The BULLETIN

of the

VANCOUVER MEDICAL ASSOCIATION

Vol. XVII NOVEMBER, 1940 No. 2

With Which Is Incorporated
Transactions of the

Victoria Medical Society

the

Vancouver General Hospital

and

St. Paul's Hospital

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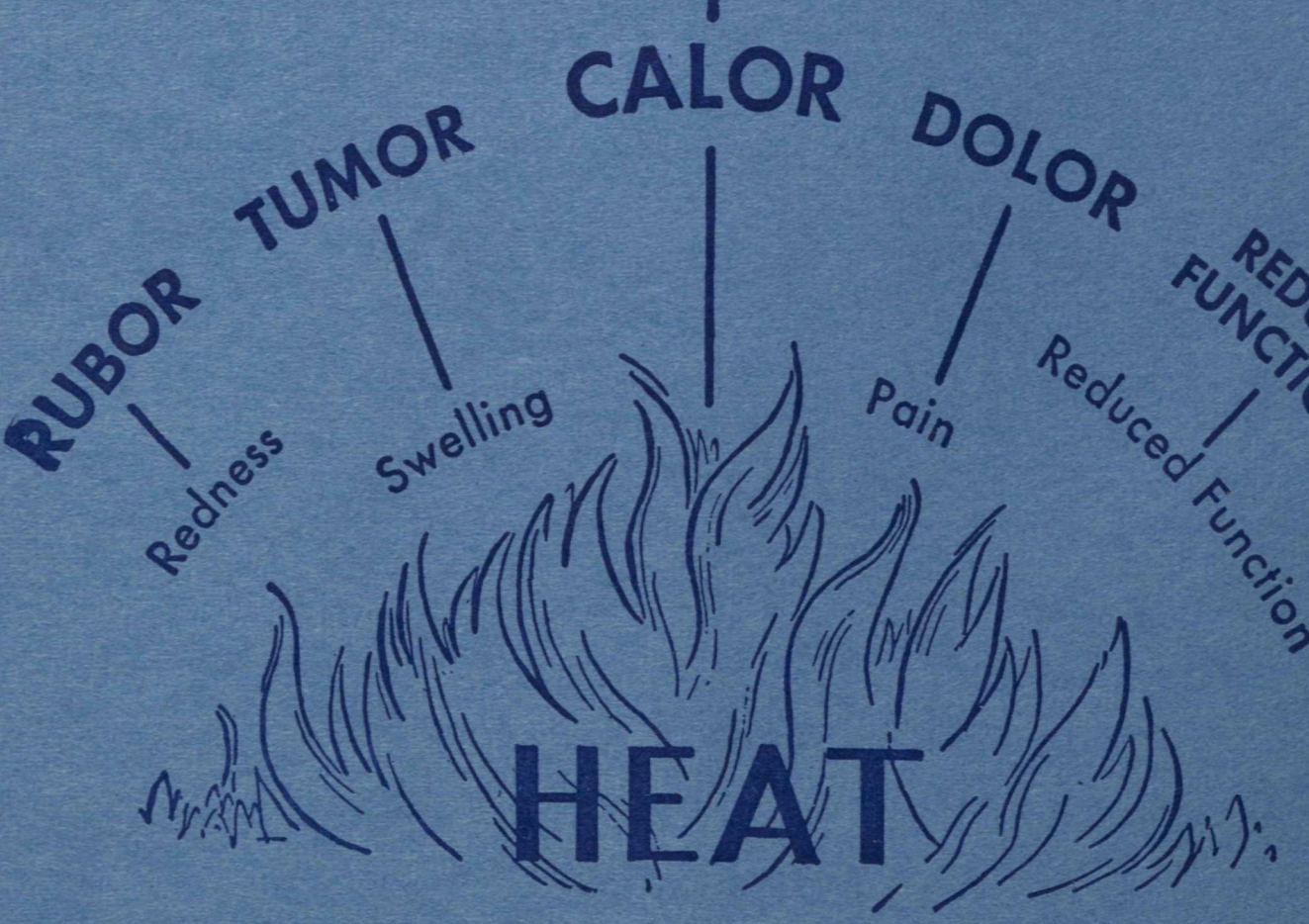
Antiphlogistine



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BULLETIN

Published Monthly under the Auspices of the Vancouver Medical Association in the interests of the Medical Profession.

Offices: 203 Medical- Dental Building, Georgia Street, Vancouver, B. C.

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Vol. XVII NOVEMBER, 1940 No. 2

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VANCOUVER HEALTH DEPARTMENT

STATISTICS—SEPTEMBER, 1940

Total population—estimated	269,454
Japanese population—estimated	9,094
Chinese population—estimated	8,467
Hindu population—estimated	339

	Number	Rate per 1,000 Population
Total deaths	261	11.8
Japanese deaths	6	8.0
Chinese deaths	11	15.8
Deaths—residents only	222	10.1
BIRTH REGISTRATIONS:		
Male, 236; Female, 212	448	20.3

INFANTILE MORTALITY—	Sept., 1940	Sept., 1939
Deaths under one year of age	12	12
Death rate—per 1,000 births	26.8	32.6
Stillbirths (not included in above)	11	4

CASES OF COMMUNICABLE DISEASES REPORTED IN THE CITY

	August, 1940		September, 1940		Oct. 1-16, 1940	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Scarlet Fever	11	0	4	0	8	0
Diphtheria	0	0	0	0	0	0
Chicken Pox	13	0	22	0	24	0
Measles	14	0	40	0	27	0
Rubella	1	0	1	0	2	0
Mumps	1	0	6	0	4	0
Whooping Cough	8	0	5	0	2	0
Typhoid Fever	1	0	1	0	0	0
Typhoid Carrier	0	0	1	0	0	0
Undulant Fever	0	0	0	0	0	0
Poliomyelitis	0	0	0	0	0	0
Tuberculosis	28	20	34	0	5	–
Erysipelas	6	0	1	0	1	0
Meningococcus Meningitis	0	0	0	0	1	0
Paratyphoid Fever	0	0	1	0	0	0

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

	Burnaby	West Vancr.	Richmond	North Vancr.	Vanc. Clinic	Hospitals & Private Drs.	Totals
Syphilis	1	0	0	0	9	23	33
Gonorrhœa	1	0	2	2	48	26	79

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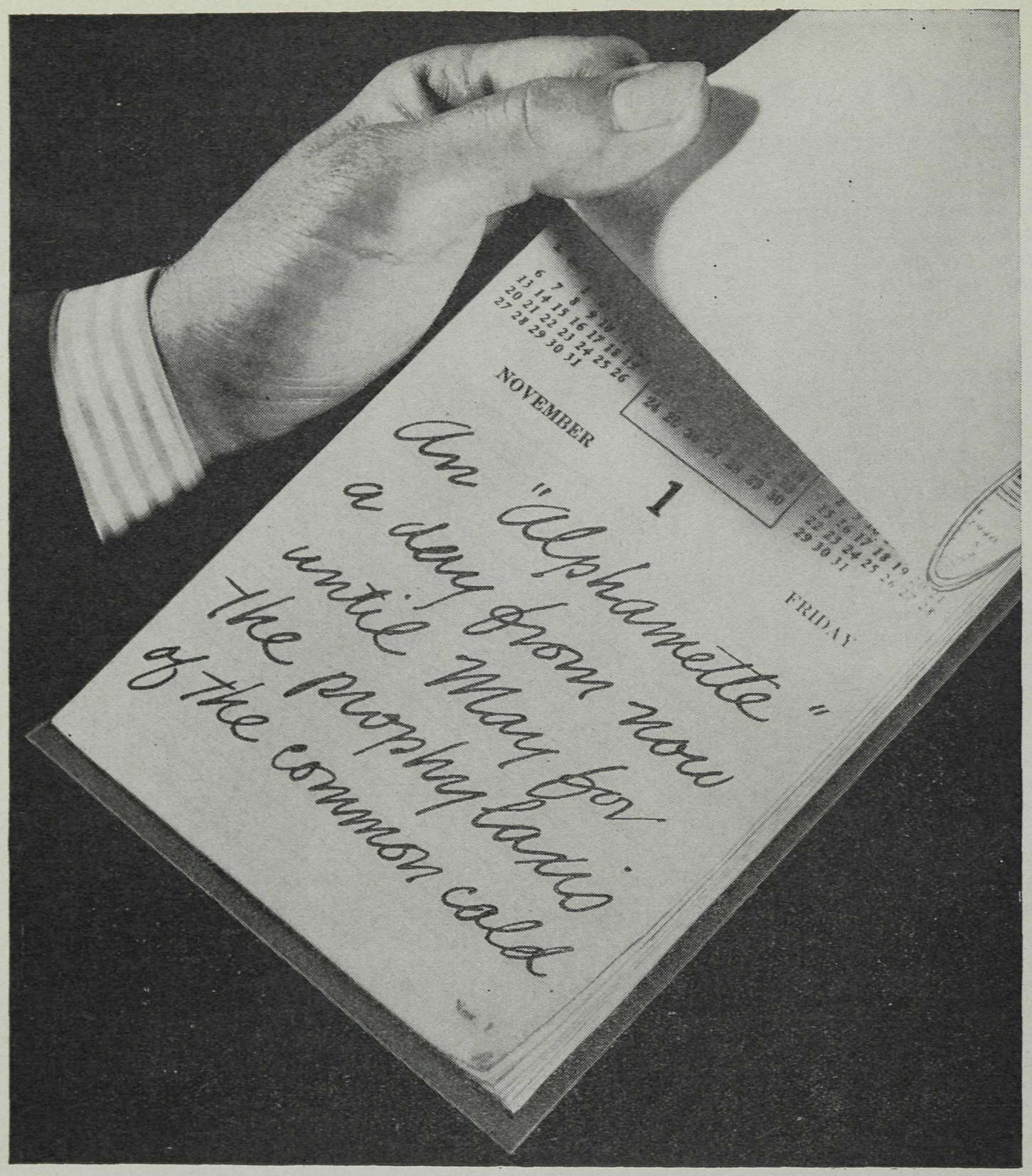

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VANCOUVER MEDICAL ASSOCIATION
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GENERAL MEETINGS will be held on the first Tuesday of the month at 8 p.m.

