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# THE VANCOUVER MEDICAL ASSOCIATION

# BULLETIN

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THE VANCOUVER MEDICAL ASSOCIATION

# BULLETIN

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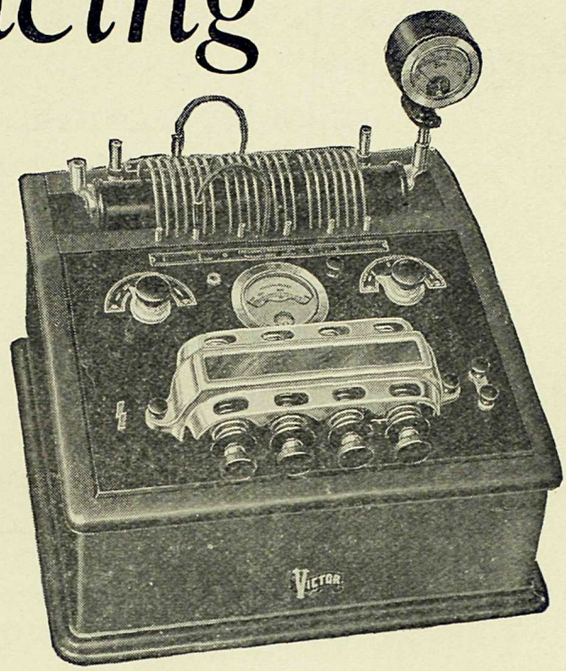


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# VANCOUVER MEDICAL ASSOCIATION

Founded 1898. · Incorporated 1906.

## PROGRAMME OF THE 29th ANNUAL SESSION

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 p.m.

Place of meeting will appear on Agenda.

General Meetings will conform to the following order:—

8:00 p.m.—Business as per Agenda.

9:00 p.m.—Paper of Evening.

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1926.

Oct. 5.—General Meeting:
Presidential Address, Dr. A. W. Hunter.

Oct. 19.—Clinical Meeting.

Nov. 2.—General Meeting:
Papers—1. Dr. C. W. Prowd, "An Analysis of Radium Therapy, reporting 600 cases.
2. Dr. J. A. Sutherland, "Pain and disability from lesions about the Anus.

Nov. 16.—Clinical Meeting.

Dec. 7.—General Meeting:
Papers—1. Dr. W. F. MacKay, "Diagnosis and Significance of referred Pain in Disorders of Chest and Abdomen."
2. Drs. W. S. Turnbull and J. W. Arbuckle, "Eclampsia."

Dec. 21.—Clinical Meeting.

1927.

Jan. 4.—General Meeting:
Papers—1. Dr. G. A. Greaves, "Physiotherapy in Orthopaedic Conditions."
2. Dr. H. A. Barrett, "Treatment of Infections by Physical Agents."
3. Dr. H. R. Ross, "Physiotherapy in Gynaecological Conditions."

Jan. 18.—Clinical Meeting.

Feb. 1.—General Meeting:
Papers—1. Dr. J. M. Pearson, "Treatment of Hypertension."
2. Dr. C. S. McKee, "The Interpretation of Findings in Blood Chemistry."

Feb. 15.—Clinical Meeting.

March 1.—General Meeting:
Paper — Dr. George Seldon, The OSLER Lecture.

March 15.—Clinical Meeting.

April 5.—General Meeting:
Paper — Symposium, "The Treatment of the Poor Risk Patient," Drs. C. E. Brown, A. B. Schinbein, D. D. Freeze and R. E. Coleman.

April 19.—Annual Meeting.

* * *

The following is the programme of the Physiotherapy Section for the coming season:

October 13th—Regular Meeting.

November 10th—"Physics of Radiant Energy," Dr. G. A. Greaves.
"Bio-physics of Radiant Energy," Dr. H. A. Barrett.
Clinical Cases, Dr. J. W. Welch.
"Ultra-violet Energy in Special Disease," Dr. H. R. Ross.

December 8th—"Clinical Demonstration of the Uses of Radiant Energy Apparatus.

January 12th—"Electro-physics," Dr. G. A. Greaves.
"Galvanic Currents," Dr. J. W. Welch.
"High Frequency Currents," Dr. H. A. Barrett.
"Wave Currents," Dr. H. R. Ross.

February 9th—Clinical Demonstration of the uses of Electrical Currents.

March 9th—Regular Meeting.

April 13th—Regular Meeting.

# EDITOR'S PAGE.

We publish in another part of this issue a portion of an abstract of the proceedings of the recent Summer School which is so important a feature of the scientific work of the Vancouver Medical Association.

