Vol. IV. NOVEMBER, 1927 No. 2

The Bulletin

of the

Vancouver Medical Association

Narcotic Drugs Act

Goitre Review

Laboratory News

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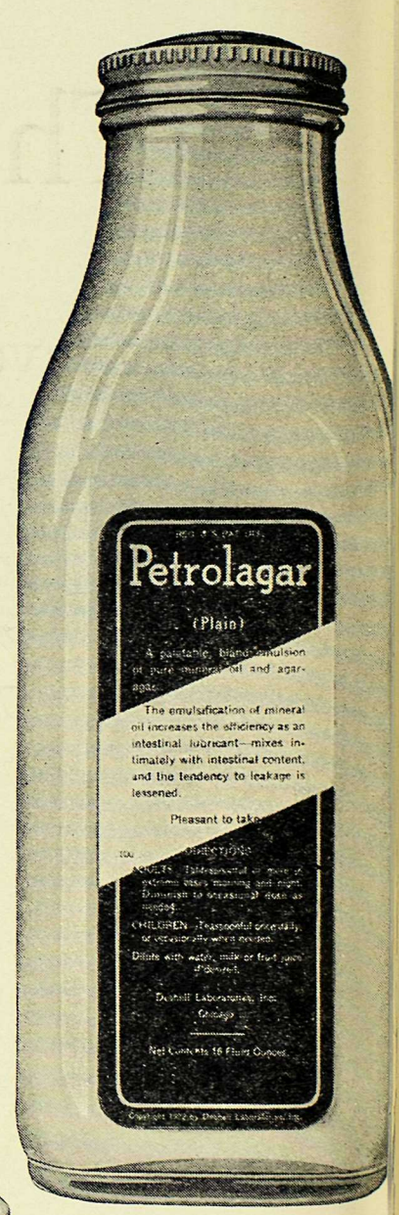

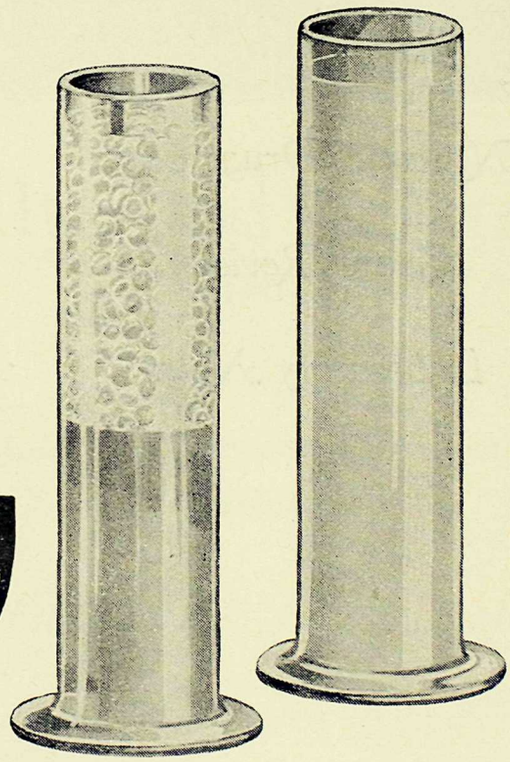

Petrolagar

THE VANCOUVER MEDICAL ASSOCIATION

BULLETIN

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Volume 4 NOVEMBER 1st, 1927 No. 2

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VANCOUVER MEDICAL ASSOCIATION

Founded 1898. Incorporated 1906.

PROGRAMME OF THE 30th ANNUAL SESSION

GENERAL MEETINGS will be held on the first Tuesday and CLINICAL MEETINGS on the third Tuesday of the month at 8 p.m. Place of meeting will appear on Agenda.

1927

Nov. 1st—General Meeting:
Presidential Address, Dr. A. B. Schinbein.

Nov. 17th—Annual Dinner.

Nov. 15th—Clinical Meeting.

Dec. 6th—General Meeting:
Papers—Dr. Chas. Edwin Sears, of Portland, Ore., "Some Aspects of Splenic Disease."
Dr. Karl Henry Martzloff, of Portland, Ore., "Carcinoma of the Cervix Uteri."

1928

Jan. 3rd—General Meeting:
Paper—Dr. H. H. Pitts, "On the Pathology of the Thyroid Gland."
Dr. T. H. Lennie, "Surgery of the Toxic Goitre."

Jan. 17th—Clinical Meeting.

Feb. 7th—General Meeting:
Papers—Dr. R. E. Coleman and Dr. H. Macmillan } "Relation of Carbohydrate Metabolism to Major Operations."

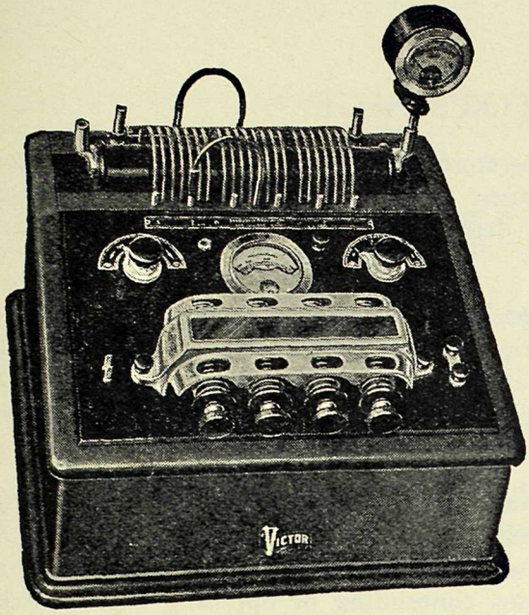
Feb. 21st—Clinical Meeting.

March 6th—General Meeting:
Paper—Osler Lecture, Dr. C. H. Vrooman.

March 20th—Clinical Meeting.

April 3rd—General Meeting:
Paper—Programme to be arranged.

April 17th—Annual Meeting.



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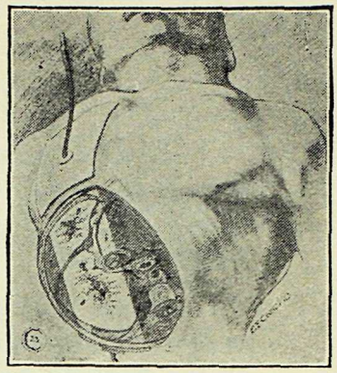
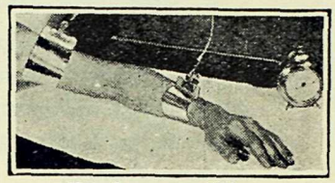


Showing path of diathermy current through lung tissue in pneumonia treatment.



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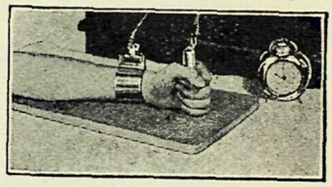
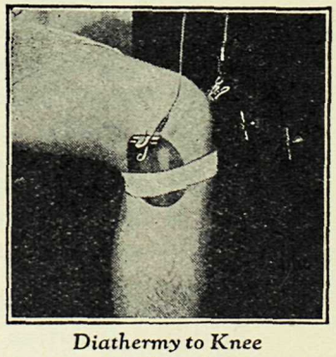


Diathermy to Wrist

For treatment of conditions such as synovitis, neuritis, strains, sprains, traumatic injuries, arthritis.



