessary to Canada as well as B. C.

Such a school, as time went by, and it was expanded, would attract students from other parts of Canada, and even, as has been the experience of all Canadian schools, from the United States.

It would elevate the standards of medical practice here, and provide opportunities for highly-trained men to teach others.

The history of Canadian Universities has always been that a strong Medical Faculty has been one of the greatest assets the University could have. For many years the existence and continued activity of the Medical School was the only thing that kept McGill University's Charter alive—and today her Medical and Engineering Faculties are her two strongest faculties and have brought fame to the University.

In Toronto, the work of the Medical Faculty and its long list of great names, with Banting and Best, and Gallie and Graham amnogst the leaders in Medicine on this continent, has been the outstanding contribution of the University of Toronto to Canadian life, along with its great Osgoode Hall Law School. And so a strong Medical School in the U.B.C. will be a great tower of strength to the University. Other schools we need, too, a Law School for one, but the great present crying need is for a Medical Faculty in the University of British Columbia.

Such a Medical School would afford opportunities to citizens of means, who wished to do so, to perform a great service to their country and province by endowing chairs, by giving libraries, by donations to research, and in many other ways—no finer memorial can one leave than such a gift—as every University can tell.

We need, too, other schools of allied nature—Dentistry, Pharmacy, Special Research Departments. These would be natural developments, all now badly needed. They are not likely to come without a Medical School—and at any rate would not reach as great efficiency and adequacy of development.

We need, of course, in B.C. other things—a Law School, more money spent on Arts, Engineering, Agriculture, and so on. These are all necessary too. But a Medical School is a vital necessity.

If our social progress is to be maintained, we must have more doctors. We cannot continue to sponge on other Provinces (the Medical School pays two-thirds, the student one-third of the cost of training a doctor), we must stand on our own feet. Every medical man, every citizen of B. C. is vitally interested—we should all get behind this scheme and urge it, in season and out of season. Boards of Trade, Women's Associations, Social Councils, all public groups, service clubs, etc., should be told of these things, and their interest and support enlisted. Only so can we get an educated public opinion. We are confident that if these facts were known to the public at large, we should receive the support of all thinking people.

One final word as to cost. The figures for this are at present not available to any degree of accuracy, but we are assured by members of Dr. Panton's Committee that the cost at the outset would be quite moderate—and well within the sums which have been allocated by the Government of B. C. for use in such directions.

HOSPITALS APPROVED FOR GRADUATE TRAINING IN SURGERY

The American College of Surgeons announces that 231 hospitals in the United States and Canada have been approved for Graduate Training in general surgery and the surgical specialties. The list of approved hospitals for this purpose is published in the annual Approval Number of the Bulletin of the College just issued.

In announcing the new Approved List, Dr. Malcolm T. MacEachern, Associate Director, states that 500 or more surveys of hospitals offering opportunities for graduate training in surgery are planned during the coming year, the increased emphasis upon this work being stimulated by the need for providing ample opportunities for resumption of training by medical officers when they return from service with the Armed Forces. The College, through Major General Charles R. Reynolds, Consultant in Graduate Training in Surgery; Dr. George H. Miller, Director of Educational Activities; Dr. Paul S. Ferguson, Director of Surveys, and a field staff, helps hospitals to organize graduate training programmes to meet the requirements for approval, and also plans to aid physicians returning from service in resuming their training in surgery.

The hospitals in this area which are approved for graduate training in surgery are as follows:

QUEBEC

Name of Hospital and Location		Capacity	Approved for Graduate Training in
MONTREAL			
Montreal General Hospital		607	General Surgery
Central Division	450		Otolaryngology
Western Division	157		
Montreal Neurological Institute			
Victoria Hospital		550	General Surgery
			Otolaryngology
			Urology
			Obstetrics and Gynecology
			Neurological Surgery

ONTARIO

TORONTO			
Hospital for Sick Children		432	General Surgery
St. Michael's Hospital		643	General Surgery
Toronto General Hospital		1144	General Surgery
			Obstetrics and Gynecology
Toronto Western Hospital		518	General Surgery

Vancouver Medical Association

CLUB FEET

By Gerald L. Burke, M.D.

(Read at meeting of Vancouver Medical Association, December 5th, 1944.)

I bring you this evening a paper on club feet, a subject, I am afraid, of not much interest, possibly a subject of profound dullness to the profession at large. In fact, I have wondered if there were any connection between Frank Turnbull's inviting me to give this discussion and his precipitate departure shortly thereafter for the battlefronts of Europe.

In the past the treatment of congenital club feet has undergone many changes and in the future it will probably undergo others, but what has long been one of the most arduous and unsatisfactory branches of surgery has in the past few years become both simple and gratifying. Although if one deals with a large number of these cases it is inevitably borne in on one's consciousness that the club foot retains still—in spite of the amazingly satisfactory new methods of treatment—a good deal of its ancient and fiendish ability to make the surgeon appreciate his own limitations. It is unwise to assure a mother in a happy burst of pride that its child's feet are completely, totally, absolutely and one hundred percent cured; that they will not relapse! One is liable to be shocked later at the change in the child's feet, which have undergone a reversal to form. One may be further shocked at the change in the child's mother, once so grateful and charming, possibly also a reversal to form.

For many, many years treatment has been directed against what were regarded as the triple deformities of club feet—adductus of the forefoot, varus of the hind foot, equinus of the whole foot. The attack was directed against these deformities in series. Casts were applied and wedged to force the inturned foot outward. When this was regarded as sufficiently "corrected" the heel was wedged outwards and finally the casts were wedged to push the whole foot upward. These procedures took from two to five years in the case of each patient, with casts wedged every week and changed every two or three weeks; a pretty trying proceeding to all participants.

After this a surgical campaign followed. Heel cord lengthening and Steindler stripping to correct equinus; medial tarsal soft tissue strippings to overcome adductus and tibial osteotomies to rotate the tibia externally and with it, the foot, and many variations and combinations of these. This stage being finished, more surgery was undertaken to undo or at least modify the effects of surgery previously done. The child lived its first several years in plaster casts on one or both legs, from the toes to the upper thighs, after wedgings, and after operations; and it faced a further trial—operations on the bones of the foot could not be undertaken until the bones were sufficiently mature, at the age of about twelve years. The end results were stiff, partially deformed and undersized feet. A striking feature was the thin underdeveloped leg particularly noticeable in unilateral cases in contrast with the chubby normal one.

I do not hesitate to state that a normal foot and leg has never been secured anywhere, at any time, or by anyone, by the use of wedging casts or surgery or by any combination of wedging casts and surgery. With the new methods of treatment I believe that surgery will never again be necessary in uncomplicated cases in which treatment is started in the first few weeks of life.

The text book theories of the etiology of club feet are reminiscent of the nebulous conceptions of the cause of malaria in the middle ages.

For instance, that they are due to muscle imbalance—when no type of actual or theoretical imbalance could produce this deformity.

A school of thought believes that the deformity is due to gross lesions of the central nervous system, but no lesions have ever been demonstrated, and once the foot is corrected the muscles function normally and yield neither symptom nor sign of central nervous system deficiency. There are several others so lacking in merit that they do not deserve mention.

The oldest and the most logical was propounded by Hippocrates, who suggested that the deformity of the feet was *due to their moulding by the wall of the uterus.* This idea has been manfully championed by Mr. Denis Browne, who is surgeon to the Hospital for Sick Children, Great Ormond St., London. That is, he is, if there is still such a hospital.

Mr. Browne is the originator of the splints which have had such a revolutionary influence on the treatment of club feet. He has written nine articles on the theory and practice of his splints, and at the same time has stoutly upheld the honour of Hippocrates. He wrote the nine articles in nine different journals, and, curiously enough, each of the nine articles is, except for minor shufflings, a fair copy of each of the other eight.

I regret mentioning this and, of course, regard it as confidential, but in spite of the great and acknowledged excellence of his contribution, each one of those nine duplications of each other is a paralysing bore. And what's more, they are written in such a complex and pompous style that with my limited intelligence I had to struggle through all of them several times in order to get a clear idea of what he was driving at. The following are two paragraphs quoted word for word on the etiology of this deformity from a paper given by Mr. Browne, F.R.C.S., of the Royal College of Surgeons:

> "It is interesting to examine the causes that prevent the general recognition of what I believe to be an important and definite pathological category. First among the difficulties comes the complication of argument. Even to state it properly would be a long day's work, and no one could possibly imagine a busy surgeon devoting a day to listening to it. No journal would publish such a statement except in a form compressed to the verge of unintelligibility; a book on the subject might have a sale of a dozen copies; and meetings of this sort are in their hurry a poor substitute for the leisurely courts of argument of the mediæval schoolmen.
>
> "Then the mental process employed is one that is almost entirely neglected in medicine. We have become used to depending on the fruitful and valuable experimental method, in which we produce artificially certain happenings, observe them and draw conclusions. But there is another method used in science. No one can play experiments on the planets, but yet we know a good deal about them. We have learned it by reasoning out what would happen were a certain hypothesis true, and comparing these results of abstract thought with what actually does happen."

I don't know exactly what this means, but it does seem to hint that he is in possession of facts of earth-shaking significance, but that he gravely doubts the ability of his audience to assimilate even a small fraction thereof.

And here is one of his powerful supporting points of the theory that intrauterine pressure and moulding alters the shape and function of living tissue:

> "The very complicated but to me satisfactory explanation of arthrogryphosis in terms of hydraulic pressure, with its strong confirmation from a disease of sheep."

I shall allow you to dwell upon that gem and return to it later.

The Hippocrates-Browne theory has much evidence in its favour. It is well known that the form of tissues can be altered by external pressure after birth. One example is the tiny feet that Chinese ladies used to affect, due to the tight bandaging of their feet in childhood. In the same way intrauterine pressure is capable of altering the shape of parts of the body before birth. The normal new-born child shows evidences of this pressure in the dimples, or areas of compressed and adherent tissues, over the knuckles and the outer surfaces of elbows and knees. Also we have all observed the calcaneus position of the normal new-born child's feet, the backs of the feet being forced upwards and backwards towards the outside of the leg. It only needs light pressure on the sole

of a new-born's foot to cause the little toe to touch the front of the leg near the fibula. Browne shows a picture of a child which actually had pressure sores on the soles of its feet.