The Committee in charge, with Dr. W. D. Keith as Chairman, Dr. G. F. Strong as Secretary, and in addition Dr. G. S. Gordon, Dr. Murray Blair, Dr. H. R. Storrs and Dr. Robt. Crosby, are indeed to be congratulated on the quality of the speakers secured for this year. Seldom, if ever, has such a uniformly good programme been presented.

The working arrangements of the meeting passed off with a quiet smoothness and celerity which only those who have ever been connected with such an organization realize meant a lot of hard work and planning before hand, behind the scenes.

We regret that this particular week should have been the focus or culmination of the hectic political weeks that had preceded it and of the lethargy which followed, because it was probably one factor in accounting for a registration which was seriously and ominously small.

But when every allowance is made for the disturbing political atmosphere, for the possible though remote effects of the meeting of the Canadian Medical Association in Victoria in June and for other meetings in Spokane or elsewhere, it is nevertheless a matter for very serious thought.

With five years of well earned reputation for successful meetings behind them and with a programme in the formation of which neither trouble nor expense had been spared and which had been further fortified by the speakers furnished through the generosity of the Canadian Medical Association—with these, we say, that the Committee had every right to expect a record registration.

It becomes, then, an important problem to ascertain the cause of this failure in attendance and to consider what steps can be taken to meet it.

We shall not at present discuss this further for no doubt the Executive, and indeed the whole Society whose venture it is, will give it careful consideration during the coming winter.

The Committee, of course, will be faced with a considerable deficit. Fortunately there is, we believe, a moderate surplus accumulated in the past which may be drawn upon and the Committee need feel no compunction or stigma in balancing its accounts this way.

The bad must be taken with the good and we feel that everything to contribute to the success of the meeting was the work of the Committee and we thank them for it.

## NEWS AND NOTES.

Dr. Vrooman left on the 18th September to attend the International Congress on Tuberculosis to be held in Washington, D.C.

We are very glad to report that the doctors in attendance on Dr. J. H. MacDermot state that he is improving slowly and gradually and by the time this *Bulletin* is in print it is hoped that he will have been able to return to his home.

Dr. H. A. Spohn has been elected President of the Canadian Society for the Study of Diseases of Children.

We are informed by Dr. Underhill that the Vancouver Health Department has now arranged to supply free scarlet fever antitoxin for the immunization of scarlet fever contacts (residents of city only). The antitoxin may be obtained free of charge from the Georgia Pharmacy by signing an order, as in the case of diphtheria antitoxin.

* * *

## VANCOUVER MEDICAL ASSOCIATION SUMMER SCHOOL

### ABSTRACT OF THE PROCEEDINGS

At nine o'clock on Monday, September 13th, the members present were called to order by the Chairman of the Summer School Committee, Dr. W. D. Keith. After a few introductory remarks, Dr. Keith presented the first speaker of the session, Dr. Carl A. Hedblom, Professor of Surgery in the University of Illinois.

The title of Dr. Hedlom's address was "A Study of End Results following Radical Amputation of the Breast for Carcinoma" and the following is a summary of his findings and conclusions:

1. 22% of 1792 cases of carcinoma of the breast gave a family history of carcinoma.

2. The breast was the organ affected in 34% of these female relatives. More than one relative was affected in 12.2%.

3. The left breast was involved in 62% of the cases. The upper hemispheres of the breasts were involved in upwards of two-thirds, the lower hemispheres in less than one-quarter of the cases.

4. The carcinoma had involved the axillary glands at the time of operation in 68% of 1792 cases.

5. The incidence of axillary gland involvement bore no relation to the age of the patients, which ranged from 20 to 80.

6. The incidence of axillary gland involvement is in direct relationship to the lymphatic drainage, being greatest in cases with involvement of the upper quadrant.

7. Involvement or absence of involvement of axillary glands was recognized clinically in 52% of early cases, representing the five to 8 year cures and in 75% of the cases that died of recurrence.

8. Discharge from the nipple occurred in 11% but malignant papilloma was found in only one-tenth of these cases. In half of the cases with malignant papilloma there was no history of nipple discharge.

9. Of 623 patients traced 35.6% are alive 5-8 years after operation. 43% are known to have died.

10. Of 167 cases operated early before the axillary glands had become involved 73.6% are alive after 5-8 years. Of 397 patients operated after the axillary glands had becme involved only 22.1% are alive after 5-8 years.

11. In both groups the highest percentage of cures follows operations for cancer involving the upper outer quadrant of the breast.

12. Most of the post-operative deaths in this series occurred in cases in which radical operation was performed in the presence of unrecognized visceral metastases.

13. 8% of those who died of recurrence lived more than five years.

14. Of 86 patients alive 3-8 years after the development of recurrence 56 not operated on for recurrence have lived approximately as long as 30 who were operated on for recurrence.