Diathermy to Knee

For treatment of conditions such as tenosynovitis, prepatellar bursitis (housemaid's knee), phlebitis, contusions, traumatic conditions, adhesions, arthritis, fibrotic joint and limitations of disuse.

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EDITOR'S PAGE

There is no doubt that the conclusions arrived at by Darwin concerning the nature of man's descent (or should it be ascent) as the result of his prolonged observations, have become woven into the modern scientific mind.

Certain truths or better perhaps, theories or hypotheses, such say, as those of Dalton or of Arrhenius and similarly that of Darwin, are part of the working equipment of all scientists. These and like hypotheses, while containing, doubtless, many gaps in the line of absolute proof, explain and subsume so much as to become almost self evident and obvious.

With the passage of time elapsing since their adoption, their working value becomes more evident, their inclusive capacity more generous. All subsequent discovery or experiment does but appear to enlarge or confirm these hypotheses, while no serious contending or opposing theory makes an appearance.

Such theories then, fragmentary as they may be, lacking also continuity and completeness of proof, become nevertheless, on account of their practical utility and inherent probability, of general acceptance and of universal reliance.

This is the position of the so-called Darwinian theory, which, however, occupies a peculiar and indeed unique position among such hypotheses. For while the man in the street is not particularly concerned in the nature of the atom or the ion, he considers that he has at least some interest in the problem as to where he came from as well as in whither he is going.

The "Descent of Man" is of direct, personal concern to the individual who is also quite entitled to hold his views, whether Biblical or otherwise, on the subject. And as a matter of fact such is the case as is clearly shown when a definite issue (as recently) reveals the varied and unsettled public opinoin which exists, showing that in the non-professional mind at all events, the controversy is still far from settled.

It is well, therefore, from time to time, to have a clear, reasonably authoritative and comprehensible statement of the faith.

Such an one is the presidential address of Sir Arthur Keith to the British Association for the advancement of Science and lately published in the Lancet.

In the early part of his lecture Dr. Keith says: "Fifty-five years have come and gone since Charles Darwin wrote a history of Man's Descent. How does his work stand the test of time? This is the question I propose to discuss." Later comes the answer, which is this: "the fundamentals of Darwin's outline of man's history remain unshaken. Nay, so strong has his position become that I am convinced that it never can be shaken."

The reasons for this statement are embodied in the address, the cor roborating effect of the various discoveries and developments which have

occurred since Darwin's day. Suggestions also of the greater complexity of the subject than was at first anticipated, the more devious nature of the route and the prior development necessary in auxilliary subjects.

This lucid and hopeful presentation of the subject is important and timely because if it means anything we must consider that evolution means progress.

* * *

We would call the attention of our readers to Dr. Hill's article on convalescent serum as a prophylactic or a means of early treatment in polimyelitis. The subject is a live one and may possibly become livelier and we hope that Dr. Hill's request will meet with an adequate response.

* * *

ANNUAL DUES

We wish again to remind our readers that under the Bylaws of our Association, drafts will be presented this month to members whose dues are still unpaid. In order to avoid this additional and unnecessary expenses to the Association, it is hoped that some, if not all, of the 124 members who have not yet paid up, will send in their cheques immediately.

We deeply regret to record the death on Monday, October 24th, of Dr. T. A. Swift, of Abbotsford. Dr. Swift was an associate member of the Vancouver Medical Association for some years.

NEWS AND NOTES

The first meeting of the Winter Session was held in the Auditorium on Tuesday, October 4th. In the absence of Dr. Schinbein, Dr. W. S. Turnbull, Vice-President, took the Chair.

The Minutes of the Annual Meeting in April were read and confirmed. On motion of Dr. F. P. Patterson, seconded by Dr. A. W. Hunter, a standing vote of sympathy with Mrs. B. H. Champion in the recent loss of her husband, was carried.

A letter from the Registrar of the Pharmaceutical Association was read, drawing attention to non-compliance of medical men in certain provisions of the Narcotic Drugs Act. It was resolved that this letter be published in the Bulletin, together with a list of the drugs in question.

The Summer School Committee presented its report showing a credit ?balance for 1927.

Dr. Pearson reported for the Sickness and Benevolent Fund Committee showing subscriptions to date of $360. Dr. Pearson gave notice of motion in terms of his report for discussion at the next meeting.

The following were elected to membership: Drs. Lillian E. Fowler, Isabel T. Day, H. H. Pitts, H. Wackenroder and W. L. Boulter. Drs. W. N. Kemp and J. E. Harrison were nominated for election at a later date.

An extraordinary resolution was carried amending the Bylaws by striking out the clause relating to the appointment of an honorary auditor and substituting therefor provision for appointment of an auditor to be chosen annually by the Executive.

Permission was given for the formation of a Pediatric Section of the Association.

Dr. Bagnall gave notice of motion for the appointment of a Standing Committee on Hospitals.

The Secretary and Chairman were appointed a nominating Committee to bring in names for election to the Credit Bureau, Summer School Committee and Medical Advisory Board of the Victorian Order of Nurses at the next meeting.

Dr. E. Murray Blair gave an excellent paper outlining a conservative treatment for chronic endocervicitis by means of a hygroscopic powder supplemented by the electric cautery, which in his hands has given excellent results and obviated the necessity for amputation in many cases.

Dr. D. E. Cleveland read a paper on the recognition of syphilis, which will appear in our next issue.

The meeting was adjourned at 10:35. Sixty members were present.

* * *

Dr. F. C. Dunlop has returned to the city after eight months' absence. The doctor visited New York, Philadelphia, and paid a visit to the Old Country, doing special work in obstetrics and gynæcology in various medical centres. He has now resumed practice at 1727 Grant Street.

* * *

Dr. H. R. Mustard, who was for some years on the Pensions Board, has arrived in Vancouver and taken offices in the Birks Building. Dr. Mustard has recently spent some time in post-graduate study in New York, and will specialize in eye, ear, nose and throat work.

* * *

Further contributions to the Sickness and Benevolent Fund are acknowledged from the following: Drs. W. C. McKechnie, F. C. Bell, Wallace Wilson, C. H. Vrooman, J. C. Farish, W. A. Dobson, T. H. Lennie, R. L. Harwood, W. C. Walsh, G. E. McKenzie, W. D. Patton, J. T. Wall, J. A. Sutherland, E. H. Saunders, R. Crosby, C. W. Prowd, W. A. Whitelaw, J. A. Smith, G. S. Gordon, W. D. Keith, G. A. Greaves, D. F. Busteed, T. A. Wilson, J. M. Robertson, N. McNeill, G. B. Murphy, E. M. Blair, D. E. H. Cleveland, J. W. Welch, J. Christie, F. J. Buller, S. Paulin, J. W. Arbuckle, J. McNichol, H. Macmillan, A. P. Procter.

* * *

The October Clinical Meeting of the Association was held in the Board Room of the Vancouver General Hospital on the 18th instant. Fifty members attended.