If a child does not take the pressure on the soles of its feet the only other part of the foot on which the pressure can be taken is on the outer side of the foot and some degree of club foot will result. The movements of the child in utero make no difference to the relative position of the feet. There is not enough room as a rule for a child to move a foot from calcaneo valgus to equino varus or the reverse.

In this connection I have noted with pleasure, not unmixed with sorrow, that in the obstetrical text books the sketches of infants in utero show the child's feet invariably neatly folded in the position of club feet. The children in these sketches would *all* have club feet. But photographs of frozen sections *all* show the infants taking the pressure of the uterine wall on the *soles* of their feet. I have seen a photograph of a magnificent specimen in the University College Hospital in which the anterior half of the uterus is replaced by glass which clearly demonstrates this point. I would hesitate to suggest that the foregoing shows a curious limitation in the powers of observation in our obstetrical brethren.

Intrauterine pressure is fairly obviously the cause in such well known—shall we say —deformities as the Arnold-Chiari malformation, acro-cephalo syndactyly, arthrogryphosis multiplex congenita and spina bifida. So also, in the commonest congenital deformity, talipes equino-varus.

At this point I might explain Mr. Browne's reference to the disease of sheep. It seems that sheep occasionally suffer from polyhydramnios with great pressure, and shepherds can recognize the condition, observe the great hydraulic pressure and can prophesy correctly that a stiff-jointed lamb will be born. This lamb is arthrogryphotic.

The feet are the parts of the body most exposed to and most susceptible to moulding by the uterine wall. The hands rarely suffer. They are mobile, readily adapt themselves to the shape of the wall and are, moreover, protected by the large overhanging head. The feet, on the other hand, if I may make a weak pun, are unprotected; they are of a shape and consistency that does not allow them to adapt easily to the wall. If the legs are in the normal knee-chest position with the feet in calcaneus, increased pressure will only cause increased calcaneus. This position is automatically self-correcting because the muscles which pull the foot into calcaneo valgus are the weak toe extensors and the weak peroneals. These are opposed by the most powerful muscle groups below the knee, those attached to the tendo achillis, the anterior and posterior tibials and the toe flexors.

Now if the feet are twisted inwards, and this is the only other position they can assume if they are not in calcaneo valgus, so that the outer side of the foot and not the sole takes the pressure, a series of deformities results varying from slight to severe, but all corresponding to the curve of the uterine wall on their outer side. The foot as a whole is moulded to this curve. The forefoot is turned inwards; the heel is turned inwards under the ankle and the foot is plantar flexed in the position of equinus due to the inclination of the various joints in the ankle region. Here we have the middle range of the series of deformities known as "club feet" which range from a simple inturning of the forefoot through talipes equino-varus and on to the most severe degree in which the forefoot swings around until the big toe points straight upwards along the tibia. The term "talipes equino-varus" is a poor one because "talipes" means "heel-foot" or "ankle-foot," a singularly pointless term, and "equinus" and "varus" are secondary elements in the deformity in those cases in which they are present. The important element is the bending of the foot on its longitudinal axis. In the mild degrees of club feet there is neither equinus nor varus but simply inturning of the forefoot, and in the most severe degrees the equinus is reversed, as in those cases where the big toe lies along the tibia. "Club foot" is an unpleasant term. I have tried to think of a better term than either of these two, one of which is inaccurate, the other insulting. The best I

can do is "congenital twisted foot," which being interpreted in Latin would be "Pes Tortus Congenitalis."

In the treatment it is necessary to concentrate on the most important element of the deformity, which is the curving of the longitudinal axis of the foot, and the most important part of this curving is in that portion of the foot lying in front of the ankle. If this part of the deformity is corrected, all else shall be added unto the foot, *i.e.*, the secondary elements of equinus and varus are automatically corrected if they are present. The converse does not hold. It is only too easy to correct the equinus and varus without correcting the fundamental deformity. This was the common end result in the old plaster cast treatment, and if the child were observed sitting with the legs hanging free it would be noticed that the feet were at about a right angle. There was no or little varus of the heel, but the feet were curved inwards at varying angles, commonly about 45 degrees. The normal infant in the same position holds its feet at about a right angle with its feet turned out ten to twenty degrees. This position, the feet held free, turned out ten to twenty degrees, is the *aim of the treatment and the criterion of cure*. One cannot adequately judge the feet in the standing position because they can be arranged accidentally or intentionally to give a false impression. In photographs of the end results of treatment in other methods than Denis Browne's, it is noted that the pictures are all taken in the standing position.

This driving around outwards of the forefoot in the reverse direction to the curve that it has followed in coming to its deformed position must be the aim in treating the deformity of structure.

But there is not only structure to consider in a disability of this sort; there is also function. The most important interference with function comes from that lack of muscle balance which has already been described, the powerful muscles favoured and the weak muscles stretched. To correct a disturbance of this sort it is not enough to correct the deformity that has caused it; the muscles must be made to work against each other in the corrected position. The holding of the limb motionless in plaster has no effect in equalizing muscle tone once it has been upset.

The Denis Browne splint fulfills these conditions by allowing and stimulating the child to kick vigorously in the splint and so it works its own feet into shape. We apply the splints at the earliest possible moment. The youngest child on whom we have put the splints was three days old. As "early as possible" is important because even a few weeks makes a great difference in the ease of accomplishing full correction. If one carried this principle of the earliest possible application to its ideal and logical conclusion, one should, in a breech birth, apply the splints before the delivery of the after-coming head.

As soon as convenient—as a rule within a few days or even before applying the splints, the feet are manipulated to a position of complete correction, that is, to equal the range of motion of the normal new-born baby's foot so that the manipulation is continued until the little toe touches the outside of the leg. Denis Browne describes this as a violent manipulation. It is indeed a nerve-shattering proceeding to watch or perform and I have used it in only the last fifteen cases, though we have treated sixty-nine cases of club feet at the Crippled Children's Hospital in the last year and three months by Denis Browne splints. Browne states that the result of the first violent manipulation is, of course, considerable reaction and swelling, but says he has never known this to cause any real anxiety. We have noted the reaction and swelling and also, in our limited experience, have found it to be innocuous.

In the case of older children in whom the feet are too rigid to be manipulated by the hands Browne has developed an even more blood-curdling technique. This is an object resembling a nutcracker made of wooden blades about three feet long and three inches wide which are hinged together. A similar but much greater force can be applied with this instrument, which forces the foot into calcaneo valgus accompanied by fearsome sounds of tearing and wrenching. I have used this frightful instrument a few times and though there is great reaction, following a couple of weeks in the splints

it is remarkable how it mobilizes the feet and how it does not seem to damage them in any way. Browne states that any amount of force may be used so long as it is less than that which would cause sloughing of the skin.

After manipulation the feet are bandaged separately into the foot pieces with tincture of benzoin and adhesive tape and the feet as quickly as possible are everted to an angle of 90 degrees in the horizontal plane, and kept on day and night until complete correction is stable, that is, the feet in the resting position are held at about a right-angle in the sagittal plane and held outward at an angle of 10 to 20 degrees. Then boot splints are applied day and night until the child stands. After that the boot splints are used only when the child is asleep and the mother manipulates the feet twice daily into the position of complete calcaneo valgus so that the little toe touches the outside of the leg without difficulty or pain. The child must never be allowed to stand on an incompletely corrected foot as the first mental impression of using its foot in the wrong position seems to be hard to eradicate.

Our experience indicates that in uncomplicated cases of club feet we should always be able to obtain normal feet and normal legs in both structure and function. By "uncomplicated" I mean no additional deformities such as arthrogryphosis, spina bifida or cerebral spasticity. The degree of severity does not matter. A sharp line must be drawn between uncomplicated cases and those in which the pressure has been of a degree to injure muscles and stiffen joints. Nothing will restore muscle that has once been killed and it is impossible to get free movement in a joint that has had the periarticular tissues infiltrated before birth. Such cases can be improved, but nothing approaching a normal limb can ever be produced.

As I have stated, in the past fifteen months we have treated sixty-nine cases of club feet at the Crippled Children's Hospital. In the uncomplicated cases we have had uniformly good results as a rule; even without using the preliminary violent manipulation we have obtained complete correction in three or four weeks. We have recently, however, adopted Browne's recommendation of early complete correction by manipulation, followed by splinting, which allows the very young infant to start using its feet and leg muscles normally and at once.

There have been two articles in the *Journal of Bone and Joint Surgery*, one two and a half years ago by Stuart Thompson of the Sick Children's Hospital, Toronto, which proposed several modifications of the Denis Browne splint, and one four months ago by Bell and Grice, of the Boston Children's Hospital, proposing modifications of Thompson's modifications and new modifications of their own. It was interesting to me to note that the article by Thompson started as follows: "A wide provincial practice is enjoyed at our weekly club foot clinic so that no fewer than twenty-five to thirty new cases are seen each year." At the Crippled Children's Hospital in Vancouver, according to these figures, we deal with very nearly as many cases each year as both these well-known institutions put together.

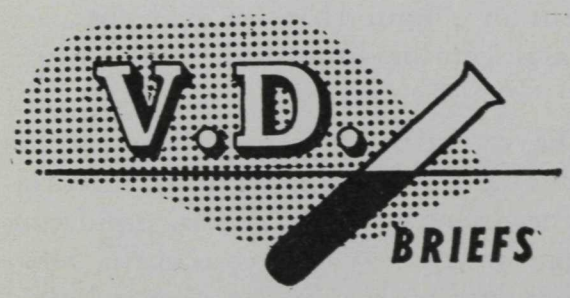
We have tried the modifications suggested by these writers and have concluded that none of them is of value. I do not believe that these authors have a clear understanding of Denis Browne's method. Browne himself has stated that he could easily design a splint that would be more efficient mechanically, but which would be more expensive and even less efficiently used than his present one. I believe that this is largely Denis Browne's own fault and that it is due to his painfully obscure method of expressing himself.