15. Family history of carcinoma was present in 26% of the patients alive more than five years and in 23% of those who died of recurrence. There was a history of trauma in 5.9% of those who are alive and in 11.5% of those who died of recurrence.

16. All patients in whom supraclavicular triangles were dissected, all those operated during pregnancy and lactation and all patients operated on for simultaneous bilateral involvement of the breast are dead.

17. Swelling of the arm occurred in 50% of 575 patients now living but in only 4.8% of 666 patients who died of recurrence.

18. Radium therapy was used in 64% of those who are alive and in 74% of those who died of recurrence.

## CONCLUSIONS

1. Radical operation for carcinoma of the breast before the axillary glands are involved results in a five-year cure in about 3 out of 4 patients, whereas radical operation after the glands are involved results in a five-year cure in one out of five.

2. Approximately the same proportion of patients present themselves for surgical operations after glands have become involved as 6-9 years ago.

3. Life is prolonged from one to 3 or 4 or more years in cases of patients who died of recurrence and is made more comfortable.

4. Radium therapy in competent hands is of great value as an adjunct to surgical treatment. The exact appreciation of its indications, limitations and value, particularly with respect to the high tension radium therapy, remains to be determined.

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The next speaker on the Programme was Dr. George Hale, Professor of Medicine, Western University, London, Ontario, who took as his subject "Nephritis from the Standpoint of the General Practitioner."

After a few observations on the physiology of the kidney Dr. Hale said that a working classification might be made of nephritis into types which were (1) acute and (2) chronic. The chronic kind could be divided into two varieties—one with oedema and the other without, being respectively the hydraemic and the azotaemic varieties.

The patient suffering from an acute nephritis is usually pale, puffy about the face, with more or less oedema of the extremities and ascites. He complains of severe headache and general malaise to a greater or less degree.

The urine is reduced in quantity, of high specific gravity, contains a large amount of albumin and shows both red blood cells and casts. There is no tendency to nitrogen retention but salt retention is present and probably the blood pressure is high. In this variety, therefore, uraemia is not part of the picture and the convulsions which may occur are not those of uraemia, being probably dependent upon the cerebal oedema.

The chronic variety of nephritis may be the result of a previous acute attack or may be due to other forms of toxaemia. In the oedematous variety the syndiome presented is similar to that of acute nephritis but milder in character. There is the same pasty appearance, considerable oedema, diminshed urine showing albumen and casts. Here again there is no tendency to nitrogen retention.

The azotaemic variety is the next form, and regarding its origin, the lecturer said, we have not much definite information. It is generally a silent disease discovered by accident, or on account of the patient consulting a doctor because of symptoms associated with other organs, usually the heart, or the circulatory system. These patients will complain, in addition, of lassitude, headache and insomnia and often the only real complaint is that of nocturia. There is no oedema except that of secondary cardiac origin, and a greater or less degree of cardio-vascular changes is always present. The albumin in the urine, when present, is usually small in amount. In this variety there is a definite tendency to retention of nitrogen but none of sodium chloride.

In such a case, then, how do we differentiate as to the cardiac or renal origin of the symptoms? This differentiation is made largely from laboratory data and here very ordinary tests are sufficient, such as can be applied by any physician. Those upon which the lecturer said he relied are (1) the urea concentration test in which 15 gms of urea are administered in 100 c.c. of water and the urine collected at the end of one and two hours. This is tested in the usual way for the amount of urea present. If this is found to be 2% or over the function of the kidney may be regarded as sufficient. The second test is fixation of the specific gravity. Here the urine is taken at two hourly intervals during the day and less often during the night and the specific gravity of each specimen determined. There should be at least 8 points difference in the specific gravity in normal cases in which also the urine during the night hours should be less in quantity and of a higher specific gravity. If these conditions do not obtain it is evidence of deranged function.

In addition the phenolsulphonephthalein test may be used. The dye in normal cases is excreted to the amount of 60-85% at the end of two hours.

The oedema present has a very definite relation to salt retention. It is apparent that the salt contained in the body is maintained at a fixed concentration, therefore, said the lecturer, if more salt remains water is retained in order that the concentration may be maintained. Fischer, on the contrary, takes a somewhat different view. He regards the body tissues as being of the nature of hydrophilic colloids in which there is a tendency to take up water. In acid conditions of the body this tendency is more rapid and he considers there is a definite relationship between acidosis and oedema. The salt he regards, contrary to the general opinion, as being more or less of a defensive agent.

Dr. Hale said one thing is certain—oedema is not due to inability of the kidney to excrete water. This is clearly shown in cases of poisoning by bi-chloride of mercury where the secretion of urine from the kidney may be reduced to a minimum and yet there is no tendency to oedema.