Dr. W. D. Kennedy showed a case of myositis ossificans, shown in Dundee, Scotland, in 1910, and written up in the Archives of the Roentgen Ray vol. 15. This rare condition was first described in 1740 and only 133 cases are described in the literature. It is marked by gradual calicification of the muscular tissues, usually showing within the first five years of adolescence. Involvment is progressive, starting with hallux valgus, working up the lower limb to the muscles of respiration and later the muscles of the face, leading to ankylosis of the jaws and ultimate starvation. The etiology is unknown, heredity is a doubtful factor. Trauma may lead to a localized condition amenable to surgical treatment. Boseck reports a girl of 22 where the condition following influenza was cured in one month by six injections of thiosinamin. Dr. Kennedy's case, 22 years old, showed deformed toes at birth, with dropping of the head and a tendency to fall frequently. General development was normal but at two years patient could not raise the head. The ligamentum nuchæ was bony and head fixed at three years. The ligament was removed, being found free from the occiput and there was no opening into the cord. The 3rd and 4th spines were also gone. At present, patient is about five feet tall. The face is very old, jaws are tight, head fixed, the hands held clamped. The back shows numerous nodules. The dorsal region shows a sharp kyphosis with a compensatory lumbar lordosis, at the same time the general attitude is erect. Hard ridges run from crest of ilium on each side to the lower ribs. The thighs are slightly flexed on the body, the right leg is rigid with the knee knocked, the left leg is flexed at the knee and slightly bowed. A marked hallux valgus is present on each foot. Only a camera could produce a true picture of the condition.

Dr. Patton presented two cases with a diagnosis of Dercum's disease. The first was a man of 45, who showed small lumps scattered over the body and extremities. These were first noticed after being gassed in France, when painful points developed and later the nodules were found. Patient has had fleeting pains in head and body from time to time with a sudden increase in the size of the nodules. Pathological diagnosis showed adipose tissue. The nodules seemed to be closely subcutaneous or intra-

cutaneous and not visible, but palpable. The second case was a man 23 years old, who for a number of years has had painful lumps about the legs and a small nodule in the left epididynus. No venereal history. These nodules swell at times and become reddened. The two cases do not fit exactly either Dercum's or von Recklinghausen's disease. Dr. Pitts reports pathological examination of a specimen from the second case made in 1920 and 1927 showing adipose tissue with some fibrous tissue and cellular infiltration. The condition is generally considered as one of pluriglandular disturbance with pituitary, thyroid, the gonads, suprarenals and pancreas, in order of importance. Dr. Keith reports treatment with X-Ray and thyroid. Dr. Bagnall reported a case with nodules on legs and abdomen, pains in the back with rigid abdomen in which X-Ray and other examinations were negative and in which patient died within four months. Section from this case pointed towards infection, but malignancy was also considered.

Dr. Cleveland suggested that the second case was probably von Recklinghausen's disease. A striking feature of these conditions is the change in temperament, some cases ultimately coming to dementia. Dr. Bagnall also called attention to the classical picture of Dercum's disease as being that of extreme obesity.

Dr. Spohn presented a case with a diagnosis of cirrhosis of the liver. A child of 9½ years, first seen September 7th, with a history of mild jaundice for about two years. In June there was a mouth infection, four teeth were removed. Early September there was a sudden enlargement of the abdomen, the jaundice increased and anæmia, though the nutrition was good. She became dyspnœic and ran a low fever. The blood showed mild secondary anæmia with slight leucocytosis and normal fragility. Urine has shown constantly bile, red and white blood cells, colon bacilli early and granular and hyaline casts with albumen. Specific gravity and total output normal. September 18th 175 oz. of clear fluid were removed, this proving sterile on culture. September 23rd 121 oz. of fluid were removed and the wound allowed to drain for 9 days. Blood transfusion was done at this time on account of shock. The N.P.N. on October 10th was 23. Wassermann negative. X-Ray on October 14th showed a normal right kidney, left kidney enlarged to the 3rd lumbar interspace. Spleen has been impalpable, liver barely palpable. Right kidney impalpable, the left palpable to one examiner and not to another. Tuberculin tests have been repeatedly negative and chest negative. No abdominal pain or cachexia. Diagnosis of multilobular cirrhosis of the liver, though uncommon in children, was made, with probably a pyelonephritis. No history of hæmolytic family jaundice though the stools have been at times multicoloured. Dr. Keith in discussion mentioned as possibilities which could be ruled out: t.b. peritonitis, syphilis, hæmolytic jaundice, abdominal serositis and malignancy, but confirmed the diagnosis of cirrhosis. Dr. Pearson suggested that an exploratory laparotomy might have been justified. Dr. Hunter questioned the enlargement of the left kidney and stated that cystoscopy and ureteral catheterization were barred by the blood and casts, and by the subsequent improvement. The case has improved very much under drainage, transfusion and general treatment.

Dr. Lachlan Macmillan presented a case of t.b. peritonitis, patient 22 years old, married, with a history of a dry pleurisy in January, 1927, clearing in a few days. Menstruation since the birth of a child became more frequent, prolonged and profuse. In June, 1927, noticed forty pounds loss of weight with general debility, burning urination and a sudden painless enlargement of the abdomen. Shortly a fever developed to 104 with severe pains, and an acute abdominal picture. Examination showed a rigid abdomen, dull flanks, ascites and a choked pelvis simulating a four-months pregnancy. Diagnosis was made of t.b. peritonitis, probably starting in the pelvis though the cæcum was also tender. Under Fowler's position, fomentations, etc., temperature became normal in 3 weeks and much improvement followed. Laparotomy was done after two months and the patient has since improved very much, gaining 15 pounds in weight. The abdomen when opened showed adhesions everywhere with a pelvis packed tight. Discussion emphasized the value of quartz light treatment in these cases carried to tanning of the skin, and prolonged treatment, oftentimes obviating the necessity for a laparotomy.

* * *

NARCOTIC DRUGS ACT

(Dr. Proctor has forwarded to the Secretary of the Association copy of a letter received from the Pharmaceutical Association of B. C. This letter was read at the General Meeting on October 4th and was ordered to be printed in the Bulletin, together with a list of drugs coming under the Act.—Ed.)

The following is a copy of the letter:

Dear Sir:—

re: *Signed prescriptions for mixtures containing Narcotics.*

Members of our Association have on several occasions called my attention to the fact that certain physicians appear to feel that the druggist is unnecessarily "fussy" who requires a prescription containing narcotic drugs to be signed by the doctor. This afternoon, I am informed, a local physician "phoned a prescription containing Elixir Heroin and Terpin Hydrate, asking the druggist to deliver it to his patient." This the druggist agreed to do provided the doctor would write out a prescription to be filled. This the doctor absolutely refused to do, saying it was all nonsense and not required by law; saying that he would have it sent from down town if the druggist would not comply with his demand.

Now, in justice to the local physicians, I think it can fairly be said that such an occurence as the above is exceedingly rare, but it occurs to me that if the druggists' side of the question could be brought to the attention of your members at one of your meetings, a better feeling might be engendered.

The position of the druggist in relation to the Opium and Narcotic Drugs Act is not a particularly happy one. For instance, in case of the preparation mentioned above, Elixir Heroin and Terpin Hydrate: Before he can procure this from the manufacturer or wholesale house, the druggist must send an order signed by the registered manager of the store, a copy of that order is sent to Ottawa and the druggist must enter it on a form kept for the purpose. Then each time he takes any of the elixir out of the container he must enter on another form the amount, name of patient, address, name of prescriber and number of prescription. This information must be supplied Ottawa on demand and correspond with the amount received. He is required by law to have the physician's signature.