Strangely enough, at the Crippled Children's Hospital here in Vancouver we were the first in North America to use these splints. It was due to the urging of Dr. Reginald Wilson, who had seen some of Mr. Browne's work, and to Miss Leighton, our surgery nurse at that time, who had worked with Mr. Browne in London, that I read a couple of his articles in a desultory way and applied the splints in a few cases. But his principles and practice were so different from what I had been taught that I read without interest or discernment, and after trying them inexpertly on a few cases I reverted to

plaster casts. It was not until stimulated by Thompson's article in April, 1942, that we gave serious consideration to Mr. Browne's work.

The whole business can be summarized in a few words. The diagnosis is obvious, a twisted foot or pes tortus congenitalis, though as always there are pitfalls. Apply the splints immediately. Manipulate as soon as convenient, using one hand to wrench the foot around, the other to support the tibia and to protect it from fracture. As soon as the foot is sufficiently far around the manipulation is more effectively and safely completed by using one hand with the fingers around the tibia and the hand around the foot. Complete the manipulation at the first attempt so that the little toe touches the leg. Apply the splints with adhesive and benzoin; attach the feet separately to the plates; after four or five months, when the correction seems to be complete and stable, put the child in boot splints. Continue until the child stands. Then use the boot splints only when the child is sleeping. Have the mother manipulate the feet to full correction twice daily. The mother can easily be taught to do this, but a physiotherapist will spend her time howling with anxiety over the possibility of causing flat feet—which cannot be done by this manipulation of these feet.

I hope that this paper has been a little less annoying to you than the works of the master have been to me.



"THE DOCTOR'S PURITANICAL STATE OF MIND"

"Too many doctors still believe that nobody has syphilis except Negroes, prostitutes, and criminals. Their own patients, failing to fall into one of these classes, are too well born, too moral, too well educated, to well to do to be infected. Too many doctors, surprising as it seems, still think of syphilis as a disgrace, not as a disease, and hesitate to suggest the necessary steps for diagnosis lest the patient's feelings be wounded. Too many, even if they do recognize syphilis, still think of it as well-earned punishment for sin, and do less than their part in administering or arranging for proper treatment."

DR. J. EARLE MOORE,
Johns Hopkins Medical School.

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EVERY GENITAL SORE—POSSIBLE SYPHILIS

The diagnosis of primary syphilis is a laboratory diagnosis, not a clinical one. Positive *Darkfield examination* is conclusive. Clinical variations in primary genital lesions are great. Every genital sore should be submitted to Darkfield examination. Provincial Health Departments provide specimen kits on request. Always keep a kit available. You'll field primary syphilis when and where you least expect.

* * * *

"HOOKS AND BARBS"

Immediately before use, draw intravenous and intramuscular needles across sterile cotton. Minute hooks and barbs, which cause pain to the patient, will catch cotton fibres. Try another needle if the one you test catches fibres. Technical excellence keeps patients under treatment longer.

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"FIND V. D. CONTACTS — REPORT V. D. CASES"

CASE REPORT

By K. K. Pump, M.D., Williams Lake, B.C.

The following is a report of a case of Tularæmia in a man, aged 45 years, who always enjoyed good health, led an outdoor life, was robust and weighed about 180 lbs.

On September 19, 1944, this man killed and skinned a coyote. He did not cut himself during the skinning process, but states that he had a fairly recent wound on his left index finger at the time of skinning.

Incubation Period.—There was a definite onset of the illness, starting on September 23 at 6 a.m., and the incubation period would, therefore, be 4 days.

Symptoms during this period were feeling of lassitude and malaise. The patient stated that "Day after I skinned coyote I didn't feel right."

First week of illness. September 23-30.—There was an abrupt onset with high fever, severe throbbing headache, vomiting, profuse diaphoresis and general aches and pains. He was delirious the first night after onset of illness.

Shortly after this he complained of pain in the axilla and elbow of the left arm, where he could feel lumps. A sore was then noticed near the tip of his left index finger. He remembered that he had a small cut here prior to skinning the coyote. Now this wound had developed into a circular lesion, containing a cheesy semi-solid material. The base was deeply injected and of a dark red color. Lymphangitis was prominent and extended from the hand to a point beyond the elbow.

A rather large, freely movable, hard lymph node could be felt on the medial aspect of the elbow. Several similar nodes were easily palpable in the axilla.

The circular lesion developed shortly into a circular punched-out ulcer, with raised edges and a very angry looking base. It was not tender.

During the first week of illness the most marked symptoms were profuse diaphoresis, severe throbbing headaches, general aches and pains, anorexia and general weakness.

Diaphoresis was one of the severest I have ever witnessed. His bed clothes and linen had to be changed practically every hour and, although he was rubbed down and dried frequently, the suprasternal notch was as a rule filled with perspiration to capacity.

Small doses of atropine and solutions of saline were given which somewhat checked the diaphoresis. He took fluids well but nevertheless it had to be supplemented by intravenous transfusions of glucose in normal saline 1000 cc. three times a day.

The headache was apparently very severe and codeine in doses of gr. ½ were required two or three times a day. The headaches persisted throughout the first week and the first part of the second week.

The general aches and pains were present for four days following onset. Sodium salicylate and oil of wintergreen gave only moderate relief.

The weakness developed with the progress of the disease and was marked after the first week of the illness.

The fever was remittent, temperature ranging from 97.6 to 103.8 F. The pulse varied from 80-118, was regular and of good quality. Respirations were fairly constant, ranging from 20-25 and not laboured. W.B.C. 10,300. R.B.C. 4,320,000. Urine—sugar negative, albumen plus 2. Mic.—no pus cells, no R.B.C. Occasional hyaline cast.

A blood specimen was taken in the early part of the first week for agglutination tests and was reported negative for typhoid, paratyphoid, Br. abortus and B. Tularense.

Towards the end of the first week he became mentally depressed. Treatment during this period consisted of codeine for headaches, sodium salicylate and oil of wintergreen for aches in the joints. Hot fomentations and later hot $MgSO_4$ arm baths relieved the pain in the lymph nodes.

Sulfathiazole gm. 1 q.4.h. was given to relieve the infection but had no apparent effect.

Glucose 5% in normal saline in 1000 cc. doses was given three times a day to restore fluid balance.

Atropine by hypo and NaCl by mouth somewhat checked the profuse diaphoresis.

Second week, October 1-October 7.—During this week diaphoresis was less marked, but the patient became weaker, more despondent, restless and nervous.

Early in the week he complained of nausea and then vomited occasionally. This was followed by a diarrhœa of liquid greenish stools which persisted throughout the week with an occasional remission. He slept poorly and had to be given sedatives.

Towards the end of the week physical examination revealed consolidation in the lower lobe of the left lung with a few scattered râles. Next day he complained of pain in the lower anterior left chest and respirations became wheezy, laboured and more frequent.

Tremors of hands and face developed. Patient was very nervous, melancholic and restless.

The fever was now of a hectic, remittent nature ranging from 100-104, most of the time being above 102 F.

Pulse ranged from 82-120, was regular and of good force in the first half of the week, but showed slight irregularities in force and rhythm in latter part of the week. Towards the end of the week the pulse was very irregular in force, one strong beat would be followed by 7-8 weak, irregular beats.

Respirations increased in frequency during the last part of the week, ranging as high as 48. They were laboured and raspy.

Blood specimen from October 2nd was reported "Slight agglutination to B. tularense to dilution 1:20." Other tests were negative.

Treatment during this week was much the same as in the first week, except for changing from Sulfathiazole to Sulfadiazine, the dosage being the same. It had no apparent effect. On days when patient was vomiting sodium sulfathiazole was given intravenously.

The arm baths were discontinued in the early part of the week. Patient was on a high caloric diet and vitamin supplements throughout this week.

Third Week, October 8.—Patient became rapidly weaker. Pains across lower anterior left chest were marked. He developed a cough and expectorated large quantities of bright red sputum.

Bowel movements were frequent, liquid green and involuntary. Eyes were wide open, staring and bright. Face drawn and livid. Mouth partially open. Cyanosis appeared about the temples, point of nose and lips.

Respirations were very frequent and laboured. Oxygen inhalations gave no relief and actually made the patient feel uncomfortable. Pulsus alternans and Cheyne-Stokes breathing appeared shortly and were not relieved by regular Coramine injections. Muttering delirium and subsultus tendinum were observed.

A small dose (15 cc.) of concentrated anti-tularæmic serum was given intravenously on October 8. Patient showed slight improvement following the injection but next day condition was considerably aggravated and patient expired on October 9 at 8 p.m.

A blood specimen taken immediately after death was reported to agglutinate B. tularense 1:640.

Summary.—This case as a whole strongly resembled a severe case of typhoid.

Sulfa drugs although given in heavy doses had no apparent effect.

Penicillin was not tried, but according to all reports is not effective in tularæmia.

The anti-tularæmic serum was not given a fair trial, simply because it was not available. Apparently there is no anti-tularæmic serum in Western Canada so consequently it has to be obtained from the east. Even large companies in the east were unable to send sufficiently large quantities to treat a severe case of tularæmia.

Apparently the coyote is not, as a rule, considered a carrier of tularæmia. Rodents, such as squirrels, hares, rabbits, etc., are the more common carriers.

The coyote responsible for the transmission of the disease in this case was eating a rabbit at the time of killing, which suggests the possibility that the former may have been infected by direct transmission or indirectly by fleas from rabbits.

In conclusion, I wish to thank Drs. Tyerman of Ashcroft, and Schilder of Vancouver for giving me very valuable advice in the treatment of this case.

(Dr. C. E. Dolman has kindly appended a note to Dr. Pump's unique case report. See next page.).