Albuminuria is not necessarily evidence of nephritis. There is, for instance, postural albuminuria and the albuminuria of adolescence and the occurrence of albuminuria in a great many sick persons where there is no other indication of kidney involvement.

As to treatment.—In acute nephritis the important element is time. At least three months are required before conditions can be expected to return to normal and the presence of red blood cells occurring in the urine is an indication for continued rest in bed. Diuretics are of very doubtful value in cases of any acuteness. As to diet, some patients improve on a protein diet and others do not. On the whole the old established prescription of a milk diet may be the most advantageous and is certainly a wise thing to use in the early stages.

In a chronic nephritis without oedema it is important to remove from the diet nitrogen-producing products. The main part of the treatment is concerned with the associated cardiac and vascular changes, chiefly high blood pressure and cardiac enlargement.

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Dr. R. R. MacGregor, Professor of Paediatrics, Queen's University, Toronto, spoke on "Common Nutritional Disturbances of Infancy Observed in Practice."

Feeding difficulties in infants, said Dr. MacGregor, may be due to intolerance to protein, to intolerance to sugar or to intolerance to fat on the part of the infant. In protein intolerance the stools are pale and show curd-like particles and in this form of disturbance a butter flour mixture which is low in protein and high in fat is of value. In cases of intolerance to sugar the infant is restless and there may be vomiting or watery regurgitation. The stools are loose, green and acid. In these cases protein milk is of value. There are at times very obstinate cases which do not respond to the use of the protein milk only, and in these cases it has been found that the addition of the butter flour mixture to the protein milk has given better results. In fat intolerance the infant is usually pale and oedematous. The stools are hard, white and crumbly. These infants show an increased tendency to infection. In this condition skimmed milk is used with a high sugar content. The sugar may be in the form of malt sugar to correct constipation. In cases showing intolerance to cow's milk there is apt to be oedema of the mouth and tongue in extreme cases, and at times one is forced to resort to the use of whey, adding cereal later. Attempts have been made to desensitize these babies with milk injections, but no important results have been obtained.

Dr. MacGregor discussed the question of diarrhoeas as producing nutritional disturbances. We have (1) the cases of fermentative diarrhoea where the stools are watery, green and acid and in which the use of protein milk is indicated: (2) putrefactive diarrhoea, where the stools are yellow and watery with bad odour and in which lactose, 10%, or maltose is of value: (3) infectious diarrhoea which runs a febrile course and where there is mucous, pus and blood in the stools. This last is a self-limited disease as in typhoid and lactic acid milk, with a moderate sugar content, is indicated: (4) intestinal intoxication or cholera infantum, in which food is either excluded or reduced until the temperature returns to normal.

Babies showing nutritional disturbances in the way of eczema do best on a lactic acid milk with a low fat content, say about 2%. In these cases evaporated milk is also of value.

The question is often asked as to whether the return of menstruation in the mother affects the baby. Dr. MacGregor advised that the baby should not be weaned on this account, as after the period is over the milk will return to normal in the majority of cases.

---

The afternoon session was opened by Dr. Gellhorn, Professor of Obstetrics and Gynaecology, St. Louis University, who spoke on the "Causes and Treatment of Vaginal Discharges." This paper, which will appear in full at a later date, discussed the various forms of vaginitis as they appear from childhood to old age. The speaker's views were exceedingly practical and in many instances of a novel character. He condemned unsparingly the use of the douche and curette. He showed an extensive series of lantern slides demonstrating the various forms of vaginitis and in many instances the means employed for their cure.

---

The next speaker was Sir Henry Gauvain who came to Canada under the auspices of the Canadian Tuberculosis Association. Sir Henry is a very charming, cultured speaker and made many friends during his stay in Vancouver. He spoke before an enthusiastic audience at the Canadian Club on some aspects of his work among crippled children, introducing to a lay audience a subject which requires for its proper development the enthusiastic support of all sections of the community. In his talk to the Summer School Sir Henry showed numerous and most interesting slides illustrating his work among crippled children in all its aspects. He began with a general view of Lord Mayor Treloar's Home for Crippled Children at Alton in Hampshire, explaining the general plan of the buildings and their arrangement with regard to the facilities for the work and the availability of a maximum sunlight exposure. "Heliotherapy," under which term he included, not only exposure to the rays of the sun, but the effect of the circulation of air on the naked body and also the use of the sprays and sea bathing which latter was conducted at a branch of the Home situated on Hayling Island. He emphasized the importance of using these things not as the only means of treatment employed, but as a valuable adjuvant to other and more direct forms of therapy. He showed numerous illustrations of the various forms of splints in use, those used for caries of the spine being particularly ingenious in form and application.