In addition to this the druggist is held responsible for the genuineness of the physician's signature, a forged prescription may get him into just as much trouble as to have none at all. That is why we go to some trouble and expense to furnish our members with up-to-date information trouble and expense to furnish our members with up-to-date inforamtion as to registered physicians.

Please believe I have no desire to stir up trouble but shall be glad if the matter can be brought to the attention of your members.

Yours faithfully,

(Signed) RUSSELL M. McDUFFEE,
Registrar.

The following are the drugs coming under the Act:

Cocaine or any salts or compounds thereof.

Morphine or any salts or compounds thereof but not including apomorphine.

Heroin or any salts or compounds thereof.

Opium or its preparations or any opium alkaloids or their derivatives or salts or preparations of opium alkaloids or their derivatives but not including codeine or apomorphine.

Eucaine or any salts or compounds thereof.

Cannabis Indica (Indian hemp) or hasheesh or its preparations or compounds or derivatives, or their preparations and compounds.

* * *

GOITRE

Review of forty-eight cases in which thyroidectomy was performed at St. Paul's Hospital, Vancouver, B. C., during 1926.

By Dr. W. D. Keith

I have limited my review to these forty-eight cases as they are the only ones in which we have complete pathological reports. The findings obtained from the history sheets of our hospital are incomplete, as the

histories are recorded by the doctors and brevity and skimping in details are not unusual.

ETIOLOGY

Sex.—Forty-one, or 85% were females and seven, or 14½% were males, thirty-four were married and fourteen single, a proportion of 2½ married to 1 single. Of the fourteen single patients four were males. The increased incidence of thyroid disease in females is due to the strain thrown on the gland during the rapid growth of the generative organs at puberty, during pregnancy and lactation and at the climacteric. This strain is particularly apt to show itself in women who, at some time in their early life, have devolped thyroid pathology.

Age.—The ages of these patients varied from eighteen to sixty-two years, practically all the cases occurring between the ages of twenty and sixty. There were four exceptions, one aged eighteen, two aged nineteen and one aged sixty-two years.

FAMILY HISTORY

In two of the cases there was a family history of goitre. In both the mother had goitre, and in one had died of toxic goitre. More searching enquiry into our goitre cases would reveal, I feel sure, a familial history in quite a large percentage. This supports, to some extent at least, Dr. Warthin's view that toxic goitre is an expression of a status-thymo-lymphaticus, a congenital condition.

SYMPTOMS

41 toxic, 7 non-toxic.

Thirty-two patients gave a history of enlargement of the thyroid, fourteen having had a goitre from a "few" to thirty years. That a goitre which has existed for years tends to undergo degenerative change is evidenced by the fact that six of these patients with a long history of goitre showed such changes (hæmorrhages, fibrosis, sclerosis, calcification) their ages being from 29 to 58 years. In 3 of these 6 cases toxic sypmtoms were present and the basal metabolic rate was plus 40%, plus 39% and plus 20% shortly before operation. Exophthalmos was recorded as being present in 14 out of 41 cases with toxic symptoms. This includes all forms exhibiting an increased metabolism or definite microscopic hyperplasia.

Of the 41 toxic cases tachycardia and palpitation were recorded in 26, tremor in 9, loss of weight in 13, weakness in 7, diarrhœa in 1 and emotional symptoms in 1.

Basal metabolism readings were done at some time prior to operation on 25 of the 41 cases and in every case the metabolism rate was above normal.

PATHOLOGY

From the reports of our pathologist, Dr. A. Y. McNair, the 48 cases may be classified as follows:

Hyperplasia of thyroid	41
Simple colloid	2
Degenerative forms	4
Carcinoma of thyroid	1

The hyperplasia was diffuse throughout the gland in 22 cases. In 6 others the hyperplasia was diffuse both throughout the ordinary gland tissue and in adenomata which were present. The hyperplasia was focal, occurring in small areas here and there in 10 cases and in 4 of these adenomata were present but showed no signs of hyperplasia. In 3 cases showing degenerative changes focal areas of hyperplasia were noted. The hyperplastic thyroids belong to the clinical group known as toxic goitres.

As will be seen from the above tabulation, several of our cases had a mixed structure of ordinary gland with adenomata. There is nothing in the clinical histories as recorded or in the metabolic records which would differentiate the cases with diffuse hyperplasia of the whole gland from those in which the hyperplasia involved both the gland and the adenomata therein.

The patients with degenerative changes (cystic, fibrous, hæmorrhagic, calcific) all gave a history of a number of years' duration, up to thirty in one instance. I have included in this group the case of a cyst removed from the region of the thyroid gland, but no thyroid tissue was found on section.

The case of carcinoma of the thyroid occurred in a male, single, aged forty-nine, with a goitre of fifteen years' duration which had been increasing in size lately. The right lobe was hard and nodular and the glands of the neck were involved.

It may not be out of place to draw attention to the observation by Reinhoff, at Johns Hopkins Hospital, and by the pathologists at the Cleveland, Lahey and Mayo Clinics, that the administration of iodine prior to operation has a very definite effect in lessening the hyperplasia, as evidenced by a diminution of the infolding, etc., and the production of a colloid type of gland. Thus the hyperplastic gland tissue removed before the administration of iodine and that removed after 30 m. of Lugol's solution has been given daily for three weeks, are strikingly different as regards the amount of colloid present. The iodine definitely increases the formation and storage of colloid.

Round cell infiltration was noted in 23 cases but as it occurred in patients who had not received iodine during their sojourn in our hospital as well as in those which had, we are unable to draw any conclusions. Professor Warthin stated to me that he believed the administration of iodine increased the round cell infiltration.

Continued on Page 51

The British Columbia Laboratory Bulletin

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Edited by

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CONVALESCENT SERUM FOR TREATMENT OF ANTERIOR POLIOMYELITIS

H. W. Hill, M.B., M.D., D.P.H., L.M.C.C., Director, V.G.H. Laboratories

On behalf of the Provincial Board of Health Laboratories of British Columbia, of which the Vancouver General Hospital is the largest and serves the most populous territory, we wish to announce that the Provincial Health Officer, Dr. H. E. Young, on September 9th, 1927, sanctioned the collection of serum from convalescent poliomyelitis cases for use as a prophylactic and therapeutic agent in subsequent cases. We have made, therefore, various efforts to secure such serum, so far without much success. We therefore invite the profession to approach such cases as they may have amongst their patients, with a view to securing such serum.

The Provincial Board of Health will pay $5 for useful quantities of blood (about 80–100 c.c.) and in proportion for larger amounts; which is the rate at which blood donors are paid.

Arrangements concerning suitable cases should be made directly with the Laboratories, which will secure the blood, make a Wassermann test, separate the serum, filter and add an antiseptic. This serum will then be preserved on ice, subject to call in suitable cases.

The patients from whom to take blood are those with definite paralysis of not less than 4 weeks nor more than two years, and who have in other respects fully regained health. The so-called abortive case should not be used.

While valuable for prophylaxis, the serum, unless obtained in considerable amounts, will preferably be held for early treatment of cases

developing paralysis, and especially for such cases as may show advancing paralysis.

While we may hope that no large outbreak here will occur this year, since it is now late in the season, it will be well to prepare ourselves this winter for a possible recrudescence of the disease next summer.