NOTE ON CASE OF TULARAEMIA

I am glad to accede to the Editor's request for a few comments on this interesting case report. The clinical details given above furnish a typical picture of the severe, so-called typhoidal type of tularaemia. The symptomatology, the patient's story that just prior to his illness he skinned a coyote, killed in the act of eating a rabbit, and finally the laboratory findings, leave no reasonable doubt that the diagnosis is correct. Although the causative micro-organism is seldom isolated from the blood stream of humans, in this particular case a septicaemia was probably present, and final proof of the diagnosis might have been accorded by blood culture, had the data and the specimens received been such as to warrant this procedure.

The name of the disease is derived from Tulare County, California, where a minute cocco-bacillus was shown by McCoy and Chapin in 1912 to be the cause of a fatal, plague-like infection in California ground squirrels. They named the organism *Bacterium tularense*. In North America it is now customary to place it among the Pasteurella (along with the plague bacillus which it somewhat resembles) and its current designation is *P. tularensis*. In Great Britain, the organism is often classed among the Brucella, in view of certain antigenic relationships shown with this group.

In the past 30 years, numerous other rodent species, including rabbits, tree squirrels, water rats, muskrats, beavers, opossums, woodchuck and chipmunks, have been found naturally susceptible to *P. tularensis;* while sheep, and certain bird species (e.g. grouse) may apparently harbour the organism. In 1926, Parker and Francis described the infection in a coyote. *P. tularensis* has also been isolated from such insects as the deer fly, and certain species of ticks, fleas and lice. There is thus a wide variety of susceptible animal species, and of possible insect vectors, most of which are native to this Province. The organism has been isolated in recent years from batches of the tick *Dermacentor andersoni* collected in the Interior of British Columbia, and physicians should be on the look-out for what may well prove a disease of increasing prevalence.

Among the several thousand human cases which have now been reported in the United States, the mortality rate has been about 5 per cent. Francis has described four main types of the human infection. The commonest is the *ulcero-glandular type*, in which a skin papule proceeds to ulceration, with enlargement of the adjacent lumph glands, and a febrile illness. This is the type which characteristically follows an insect bite, or from handling an infected wild rabbit. There is also a *glandular type,* in which no primary skin lesion is discernible; and an *oculo-glandular* type, associated with a severe conjunctivitis, and enlargement of the regional lymph nodes. In these cases, the conjunctiva may prove the portal of entry for the infection. Finally, there is the *typhoidal type,* which is responsible for most of the fatalities, including those which have occurred among an extraordinarily high percentage of laboratory workers engaged in experiments with *P. tularensis*.

In all types of the disease, prostration is marked, and relapses frequently occur. As in the case described, there is no marked leucocytosis. Specific serum agglutinins usually develop during the second week of the disease. (The Provincial Laboratory's report on a blood specimen taken from this patient 9 days after onset of symptoms was: "Slight agglutination against *P. tularensis* in 1:20 serum"; while a specimen taken at autopsy 16 days after onset, showed "complete agglutination to 1:640 serum".) Experience with serum therapy, chemo-therapy and anti-biotics in tularæmia has not been sufficient to warrant pronouncements; but any or all of these methods should be tried as early in the course of the infection as possible.

The differential diagnosis from e.g. typhoid fever, acute brucellosis, glandular fever, and plague must rest upon: (i) The clinical symptomatology. (ii) A history of having handled a wild animal, or of an insect bite, within 1-4 days of the onset of symptoms. (iii) The presence of lymphadenitis, and usually of a local lesion, often in the finger. (iv) The development of a high titre of specific serum agglutinins against *P. tularensis*.

C. E. DOLMAN.

5-2-45.

THE ARNOLD-CHIARI MALFORMATION

By Dr. Allin Moore

(Former Senior Interne of Neurology and Neurosurgery, The Vancouver General Hospital)
From the Neurosurgical Service of Dr. Frank Turnbull.

The Arnold-Chiari malformation is a congenital neuro-anatomical deformity of the hind brain. Early recognition of this anomaly, and if necessary, adequate surgical treatment, may prevent disabling or fatal sequelae.

The deformity was first described by Arnold in 1894, but in 1895 Chiari wrote a more complete paper discussing sixty-three cases. In discussing these cases, Chiari[1] described the anomaly as a downward migration of the hind brain, with protrusion of the lowermost portion of the cerebellum and medulla through the foramen magnum. He illustrated three types of displacement which might occur:

Type I: The elongated tonsils and medial part of the inferior lobes of the cerebellum form a tonguelike process which descends to envelop the caudally displaced medulla, in the upper part of the vertebral canal. In this type the lower end of the fourth ventricle does not protrude down through the foramen magnum.

Type II: A similar displacement of the lower parts of the cerebellum and medulla occurs, but included in the lower portion of the fourth ventricle containing the foramina of Luschka and Magendie. These foramina, which are pushed completely through the foramen magnum into the spinal column, allow the cerebro-spinal fluid of the ventricles to communicate with the spinal subarachnoid space.

Type III: The cervical spina bifida exists and the greater part of the cerebellum herniates through this opening.

In 1938 Doctors Penfield and Coburn[2] presented a very plausible explanation for the occurrence of the Arnold-Chiari malformation. Because the condition almost always occurs in conjunction with a spina bifida or a type of meningocele, they expressed the view that the malformation results directly from the condition in the spinal column. They suggest that in these cases the spinal cord is adherent to the vertebral column, and that during the period of embryonic development, when the rate of growth of the cord and spinal column is unequal, traction is exerted on the spinal cord and brain.

Normally, in the first three months of intrauterine life, the cord and vertebral column grow at an equal rate of speed, so that the positions of their segments correspond. However, after three months, the spinal column outstrips the cord until eventually the conus medullaris lies opposite the first lumbar vertebral segment. Thus during the rapid intrauterine growth, it is understood how an abnormal pull will be exerted on the cord, when it is fixed to the spinal column, as in the case of spina bifida. Penfield and Coburn suggest that this traction causes an elongation of the cord, with a caudal displacement of the brain stem and cerebellar tonsils.

Discussing the condition pathologically in 1942, Lichenstein[3] showed that this above-mentioned traction causes multiple changes in the spinal cord, brain stem and cerebellum. The actual Arnold-Chiari malformation is the downward displacement of the hind brain, with protrusion of the lowermost parts of the cerebellum and medulla through the foramen magnum. He points out that when, as is common, the condition occurs in association with a sacral spina bifida, the conus medullaris of the cord is found abnormally low, with a resultant short cauda equina. Above the site of the fixation, the cord is thinned, showing the effects of stretching. Because of the caudal displacement of the brain stem and cervical segments of the cord, the cranial nerves are usually elongated, taking an upward course to their respective foramina. The brain stem and cerebellum are jammed into the foramen magnum, and an upset in the natural course

of flow of the cerebro-spinal fluid results. This causes a hydrocephalus, which Donald and Russell[4] state may be produced in three ways:

1. Obstructive type, where the foramina of Luschka and Magendie, at the base of the fourth ventricle, are obliterated, as a result of compaction into the foramen magnum.

2. Communicating type, where the above foramina are patent below the foramen magnum, with the cerebro-spinal fluid of the ventricles able to communicate with the spinal subarchnoid space. However, owing to constriction around the brim of the brain stem at the site of the foramen magnum, a block exists between the spinal and cerebral subarachnoid spaces.

3. Adhesive type, where traction on the brain stem causes a mechanical irritation, which gives rise to an aseptic inflammation in the region of the foramen magnum. An exudate forms and adhesions occur in this area. As in Type 2, a communicating type of hydrocephalus results, with the block occurring between the spinal and cerebral subarachnoid spaces.

It appears that the communicating type of hydrocephalus is most common, as out of twenty cases of hydrocephalus due to Arnold-Chiari malformation, Ingraham and Scott[5] found twelve cases were of the communicating type, four of the obstructive, and the cause of the remaining four was undetermined at autopsy. Hydrocephalus occurred in eight out of the twelve cases of communicating hydrocephalus.

Ingraham and Scott[5] in 1943 cast some doubt on the traction hypothesis put forth by Penfield and Coburn. They point out that in thirteen of Chiari's original sixty-three cases, no overt spina bifida was seen. To substantiate their view they mention five cases of the Arnold-Chiari malformation presented by McConnel and Parker in 1938 and three cases of Ogryzlo's in which no spina bifida or meningocele were evidenced at autopsy. However, despite their rather disconcerting observation, they agree that most cases of the Arnold-Chiari malformation occur in association with spina bifida—usually a myelomeningocele in type, as in this type the nervous tissue of the cord is definitely adherent at the site of the spina bifida. They cited a series of twenty cases of myelomeningocele in which the malformation was seen to be present in all cases—fifteen were observed at autopsy, five during operation. D'Errico[6] in 1939 presented ten cases of myelomeningocele, all with the Arnold-Chiari malformation.

Although Ogryzlo[1] presented a case of the malformation in which no signs or symptoms presented until the patient was sixty-eight years old, most cases are found in infants and young children. The presenting syndrome is usually hydrocephalus associated with a myelomeningocele or some type of spina bifida. Ingraham and Scott observed that in their series of cases, microgyri and craniolacunae as well as hydrocephalus almost inevitably accompanied the malformation; that is, the cerebral gyri at autopsy were abnormally small and wormlike, with definite areas of bony rarefaction in the skull. These men suggested that an X-ray of the skull would be a useful diagnostic measure in early suspected cases.

Owing to the fact that, once established, hydrocephalus advances very rapidly, they suggest that early surgical treatment is imperative, when the condition is suspected. They maintain that any patient with a spina bifida associated with hydrocephalus or the above mentioned signs, should have the spinal defect repaired in the first few weeks of life, and this be followed within ten days, if possible, by a decompression operation in the region of the foramen magnum.

Their contra-indications for surgery are:

1. When the myelomeningocele has caused extreme paralysis or sphincteric disturbances.

2. When it is felt that the hydrocephalus or microgyri have advanced so far as to render the child a pronounced mental defective.