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

Programme of the 43rd Annual Session (Fall Session)

1940

October 1—GENERAL MEETING.
Dr. Hamish McIntosh: "Some commonplace variations in the spine."

October 15—CLINICAL MEETING.

November 5—GENERAL MEETING.
Dr. E. R. Hall: "The obstructing prostate—Recognition and treatment."

November 19—CLINICAL MEETING.

December 3—GENERAL MEETING.
Speaker to be announced.

December 17—CLINICAL MEETING.

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THE EDITOR'S PAGE

We have been asked to draw attention to the fact that the Annual Dinner of the Vancouver Medical Association is to be held at the Hotel Vancouver on November 22nd. It will not be a very elaborate affair—much of the gaiety, even hilarity, of former dinners will be absent; but we are assured by Dr. Leith Webster, Chairman of the Dinner Committee, that there will be some surprises—some innovations—more we cannot say, mainly because we do not know any more.

We think it is an excellent idea to have the Dinner, war or no war. It is not an extravagance or a self-indulgence; the Annual Dinner of this Association has always been a potent factor for good—it has strengthened the bonds of unity and good-fellowship among us—has been a safety-valve and a means of release, an escape-mechanism as our psychologist friends might call it (terminology changes so fast in this department of science that we are probably hopelessly out of date in using this term). Such things are good for the morale—and the morale is of the greatest importance, as we are so often told. So we urge our readers to roll up to the Dinner. Mark the date (November 22nd) on your Calendar: and make sure you are there.

* * * *

We should like to say something about an organisation that eminently deserves our support and consideration, even our gratitude. We refer to the Canadian Physiotherapy Association. The medical profession, we think, with few exceptions such as the orthopædists, knows very little about this company of trained and ethical physiotherapists, and it is time they knew more. The woods are full of so-called physiotherapists, untrained or self-trained, or graduates from the janitorial department of a gym or the Y.M.C.A., and ballyhooed as experts in physiotherapy. All sorts of quacks and irregulars are to be found advertising in our daily press: their offices resplendent with ultra-violet rays and various sorts of machinery (the kind that emit a blue light and sparkle and fizz are particularly impressive). Naturopaths, naprapaths, and every other kind of cult, make a feature of physical treatment of disease, but they are unqualified and untrained, and are too often trying to exploit the public. So physiotherapy has to some extent fallen into disrepute with medical men—at least is viewed with suspicion and, unless attached to a hospital, is seldom used.

This is a pity—more than this, it is an unfair attitude for us to take. For many years, since 1917 or thereabouts, the qualified physiotherapists of Canada have been organised into a body, into the membership of which only highly qualified and well-trained experts are admitted. Their standards of training are high (courses average 190 hours of lectures, demonstrations and clinical work)—the teaching staffs are all qualified, and McGill, Toronto, University of Saskatchewan, Vancouver, and many other training centres control the teaching and instruction of graduates. The best systems of training, Swedish and English, are followed. An instance of the confidence which is placed in them by those qualified to judge, is seen in the fact that in British Columbia all Workmen's Compensation work in the province is referred only to members of the Canadian Physiotherapy Association.

Their ethical standard, too, is high. Each member is required to give a solemn pledge not to work except under the direction and orders of a qualified physician. This one fact places on us as medical men a responsibility, and puts us under an obligation to these people. Not only do they deserve our sympathy and support, but we too need their work and services in our daily practice. Physiotherapy is becoming more and more a recognized necessity of medical treatment. Pre-natal and post-natal care, for instance, need its inclusion; post-operative treatment should include it, and one could multiply instances by the score, of occasions where not only we but our patients too are suffering

from our failure to employ this treatment. On another page we reproduce an article on pre-natal and post-natal muscle work, which will be of interest and value to many of our readers.

Lists of members and qualified physiotherapists can easily be obtained, and such a list might well occupy a prominent place in our consulting-room, on our desk, or on one of the vacant spaces on our wall.

HOLLYWOOD SANITARIUM

New Westminster, B. C.

For many years, in fact since the BULLETIN first came into being, the back page of its cover has consistently carried one advertisement (full page). This has been the advertisement of the Hollywood Sanitarium of New Westminster: this institution is our first and oldest advertiser, and has never failed us: so that, apart from the unquestioned merit of the Sanitarium, we feel a warm interest in its doings and welfare.

We tend to take things for granted, especially if they work smoothly and efficiently, and do not call attention to themselves. This is a pity: because we tend, too, to forget or at least fail in our appreciation of the excellence and indispensability of such places as the Sanitarium of which we are speaking. It is a good thing, we feel, to take stock periodically of our assets, and of our resources, so that when the need comes, we can meet it instantly and effectively.

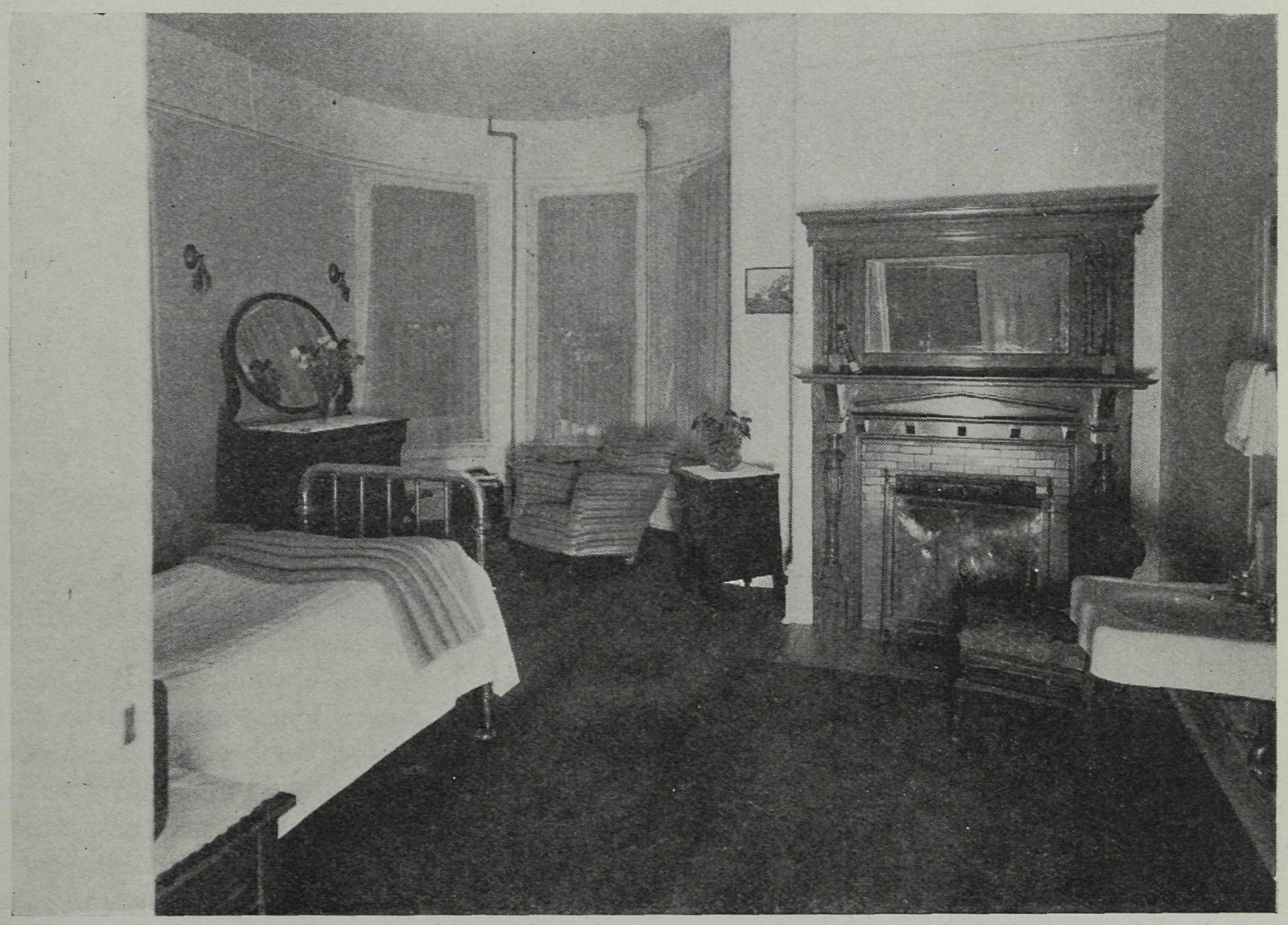
Hollywood Sanitarium is distinctly one of the assets of our B. C. profession: and we feel that its work and possibilities are not sufficiently well known to medical men as a whole. It fiills a place in our armamentarium that is not filled by any other organisation: it is admirably located for its purpose, fully equipped, and well administered—and to those of us who have had occasion to use it, it has been a boon and a tremendous help. But, in the very nature of things, it is not an institution that can do a great deal of horn-blowing, nor can it go in for any extensive publicity. Privacy and seclusion are two of the most desirable features it has to offer, and one can hardly advertise or

One of the sitting rooms.

ballyhoo these very much. So the friends of this hospital, and they are many, owe it to the institution to see that it becomes and remains known to all who may need its help and services.

So the Publications Committee of the BULLETIN took a jaunt out to New Westminster the other day to see for itself what manner of place this Hollywood Sanitarium might be: that we might report to our readers for ourselves. We were warmly welcomed by Dr. J. G. McKay, who was for so many years superintendent and manager of the hospital, and is now intimately interested in its administration, and he told us of its history and work and shewed us round: and we feel that a brief account of it will be of great interest.

Hollywood Sanitarium was founded in 1919. It is ideally placed for its work. New Westminster is a quiet city of homes and gardens: its streets are well treed, mostly free from heavy traffic, its homes set in wide gardens—and there is an atmosphere of peace and quiet everywhere—even if along its waterfront are thriving industries and docks crowded with ships. But in the residential quarters are many places of restfulness and beauty. The Sanitarium is in one of the pleasantest places of all. Set in wide grounds, with some of the oldest trees in the province, its lawns and hedge-bordered walks give to the patients who are able to go outside, delightful opportunities for fresh air and mild exercise in surroundings of beauty. Great glassed-in verandahs overlook the grounds, and bed-patients may be wheeled out and see and enjoy these beauties for themselves.