The serum maintains its immunizing properties for a year; hence collections made during the coming Winter will be potent at least until next Fall.

The co-operation of the medical profession in this instance is essential in securing of this valuable therapeutic agent.

* * *

A NON-DIPHTHERITIC BACILLUS MISTAKEN FOR B. DIPHTHERIÆ

A. G. Naismith, M.B., D.P.H., Royal Inland Hospital, Kamloops, B. C.

(Preliminary bacteriological notes on a case coming into the Kamloops district, having been previously diagnosed as a "Chronic Diphtheria Carrier.")

This patient stated that he had been diagnosed as a diphtheria carrier, eight times in all, both in Canada and in the United States; and that he had been treated with toxin-antitoxin, the reaction being very severe.

The swabs from the posterior nares and the throat, on blood serum slants, put through the procedure ordinarily applied to the routine throat swabs, showed microscopically a bacillus resembling the granular forms of the Klebs-Loeffler bacillus; the granules were metachromatic and mostly bipolar, but sometimes in threes and fours in the body of the bacillus. These granules do not, as is usual in the case of diphtheria, expand or bulge the body of the bacillus.

The difference between this organism and the diphtheria bacillus, that may be noted, are:

A. On the slide.
   1. The body of the bacillus gives an impression of a faded blue rather than a pale blue.
   2. Angular arrangement is not seen.
   3. Definite parallelism is not seen.

B. In culture.
   1. Forms spores.
   2. When left at room temperature, or incubated for four or five hours longer, shows softening of Loeffler's blood serum.
   3. In broth and milk, many long threads are found having up to fourteen granules.

C. As to virulence test.
   1. Antitoxin does not protect the control pig.

When worked out in detail, this organism is found to correspond fairly closely with the recorded descriptions of *B. lactomorbi.*

Summary.—An organism, microscopically resembling *B. diphtheriae* in some respects, was found in an alleged diphtheria carrier, who showed no diphtheria bacilli. The characteristics of this organism agree with those of *B. lactomorbi.*

Microscopic diagnosis of diphtheria bacilli should not be made on mere presence of a bacillus with metachromatic granules; the presence of angular and nearly parallel arrangement should be required also.

* * *

THE SOLUTION OF THE PROBLEM OF EXCESSIVE "NO GROWTHS" FROM DIPHTHERIA SWABS

By H. W. Hill, M.D., D.P.H., L.M.C.C., Director, V.G.H. Laboratories. Professor of Bacteriology; and of Nursing and Health, University of B. C.

From February to July, 1927, many Vancouver City physicians justly complained that a wholly undue percentage of the swabs, taken from suspected diphtheria cases, carriers, etc., were being reported by the V. G. H. Laboratories as "no growth." The laboratory staff was naturally greatly concerned, and put a great deal of thought and work into the search for the cause—but unavailingly. In addition to this, many of the physicians who received these "no growth" reports suggested various possible explanations; but these also proved inadequate when checked up or worked out, in the studies made.

To review the facts: The Laboratories have now for over a year supplied to Vancouver City physicians, as diphtheria outfits, cardboard boxes containing "*swabs only*" (in sterile tubes) i.e., outfits *not* containing, as the previous carboard outfits did, *serum tubes also,* for bedside inoculation by the physician. This "swabs only" system, already long in vogue in Ontario and Manitoba as well as elsewhere, was adopted here because serum in out-fits, often kept a long time before use, would become dry and unsuitable for culture, making for a wastage of serum, always involved in the "swab and serum" method. Swabs cannot deteriorate, and when delivered to the Laboratories are necessarily always inoculated on fresh "current" media, with a minimum of wastage.

The older "swab and serum" outfit was known to yield at its best about 2% of "no growths." During the first six months of use here of the newer "swabs only" outfit, the "no growths" ran about the same (2%) and, therefore, this system was accepted as satisfactory to all. But during the period February to July, 1927, the percentage of "no growths" mysteriously rose suddenly to five or six times this "normal" figure.

This mystery remained unsolved until September, despite the various investigations designed to discover where its source lay. Only one thing seemed clear: the detailed history of the whole trouble, as well as the experimental work, pointed to the existence of some *active bactericidal* effect on the infected swabs, and *not* to a merely passive effect such as would result from drying, careless inoculation, etc.

At last, in re-examining the box outfits, preparatory to making the exhibit above referred to, and without the slightest thought of solving this problem or even, at the moment, of the problem itself, a strong odour of formaldehyde was noticed in one outfit. A number of other outfits were at once examined, and some were found to yield the same odour, although many did not. This was, of course, at once followed up. It then appeared that the technique of disinfecting used diphtheria boxes, just before making them up to send out again, had been altered from disinfection by heat, which sometimes charred the boxes, to disinfection by formaldehyde gas; and it became evident that some of the boxes sometimes absorbed sufficient formaldehyde gas to retain it in sufficient strength to disinfect the infected swabs placed in them by the physician.

Needless to say, the formaldehyde disinfection technique was at once abolished and with its abolition has disappeared the excessive "no

growths" which for seven months were a great detriment to the diphtheria work here.

The following table shows the rise, decline and fall of the excessive "no growths" since the "swabs only" method went into effect in Vancouver. During September, 1927, although the formaldehyde outfits were called in, responses to this call were nil, hence some such outfits affected the results for a time (see Period D):

			Total Cultures	Total "No growths"	Per cent. "No growths"
A.	Old "swabs and serum"	Aug., 1925 to June, 1926	10,058	220	2.2%
B.	"Swabs only" (no formaldehyde)	Aug., 1926, to Jan., 1927	7,192	134	1.8%
C.	"Swabs only" (formaldehyde)	Feb., 1927 to Aug., 1927	4,197	826	19.9%
D.	"Swabs only) (some formaldehyde)	Sept. 9, 1927, to Sept. 30, 1927	393	21	5.3%
E.	"Swabs only" (no formaldehyde)	Oct. 1, 1927, to Oct. 17, 1927	411	4	1.0%

* * *

CHRONIC SEPTICÆMIA DUE TO UNIDENTIFIED ORGANISM

Mabel M. Malcolm, V. G. H. Laboratories.

On April 21, 1927, a specimen of blood was received for a Widal test. This reaction was negative with B. typhosus as well as para typhosus A and B. The agglutination test was repeated on April 24, and again on April 29, at no time showing any agglutination. A blood culture was then tried and in 36 hours a good growth of streptococci was obtained.

Throughout the next five months, until September 14, when the patient died, he received vaccines, transfusions, immuno-transfusions and mercurochrome and during this time there were eight blood cultures made, each one showing no growth in 24 hours, but after 36 hours examination revealing peculiar white colonies resembling the growth of a higher bacterium. These colonies are individual downy spheres, forming a layer on top of the sedimented red blood cells.

On microscopic examination these colonies show typical long chains of streptococcus. The spheres are very easily broken, but on carefully transferring one to a slide, the chains appear to wind and twine in a clump somewhat in the manner of actinomyces. But on blood agar, plain agar, or Loeffler's serum, the colonies are fine and under the microscope appear as extremely distorted streptococci.

Mice and guinea pigs were inoculated but the organism was found to be non-virulent for them; we have been unable to fit it into Bergey's Manual of Determinative Bacteriology (1923).