Case Report: Baby G. was delivered by Dr. J. W. Millar at The Vancouver General Hospital on April 6, 1943. A thin-walled pedunculated sac presented over the dorsal midline in the region of the fifth and sixth cervical. This sac broke during delivery and

cerebro-spinal fluid drained for several days. At the age of two weeks the sac was intact and tense, with a diameter of three centimetres. Circumference of the head was thirty-six centimetres. Anterior and posterior fontanelles were widely open and the longitudinal suture between them was spread about one-half centimetre. There were no other apparent deformities and general condition was excellent.

The case was referred to Dr. Frank Turnbull.

Operation 1, April 20, 1943, baby aged two weeks. The meningocele sac was dissected free from the skin by a dorsal midline incision. The neck of the sac was found to be one centimetre in diameter. On cutting open the sac it appeared to be lined by normal arachnoid except for two small, firm, rounded masses, side by side, projecting into the sac from the dorsal side just inside the neck. It looked as though they might be communicating with the canal, although very thinned out at the neck of the sac. They were interpreted as terminations of prolonged cerebellar tonsils, *i.e.*, part of an Arnold-Chiari deformity. The sac was amputated at its neck and a plastic closure easily accomplished.

Microscopic sections through the small masses in the wall of the sac were reported by Dr. H. H. Pitts as brain tissue. In one area there was a plaque-like mass of cartilaginous tissue. The operative wound healed well but progressive enlargement of the head occurred. Three weeks after operation the circumference had increased by three and one-half centimetres.

Operation 2, May 12, 1943, baby aged five weeks. The former incision was reopened and extended up in the midline to the external occipital protuberance. The space between the occiput and the first cervical was unusually wide in both diameters with a posterior bulging of the dura. The width of the spinal canal down to the fourth cervical was increased by almost half its normal size. The laminae of the third cervical barely met. The laminae of the fourth and fifth cervical were missing. The sac had projected out between the fifth and sixth cervical. Laminectomy was carried out down to the sixth cervical. The dura seemed to be compressed at the lower level of the first cervical. The arachnoid was very thickened and adherent in this area. A tongue of cerebellum extended down the whole length of the exposed area; overlying this was a sheet of filmy tissue which appeared to be thickened arachnoid. No attempt was made to dissect the subarachnoid space laterally at the lower end of the exposure. When the thickened arachnoid was broken there was exposed what looked like the lower end of the fourth ventricle, *i.e.*, at the level of the fifth and sixth cervical. At this point the spinal cord was seen and appeared normal.

Following this operation there was no relief of the hydrocephalus. Frequent ventricular taps were necessary with the removal of thirty to sixty cubic centimetres of fluid each time.

Operation 3, June 11, 1943. Through a small bone flap in the right temporal region the choroid plexus of the right lateral ventricle was cauterized under direct vision.

There was an initial stormy convalescence after this third operation but it was obvious from the start that the hydrocephalus had been relieved. The baby was discharged on June 30, 1943, in good condition. When last examined one year after this last operation the baby was in excellent health and developing normally.

Discussion and Summary:

A review of the literature dealing with the Arnold-Chiari malformation has been presented. The condition occurs chiefly in infants and children who in the great majority of cases have a spina bifida, usually myelomeningocele in type.

According to Penfield and Coburn, the spina bifida is the primary cause for the condition due to the fact that adhesions frequently form between the spinal cord and the vertebral column at the site of the bifida. With the result that as the cord and spinal column grow at different rates in utero, an abnormal traction is exerted on the cord above the site of adhesion. By this mechanism the brain stem and part of the inferior lobes of the cerebellum are pulled down through the foramen magnum. This theory has not been universally accepted but it is pretty generally agreed that the

Arnold-Chiari malformation occurs usually in association with a spina bifida. Regardless of the cause of the condition, the result is an area of compaction of nervous tissue in the foramen magnum, which acts as a constricting band, to upset the natural circulation of cerebro-spinal fluid. The flow of the fluid is blocked and a hydrocephalus is formed. One should suspect the malformation in any infant with an overt spina bifida, showing signs of hydrocephalus.

It is suggested that the Arnold-Chiari malformation be treated surgically, as early as possible, to prevent the hydrocephalus from advancing too far. Thus it is imperative that the cases be diagnosed promptly.

This case history from the records of The Vancouver General Hospital is presented to illustrate the interesting procedure of treatment used in one case of the Arnold-Chiari malformation.

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LEUCOCYTE COUNT IN ECTOPIC PREGNANCY

By J. G. McPhee, M.D.

(Senior Interne in Medicine, The Vancouver General Hospital)

Recently a check-up on the association between the leucocyte count, including the differential proportion, and ruptured ectopic pregnancy was made in The Vancouver General Hospital. The years from 1939 to September, 1944, were examined, excluding 1941, in which year, unfortunately, incomplete records were available. A total of 104 cases were found and in 33 of these leucocyte and differential counts were carried out.

The results are tabulated as follows:

Total below 5,000 white blood cells	0
Total between 5,000 and 10,000 white blood cells	14
Total between 10,000 and 15,000 white blood cells	7
Total between 15,000 and 20,000 white blood cells	6
Total between 20,000 and 25,000 white blood cells	3
Total between 25,000 and 30,000 white blood cells	3

Thus, of the total of 33 cases, 19 (57.9%) exhibited a leucocytosis of varying degree. The highest count recorded was 26,000, the lowest 5,400. The average hæmoglobin estimation was 65% (23 cases). A slight point of interest was that according to the number of cases in each quarter there is no outstanding period of the year in which ectopic gestation can be expected to rupture. In this series more instances occurred in August (15 cases) than any other month.

ABSTRACT

"The Section of Dermatology and Syphilology of the New York State Medical Society at the annual meeting on May 6th, 1943, passed the following resolution, introduced by Doctor Howard Fox:

"WHEREAS, Repeated administration of sulfonamides either internally or locally may sensitize an individual to these drugs and thereby preclude their future use in serious illness, such as pneumonia, therefore be it *Resolved*, That the Section of Dermatology go on record as strongly disapproving the indiscriminate use of sulfonamide drugs in relatively harmless diseases of the skin which can be satisfactorily treated by equally efficient drugs."

Hazards of the External Use of Sulphonamide Compounds: Abramowitz, E. William, Arch. of Dermat. & Syph., 50 : 289, November, 1944.

We are asked to public the following announcement which speaks for itself. We gladly do so.—Ed.

Announcement of the
SPRING REFRESHER COURSE IN OTOLARYNGOLOGY
by the University of Illinois College of Medicine

The fifth semi-annual refresher course in laryngology, rhinology and otology will be conducted by the University of Illinois, College of Medicine, at the College in Chicago, March 26 to 31 inclusive, 1945. While the course will be largely didactic, some clinical instruction will be included. This course is intended primarily for ear, nose and throat specialists. As the registration is limited to thirty, applications will be considered in the order in which they are received. The fee is $50.00. When writing for application please give details concerning school and year of graduation, and past training and experience.

Address—Dr. A. R. Hollender, Chairman, Refresher Course Committee, Dpeartment of Otolaryngology, University of Illinois, College of Medicine, 1853 West Polk Street, Chicago 12, Illinois.

[The following items, culled from an old number of the *Daily British Colonist*, and the discovery of Dr. D. E. H. Cleveland, a Victorian himself, will be, we are sure, of interest to all our readers. At the time this was printed, there was no Medical Act, and it is to Victoria's everlasting credit that among the prime movers in the securing of such an Act were such men as Helmcken of Victoria, who needed no puffs in the daily press: but whose work as a medical man of the highest order remains today as a monument to his memory.—Ed.]

DR. MA CHOO TSUNG
(from Canton)
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Certified by English and American Consuls at Canton as being duly qualified, respectfully solicits the attention of the afflicted.

(From the *Daily British Colonist*, Victoria, B.C., Sept. 29th, 1876.)

SANITARY.—A fearful stench is caused in the vicinity of Herald and Government streets, by the burning of an accumulation of rags, dead dogs, cats and all manner of rubbish. The residents in that vicinity have complained frequently of the nuisance, but it is allowed to continue in spite of remonstrances. The attention of the proper authorities is therefore again called to the matter.

(From the *Daily British Colonist*, Victoria, B.C., Sept. 29th, 1876.)

DR. R. PRICE
(Late of Virginia City, Nevada)
HOMEOPATHIC
PHYSICIAN AND SURGEON
Graduate of the Universities of Berlin and Marburg, German Empire

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References—Hon. ex-Governor Brasdell, Gold Hill, Nev.; Hon. Wm. Patterson, Dist. Attorney, Carson City; Hon. Judge C. C. Goodwin, of the Enterprise, Virginia City, Nev.; Capt. H. H. Day, late Superintendent of the Raymond & Ely Mine, Pioche, Nev.

(From the *Daily British Colonist*, Victoria, B.C., Sept. 29th, 1876.)

NEWS AND NOTES

Sympathy is extended to Dr. W. G. Morris of Burnaby in the passing of Mrs. Morris.

* * * *

We regret to learn that Dr. F. Day-Smith has lost his son, Lieut. C. Day-Smith, who was killed in action with the Seaforths in Italy.

* * * *

Congratulations are extended to Surgeon-Lieut. and Mrs. S. A. Arber on the birth of a daughter on January 8th, and to Captain and Mrs. R. A. Stanley on the birth of a daughter on January 29th.

* * * *

Dr. and Mrs. J. C. Becher of Vancouver and Dr. and Mrs. R. G. Knipe of Prince Rupert are receiving congratulations on the birth of daughters.

* * * *

Major F. H. Bonnell, R.C.A.M.C., who has been serving overseas for the past five years, is now on the staff at the Vancouver Military Hospital.

* * * *

Dr. P. S. Tennant, who is now in practice at Kamloops following service in the R.C.A.M.C. with the rank of Lieut.-Colonel, was in Vancouver recently, and called at the office.

* * * *

Lieut.-Col. W. A. Clarke, R.C.A.M.C., who has served as Assistant Command Medical Officer, Pacific Command, for over two and a half years, has now returned to civilian life, and is resuming practice in New Westminster.