One of the Bedrooms.

As we walked through the hospital, and were shewn its equipment and arrangements, we realised what we believe few medical men know, that here we have an admirably equipped hospital for the treatment of nervous and mental disorders, equipped to take care of any case at all. Foam baths, prolonged warm baths, fever machines, malarial therapy, metrazol or insulin therapy—all these and many other things may be obtained. Rooms which are not mere hospital wards, but are like the comfortable, even luxurious rooms of a private home, with easy chairs and writing tables and fireplaces, are here. But there are some unfortunates who for their own safety must be kept in

rooms with shatter-proof glass, and unbreakable furniture, and these are here too. Safety is a prevailing note in the hospital—but it is combined with two things not always obtainable in hospitals for mental cases—comfort and privacy. Every possible vagary of the "mind diseased" has been thought of and provided for.

And for the convalescent, and the nervous case who needs diversion and entertainment, these too are provided. Billiards, bridge, music, reading-rooms: these are part of the therapeutic equipment of Hollywood Sanitarium: and the "hospital" atmosphere, of stark asepsis and regimentation, is quite lacking—though underlying all things are as strict a discipline and as complete efficiency as one would find in any hospital. An excellent staff, headed by Miss Clements, ministers to the needs of the patients. We went through the kitchens, and saw modern and up-to-date equipment, including an "Aga" Fireless Cooker of which Dr. McKay was very proud; looked at the big dining-room, bright and airy, and saw all the signs of excellent housekeeping.

Main Entrance.

And one word as to the cost of all this: for this is a pertinent factor in the consideration of where we are to send our patients. Can they afford such a place as Hollywood Sanitarium, or are its rates reasonable or excessive? We talked this over with the medical superintendent, and he discussed it freely with us: and a somewhat new aspect of the case was presented to us. Perhaps the best way to judge of this is to compare it with the treatment, let us say, of a serious surgical case, requiring an operation and some weeks of hospitalisation. The physician, and perhaps the patient's friends, are apt to think in terms of daily rates charged. But let us add to the daily ward rate in a good hospital, some fifty dollars for operating-room fees, anywhere from ten to thirty dollars for intravenous and other special therapy—transfusions, too—and the surgeon's fee of anything from a hundred and fifty dollars up. The patient may be in a private ward (if he or she is of the financial status that wants such an institution as a private hospital or a private sanitarium) for some three or four weeks. During this time there have certainly been private-nursing charges, sometimes amounting to twelve dollars a day—not rare in a case of any severity. Add all these things together, and we shall find that the daily rate to the patient computed this way is far more than we had realised.

In an institution like Hollywood Sanitarium the daily rate covers all this: there are no extras, or few, and when one considers the exclusiveness, the privacy, the personal care, and all the comforts and luxuries to which we have referred, we shall realise perhaps that the fees charged are really quite moderate. And nobody needs this special care more than the nervous or mental patient. Quite frequently recovery at all depends,

Corridor for disturbed patients.

not on the obtaining of treatment, but on the manner in which it is given, on privacy and a sense of security, on a knowledge that none of one's friends or acquaintances will ever know that there has been any such word as "mental" attached to one's illness. One of these days we may, under the providence of God, and at the discretion of the B. C. Government, obtain a psychopathic ward. Then the unfortunate mother just recovering from labour, who suffers what is nearly always only a temporary lapse of mental capacity, from which proper care can easily free her, will not be condemned to go to a public mental hospital, where indeed the care is as good as any that can be given, kindly and efficient, but where an inevitable stigma and label is attached to the weary shoulders of the unfortunate, which she can never lose—which damages her own self-respect, and leads to a permanent shamefacedness and feeling of inferiority. It is only fair to say that this feeling of a stigma is gradually disappearing from the public mind —and we owe this in great measure to the work and public addresses of the leaders in the modern mental hospitals, which are doing such magnificent work in curing mental disease. But unfortunately there is an inevitable publicity attached to those who enter the mental hospital—where all are supposed to be "mental," a term that implies a certain inferiority at least, and a permanent one.

To those who can afford it, Hollywood at present offers the only satisfactory alternative, where adequate treatment can be combined with privacy and individual care.

So we returned, very enthusiastic about the whole affair, and feeling that we can honestly and conscientiously advise all our readers to consider Hollywood Sanitarium as one of their best friends and most useful adjuvants to treatment. Go and see it for yourself: you will be welcomed and shewn everything, and you will enjoy the visit.

NEWS AND NOTES

Dr. and Mrs. E. Stewart James of Vancouver are receiving congratulations on the birth, on October 18th, of a daughter.

* * * *

Congratulations are extended to Dr. and Mrs. Bruce Reed of Vancouver on the birth, on October 17th, of a son.

* * * *

Dr. A. Y. McNair of Vancouver has returned from a holiday in Lethbridge, where he visited his sisters.

* * * *

Dr. T. M. Jones of Victoria, formerly of Vancouver, has left for Rochester, Minn., where he will do post-graduate work.

* * * *

Dr. and Mrs. J. W. Shier have returned to the city after spending a month in Eastern Canada.

* * * *

We offer congratulations to Dr. E. K. Pinkerton of Vancouver upon his marriage to Miss June White of this city.

* * * *

Congratulations are extended to Dr. T. F. H. Armitage of Vancouver upon his marriage to Miss Mary Elizabeth Barr, on October 12th.

* * * *

Dr. and Mrs. H. N. Watson of Duncan were recent visitors in Vancouver and at Chilliwack, where they were the guests of Dr. and Mrs. Ewart Henderson.

* * * *

Dr. and Mrs. A. P. Miller of Port Alberni are receiving congratulations on the birth of a son.

* * * *

Dr. R. W. Garner of Port Alberni has returned from a hunting trip spent in the Cariboo.

* * * *

Dr. and Mrs. A. H. Meneely of Nanaimo have returned from a month's vacation which included taking in the British Columbia Medical Association Convention at Nelson, and clinics at Rochester.

* * * *

Dr. and Mrs. E. D. Emery of Nanaimo spent a month at Jasper, Banff and Edmonton.

* * * *

Dr. L. Giovando of Nanaimo recently returned from a successful hunting trip in the Cariboo.

* * * *

Dr. E. Lewison of Zeballos has returned from Toronto, where he spent the past month with his parents.

* * * *

Congratulations are extended to Dr. W. M. Tonne of Nelson on his marriage to Miss Anne Dowbiggin of Hong Kong on October 5th. The wedding took place in Vancouver.

Dr. William Leonard of Trail was on a hunting trip in the Okanagan recently.

* * * *

Dr. D. H. Williams, Provincial Director, Division of Venereal Disease Control, visited Prince Rupert on October 16th and 17th, where consultations with the medical profession—military and civil—were held, and problems discussed.

* * * *

Congratulations are extended to Surgeon-Lieut. R. E. Burns of Esquimalt upon his marriage to Miss Helen Spreull of Cranbrook on October 26th.

* * * *

Lt. and Mrs. E. T. W. Nash of Vancouver are receiving congratulations on the birth, on October 24th, of a daughter.

* * * *

A very interesting letter was received from Dr. H. P. Swan, formerly of Duncan, who is now with the forces in England. He describes England as an armed fortress.

* * * *

Lt.-Col. Gordon C. Kenning of Victoria left for Regina, where he will take up his military duties.

* * * *

Dr. G. D. Oliver, who will be remembered by many as an Interne at the Vancouver General Hospital and subsequently as an ssociate with Dr. Gerald Baker in the practice at Quesnel, proceeded to the Old Country early in 1939. After securing the F.R.C.S. qualification at Edinburg, he was attached to several hospitals. Dr. Oliver joined the Services and has just completed one year of surgery in war hospitals. His last appointment with a Casualty Clearing Station in the South of England brought him into contact with the wounded from Dunkerque. While he is reticent to discuss hi swar experiences, one would surmise that the areas in which he has served could scarcely be described as healthful.

* * * *

Dr. Frank Bryant of Victoria for the third time has qualified for membership in the Hole-in-one Club—a direct hit.

* * * *

Dr. Gordon C. Johnston of Vancouver has just returned from Eastern Canada after several months' absence. Dr. Johnston was successful by examination in obtaining the F.R.C.S.(Can.).

* * * *

Sincerest sympathy of the members of the profession is extended to Dr. S. Cameron MacEwen and family, of New Westminster, on the recent death of Mrs. MacEwen.

* * * *

Lt.-Col. R. A. Hughes has arrived in British Columbia and assumed his duties as D.M.O., Military District No. 11.

* * * *

Dr. and Mrs. H. S. Stalker of Tranquille are receiving congratulations on the birth, on November 3rd, of twin daughters.

LIBRARY NOTES

NEW BOOKS RECEIVED IN LIBRARY

Surgical Clinics of North America, June, 1940—Symposium on Spinal Anæsthesia.
August, 1940—Symposium on Pre- and Post-operative Cases.
Medical Clinics of North America, July, 1940—Symposium on Endocrine Therapy.
September, 1940—Symposium on Cardiovascular Disease and Diagnostic Hints.
Published Papers, by W. N. Kemp.
Soldier's Heart and Effort Syndrome, 2nd ed., by Sir Thomas Lewis.
Berkeley Moynihan, Surgeon, by Donald Bateman.
Applied Pharmacology, by Hugh A. McGuigan.
Otosclerosis, by Louis K. Guggenheim.
Obesity and Leanness, by Hugo R. Rony.
Artificial Pneumothorax, by Saranac Lake Physicians.
The First Five Years of Life, by Arnold Gesell.
Cancer in Childhood, edited by Harold W. Dargeon.
Diseases of the Skin, 10th ed., by Sutton and Sutton.

BOOK REVIEW

BERKELEY MOYNIHAN, SURGEON: By Donald Bateman.