This lecture which, as we have said, was profusely illustrated, was largely introductory to Sir Henry's next lecture which will be abstracted in due course.

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The last speaker of the first day's Session was Dr. Aldred S. Warthin, Professor of Pathology at the University of Michigan, Ann Arbor,

who spoke on "The Causes of Renal Insufficiency." Dr. Warthin said that there is continual dissension between clinicians and pathologists on account of the very great difference which is found between clinical diagnosis and pathological findings. Only too often, in fact in the majority of cases coming to autopsy, it is impossible in those who, during life, have been labelled as suffering from nephritis, for the pathologist to demonstrate the effects of inflammation in the kidney. He also pointed out that patients dying of uraemia show no constant post mortem kidney findings. There is, in fact, no kidney of uraemia. It is, perhaps, the pathologist's reluctance, or may be his inability to confirm the diagnosis of a nephritis which has led to a great deal of modern controversy and research on this subject. In fact Dr. Warthin said he would go so far as to state that he could not recall a case clinically diagnosed as chronic interstitial nephritis which had received pathological confirmation.

What then may be the causes of renal insufficiency? There are many. Congenital cystic kidneys, for instance; neoplasms of the kidney or of adjacent structures; obstruction of the ureters occurring from within or without; and many more such conditions in the absence of inflammation may produce inadequacy. There are, in addition, a large number of kidneys the state of which is the effect of circulatory disturbance, which have been regarded as the kidneys of chronic interstitial nephritis. Such are the amyloid kidney, the product of prolonged suppuration, the kidney of heart disease, especially that form which affects the aortic orifice, the chronic cyanotic kidney and the kidney of infarction.

Other causes of inadequacy are directly concerned with degeneration of the tubular epithelium. There are also various forms of continued degeneration as found in the kidney of pregnancy, the kidneys of acute exophthalmic goitre and diabetes. Toxic conditions produced by substances such as mercury cause also degeneration of the epithelium of the tubules and consequent inadequacy of function.

True nephritis, that is kidneys showing an inflammation which is a real defensive phenomenon, may be either purulent or non-purulent in character and it is to the non-purulent variety that the term Bright's disease is applicable. The etiology of Bright's disease is purely infective and the streptococus in one or other of its forms is the chief agent of infection. It has long been considered that there is a protein diet origin to this disease—in other words, that prolonged or excessive indulgence over a long period of years in a diet excessively rich in proteins may result in a true nephritis. Dr. Warthin said that he did not think any such connection exists, nor between excess protein ingestion and arterial sclerosis.

As to focal infections, that is, residual latent infective foci as usually understood occurring in various parts of the body whether it be infected teeth or tonsils or a chronic gallbladder or a latent prostatitis or whatever else is usually regarded as a chronic focus of infection, all these in Dr. Warthin's experience do not seem to show any definite relationship with kidney changes leading to inadequacy or insfficiency. But a severe active streptoccic infection is a different matter; a definite in-

fective endocarditis or say a streptococcic empyaema, or abscess of the lung, or pneumonia or acute tonsillitis or even prolonged and severe attacks of boils—all these may be very closely associated with the commencement of a true nephritis leading to what we know as chronic Bright's disease and are fruitful causes of the conditions leading to renal inadequacy.

The speaker showed a remarkable and most interesting series of slides in which he demonstrated his views of this condition.

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The next day, Tuesday, September 14th, being the day of the Federal elections, only a morning session was held. At this session Dr. George Hale was the first speaker, "Functional vs. Organic Disease of the Heart" being the title of his very excellent address.

While the speaker acknowledged at the outset that the differential diagnosis was not an easy one, he deprecated what he described as the tendency of the doctor to "play safe," to protect, as he thinks, his patient in case of doubt, as well as his own reputation. The consequence is that there are too many cardiac neurasthenics, people whose lives, owing to some overcautious warnings, have been rendered miserable.

Three factors are necessary to good function: (1) strong heart muscle (2) efficient valves and (3) proper sequence of the heart beats and of these by far the most important is the first one. Irregularities of heart beat may be due to disease or dysfunction at the starting point or in the conducting system or may be due to the presence of irritable foci, usually in the auricles, producing, if there, the form of irregularity known as auricular fibrillation.

There are two types of irregularity which are distinctly of functional origin. The first of these is sinus arrythmia which is of common occurrence and of significance only in that it may at times be mistaken for auricular fibrillation. It is common, especially in children and particularly in those recovering from acute illness. This is a respiratory irregularity and purely functional in character. The other type or example of functional irregularity is that produced by the extra systole. This is the interpolation of a premature and partial beat arising in some part of the heart other than the usual site of origin of the beat. Extra systoles may occur, of course, in conditions of true organic disease of the heart, but in itself it is probably a condition without serious import. The late Sir James Mackenzie followed patients exhibiting this feature for as long a period as 25 years without finding any who developed cardiac disease.