* * * *

Dr. Arnold Francis of New Denver spent a week in Vancouver last month.

* * * *

Dr. F. W. Green, M.L.A. from Cranbrook, is in Victoria attending the sessions of the Provincial Legislature.

* * * *

Dr. W. H. Ormond, formerly with the B. C. Security Commission, is now practising in Kimberley.

* * * *

Dr. C. A. Armstrong of Ocean Falls called at the office when in Vancouver recently.

* * * *

We received an interesting letter from Capt. L. L. Ptak, R.C.A.M.C., who notified us of a change of address. Capt. Ptak is now Officer Commanding a Field Transfusion Unit. He has been overseas for the past two and a half years, and he states that he enjoys receiving the BULLETIN, which has reached him regularly, and that it is interesting to note what his friends in the profession are doing both professionally and socially.

* * * *

At the meeting of the Council of the College of Physicians and Surgeons held on February 7th, the following attended: Drs. F. M. Bryant and Thomas McPherson of Victoria, Dr. G. S. Purvis of New Westminster, Col. Wallace Wilson and Dr. H. H. Milburn of Vancouver, Dr. F. M. Auld of Nelson, Dr. E. J. Lyon of Prince George and Dr. A. J. MacLachlan, Registrar.

* * * *

The Board of Directors of the British Columbia Medical Association met following dinner at the Devonshire Hotel on February 7th. Amongst those present were the following members from out-of-town: Dr. F. M. Auld of Nelson, Drs. D. M. Baillie, F. M. Bryant and P. A. C. Cousland of Victoria, Dr. E. J. Lyon of Prince George, Dr. A. H. Meneely of Nanaimo and Dr. G. S. Purvis of New Westminster.

On January 17th a dinner was held in Chilliwack by the Chilliwack Medical Society, which was attended by members of the Society and Medical Officers of the local Military Hospital and Regiments.

Major R. W. Patten, R.C.A.M.C., who has served overseas for some time, and who is now home on furlough, was welcomed back. Dr. Robert McCaffrey of Chilliwack was complimented on his completion of forty years of practice in the District. Dr. McCaffrey spoke in happy vein of the experiences of the years, medical and otherwise. Major Patten gave his impressions of D-Day and after, as he saw it.

OUT-OF-TOWN MAILING SERVICE

Associate Members of the Vancouver Medical Association throughout the Province are reminded that they may borrow books and journals from the Library at any time. The cost of mailing is of course borne by the member, but this is a negligible consideration now that our special library mailing rate is in effect. According to this arrangement, the return postage is prepaid from this end, and no additional stamps need be affixed when returning books, if the franked label is used. This label will be enclosed in the package or pasted on the reverse side of the wrapper.

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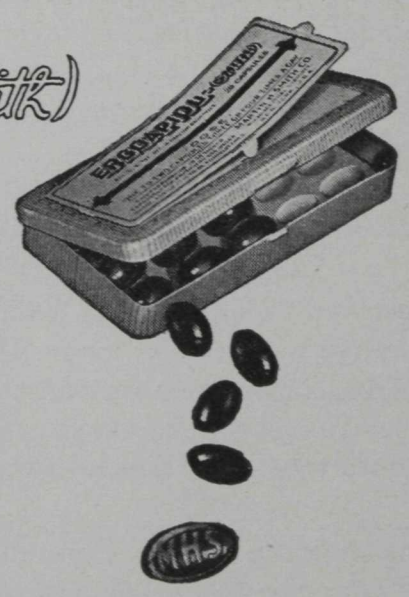

Dosage: 1 to 2 capsules 3 or 4 times daily. Supplied in packages of 20.

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Specifically indicated in pernicious anæmia and other macrocytic anæmias and in subacute combined degeneration of the cord

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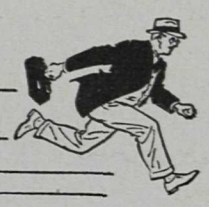

"HE BALKS more than ever these days at doing things the hard way, the wordy way, the long way.

"That's one reason he made a point of looking into S.M.A. And then put *me* on it so enthusiastically.

"He welcomed a sound formula that freed him from repeated juggling and re-calculations with milk, carbohydrate, water. It was a help to find that he could explain to mother or nurse in just two minutes how to mix and feed S.M.A.

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"I can tell you—EVERYBODY'S happy if it's an S.M.A. baby!"

S.M.A. is derived from tuberculin-tested cows' milk, the fat of which is replaced by animal and vegetable fats, including biologically tested cod liver oil, with milk sugar and potassium chloride added, altogether forming an anti-rachitic food. When diluted according to directions, S.M.A. is essentially similar to human milk in percentages of protein, fat, carbohydrate, ash, in chemical constants of fat and physical properties. A product of the Nutritional Division of John Wyeth and Brother (Canada) Limited.

Everybody's **HAPPY IF IT'S AN SMA BABY!**

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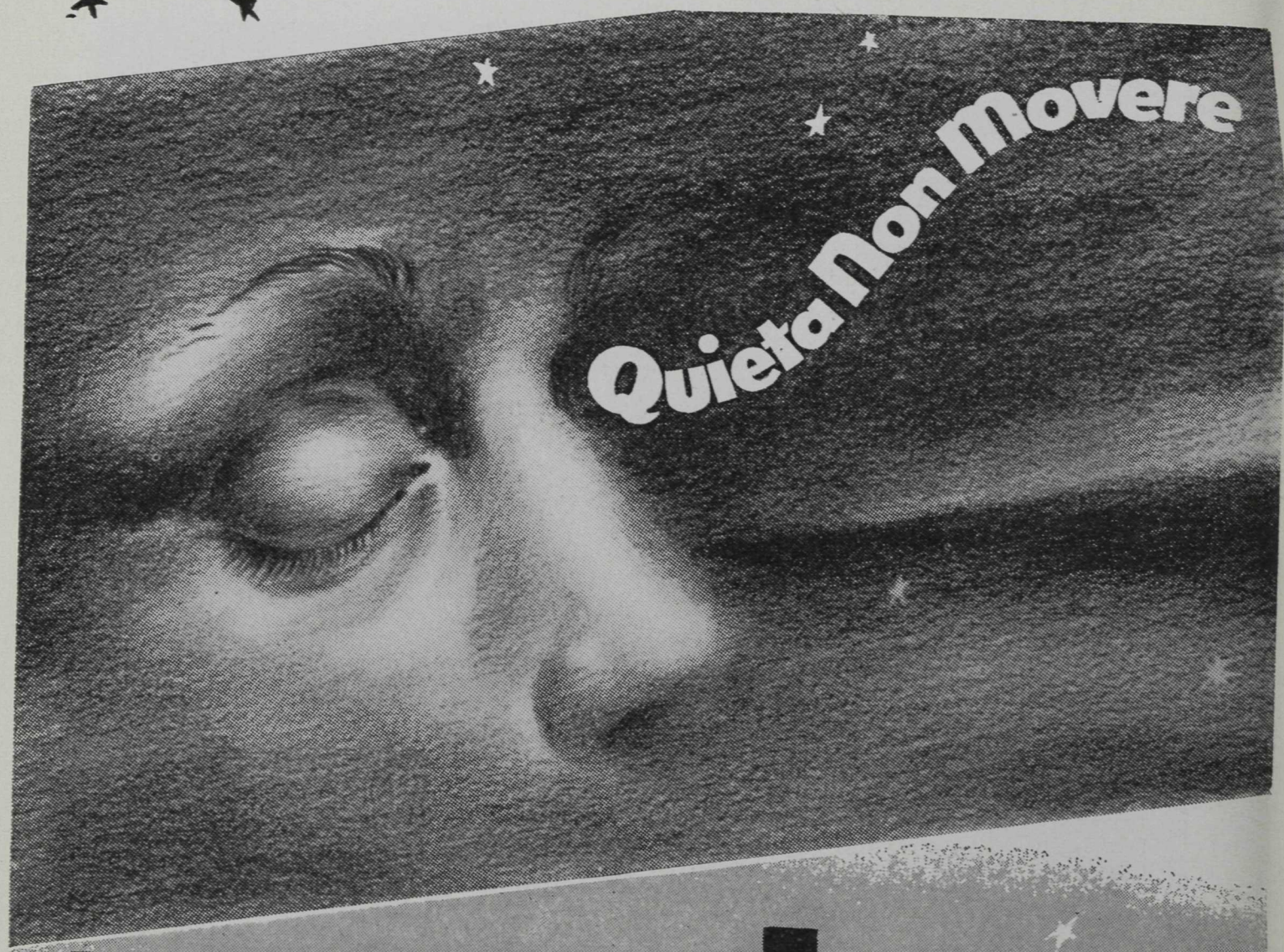