Only four times has a peer been chosen from the ranks of the British medical fraternity. It was fitting that the greatest influence in the professional life of the second recipient of this honour, Lord Moynihan, was veneration for his predecessor in the peerage, Lord Lister. Berkeley Moynihan did not possess the genius of Lister, nor the warm humanity of his greater contemporary, Sir William Osler, but he had qualities of intellect, diligence, and leadership which made him a giant among men. He was descended from a long line of soldiers, son of one of the first to win a Victoria Cross. Only the chance observation by his mother of the sufferings of wounded soldiers at Crimea ultimately determined his choice of medicine as a career. His father died of Malta fever when Berkeley was two. In the face of most difficult financial circumstances, and chiefly by dint of his brilliant scholarship, he graduated in medicine and forthwith acquired all of the available higher degrees in surgery. Practice started slowly as it always does for a young surgeon who sets up as a solitary specialist in competition with older colleagues, but it gained momentum with each year. He slaved to perfect his surgical technique and strained to study and draw a lesson from every case that he treated. Ironically enough, his eminence was first recognized by visiting American surgeons. His books on diseases of the pancreas and stomach, written in collaboration with Mayo-Robson, and published in 1901 and 1902, carried his name into all the great surgical clinics of America. When two years later, at the age of thirty-nine, he published his book on Gall Stones and their Surgical Treatment, his place among notable English surgeons of the day was established. His greatest work and at the same time that which caused most controversy was his book on Duodenal Ulcer, published in 1910. Posterity may continue to debate the relative merits of surgical and medical treatment of ulcer, but will not forget that he was the first who showed how to diagnose duodenal ulcer with exactitude. In the World War he played an important role in organization of surgical activities of the R.A.M.C. in France. Of even greater service to the motherland was his brilliant oratory, particularly during a visit to United States in 1917. To his door, after the war, came patients from all over the world. He was asked to do more surgical work than had ever been offered to an English surgeon before. Small wonder, then, that in the later years he should love to recount to his friends with egotistical anecdote the tale of his rise to fame. His professional success was crowned in 1926 by election to the Presidency of the Royal College of Surgeons. Surgery was his life. He had raised it to the level of a faith, and now in the eyes of his colleagues his services were approved. In 1929, seven years before his death, he was elevated to the peerage, a distinction which he well deserved, for he was in English surgery already almost a legendary figure.

To medical men, and particularly to young surgeons, this well written and interesting biography is highly recommended.

F. T.

British Columbia Medical Association

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ANTISEPSIS IN MIDWIFERY

Sources of Sepsis:

1. Unsterile basin and water used for washing patient.
2. Skin of vulva, perineum, thighs, etc.
3. Obstetrician's hands and reinfection of them or gloves during the labor.
4. Vagina.
5. Instruments, *e.g.*, forceps, etc.

Methods of Obtaining Antisepsis:

1. Use boiled water or chemically sterilized water. Suitable chemicals are Cyllin—one teaspoonful to three pints of water; or Dettol—two teaspoonfuls to one pint of water. These will sterilize the water in three minutes. Other antiseptics in sufficient concentration to sterilize the water are too irritating. The basin may be sterilized by scouring it out with 10% Lysol or full strength Dettol, or Dettol Cream—two minutes will be enough.
2. Skin of vulva, etc.
   Patient should be well washed with green soap around vulva, perineum, pubis and thighs, shaved and dried. The choice is between Iodine Sol. and Dettol, as shown later. Iodine is apt to be too irritating and on some skins is apt to set up a dermatitis. Dettol Cream is non irritating and if rubbed in for two minutes will sterilize the skin as efficiently as any other antiseptic and will also leave a protecting film on the skin, which will keep it sterile from all but gross soiling for two hours. During the course of the labour it can be re-sterilized from time to time by rubbing in a little more Dettol Cream.
3. Obstetrician's Hands.
   It is impossible to sterilize the skin of hands, therefore rubber gloves should always be worn if possible. Hands should be washed well for three minutes by the clock, using nail brush, with special attention around the nails, dry and put on sterile rubber gloves. These will always be available in hospital practice, but if where none are available, after washing, the hands may be disinfected by soaking in Iodine 2% in 4% Pot. Iodide solution, or Dettol Cream may be rubbed in for two minutes, especially around the nails and up to the wrists and allowed to dry. These have been found to be the two most efficient factors but Iodine is rather too irritating for frequent use and soils, therefore Dettol Cream would appear to be the safest and best.
   If only unsterile rubber gloves are available they may be put on and disinfected by washing well in soap and water for one minute, then soaked in the above Iodine solution, undiluted Dettol, Dettol Cream, Lysol 2%, or Biniodide of Mercury 1-250 for two minutes. The Iodine solution is the most efficient. If Lysol or Biniodide be used the gloves can soon become reinfected, whereas Iodine and Dettol leave an antiseptic film on the gloves or hands which will keep them from reinfection for two hours, but as Iodine sol. is the most destructive

to gloves and Dettol is not, it would appear to be the antiseptic of choice.
If treated as above it is not essential to have the gloves autoclaved, but they should be washed well on the hands after use, then put into a weak antiseptic solution, *e.g.*, 1-400 Lysol, or 1-1000 Cyllin with ½% soft soap, then dipped for one minute in boiling water, dried, and powdered and placed in container for future use.

4. Vagina and Uterus Post Partum.
Experiments have shown that these cannot be sterilized and that more harm than good can be done if attempted to do so. Therefore, they should be left alone. If any infection is known to be present, or is feared, it would be safer and better to give the patient Sulphanilamide.

5. Instruments.
Obstetrical forceps, clamps, scissors, etc., should be sterilized by boiling or immersion in strong antiseptic solution. Obstetrical forceps could be lubricated with Dettol Cream.

(Acknowledgment is made to Doctors L. Colebrook and W. R. Maxted of Queen Charlotte's Hospital, London, on whose experiments many of the above statements are based.)

POET'S CORNER

We take great pleasure in publishing the poem submitted to us by Dr. W. D. Calvert, who has, in time past, been good to us, and has allowed us to print some of his poems. The poem "Melancholia cum Stupore" presents a picture which we shall all recognise, and the *staccato* manner of its writing adds to the sense of the *macabre* which one feels in the presence of these poor other-world dwellers. The note of hope, struck at the end of the poem, is entirely up-to-date, and is the touch of vision which marks the true poet.—ED.

[A CLINICAL STUDY]
MELANCHOLIA CUM STUPORE

"There was a listening look in her regard
As if calamity had but begun."

A phrase recalled from some forgotten source,
Before the pathos of young lunacy.
Four maidens seated in a row—
All bowed with woe unutterable—
Silent and self condemned—
Passive within their several hells.

Tread softly stranger, speak no word—
Not even Dante's pen nor Dore's brush
Could limn the torments of these innocents—
One, deep immersed in sea of blood,
Up to the lips, fearful to move—
Another for unpardonable sin
Dire blasphemy against the Holy Ghost,
For ever damned.

Though drooling, dumb, like infants, washed and fed,
Yet all , from out Gehenna's deeps,
May rise to laugh again:
But every word injurious or unkind,
Or gentle hand, or rough,
Recorded through the dreadful sea
And hopeless view, and mind dement,
Graved deep in memory—
When free to face the pleasant world once more,
As we who gaze, and pass.

W. D. CALVERT.

College of Physicians and Surgeons

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MEDICAL ECONOMICS

The response to the request that the Application Cards for Professional Membership in the Medical Services Association be signed and returned is, at this date, approximately 30%.

Members are requested to sign and return this application form to the office, 203 Medical-Dental Building.

The completion of this application form incurs no financial obligation.

In case any doctor in active practice has not received or has mislaid his application form, which was enclosed with the October Bulletin, a request ot the office by telephone or letter will provide you with a card.

We are pleased to report that at this time members are being enrolled in the Medical Services Association.

The purpose for which this plan was devised, namely, to serve the needs of smali groups of employees of low income in small industries, is actually materializing.

It should be known that where hospital plans are now operating in various parts of the Province, that the M-S-A would not conflict in any way and would not offer hospital service where it was already being provided under a local plan. It is not intended that the M-S-A should interfere in any way with the services provided by these hospital associations. As a matter of fact, it is the expressed wish of the M-S-A to deal only with medical, surgical and maternity services.

HOW FAMILY RATES ARE ARRANGED BY THE M-S-A

In any group of employees, married or single, there are those with dependants or without dependants. In the case of the employee with a large number of dependants where it is desirable that he should have full coverage, the group in itself may establish a rate based on a census of the composition of its particular group, whereby each employee will contribute a sufficient amount to provide a sufficient fund to permit the employee with larger responsibilities to pay a definite amount. In this way an adequate fund may be provided without undue hardship on any employee regardless of his dependants.

Example of Family Rate—M-S-A

Medical & Surgical Care—

(100 employees with 100 dependants—200 persons at $1.00 each.
$200.00 monthly required.)

	Four alternatives: 1.	2.	3.	4.
50 employees without dependants	$1.00	$2.00	$1.00	$1.00
50 employees with dependants	3.00	2.00	2.00	1.00
Employer for each employee			.50	1.00

Note: It is not well to quote rates for a group without a census of the number of dependants. When rates are quoted for a group, the M-S-A would not seek to change them for normal fluctuations in the dependant ratio of the group.

Vancouver General Hospital

REPORT OF GAS GANGRENE INFECTIONS AT THE VANCOUVER GENERAL HOSPITAL IN PAST 15 YEARS

Doctors J. R. Davidson and P. Jones.

In view of the apparent alarming increase in gas gangrene infections in the Vancouver General Hospital, it was deemed advisable to review the literature in an attempt to reacquaint ourselves with this rare but serious disease.

Humphreys describes gas gangrene as an anærobic, regional, necrotizing wound infection which involves muscle especially, though not exclusively. It is characterized by massive œdema and gaseous infiltration, with usually a putrefactive odor.

It has been known as a clinical entity since Hippocrates. It was formerly named as a disease in reference to the outstanding clinical features. It was not until 1892 that Welch and Nuttal described the etiological agent of gas gangrene (Bacillus aerogenes capsulatus). By 1900 Welch's organism had been identified many times as the cause of human gas gangrene. It was found so frequently that it became known as the "gas bacillus" and all other anærobes were disregarded.