As this streptococcus resembles in many ways an organism which we have sometimes recovered in cases of chronic mastitis in dairy cattle, it has been suggested that it may be of this type, particularly since the patient immediately prior to the onset of his illness was known to have consumed large quantities of unpasteurized milk outside of this city.

Continued from Page 46

TREATMENT

Iodine.—A word or two about pre-operative treatment with Lugol's solution. Sixteen patients with a diagnosis of hyperthyroidism had a basal metabolic reading taken a day or so after admission to hospital and again in ten to fifteen days' time before any operation was undertaken. During the interval between the two readings, iodine was given in the form of Lugol's solution, usually 10 minims t.i.d., though some of the patients were given much less than the 30 minims daily. In one case only did the basal metabolic reading increase and it was of the exophthalmic type.

In	1	case	the	metabolic	reading	dropped	55 points.
"	2	cases	"	"	"	"	40–50 "
"	4	"	"	"	"	"	30–40 "
"	7	"	"	"	"	"	20–30 "

A drop from 44 to plus 15% in the metabolism occurred in one case in which adenomata were present with mild hyperplasia of the adenomatous tissue. The patient responded to Lugol's solution in spite of the rather general opinion at present prevailing that Lugol's should not be given in this type of the disease.

Operation.—In the 48 cases under review some form of thyroidectomy was performed. In the majority of cases portions of both lobes were removed. Two patients died within 48 hours post-operative, all the others showed marked improvement in symptoms before leaving hospital.

One patient had a metabolic record taken shortly before and again about three weeks after thyroidectomy. This patient, a woman, aged 39, had her basal metabolic rate taken on June 21st, which gave a reading of plus 72% and on July 5th plus 41%. She was operated on July 7th and 19 days later gave a basal metabolic rate reading of plus 4%. The only iodine given was 20 minims on the seventeenth day after operation.

* * *

THE NON-PROTEIN NITROGEN TEST

By G. F. Strong, M.D., Vancouver. B.C.

[EDITOR'S NOTE:—This is the third of a series of articles intended to indicate the *clinical uses,* interpretations and applications of various modern laboratory tests. Each article will be written by a different author, peculiarly familiar with the *uses* of the test treated of.]

There are a number of tests for renal function, each of which has a definite place in the complete study of renal incompetency. No one of these tests furnishes sufficient information in itself to be satisfactory when performed alone. It is rather from the consideration of the results of a number of these functional studies that we are enabled to gauge most

accurately the extent of renal damage. These tests consist, practically speaking, in a search of abnormal constituents of the urine or blood; and of the blood analyses none surpass in value the non-protein nitrogen estimation. There are occasions where it is difficult or impractical to secure a number of functional tests and it is then that this residual nitrogen determination is of especial value.

In evaluating any laboratory procedure, we must consider the test from two angles: the clinical and the laboratory. First, and most important, is the clinical value; does it give us any information not obtained in any other way? Second, is the technique of sufficient simplicity to permit of its accurate accomplishment in every clinical laboratory?

The non-protein nitrogen test gives us definite information as to the retention of nitrogenous products in the blood, an increase above 40 mg. per 100 c.c. of whole blood being definitely pathological; and the laboratory technique is sufficiently simple to ensure accuracy. The only other blood analysis that compares in value with the non-protein nitrogen estimation is the determination of the amount of urea, a laboratory procedure not always so easily or so accurately accomplished.

For practical purposes an increase in the non-protein, nitrogen above 40 mg. per 100 c.c. of blood, may be taken to indicate impairment of renal function, though it is true that high figures are also encountered in persistent vomiting, acute abdominal conditions, and intestinal obstruction. In office practice its use is practically confined to patients showing other signs or symptoms suggesting the possibility of renal impairment, as in patients, for instance, of the very common cardio-renal-vascular type. Also in that large group of patients with essential hypertension, especially those showing occasional albumin or casts in the urine, the non-protein nitrogen determination is of value. In treatment of acute and chronic nephritis repeated blood analyses of this kind are necessary as a guide to our therapy and as a help in prognosis.

In hospital practice the test has in addition some use in the study of coma cases of undertermined cause and in uræmia as a guide to treatment.

It is true that in the complete study of any case of renal disease, several functional examinations are necessary and it would be unwise to attach too much importance to any single test. One test such as the estimation of the non-protein nitrogen of the blood that is simple and accurate mut, however, appeal very strongly, not only to the busy practitioner who appreciates its clinical value, but to the busy patient who appreciates its relative simplicity.

Conclusion.—(1) The non-protein nitrogen test is of definite clinical value as indicating the amount of nitrogenous products in the blood. (2) Figures over 40 mg. per 100 c.c. indicate renal disease, with the exceptions noted above.

* * *

POST-GRADUATE LECTURES

INFLAMMATION AND TUMOURS OF THE BREAST

Dr. A. Primrose, Prof. of Surgery, Toronto University.

CONSTIPATION

Dr. Duncan Graham, Prof. of Clinical Medicine, Toronto University.

Notes of addresses delivered before the Vancouver Medical Association, September 7th, 1927, by *Dr. J. H. MacDermot.*

The Vancouver Medical Association was fortunate to have as its guests on Wednesday, September 7th, Drs. A. Primrose and Duncan Graham of Toronto, who were engaged in a lecture tour of the Canadian Medical Association throughout the Province of British Columbia. They were entertained at luncheon at the Hotel Georgia by the joint membership of the B. C. and Vancouver Medical Associations. After the lunch, each spoke briefly about the tour. Dr. Primrose went into some detail about the work and the policy of the Canadian Medical Association and urged all medical men to put their weight behind this national organization. He referred, also, to the valuable work being done by the British Columbia Medical Association, especially in its help and support of the men in the remoter districts and smaller centres of the province. Dr. Burnett, who was the third member of the touring party, also spoke with special reference to the claims of the C. M. A. on medical men in view of the inestimable value of the work it is doing.

In the evening, a meeting was held to hear Drs. Primrose and Graham speak, the former on "Inflammation and Tumours of the Breast" and the latter on "Constipation." A large and attentive audience was present.

Dr. Primrose, who opened the evening's proceedings, prefaced his remarks by a short reference to the inflammations of the breast. Acute conditions were largely omitted from his address, but he went rather fully into the chronic ailments of the breast, especially localized mastitis. The treatment of this he gave as largely expectant, with local applications and support. He pointed out the urgent necessity of differential diagnosis in all chronic cases. He then turned to tumours of the breast and based his remarks upon an analysis of 520 cases in his personal practice as well as many others that he has seen in consultation and otherwise. Of 448 cases statistically examined, 291 were malignant and 157 benign. The age in the malignant cases ranged from 80 to 26, 36.4% being in the fourth decade of life. The benign cases ranged from 61 to 11, 41% being in the third decade. He reminded his hearers of the great responsibility for accurate diagnosis in the very young as the rate of growth in malignancy is far greater in the young than in the old. He classified tumours of the breast as follows:

(1) Chronic mastitis, which must be carefully investigated, as already stated.

(2) Simple growths of the breast including adenomata, the most frequent benign tumours; cystic adenomata; fibroid adenomata; fibro-

cystic adenomata and papillomata, found most commonly in the ducts.