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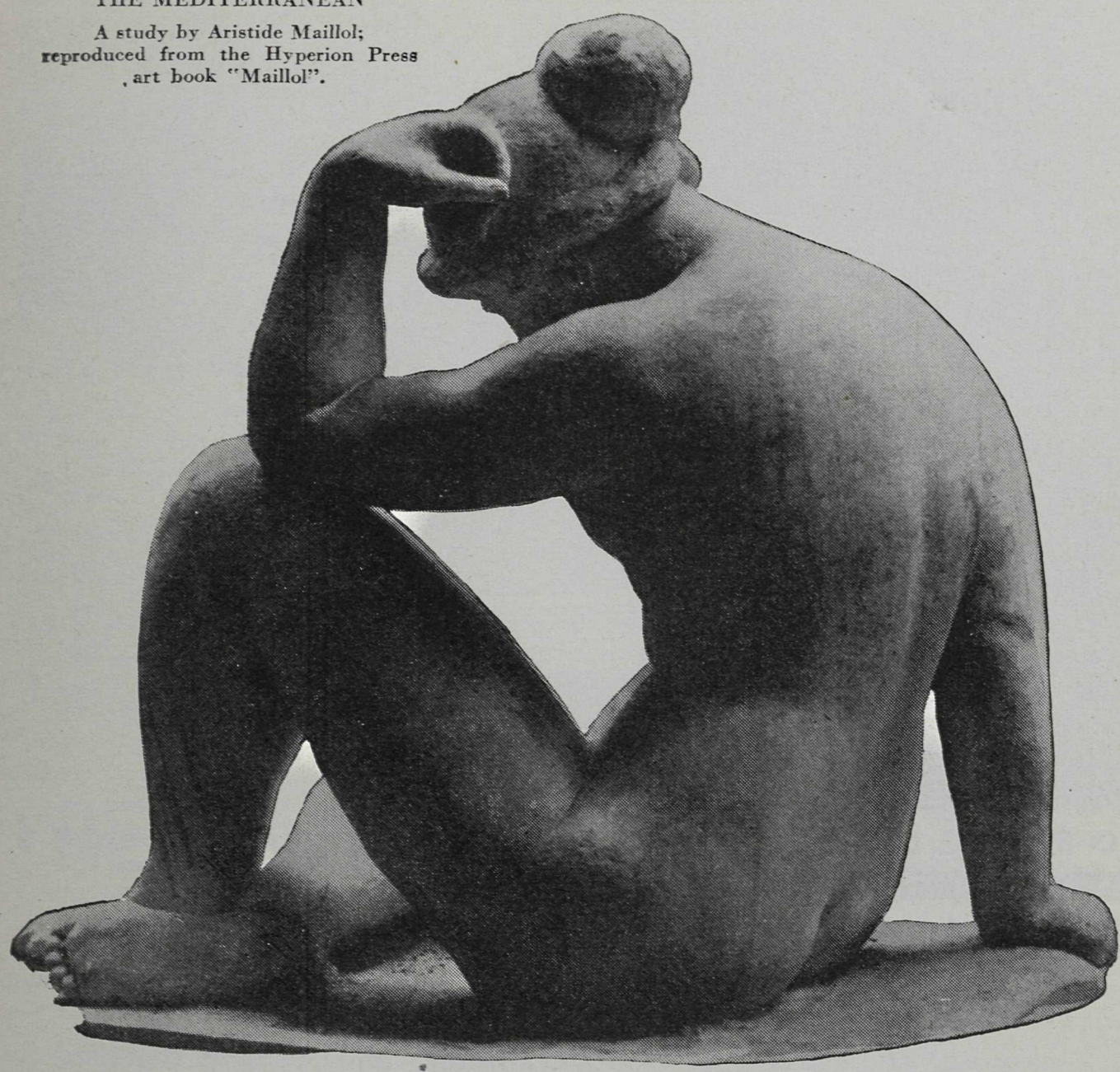

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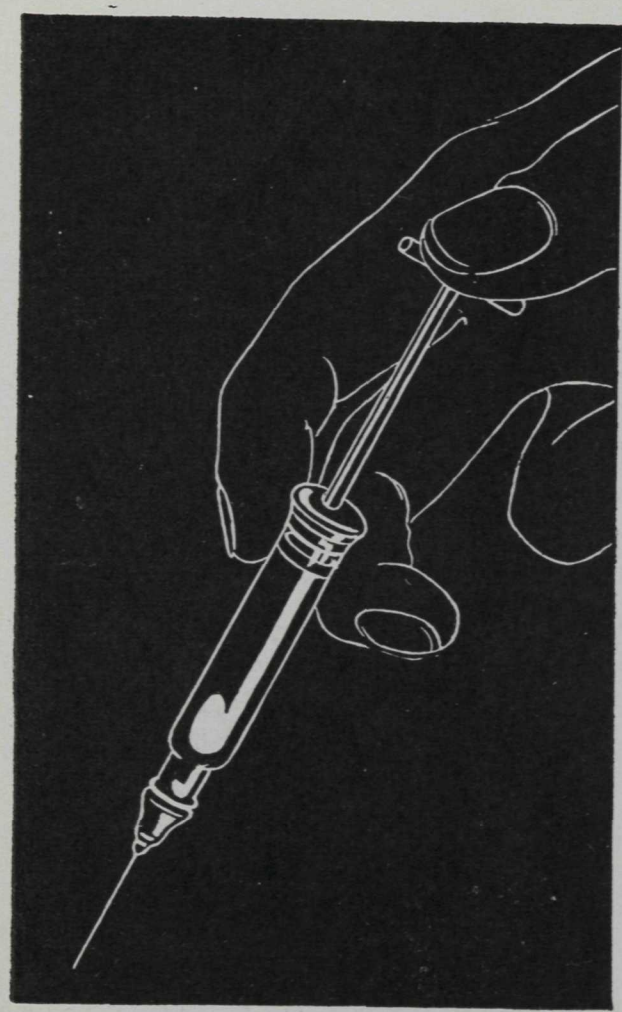

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FOR REDUCED NARCOTIC BY-EFFECTS

Many patients have an idiosyncrasy towards Morphine and sometimes undesirable effects are produced.

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1 cc. Ampoules — boxes of 6 and 100

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The contents of 1 cc. ampoule.

(Each 1 cc. ampoule contains the alkaloids of 0.1 G (1 2/3 gr.) Opium, B.P. including anhydrous Morphine 0.01 G. (1/6 gr.)

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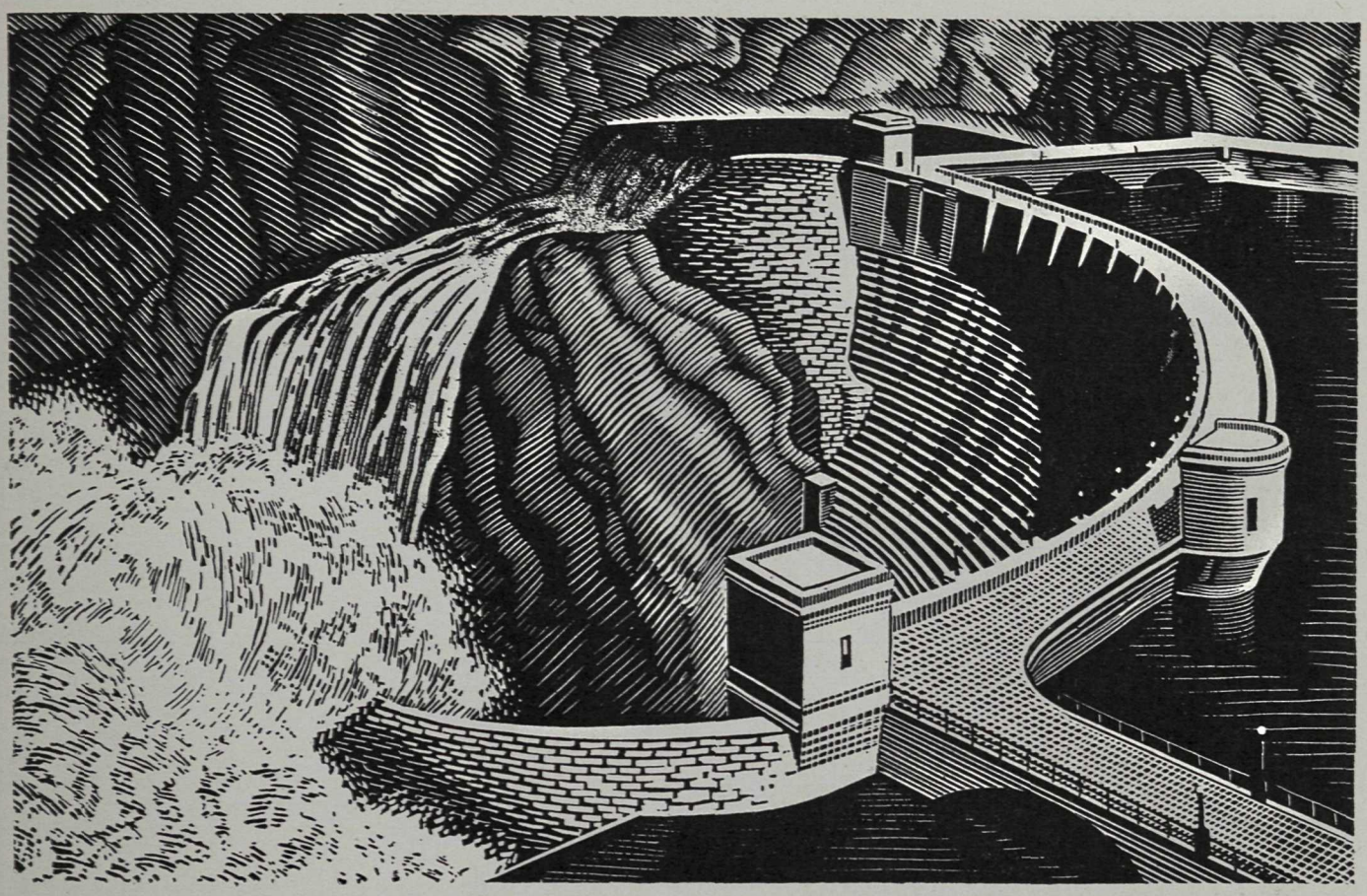