Regarding the integrity of the heart valves the speaker said that it is important to remember that murmurs do not necessarily mean heart disease, unless associated with other signs. This is especially true with regard to systolic murmurs but with diastolic murmurs the case may be quite otherwise. These must be looked upon as definite evidence of disease in the case, for instance, of mitral stenosis, or as evidence of actual or possible myocarditis, or they may be due to damage around the aortic orifice in which case there may be associated disease., involving the orifices of the coronary vessels, possibly leading to pathological changes in the cardiac muscle.

How are we to recognize whether the heart muscle is healthy or not? In the first place it may be laid down that cardiac enlargement means diseased cardiac muscle. All experimental work goes to show that with exertion the healthy heart tends to contract and not to dilate. In the second place we are able to test the response of the heart to effort. No standard form of test has been devised and certainly we should not apply the same variety of test, whatever it is to every individual, to the elderly individual leading an ordinary sedentary life as to the hard working artisan.

It must also be remembered that there is a type of healthy heart which shows a poor response to effort. This is the so-called soldier's heart or the condition of cardiac neurasthenia.

Pain, cardiac pain, is a difficult symptom to differentiate as between the important and the less important. Even when of serious import the physical signs of cardiac disease may be few and not easy of interpretation. If the history is that of sudden, acute, agonizing pain occurring during or after exertion, and if, with a recurrence of such attacks, there is good unimpaired health between, then the diagnosis will probably be one of angina pectoris and such a history we are bound to consider seriously.

There is another form of heart disease which, while real and serious may be regarded unwittingly as only a functional manifestation, and that is chronic infective endocarditis. Early cases at all events are often overlooked and are indeed difficult to distinguish. Like many other disorders the diagnosis may be made by thinking of its possibility. We miss these cases because we do not keep them in mind. Once the possibility occurs to the physician, physical signs and symptoms may be found in plenty.

Finally to all those patients apprehensive of heart disease in whom such disease is not definitely proven, or, on very substantial grounds, suspected, give a clean bill of health. Less harm will be done.

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Following Dr. Hale's lecture Sir Henry Gauvain spoke on "Some Aspects of Surgical Tuberculosis." Commencing, the lecturer insisted that the use of heliotherapy must be regarded only as a valuable aid in treatment, not as a means of cure.

Sunlight is composed of many different rays, violet, indigo, blue, green, yellow, orange, red, and, beyond these, at either end come those numerous and invisible rays referred to as ultra violet and the infra red. Far along among the infra reds are found the waves known as "wireless," while among the ultra violets occur those of the X-Ray and radium.

It has been said that if the actual spectrum, the visible rays, were represented as one foot in length, the invisible rays would in proportion represent millions of miles.

One of the most important effects the speaker has noted as the result of heliotherapy, is the effect on the mind. In suitable doses it acts as a most exhilarating tonic but conversely, if excessively or too suddenly

applied, it is exhausting. It has been found that the mental intelligence of the crippled children undergoing this form of treatment, handicapped, as so many of them are, by disabling, confining disorders, is yet, on an average, one year ahead of the average mentality of normal children. This was a most unexpected observation and one which has excited a great deal of interest. Secondly, heliotherapy has a direct or local physical action due largely to the ultra violet rays on which pigmentation of the skin depends. As to the value of this pigmentation there is considerable difference of opinion. Sir Henry said he considers it to be of great importance and protective in effect in that good pigmenters will stand longer exposure to light and to cold air and tend to improve more rapidly than poor pigmenters. He has also noticed that patients who do not pigment well or rapidly and develop another tuberculous lesion in some remoter part of the body, will often pigment rapidly. He considers that children who pigment badly are very apt at some later date to show other lesions and in these cases the prognosis should be guarded.

Finally there are certain remote or indirect effects produced by heliotherapy due, again, especially to the ultra violet rays. These have the power of increasing the bactericidal power of the body, of the blood. This increased immunity lasts for 2 or 3 hours only and may be renewed by subsequent exposures. Conversely and particularly in elderly patients, the bactericidal power may be lowered if the amount of exposure is at all excessive. Radiation should therefore be used with great caution. If blood is removed from the body and subjected to radiation this increased bactericidal effect is not noted, but if the blood so exposed is then re-injected, the increased bactericidal power is then found in the whole blood of the individual. Light also increases the iron content of blood and is found to be very beneficial in combatting the anaemia of the tubercular patient.