Dr. Primrose took some exception to the conclusions of Bloodgood, who is inclined, in the former's opinion, to be much too conservative in operation on breast conditions. The conditions for which Dr. Primrose would agree with Dr. Bloodgood that operation is not necessary are such as pain, lipoma, supernumerary mammæ and similar obviously harmless growths, but when Bloodgood refuses to operate in 64 cases of definite tumour found in women over 25, Dr. Primrose disagreed sharply with this policy. He referred to the monumental work of Sir George Cheatle who has shown that malignancy and benignity of growths may exist side by side and that no sharp dividing line can be drawn in any given case. Sir George has published three articles in the British Journal of Surgery embodying his work and Dr. Primrose urged his hearers to read these carefully. Simple cysts, for instance, are a danger sign and the surgeon cannot justify leaving them without removal and careful examination. Dr. Primrose quoted some cases of his own where the breast showed no malignancy under careful examination, whilst the axillary glands showed metastasis. A careful re-examination of the breast revealed, after careful search, a small carcinomatous area. His advice may be given briefly as follows: Whenever a localized tumour, cystic or otherwise, is found in the breast, it should be removed and examined, even if the operator is sure that it is benign, and he referred to Finney's aphorism that "a lump in a woman's breast is better out than in."

Dr. Primrose then turned more definitely to malignant growths and spent some minutes urging his audience to realize the importance of early diagnosis. He spoke, too, of the importance of educating the public to go for early examination to their medical adviser. He referred to the excellent results that are following the work of such organizations as the American Society for the Control of Cancer. He showed that in the last ten years, within his own knowledge, patients have been coming very much earlier; thus the following figures may be of interest: Ten years ago 51% came showing a growth of one year's duration or over, whilst 8% came within one month of the appearance of the growth. Figures compiled five years ago show 77% coming under one year and 27% under one month. The number of five-year cures is increasing proportionately.

Early Signs of Malignancy.—Dr. Primrose here went rather exhaustively into the anatomy of the breast and its glandular distribution. The following points outlined by him are of extreme importance in dealing with diagnosis: The breast is a superficial organ lying entirely external to the pectoral fascia. It sends free glandular extensions or invasions into both the skin above it and the deep fascia below it as Stiles has shown. This helps us both in diagnosis and in treatment, as a gentle, careful examination in the early stages which reveals even a slight though definite adhesion of the skin to the underlying mass is extremely suggestive, if not diagnostic, of malignancy, while as regards treatment these anatomical facts teach us that both skin and fascia must be widely and

adequately removed in order that the operation may be sufficiently thorough. Sampson Handley has shown, too, that lymphatics may be traced from the breast to the umbilicus and thence along the round ligaments to the liver and this teaches us that the fascia must be removed down in the direction of the umbilicus.

Early Diagnosis.—As regards quick section of a growth, Dr. Primrose emphatically objected to this, first, because it is never absolutely conclusive, and it is not fair to expect a pathologist to to give a positive diagnosis by this means, and, secondly, because it involves manipulation and the risk of dissemination of carcinomatous material. He urged the greatest gentleness in the examination of the breast and in preparation of the skin for operation.

Adhesions to the Skin.—These have been referred to already but Dr. Primrose emphasized that they are an early sign of malignancy. He had never seen a mastitis with adhesions to the skin.

Glandular Enlargement.—The axilla should be very carefully examined and the other side should always be examined along with the affected one. Enlarged glands are very common in the axilla at the cancer age and indurated glands are not necessarily malignant. However, when enlarged glands are found on the posterior borders of the axilla, they are very suggestive of early malignancy. The speaker's practice and rule is that if he can make a reasonable diagnosis of probable malignancy, he removes the breast by the radical method. The points in removal which he emphasized were the necessity for leaving the clavicular portion of the pectoralis major; the wide removal of the fascia; the careful and thorough cleaning of the axilla beginning from above downwards and removing the gland-bearing area en masse. Again, the chief cause of disability is interference with the axillary nerves, particularly the long subscapular and the long thoracic nerve of Bell and these must be most carefully guarded.

X-Rays and Radium.—The lecturer does not believe that these should be ever employed for a primary treatment. Their place is post-operative, and they are particularly beneficial in the case of glands; when these are involved, he uses radiation pre-operatively.

Dr. Primrose showed various slides of bone metastases of cancer and emphasized the importance of hunting for a primary focus whenever a cancerous condition is found in the bone.

* * *

Dr. Graham prefaced his remarks by commenting on the misunderstanding that prevailed amongst the public and the importance and widespread incidence of constipation. There are, he said, few conditions that are so important and that receive so little attention. Through the pernicious use of laxatives and enemata as a symptomatic remedy for constipation, untold harm is often done and little or no good. He dwelt on the necessity for education of the public in this matter. Constipation cannot usually be diagnosed by the patient and the responsibility of physicians in this matter is great and all too little realized.

Dr. Graham defined normal movement of the bowels as follows: The evacuation must be complete, that is, the bowel must be emptied from the splenic flexure to the anal opening, the stool must be of proper consistency, neither liquid nor dry and must be of normal shape and size. These feature were emphasized repeatedly by Dr. Graham during his address and he reminded his hearers that any other condition is abnormal.

The definition given by Dr. Graham of constipation is that this exists when the residue of a meal is not passed completely after 48 hours.

The causes of constipation are (1) improper hygiene of the bowels; (2) rectal conditions, such as fissure, hæmorrhoids, etc.; (3) occurring as a local manifestation of disease elsewhere, e.g., lead poisoning. Effective treatment depends entirely upon a proper diagnosis of the cause of constipation. Physical examination is unsatisfactory and Dr. Graham stated that the history of the case is so important that over 70% of diagnoses must be made from this alone.

Before referring to treatment, the lecturer went very thoroughly into the physiology of the bowel movement. The following is a brief summary of the points made by him: Food travels to the ileocæcal valve within 4-6 hours following ingestion; to the hepatic flexure in from 6-8 hours; to the splenic flexure in from 8-10 hours and to the pelvic colon in from 12-14 hours. Very little enters the cæcum between meals, but the smell of food or the commencement of ingestion causes opening of the ileocæcal valve immediately. Movements of the bowels are very slow between meals. The call to stool is felt when material enters the rectum causing a feeling of fullness and desire to defæcate. It is the disregard of this call that is the beginning of constipation and this fact is of supreme importance in the training of children in a proper habit of the bowels.

Dr.Graham described the nerve supply of the intestinal canal and showed how this affected the movements of the bowels. He referred to the mechanical stimuli of undigested food and the chemical stimuli of gas formation, fruit juices, etc., as aids to bowel movement. This, on the other hand, is inhibited by mental conditions, such as worry, anger, etc., and by pain, such as that occurring from gall bladder or appendix disease, so that sedatives may be of actual value in overcoming constipation.

Constipation may be due to the following: (1) insufficient stimulation, e.g., too scanty meals, too little fibrous material in the meal, etc. (2) abnormal stimulation of the sympathetic, causing spasm. (3) mechanical obstruction. Dr. Graham divided constipation into 3 types. First, where there is delay in the passage to the pelvic colon, called by Hurst colic constipation. Second, where evacuation of the rectum is delayed, again described by Hurst as dyschezia. Third, fragmentary or cumulative constipation, where the diet is mainly fluid or deficient in cellulose. Here the residue is too small and the movements become hard and dry so that not only the consistency, but the quantity of the stool must be enquired into.