The medical profession was more or less in the dark as to the bacteriology of gas gangrene infections until the first years of the World War. During the studies at this time it was found that many anærobes—not a specific one—are involved in the pathological picture.

Although cases are reported in which ærobic organisms—certain members of the streptococcus and colon groups—produce gas in tissues, practically all gas gangrene is caused by anærobic bacilli. There are usually, however, associated ærobes. When anærobes alone are found, several species complicate the picture. According to Weinberg and Segrin when ærobic organisms are found in combination with anærobes, the ærobes complicate the pathological picture by adding their own destructive toxins. These produce conditions favourable to the multiplication and pathogenic action of the anærobic organisms present.

All gas gangrene organisms have been placed in a genus, Clostridium. They are large, thick, gram-positive, spore-forming rods, characterized by the anærobic or microærophilic nature of their growth. This means that they are affected so deleteriously in atmospheric oxygen that they are unable to reproduce or grow unless protected from it. Of the one hundred or more spceies of clostridia this paper will deal with only the toxic and pathogenic for man nor will those of tetanus and botulism be included. The common non-toxic commensals of the œdematogenic gas gangrene organism are also not considered.

The clostridia commonly cultured in gas gangrene cases are: clostridia Welch, clostridia œdematis maligni, clostridia novyi, clostridia sordelli, and clostridia histolytica. Individual characteristics of the histo-toxic group will not be considered as they cannot be identified early enough to be of any value in the clinical management of the infection.

Zeissler and Rassfield state that Bacilli Welchi are found on practically anything that can be contaminated by dust or dirt. They found it is 100% of 200 soil specimens examined by them. A portion of these were collected on mountain peaks, jungles, etc. Many varieties are able to adapt themselves temporarily or permanently to existence in the intestinal canal. Many of these are non-pathogenic; however, others under suitable conditions may be exceedingly virulent. Thus, it may be considered that there are potential incitants of gas gangrene always present.

The gravity of gas gangrene is dominated by the peculiar feature that the anærobes which cause it are not pathogenic in themselves. Washed cultures of anærobes will produce no lesion whatever. If, however, these same organisms are mixed with a small amount of culture or with any material containing their toxins, or toxins of other clostridia, in an amount which in itself will not kill the experimental animals, typical gas gangrene, followed by death, occurs.

The exotoxin acts as an aggressin. Without stimulation of exotoxin all clostridia and their spores are eliminated from the site of infection by lysis and phagocytosis.

The exotoxin of bacilli Welchi is the least powerful of all the clostridia. However, it has, as do the rest, the property of preparing the ground for the multiplication of itself and the destruction of tissue favourable to its growth.

In the human, as the toxins are never introduced with the bacteria and spores, favourable conditions must prevail for their growth. Laceration, crushing, effusions of blood, stasis of circulation, fractures, and foreign bodies result in the formation of necrotized tissue which is favourable to their growth. These factors not only facilitate further multiplication and toxin production, but at the same time damage adjacent healthy tissue so that the further distribution of larger amounts of toxin leads to severe systemic changes and finally to death. Concurrently associated ærobic metabolism lowers the oxygen concentration of the tissues and thus creates conditions favourable for the anærobes.

Wound contact with the gas-forming anærobes certainly cannot be prevented. Thus, all efforts must be directed against permitting those conditions to supervene which will allow these organisms to develop, multiply and destroy.

The following clinical signs are given as outstanding aids in the diagnosis of gas gangrene.

(1) Pain.
(2) Fever.
(3) Increased pulse rate.
(4) Local changes.

It is difficult to evaluate the degree of pain and rise in temperature because of pre-existing pathology. According to Callander in over 80% of their series of 109 cases a sudden increase of pulse was the earliest clinical sign. In our series of 39 this has been strikingly absent. It has occurred as the earliest sign on 4 occasoins. A pulse rate out of proportion to the temperature was seen in only 3 cases.

According to Beebe, the bacteriological examination of recent injuries to be of most aid to the surgeon, should be made after the primary operation as follows:

A few strands of silkworm gut or horse-hair should be placed at the most dependent part of the wound. At the first dressing, twenty-four hours later, these should be removed and from the serum that exudes the bacteriologist should make his cultures and smears. The Examination of open wounds should be made from material curetted from the deeper pockets.

According to Callander, the smears and cultures should be taken from the deeper portions of the incision by aids of a sterile platinum loop—never from the suture lines. He has done this repeatedly and claims never to have introduced infection. This is recommended highly by other authorities as well as the proper method of taking cultures.

The prognosis in gas gangrene depends mainly upon the duration and severity of the infection and upon the effect of the therapeutic measures instituted. The mortality rate in other reported series of any size varies betwn 40 and 90%. In our series it was 53%.

In our series the following chart will show the predisposing conditions upon which a gas bacillus infection superimposed itself:

(See chart on following page)

In our series 12 were diagnosed at autopsy while 27 were diagnosed by clinical findings plus + smears or by + smears alone.

Owing to the wide variety of injuries where there is the possibility that gas gangrene may develop, plus the rarity of incidence of the actual disease, proper prophylactic treatment presents its difficulties. It is difficult, if not impossible, to lay down specific rules as

PREDISPOSING FACTORS:

Compound fractures and lacerations of extremities	15
Amputation of arteriosclerotic and diabetic gangrene	6
Urologic infections and operations	6
Perineal infections and operations	4
Septic abortion	2
Carcinoma of rectum	2
Biopsy of cervical glands	1
Strangulated hernia	1
Giant cell tumor of femur	1
Idiopathic septicæmia	1
	39

to when prophylactic antiserum should or should not be given. The cost of serum, serum reactions and sensitizations are unpleasant factors that should not be looked upon lightly. The character of the injury and the degree of contamination are the decisive factors upon which the attending physician must base his decision.

Debridement is essential in lacerated wounds, compound fractures, and gunshot wounds. This should be done carefully to avoid further damage. The wound should be accessible to inspection at all times. Smears and cultures should be taken frequently deep in the wound. It must not be forgotten that an infection can brew in the depths of a wound and show nothing at the suture line.

If a plaster cast must be applied, there should be one or more windows for observation of the wound. X-ray examination to demonstrate gas bubbles, taken immediately after the management of the injury, may be helpful for comparison with films exposed later when gas bacillus infection is suspected. This comparison has never been made in our series.

According to Rossfield, Callander, and Segrin, in gas bacillus infection we do not know which of the several organisms present may be the potential incitants of gas gangrene. Thus, the prophylactic antiserum should be polyvalent. The amount of antiserum should be no less than a full therapeutic dose. The minimum therapeutic dose recommended by Callander and others contains: 10,000 units Welch antitoxin; 10,000 units œdematis maligni antitoxin; 200 units novyi antitoxin; 200 units sordelli antitoxin; 25 units histolyticus antitoxin.

A second prophylactic dose should be given if the examination of the wound reveals organisms. The administration of all prophylactic serum should be subcutaneous.

Of our 39 cases only 10 received any type of prophylaxis. Six received antitetanic serum alone, 1 received Welch antitoxin (10,000 units intravenously), and 3 received a combined. Of these 10 only 1 may be considered to have had adequate prophylactic treatment.

If prophylactic measures fail more active early radical treatments should be instituted. As soon as the infection is recognized, wide incisions in the suspected area should be made. The incisions should never pass across uninvolved muscle tissue but should be made longitudinally in the involved muscle. These incisions should be followed by almost continuous irrigations of some solution which releases oxygen. Meleny uses zinc peroxide in this connection. In our series all 27 cases diagnosed prior to death received irrigations of Dakin's, Hydrogen peroxide, potassium permanganate, etc. The interval between irrigations averaged approximately two hours.

For cases which develop regardless of prophylactic treatment the polyvalent serum should be used intravenously up to 150,000 units or more in the first 36 hours. According to Zeissler no injections should be given in large quantities into the tissues as this may tend to produce necrotized bits of tissue which may aid in the spread of the infections. This would include ring injections and intramuscular injections.

Other than the treatment by the polyvalent serum the treatment is entirely supportive. The supportive treatment includes deep inhalations of oxygen, forced fluids, blood transfusions, and adequate glucose administration.

Chemotherapy and X-ray are implements of treatment which are difficult to evaluate because at present no one has a large enough series to give any conclusive evidence as to their merit. Our series is of no aid in their evaluation as only four patients received sulphanilamide and its derivatives and in each case received it before clinical gas gangrene manifested itself.

In our series only 5 received intravenous antitoxin and not one of these died. Most of these received only small amounts. Three cases received circular injections, just above the site of infection, of varying amounts of antitoxin. One of these died, but this patient showed numerous negative smears before developing a streptococcal pneumonia. Three received only symptomatic treatment and all died. The remainder received varying amounts of intramuscular antitoxin with a mortality rate of 5 in 16 or 31%. The following chart will give a short resume of the therapy instituted here:

CHART II.

Antitoxin—10,000 Units			Surgery		Supportive Treatment			Result	
Intra-muscularly	Intra-venously	Circular	Ampu-tation	Multiple incisions	X-ray	Blood Trans-fusion	Chemo-therapy		
1.		150						Elbow.	Died.
2. 20		50		+				Os Calcis.	Lived.
3. 260			+		+	7		Compound Frac. Tibia and Fibula	Lived.
4. 140					+	1		Gluteal Abscess.	Died.
5. 20				+				Laceration.	Lived.
6. 120						1		Compound Fracture Femur.	Died.
7. 40								Vaginal Cyst.	Died.
8. 110					+	1	Prontolin	Elbow.	Lived.
9. 160								Amputation, foot.	Lived.
10. 370				+	+	2		Bone tumour.	Lived.
11. 170				+	+			Radius and Ulna.	Lived.
12. 420					+			Post-operative Amputation.	Lived.
13. 30		10		+				Scrotal Abscess.	Lived.
14.	No treatment		+					Femur.	Died.
15.		10	+					Tibia and Fibula.	Lived.
16.		60 (x2)		+				Colles.	Lived.
17. 100			+	+		10		Tibia and Fibula.	Lived.
18. 20			+	+		1		Femur.	Died.
19.		30						Epididymis Abscess.	Lived.
20. 50			+			1		Gunshot.	Lived.
21. 50		10	+			2		Laceration.	Lived.
22.	No treatment							Post-operative Amputation.	Died.
23. 60					+	1	+	Hernia.	Died.
24. 10		20					+	Post-operative Amputation.	Lived.
25.				+			+	Circumcision.	Lived.
26. 20						1		Septic Abscess.	Lived.
27.	Symptomatic treatment							Gangrene of foot.	Died.:

THE ROLE OF VITAMIN A IN OPHTHALMOLOGY

C. E. Davies, M.D.

Our knowledge of vitamins is of comparatively recent origin. It was only a few years ago when we were speaking of vitamins in terms of fat soluble A, water soluble B, anti-scorbutic C, anti-rachitic D, and anti-sterility E. Our knowledge was extremely perfunctory; but interest was soon stimulated when it became definitely established that many of our chronic diseases were in reality deficiency diseases, and if not caused, were maintained by a lack of one or another of the vitamins.