A very considerable increase in the basal metabolism of the patient is constantly noted as the result of exposure to light or rather as the result of exposure to light and air and is common both in pigmenters and non-pigmenters. Moreover the increase is found to be greater in the winter than in the summer.

There is also a marked analgesic effect to be obtained from light especially in abdominal cases, such as mesenteric tuberculosis, which may at times be of such severity as to simulate, and even be operated upon as appendicitis. Whlie useful in cases of tuberculous glands, the effect of the X-Rays is here more satisfactory.

At the conclusion of the lecture, which was his last appearance before the School, Sir Henry Gauvain was tendered a hearty vote of thanks and in reply expressed his great appreciation of the hospitality he had enjoyed and of the attention with which his remarks had been received.

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The final lecture of the day was delivered by Dr. Fraser Gurd, Associate in Surgery, McGill University, the subject being "Empyaema, acute and chronic." As chronic empyaema, the speaker said, was to be

later discussed by Dr. Hedblom, whose experience in that disorder was probably unequalled, he, Dr. Gurd, would confine his remarks almost wholly to the acute variety under the following headings: (1) post lobar pneumonia (2) post lobular pneumonia (3) empyaema occurring in infants and young children and (4) tuberculous empyaema. It was important to differentiate the first two varieties as both treatment and prognosis varied in each.

Following lobar pneumonia empyaema occurs as a sequel, not as a complication. It occurs following an inflammation when the immunological state of the body is highly elevated. Moreover, the surrounding lung is fixed by fibrinous exudate to the neighbouring chest wall, which fixation prevents not only the diffusion of the pus but the collapse of the lung when the cavity is opened.

The treatment, therefore, is correspondingly simple and easily carried out. Exploratory aspiration is made and pus being found, thick and creamy, it is safe and proper, in adult patients, immediately to operate. Rib resection is the operation of choice under local anaesthesia if preferred, though there is no reason, the speaker said, why nitrous oxide and oxygen should not be used, for the possitive pressure produced by the anaesthetic may aid against collapse of the lung.

Three centimetres of rib should be removed, usually the 7th or 8th about the posterior axillary line. There is, however, no definite site and the appearance of a prominence or bulging in the chest wall is an indication for the choice of that area. The opening should not be too low as elevation of the diaphragm may occur when pressure is released and block the opening.

The incision should be large enough so that two fingers at least may be introduced, as fibrinous coagula are often found, which must be removed at the time of operation if drainage is to proceed satisfactorily. So far as possible, too, the fibrinous exudate is gently sponged off the walls of the cavity. The drainage tube, of a lumen of 1 to 1½ c.m., should be fish-tailed at the end to avoid possible erosion of a vessel.

There is a tendency for necrosis to attack the exposed ends of the rib and in order to lessen the frequency of this occurrence, the wound, prior to opening through the pleura, receives an application of Bipp. Since adopting this procedure such infections have been rare.

The outer dressings only are changed during the first day or two, but at the end of 48 hours the Carrel-Dakin system of irrigation is instituted and carried on hourly during the day and two-hourly during the night for 3 days. At the end of this time the tube is removed and daily irrigations carried on through a soft rubber catheter until, at the end of 7 days, the cavity may be found obliterated. Air and sun are valuable adjuncts. To encourage an occasional coughing spell is a better means of expanding the lung than the use of blow bottles.

Post lobular pneumonia empyaema is a real complication and not a sequel. The patient has shown his immunological inability to deal with the infecting organisms and, moreover, there is entire absence of

fixation of the lung to the chest wall, such as is often found following lobular pneumonia. Empyaema in these cases is caused by the rupture of a subpleural abscess infecting a previous serous effusion. The infecting organism is often a haemolytic streptoccccus, rarely a pneumococcus. Operation must be delayed. Aspiration may and should be done one or many times for a period of 7 to 10 days until the exudate assumes a definitely purulent character. In this condition airtight intermittent drainage may have certain advantages as there are no fibrinous coagula to be removed.

In this variety coincident spontaneous opening of the empyaema into a bronchus is frequent. Therefore, if irrigation of the cavity is contemplated, Dakin's solution must be used with caution, or only after preliminary irrigations and filling of the cavity with saline.

Empyaema in infants and young children is always of this lobular pneumonia type and closed methods of treatment must be used exclusively. Three days is the longest time this form of drainage can be maintained. At the end of that period the tube must be withdrawn and the wound sealed. If the fluid reaccumulates the whole process must be repeated.

Tuberculous empyaema was only referred to as time did not permit of further consideration.