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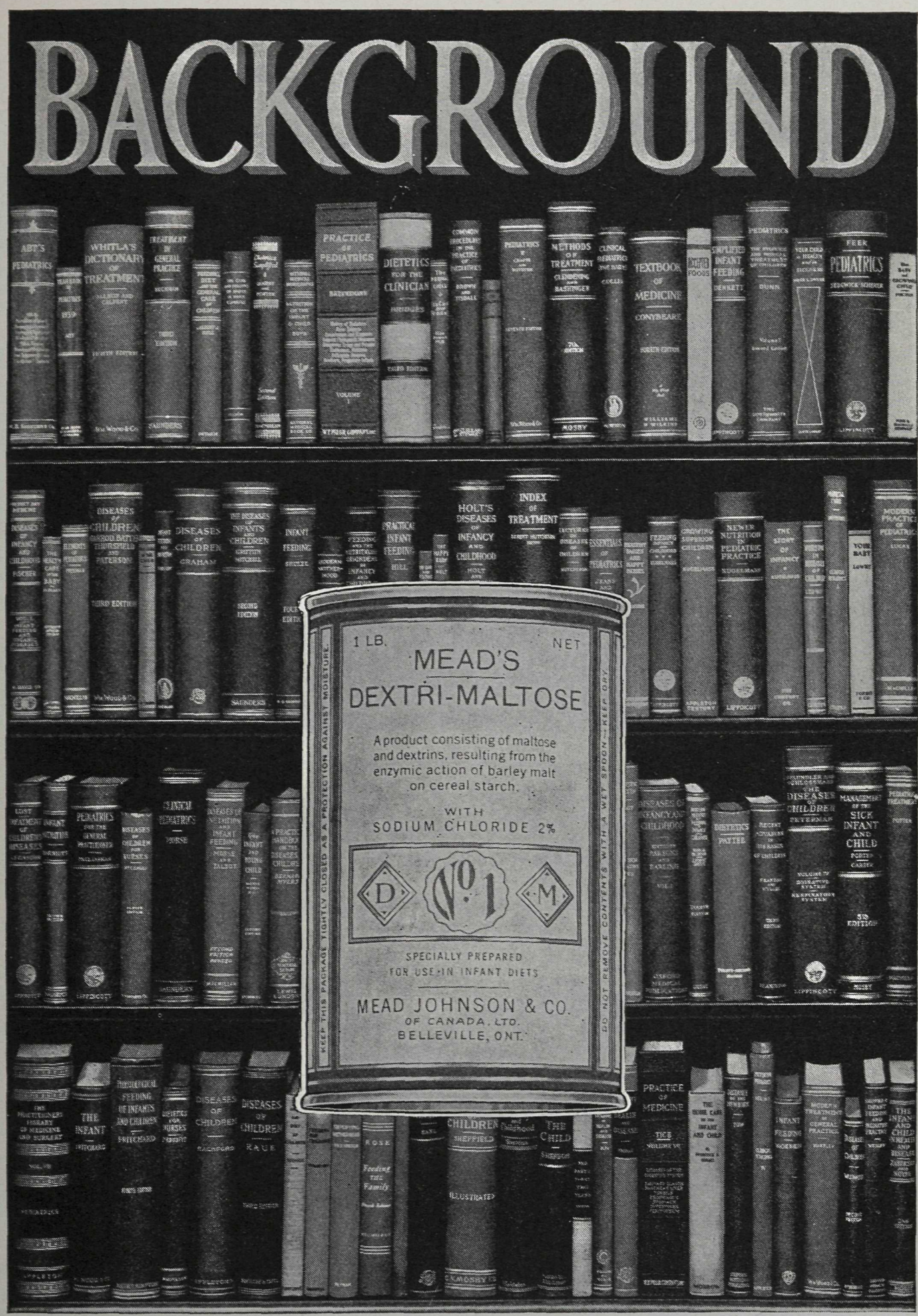

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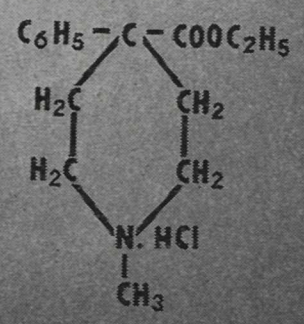

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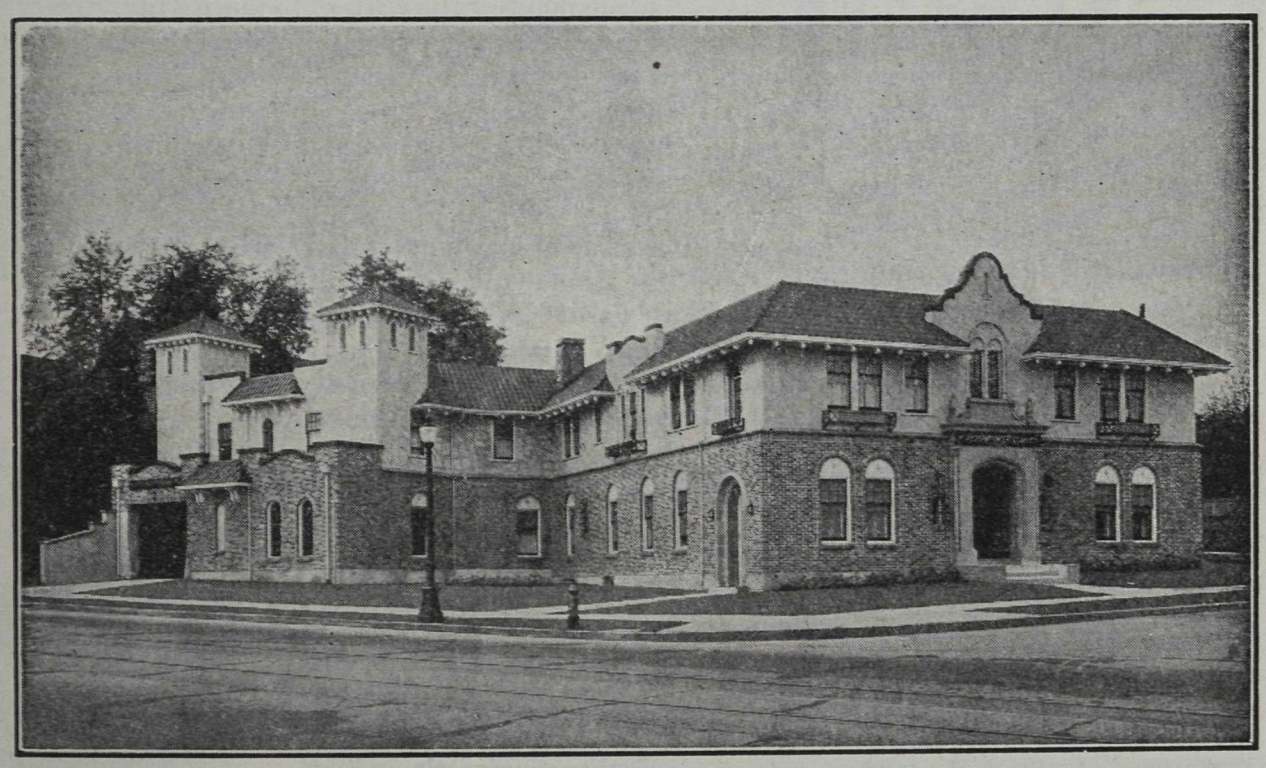

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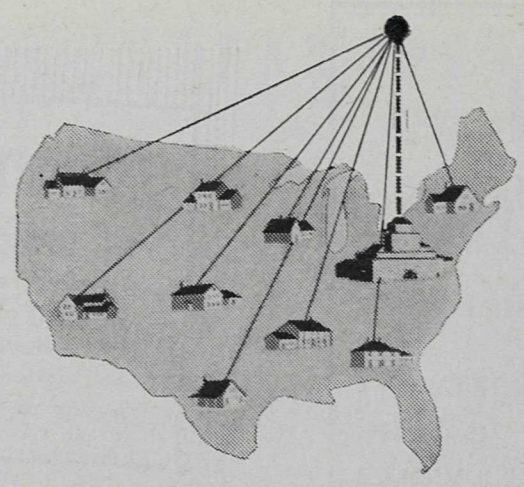

9 out of 10 cases of EPILEPSY are treated in the Home

Of the more than a half-million persons on this continent who suffer from epilepsy, only about 50,000 are in public institutions[1]. Thus, about 90 per cent of the therapy of this disease rests on the shoulders of the physician in private practice.

Management of the epileptic in the home demands the use of therapeutic measures which will control seizures effectively, and favorably influence such psychological factors as make for better adjustment of the patient to family life, as well as to his association with others. The objective of the physician is to make it possible for the epileptic, adult or child, to live a normal life with his family.

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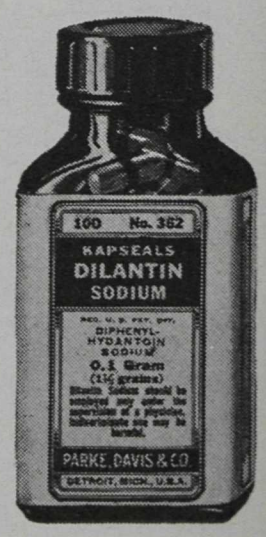
1. Tracy Putnam: Convulsive Seizures, p. 4, J. B. Lippincott Co., 1943.



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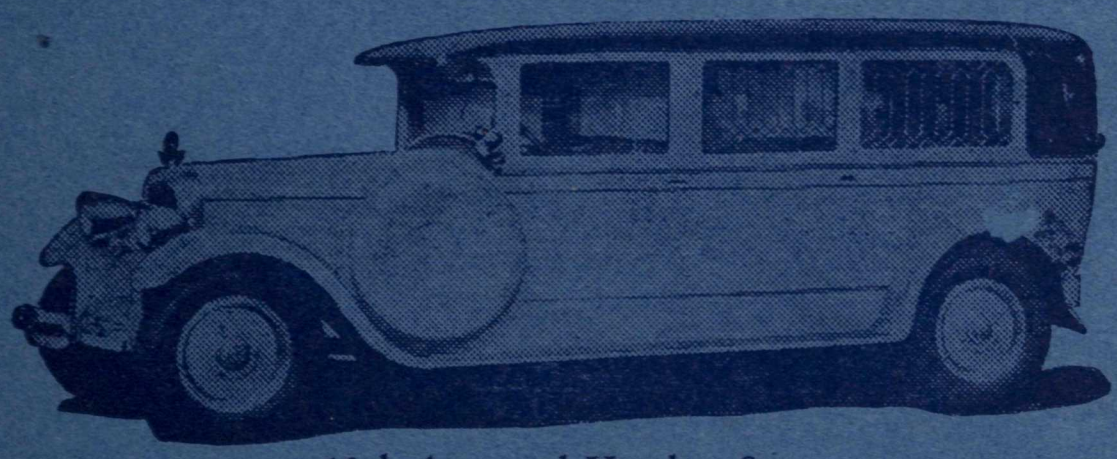

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