In reviewing the literature of the past thirty years on vitamins, one is amazed at the tremendous strides that have been made, and at the wealth of knowledge that has been accumulated from intensive research work. This undoubtedly has been accelerated by our medical supply houses, who have realized the salues value of the work, and have moved rapidly to anticipate the popular demand for something new and startling.

As a result, our medical literature, the newspapers, and the store windows have been flooded with information on the latest fads. The pendulum of medical opinion swung high on the one side, and is now swinging well to the other; but as our knowledge of the chemistry and composition of vitamins increases, we realize that in them we have one of our essential food factors which is not only responsible for keeping the body in a state of health, but also a vital factor in the cure of disease.

Vitamins today are so closely linked with Therapeutics, and are so universal in application, that we are a little startled and confused in knowing exactly when and how to apply them. There is hardly a disease which would not be definitely benefited by stimulating the body against infection, fortifying the nervous system, and improving assimilation. These are all functions requiring vitamins, and in sufficient concentration, vitamins do the work themselves very much better than our highly publicized formulæ. The question arises, "When do we begin, and where do we end?" In specifically prescribing vitamins for specific complaints, our texts on vitamins have with few exceptions been written by the manufacturers themselves, who if you please are our authorities. Their work indeed in most cases has stood the test, but the clinician finds it necessary to protect the patient against unnecessary expense. Our difficulty rests with the inability to measure the degree of avitaminosis present, and the increase in concentration of vitamins after treatment, which makes the prescribing of vitamins largely empirical.

In view, therefore, of the limitations under which we have to work, we must of necessity prescribe vitamins for those specific conditions which we have clinically proven to be due to avitaminosis. One can see, therefore, what tremendous fields would beckon were there definite means of measuring the concentration of the various vitamins in the body. In such countries as Canada, where there is an abundance of all the essential food factors, it is indeed difficult to believe there could be many people suffering from this condition. Nevertheless we are confronted with reports of borderline or sub-clinical states of dietary deficiency. It is possible that these conditions are now more readily detected because of their similarity to some of the disturbances produced experimentally in the laboratory animal by dietary deficiencies.

It is for the clinician and the student of nutrition to ascertain what constitutes the optimum concentration of the vitamin in the body for the proper maintenance of body function.

The role of vitamin A is of singular interest because of the part it plays in the physiology of sight, and because of the numerous and protean forms of inflammation which occur in its absence.

Let us consider for a moment the nature, physiology, and source of vitamin A. Its primary source is from plant pigment. This pigment is called carotin, and is closely linked to chlorophyll in plant life. Plants having a yellow or green colour are usually rich sources of this vitamin. It has also been shown that the natural yellow colour of some of the animal products may be a qualitative guide of the consumption of the

carotin and vitamin A precursors by that animal. This, however, does not always hold true as evidenced by the liver of the halibut.

Vegetable carotin is usually present in nature as a mixture of several forms. These have been classified as Alpha, Beta, and Gamma carotin. The Beta carotene bears the closest clinical and biochemical relationship to vitamin A. By comparing the formula of vitamin A with that of the Beta carotene it is found that one molecule of Beta carotene gives rise to two molecules of the primary alcohol vitamin A.

Conversio n of carotin to this vitamin takes place in the liver. Vitamin A and its precursors, carotin, exhibit different characteristics in absorption from the intestinal tract. In the intestine bile is essential for the absorption of carotin, but not vitamin A —likewise liquid petrolatum arrests the absorption of carotene, but not vitamin A.

It has been shown experimentally that most animals have a remarkable capacity for the storage of vitamin A. Often enough is stored to last for several months. The liver is the chief depot; lesser amounts are present in the lungs and kidneys.

Experimentally it has been shown that the fat extracted from the normal retina is one of the richest sources of vitamin A. Also there is a relationship between the vitamin A content of the retina and visual purple; and it has been shown that visual purple, on bleaching, yields a carotinoid which is called Retinene. Retinene under certain conditions changes slowly to vitamin A—and more rapidly to visual purple. On a basis of these reactions, Wald developed an equation which set forth certain speculations on the chemical reactions which might take place in the rod and cone layer of the retina during dark adaptation after the ocular tissue had been exposed to light.

In 1924, Holm discovered that hemeralopia or night-blindness developed in experimental animals which were deficient in vitamin A after exposure to light. This observation was also confirmed by Tansley, who followed the course of regeneration of visual purple in normal rats and in those deficient in vitamin A. Using this experimental work as a basis, an attempt was made to give it a practical application as a measure of vitamin A deficiency in man; the varying degrees of hemeralopia depending on the degree of avitaminosis.

The condition known as night-blindness is simply a failure in dark adaptation. In some cases the failure appears to be due to the slowing of the process, and the patient merely takes longer to reach the normal level; in others, the normal level is never reached.

Kries considers that night-blindness is caused by a failure of the rod apparatus, just as complete colour blindness is a failure of the cones.

In retinitis pigmentosa there is a death of the rod cells of the retina. Experimentally, it has been proven that the visual purple is still present in the degenerated outer limbs of the rods several weeks after every rod in the retina had died, thus proving that vitamin A, although stimulaitng the production of visual purple, is unable to regenerate new rods.

Night-blindness may be present in liver disease. It is thought that the avitaminosis in these cases is due to the non-absorption of fats, vitamin A, and carotin from the intestine. The visual symptoms usually disappear as the jaundice or liver symptoms clear up.

Following the work of Osborne and Mendel in which ocular inflammations were produced experimentally in rats on a diet free of vitamin A, Bloch demonstrated a regression of ocular conditions in children after the addition of fat to food.

In view of these findings it has been concluded that this type of ocular inflammation is a deficiency disease very much the same as beri-beri. Likewise Xerophthalmia and kerato-malacia are classified as deficiency diseases. They, however, are late manifestations of vitamin A deficiency. In 1924, Holm showed that lack of vitamin A was demonstrated early in rats by the onset of hemeralopia or night-blindness. The hemeralapia did not develop from vitamin A deficiency alone, since it was necessary to expose the animal to light before it became manifest.

The Results of Vitamin Therapy.

In the ophthalmological clinics of the large cities, phlyctenular conjunctivitis is a fairly common condition among children. The condition usually clears up in a week when they are given an adequate vitamin A diet, with the addition of brewers' yeast, or vitamin B.

Interstitial keratitis in many instances, where not definitely proven to be specific, improved under a similar treatment.

In 1939, Cordes and Harrington published a paper in which they concluded that photophobia or sensitivity to light is the most common symptom of vitamin A deficiency. This condition was present in 69% of their cases; eye ache after using the eyes for a short time in 48%; persistent chronic conjunctivitis in 26%, while only 22% gave a history of night-blindness. They considered the avitaminosis to be due in 31% of their cases to improver diet, in 17% of the cases to gastro-intestinal conditions such as colitis and gall-bladder disease, while excessive use of alcohol over prolonged periods of time, and other conditions such as arthritis, chronic sinus diseases, and bronchitis were considered possible etiological factors.

These cases were all treated with 30,000 units of vitamin A daily. From this series of 82 patients, 79% had complete relief; 12% had partial relief; and 9% no improvement. From this it would appear that photophobia is three times as common as night-blindness in cases of vitamin A deficiency.

DEFICIENCY STATES AND THEIR TREATMENT

By Dr. A. M. Snell

Mayo Clinic, Rochester, Minn.

(Abstract of address given at the B. C. Medical Association Meeting at Nelson, B.C., September, 1940)

[*Editorial Note*:—We are glad to be able to publish the abstract given below. Dr. Snell's address was illustrated by slides and these cannot be reproduced—but we think the abstract is fairly accurate and the subject is of great importance and we believe its publication will be of value.—Ed.]

The maintenance of health in the human organism, and, in fact, the continuance of life itself, depend upon a continuous supply of certain substances which the body cannot manufacture for itself. The lack of one or more of these in the diet, or the development of a disease which interferes with their absorption or utilisation, produces certain symptom complexes more or less characteristic. The recognition of this process of cause and effect, and the understanding of the cause as being a deficiency state, due to the absence of these substances, is a great scientific accomplishment.

The better-known deficiency states, especially deficiency in the vitamins, have caught popular fancy, and there is a great volume of literature extant today, dealing with these. So vitamin-conscious has the American public become that daily foods are being fortified with vitamins—at a price—and we have irradiated milk, cough-drops containing vit. A, whisky with vit. B, etc.

These vitamins are being used unnecessarily in many cases, it is true, but are being neglected in others—hence this talk.

Twenty years or so ago, the composition of vitamins was unknown—their place in physiologic processes undetermined. We knew then of only three, and beyond their names, and some few properties, we knew little, if anything. Today there are nine that we know well, and about them we know a great deal. Thus we know of A, C, D, E and K, as well as four portions of the B Complex. Broader concepts include among these vital substances many elements and compounds which are not necessarily vitamins, and the absence of which will cause profound physiological disturbances. For example, we have *manganese,* and many mineral salts, *e.g.*, those of *iron,* where deficiency will cause anæmia; of *calcium,* where we have osteoporosis, and a whole chain of symptoms due to deficiency. Then we may have *protein* deficiency. This is a very common deficiency, much commoner than we sometimes realise, and leads to a chain of symptoms. Hunger œdema, and all the complex embraced under the term "nephrosis," result from this.