Clinical Manifestations of Constipation.—(1) Local—fullness in the abdomen, intestinal flatulence, colicky pains and unpleasant sensations in the rectum. (2) General—headache, malaise, dizziness, etc., though Dr. Graham gave it as his opinion that in a great many cases these symptoms are due rather to an unstable central nervous system than, as is popularly supposed, to auto-intoxication due to absorption of poisons.

Diagnosis.—An accurate history is most essential. We must enquire into the frequency of stools, regularity, character, size, and consistency. Whether the condition has been present since childhood or, if not, when did it start. Again, we must carefully ascertain the type of diet used by the patient. We must learn his occupation, his personal habits, his environment and his use of laxatives or enemas. Following a careful history taking, a complete physical examination should be made including a digital examination of the rectum, and it must not be forgotten that constipation may be a symptom of disease elsewhere.

Success in treatment depends upon (1) noting the type of constipation present, the stage of its development and the cause, (2) in the institution of proper treatment by the physician, and (3) not the least important, the co-operation of the patient.

Treatment of Constipation.—This follows, to some extent, from the remarks above, but Dr. Graham laid down several valuable rules. (1) He emphasized the necessity of specific instructions to the patient. The latter must be informed of the extreme importance of a regular daily habit of defæcation and must be urged to arrange his or her work so that a definite time may be clear for this important function. The patient must be told of the necessity of obeying the call to stool. The dangers of laxatives must be pointed out to him and the mental attitude of the laxative-taker corrected so that the fear of missing a daily evacuation may be minimised. The diet must be regulated so that adequate roughage in the form of vegetables, and chemical stimuli in the form of fruit juice, may be taken. Mastication must be aided, if necessary, by the removal of carious teeth, attention to the gums, proper dentures, etc. Such aids as a glass of cold water before breakfast, bran with the morning meal, or a dish of prunes at bedtime, may be used. If the stool is hard or dry or small in amount, liquid paraffin may be given in tablespoonful doses at bedtime and gradually decreased in amount. Plain agar, flaxseed, or a small yeast cake daily, will also be found of service. In dyschezia, where there is prolonged detention in the rectum, sometimes lasting 4-5 days, there may be ulceration to overcome. The first stage of treatment here is to empty by glycerine enemas and keep empty for several days to allow the bowel to resume its normal tone. Then a return to the original treatment is in order. Where the abdominal muscles are relaxed or weak, exercises to strengthen them are of great value, but must be persisted in for months. In the constipation of old age due to atrophy of the intestinal muscle a bowel laxative must be given and A B S pills, phenolphthalein or senna, will be found useful. Where enteroptosis is present, a suitable belt applied in the recumbent position should be ordered. In the constipation of acute illness, a daily enema or mild aperient, e.g., milk of mag-

nesia, may be given. Where constipation is an accompaniment of a chronic disease, e.g., lead poisoning, a daily aperient will be necessary until the cause has been removed. Where there is pain, sedatives will be found of help, but this, of course, is merely a temporary measure and we must remove the *cause*. In this type of case careful X-Ray examination will be found of great value and frequently operative measures must be resorted to to complete the cure, but Dr. Graham emphasized the fact that before a constipated patient is submitted to surgical treatment, we must be very sure of the condition present. He referred to Royle's brilliant treatment of Hirschsprung's disease or megacolon, by section of the abdominal sympathetic.

The speaker closed his address by showing several slides illustrating the different types of constipation to which he had referred in his lecture.

* * *

VANCOUVER HEALTH DEPARTMENT

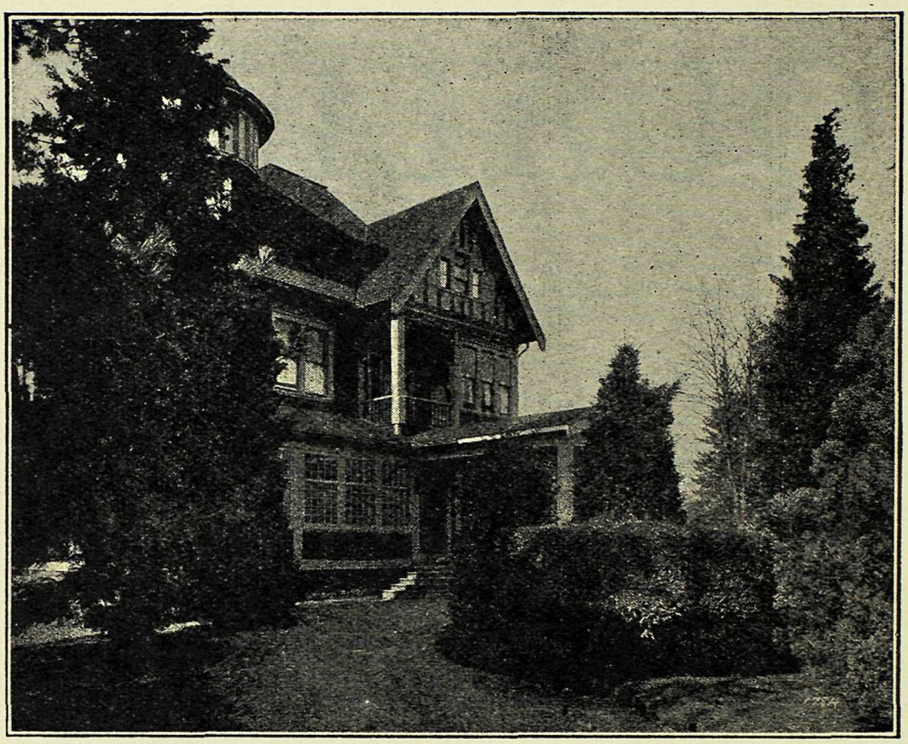
STATISTICS, SEPTEMBER, 1927

Total Population (Estimated)	137,197
Asiatic Population (Estimated)	10,576

		Rate per 1000 of Population
Total Deaths	116	10.29
Asiatic Deaths	14	16.11
Deaths—Residents only	82	7.27
TOTAL BIRTHS	313	27.76
Male 172		
Female 141		
Stillbirths—not included in above	15	
INFANTILE MORTALITY—		
Deaths under one year of age	6	
Death Rate per 1000 Births	19.17	

CASES OF INFECTIOUS DISEASES REPORTED IN CITY

	August, 1927		September, 1927		October 1 to 15, 1927	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Smallpox	0	0	2	0	0	0
Scarlet Fever	4	1	3	0	1	0
Diphtheria	10	1	31	0	17	1
Chicken-pox	1	0	7	0	11	0
Measles	1	0	2	0	2	0
Mumps	3	0	4	0	7	0
Whooping Cough	14	0	13	1	3	0
Typhoid Fever	2	0	3	0	0	0
Tuberculosis	20	14	22	13	10	–
Erysipelas	7	0	4	0	0	0
Poliomyelitis	1	0	5	3	3	1
Cerebro-Spinal Meningitis	1	0	1	0	0	0
Cases from outside city—included in above.						
Diphtheria	4	1	6	0	5	1
Scarlet Fever	2	1	0	0	1	0
Typhoid Fever	1	0	3	0	0	0
Poliomyelitis	0	0	4	2	2	1



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Reference ~ B. C. Medical Association

For information apply to

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