Electrolytes—specific amino-acids—constitute another lack.

Hæmatopoietic substances are often deficient, and we have certain types of anæmia, and such diseases as sprue.

Deficiency states are usually multiple. They may be:

A. *Primary* (solely due to insufficient intake);

B. *Secondary* (*e.g.* to chronic gastro-intestinal disease);

C. Following on *emergencies* (post-operative, post-partum, following hyperthyroidism, or infection of a severe nature).

A. *Primary* deficiency states:

1. Classification of *causes*, and types of people affected: (a) the poor of industrial areas—with insufficient and improper food—inadequate lighting, etc.; (b) people on special diets, whether prescribed or chosen by themselves—*e.g.*, for dyspepsia. There is starvation here, and absence of adequate amounts of vitamin, etc., in the diet; (c) lonely people, who have nobody to see that they are properly fed and cared for (the old, the poor, the friendless, the "tea and toast" people); (d) psychoneurotics and psychotics who refuse normal diets.

2. *Resistance* of the individual has broken down, owing to the bad effects of bad diets. This resistance will last for a long time, with little or no apparent damage, then there is a sudden collapse, and a dramatic appearance of symptoms. This factor is by no means confined to the poor. The use of bad and inadequate diets from a vitamin point of view is a fault of which the higher income-classes are often and largely guilty. Thus the poor usually receive less than the physiologic requirements of A and B Complex, yet the paupers of London under the Poor Laws passed in 1839 actually receive twice the B1 content of the diets now in use among the people with high incomes.

3. Vitamin deficiency in *alcoholics*.

(Jolliffe has described a group of allied states due chiefly to deficiency in vitamin B. Cheilosis, pellagra, wet and dry beri-beri, cerebral disturbances. We have analogous states in alcoholics.)

Alcoholics have (1) Increased need for vitamins, especially B. They have a lessened intake of food, and so of vitamins, a greater use of non-fat calories in the form of alcohol. 2. Again the cost of liquor leaves them less money than they need for food in many cases. 3. Faulty absorption (effects of alcohol on the gastro-intestinal tract and the absorbing mucosœ). 4. Impaired utilisation.

B. *Secondary* deficiency states—especially those due to chronic gastro-intestinal disease.

1. The effect of the disease itself, through the production of anorexia, vomiting and diarrhœa. These all reduce absorption and utilisation of ingested vitamins and essential nutrient subsatnces.

2. Loss of essential secretions (bile, pancreatic juice, etc.).

3. Loss of absorptive surface. This is very important and may be due to surgical short-circuiting or functional disturbance.

Review of some common diseases of the gastro-intestinal tract shows many full-blown deficiency states occurring quite commonly, and due to:

(a) *Cardiospasm*: carried to extremes leads to pellagrous lesions.

(b) *Pyloric stenosis*: The same pellagra-like symptoms may occur here.

(c) *Intestinal œdema.*

(d) *Gastrocolic fistula.* In this type of deficiency we have such things as night-blindness, nutritional œdema, peripheral neuritis, etc.

(e) *Ulcerative colitis.*

(f) *Hepatic disease.* The liver is one of the main depots for vitamins in the body. In cirrhosis, we find multiple deficiency states, including cheilosis, peripheral neuritis, night-blindness, etc.

Many common gastro-intestinal diseases have as complicating features deficiency states of one kind or another. Frequently there are multiple states. Recognition of this deficiency factor is an essential step towards a therapeutic programme, and it must be treated vigorously. This is especially true if surgical treatment of any kind is contemplated. There is a very widespread failure to recognise these states—their symptoms very often pass unnoticed and so untreated, often with grave results.

Administration of vitamins in gastro-intestinal disorders is important, of course, but not so important as the need to correct the underlying cause and correct it, and to restore the patient to a normal dietary level.

If vitamins are given to patients suffering from gastro-intestinal disorders, it is best to use generous dosages for a brief period, and carefully observe results—then carefully reduce the amount. Large doses are necessary because of the poor absorption and insufficient utilisation.

C. *Emergency* deficiency states—for example post-operative conditions.

1. *Chronic* states—essentially identical with the conditions tabulated above, under the head of *secondary* states. Here, over a more or less prolonged period following a major surgical procedure, the patient is compelled to limit food intake, and may develop late symptoms of deficiency. Here we must make prolonged and repeated observations, and watch for appearance of symptoms.

2. *Post-gastrectomy* appearance of symptoms. This type of operation is especially liable to lead to these states, as one might expect. There is lessened absorption as well as profound interference with assimilation. We may have very marked signs of deficiency here, and may observe: (a) *Cheilosis;* (b) *peripheral neuritis;* (c) *Fe* deficiency type of *anæmia;* (d) *nutritional œdema.*

3. *Acute* post-operative deficiencies. Here we must depart from the method so far followed, viz., of considering the disease in question, and study the individual vitamins and essential substances that are lacking in this type of case.

There are *three* factors of importance: (a) The B complex, including vitamins B_1, and nicotinic acid; (b) Vitamin C; (c) Vitamin K.

These vitamins, or the stocks of them in the body, become depleted for various reasons: (a) There are the factors due to necessary dietary restrictions; (b) The storage capacity of the body for these vitamins is strictly limited, and only small amounts can be held at any given time; (c) Anæsthesia, trauma, fever, anoxia, all deplete the available stores of vitamin content; (d) loss of bile and other secretions, such as gastric juice; (e) repeated loss by vomiting or continuous suction of gastro-intestinal contents, lead to depletion, especially of vitamin K; (f) over-use of glucose, which, for reasons given below, depletes the store of vitamin, especially B complex.

Vitamin C. Nowadays it is rare to see C avitaminosis carried to the point of scurvy—but certain post-operative hæmorrhagic states are associated with low levels in the system of vitamin C, and respond quickly to the administration of ascorbic acid.

Vitamin B_1. Many patients are existing on bare maintenance levels as regards this. Storage facilities are very limited, and the stocks are exhausted early. Other factors in the B complex are equally essential, and also easily exhausted. It is a very common practice, in fact, almost inevitable, to carry a patient, following operation, on a high carbohydrate intake, even a pure carbohydrate intake. Now B_1 and nicotinic acid (one element in B complex) are essential to the metabolism of certain products of GHO metabolism. Thiamin chloride is essential to decarboxylate pyruvic acid, which is a product of carbohydrate and especially glucose. Nicotinic acid is an essential part of co-enzymes necessary for breakdown of glucose molecule at the level of hexose phosphate. Symptoms in latent pellagra may be provoked to activity by a diet of glucose and lactose, thus exhausting the body's small store of nicotinic acid.

So it is quite essential to give additional B_1 and nicotinic acid after operative proceedings. This is particularly necessary when it is necessary to give glucose intravenously for a long time. In this case the B complex may be added to the intravenous solutions and given in this way, or it may be given intramuscularly as well.

Vitamin K. Deficiency in this vitamin probably exceeds all other vitamin deficiency in frequency and in danger to the patient. Perhaps the danger nowadays is more apparent than real, since it is so easy to detect and to forestall. All we have to do to measure deficiency in vitamin K is to check the prothrombin content of the blood. The level of this depends on the presence of K for its maintenance.

Vitamin K deficiency post-operatively is common for three main reasons: (1) The source of supply is cut off or interrupted (food, etc.); (2) means of absorption are disturbed by operative procedures; (3) liver function (the liver manufactures prothrombin) is temporarily depressed.

K avitaminosis is an early or late complication in the following: (1) Obstructive jaundice; (2) exclusion of bile by drainage tubes or fistulas, causing its external loss; (3) pyloric or intestinal obstruction; (4) discharge from intestinal fistulas; (5) continuous aspiration of gastro-intestinal contents (*e.g.* in ileus, where we have continuous suction for days); (6) intestinal short-circuiting; (7) following any anæsthetic, and trauma to abdominal viscera, there is a sharp fall in blood prothrombin. This may become serious, and is especially likely to supervene if the liver or biliary tract is involved.

We should constantly check the prothrombin level, by estimating the clotting time, and treat any deficiency promptly. The symptoms caused by this deficiency are, of course, chiefly expressed by hæmorrhage from various areas and this may be of varying degrees of severity, even to the point of being fatal. The parenteral use of certain K substitutes (*e.g.* the naphthoquinones) is possible here, and is of value.

SUMMARY

Vitamin deficiencies are seen:

1. In individuals whose diet (*i.e.*, vitamin intake) is grossly inadequate, over prolonged periods. The chief groups involved are the psychopathic, the economically handicapped, and the alcoholic.

2. In association with various types of gastro-intestinal disease, especially where there is loss of continuity or defects in the absorptive area.

3. Post-operatively, as described above.

Dramatic success generally follows early recognition and treatment. Failure to do this may lead to equally spectacular bad results, even to death. The chain of symptoms due to each type of avitaminosis is now fairly well known, and the administration in each case is easy and can be modified to suit the condition present. Parenteral administration is possible where there is vomiting, or where rapid and intensive treatment is essential.

Victoria Medical Society

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ANNUAL GENERAL MEETING

The Annual General Meeting of the Victoria Medical Society was held in the Library Rooms, St. Joseph's Hospital, on Monday, October 7th, 1940. The President, Dr. W. A. Fraser, was in the chair.

The chief business of the meeting was the receiving of reports of committees and representatives of the Society and the election of officers for the year 1940-41. The following members were elected to the various executive offices:

President: Dr. A. B. Nash; Vice-President: Dr. D. M. Baillie; Honorary Secretary: Dr. O. C. Lucas; Honorary Treasurer: Dr. P. A. C. Cousland; Representative on Board of Directors of British Columbia Medical Association: Dr. F. M. Bryant.

The Society regretfully accepted the resignation of Major R. L. Miller as Chairman of the Indigent Committee after five years, because of military activities.

Major Fraser, as retiring President, reviewed the work of the past year and expressed his appreciation of the Vice-President and other members of the Executive who carried on during several enforced absences of Dr. Fraser on military duties.

ANNUAL DINNER

The Annual Dinner of the Victoria Medical Society was held at the Union Club on the evening of October 26th, under the chairmanship of Dr. A. B. Nash, President.

Dr. Walter Woodward of Seattle was the guest speaker and there was a large representation of medical men from the active service forces, including as special guests Surgeon-Commander Johnstone, R.C.N.; Lt.-Col. R. A. Hughes, R.C.A.M.C., D.M.O., M.D. No. 11, and Lt.-Col. E. E. Day, R.C.A.M.C., Chief Medical Officer, Western Air Command. The function was also graced by the presence of Dr. D. F. Busteed, President of the Vancouver Medical Association, and Dr. M. W. Thomas, Executive Secretary of the College of Physicians and Surgeons.

After an excellent dinner and suitable refreshments, a very witty speech was delivered by Dr. Woodward. This was greatly appreciated by all present, and was followed by a showing of his famous cinema, "Going by the Mayos." Both speech and film were greeted with rapturous applause.

The general consensus of opinion was that the occasion was one of the happiest functions of its kind ever held by this Society. Special thanks were tendered to Dr. Woodward and to the Entertainment and Dinner Committee, consisting of Doctors J. W. Lennox, F. M. Bryant and N. C. Cook for their work in arranging such a successful affair.

There were, in all, fifty-five persons present.

PRE-NATAL AND POST-NATAL MUSCLE WORK

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259 Dunvegan Road, Toronto, Ont.

Reprinted from *The Journal of the Canadian Physiotherapy Association*, November, 1939.

(1) PRE-NATAL PERIOD

Muscle training can do a great deal to make pregnancy more comfortable during the stretching process which joints, ligaments and muscles have to undergo. As the fœtus develops, its increase in weight and size leads to lordosis which may cause pain and unnecessary fatigue if no attempt is made to control the tilt of the pelvis by the abdominal muscles and the glutei. The development of the breasts tends to produce kyphosis and the increased load on the feet may bring about bad walking habits and painful flat feet. As patients in the later stages of pregnancy are frequent sufferers from dyspnœa and as they become less comfortable they find it hard to relax and often difficult to sleep. Fortunately, few patients have all these discomforts but they are often accompanied by mental unrest which reacts unfavourably on the nervous system and general health. Treatment by massage will alleviate for a time the pain and distress caused by the above conditions but a few exercises started at the beginning of pregnancy can prevent a great many from arising.

Exercises should be done daily for as many months as it is possible for the patient to perform them comfortably and without becoming fatigued. Most patients are able to continue a few exercises for the full term of pregnancy by decreasing the number of times the exercise is performed and omitting an exercise if it seems tiring. A few

patients give up all exercise except breathing from the seventh or even sixth month. In a table of exercises, lying or crook-lying should be the starting position for most of the exercises. Rhythm in performing the movements and relaxation between movements should be stressed. The following aims should be kept in mind when drawing up a scheme:

1. To maintain tone in the abdominal muscles and the muscles of the pelvic floor.
2. To assist in mobilizing the lumbar spine and sacro-iliac joints.
3. To maintain as correct a posture as possible.
4. To teach the patient how to relax.
5. To prevent flat feet.
6. To help the patient to control dyspnœa.
7. To teach the patient control of the abdominal muscles so that she can assist in labour.
8. To aid in preventing constipation.

These exercises are suitable and helpful for a normal pregnancy if begun early, gradually progressed and gradually decreased.

1. *Crook-lying*: Deep breathing; expanding lungs: (a) antero-posteriorly, (b) laterally, (c) at apices; breathing out through mouth at each expulsion.

2. *Back-lying*: Gently stretching body as much as is comfortable in all directions, raising arms sideways in outward rotation to shoulder level and plantar flexing the feet.

3. *Back-lying*: Contractions of the abdominal muscles "from front to back," "from side to side," combined with contractions of glutei and quadriceps.

4. *Back-lying*: Legs crossed, book between thighs, contraction of abductors of thighs, extensors of knees, plantar-flexors of ankle, constrict sphincter muscles and pull up on muscles of pelvic floor.

5. *Stoop-stride-sitting*: Back against wall, back raising, flattening each vertebra against wall. Hands on thighs to assist trunk raising if necessary.

6. *Prone-lying*: Forehead rest, stretch body as much as possible longitudinally.

7. *Prone-lying*: Forehead rest, raise head, elbows and hands off floor.

8. Flat foot exercises and instruction in the proper method of walking.

9. Posture correction in standing and walking.

If the obstetrician grants permission, a stretching can be done for the pelvic floor and an exercise to teach the patient how to assist in labour:—

10. Stretching of pelvic floor, back-lying, flex thighs on chest and abduct thighs with lateral rotation at hip joint.

11. Training for delivery: *Back-lying*: (a) deep inspiration, (b) hold breath, (c) contract abdominal muscles, (d) contract glutei (e) hyperextend lumbar vertebrae (f) breathe out and relax.

(2) Post-Natal Period

The aims of post-natal treatment are as follows:

1. To restore to normal the tone of the abdominal muscles and muscles of the pelvic floor as soon as possible.

2. To assist in raising intra-abdominal pressure and so decrease the discomfort of the patient; to help prevent constipation and to assist in the involution of the uterus.

3. To maintain general muscle tone and co-ordination while the patient is in bed.

4. To re-educate the postural reflex and prevent flat feet.

5. To prevent retroversion of the uterus.

6. To assist restoration of the circulation to normal as soon as possible.

7. To increase strength and tone of the muscles around the sacro-iliac joint.

8. To improve circulation in the breasts in cases of insufficiency.

In giving exercises it is essential to avoid working the patient to the point of fatigue. For the first few days it is often advisable to have the patient perform only the new exercises at the time of treatment and do the exercises with which she is familiar at some other time during the day. When the patient is well enough to go through a table

of exercises, breathing exercises should be included after every third exercise. The following exercises would be beneficial for a post-natal patient:

On 2nd-3rd Day: Crook-lying, pillow under knees. Breathing into bases of lungs, expirations followed by gentle abdominal contractions. Lying: Alternate plantar and dorsi-flexion. Alternate foot rotation, stress inversion. Alternate foot shortening.

On 3rd Day: The above exercises and also: Lying: Legs crossed, tighten abductors; tighten knee extensors; tighten sphincters; pull up pelvic floor. Lying: Leg shortening alternately by keeping leg on bed and increasing angle at waist as leg is moved upwards.

On 4th Day: Add, Lying: Contraction simultaneously of: Abdominal muscles, glutei, knee extensors, pelvic floor, sphincters. Have patient get into knee chest position, do not allow abdomen to sag.

On 5th Day: Add: (a) Crook-lying flatten lumbar spine on bed and roll pelvis slightly off bed, contracting adductors, glutei and muscles of pelvic floor; (b) Knee chest position with contractions of glutei and pelvic floor.

On 6th Day: Add: (a) Lying, head raising stretching arms forward; (b) Four foot kneeling, abdominal contractions.

On 7th Day: Add: (a) Four foot kneeling, back rounding and hollowing.

From the seventh day the manner of progression depends on the general strength of the patient and when she is to be allowed to sit up and get up. As soon as she is allowed to sit, co-ordinative leg and foot exercises over the side of the bed should be added and back-raisings. Instructions in the proper way to sit should be given and abdominal contractions should be practised while sitting. If there is insufficiency, side-lying alternate arm circling and lying arm-parting with chest raising are helpful.

When the patient is standing and walking again, posture and the weight-bearing points of the feet should be stressed. When the patient is discharged home exercises should be given for posture, mobility, abdominal muscles and to improve the patient's general strength and health.

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LEUKOPLAKIA OF THE MOUTH AND CANCER

(The following is an extract from a paper by Doctors Franz Buschke and Simon T. Cantril of the Swedish Hospital, Seattle, Washington.)

A frequent precursor of carcinoma in the oral cavity is *Leukoplakia.* Leukoplakia should be considered as a frank precancerous lesion and treated as such. Leukoplakia in general indicates the presence of some underlying chronic inflammatory process, most frequently either a chronic syphilitic infection or an unspecified chronic infection within the oral cavity. The disappearance of the leukoplakia after the elimination of an oral sepsis is sufficient proof of the etiologic relationship. The importance of electric currents generated by fillings with different metals is sometimes strikingly demonstrated by the appearance of leukoplakic plaques exclusively in the immediate neighborhood of such dissimilar fillings. Rovner and Cantril have shown that potentials as high as 0.2 volt can be found between fillings of dissimilar metals. The relationship between tobacco and the development of leukoplakia is generally known and finds its expression in the term "smoker's patch." Tobacco may cause leukoplakia by either smoking or chewing. One may find localized patches of leukoplakia in patients chewing tobacco exactly at the place where they usually hold the plug of tobacco.

Since leukoplakia develops into carcinoma in a large number of cases, it must be considered as a serious affection and treated as such. This *treatment* consists primarily of the removal of all possible causative factors: the treatment of an underlying syphilitic infection, the elimination of oral sepsis by correction of dental caries or badly fitting dentures, the removal of dissimilar fillings and their replacement by identical fillings, the complete elimination of tobacco in any form. In many instances this treatment, if carried through thoroughly, will lead to the disappearance of the leukoplakia. If this treatment alone is not successful more serious procedures may be considered but their application has to be decided in every individual case. In generalized leukoplakia which does not respond to the removal of the causative factors, it seems justified to withhold any more radical treatment and to observe this patient in regular intervals carefully in order to recognize the development of a carcinoma on this leukoplakia in an early stage where it can be treated.

A new phase in the understanding of the etiology and treatment of certain forms of diffuse leukoplakia is slowly being worked out in relation to vitamin deficiency—more particularly related to vitamins B and G. Recent work by Rhoads has been of interest in the treatment of diffuse lingual leukoplakia (in the absence of syphilis) with B complex therapy.

The same causative factors, such as chronic mechanical or chemical irritation, may lead to the development of carcinoma of the oral mucosa without preceding leukoplakia. It is not so uncommon to find a carcinoma of the tongue developing just opposite a jagged tooth. The prophylactic management of all these lesiosn needs, therefore, no further explanation.

Every patient who ever had a leukoplakia or a carcinoma of the mouth should be regularly observed throughout many years after this particular lesion has been controlled.

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