* * *

## VANCOUVER GENERAL HOSPITAL LABORATORIES.

### BLOOD SPECIMENS FOR ANALYSIS.

The following points are to be noted when procuring blood for chemical examination in the laboratory:

*Table of Chemical Tests of Blood.*

| No. | Test | Form | Amount |
|---|---|---|---|
| 1 | Non-protein nitrogen | Unclotted blood fluid | 6 cc. |
| 2 | Urea nitrogen | " " " | 6 cc. |
| 3 | Creatinine | " " " | 6 cc. |
| 4 | Uric acid | " " " | 6 cc. |
| 5 | Sugar | " " " | 3 cc. |
| 6 | Fragility | " " " | 1 cc. |
| 7 | Van Slyke $CO_2$ determination | " " " | 7 cc. |
| 8 | Calcium | Serum from clotted blood | 6 cc. |
| 9 | Phosphorus | " " " " | 6 cc. |
| 10 | Van den Bergh | " " " " | 6 cc. |
| 11 | Wasserman | " " " " | 5 cc. |

(Although each test by itself requires 6 cc. of blood any two different tests may be made on the same 6 cc. If more than two different tests are required, 11 cc. will prove sufficient.)

Tests 1-6 require an anticoagulant to keep the blood fluid. For specimens taken in the hospital and laboratory, potassium oxalate (20%) is used. One drop of this solution (from a dropping bottle) is sufficient

for 6 cc. blood. The blood is expelled immediately from the syringe into a tube containing the oxalate and the tube inverted several times and complete mixing insured, except when the blood is for a Van Slyke determination. Specimens required for N.P.N., creatinine, urea and uric acid should be examined as soon as possible, preferably within an hour; but if kept on ice over night the result is sufficiently accurate for clinical purposes. The blood for sugar determination on the other hand must not be left standing, for within half an hour an appreciable loss of sugar may occur. The blood for fragility determination should be examined immediately. It is therefore imperative that such samples of blood be procured only when the determination can be proceeded with at once.

When the specimen for tests 1-5 are to be taken outside the hospital a preservative must also be added; but for this a mixture of thymol and sodium fluoride (thymol, 1 part; sodium fluoride, 9 parts) is used. One cubic centimetre of blood requires 0.011 gms. of this mixture, which will preserve blood for 5-6 days and the value for N.P.N., urea nitrogen, uric acid, creatinine and sugar will have the same clinical significance as those values obtained from immediate analysis of the blood. The urea nitrogen, uric acid, creatinine and sugar content of the blood can thus be held constant for at least two weeks; but the N.P.N. tends to increase.

The blood for the Van Slyke determination must be taken without the use of a tourniquet and with as little restriction to the circulation as possible. The puncture needle is attached to a glass tube reaching to the bottom of a test tube in which has been placed 2 to 3 cc. of paraffin oil and a pinch of powered potassium oxalate. No suction should be used to withdraw the blood, or CO2 will be liberated from solution in the blood. When sufficient blood has been obtained, mixing of the blood and oxalate can be accomplished by stirring gently with the glass tube.

Fresh serum is required for the calcium and phosphorus determinations, though we have found that an hour's standing has no apparent affect. The Van den Bergh Test also calls for fresh serum; also special care must be taken to obtain serum free from haemoglobin for a parallel test, (the Icterus Index) which is merely a determination of the depth of colour of the serum.

Blood for Wasserman tests should be collected in clean tubes, with aseptic precautions, and placed on ice soon *after* clotting. Undue agitation or marked contamination may render the serum anticomplementary.

* * *

## SODIUM BICARBONATE FOR INTERSTITIAL ADMINISTRATION

It has long been a problem to obtain neutral solutions of sodium bicarbonate for medical purposes. The solution during sterilization, and even on standing at room temperature exposed to the air, loses CO2 leaving in solution sodium carbonate. The sodium carbonate hydrolyzes giving a solution which is physiologically strongly alkaline. Dry sodium bicarbonate is extremely stable at ordinary temperatures but begins to de-

compose at 70 deg. C. The decomposition is slow at 100 deg. C. and rapid at 120 deg. C. (Dry sterilization is usually carried on between 150 deg. and 160 deg. C for one hour). In solution, and exposed to the air, it decomposes slowly until an equilibrium is reached with only 12% of the original bicarbonate present. Raising the temperature lessens the proportion of sodium bicarbonate which can exist in such solutions in equilibrium with air. The solution is only stable when an excess of CO2 is present and when saturated with CO2. Under such conditions only 0.04% of the salt decomposes.

The loss of CO2 from a solution of bicarbonate is conditioned by:

1. The weakness of the H2CO3 (carbonic acid) as an acid.
2. The acid character of the NaHCO3 (sodium bicarbonate).
3. The ready dissociation of H2CO3 (carbonic acid).
4. Low solubility of CO2 in water.

Several suggestions have been made to prevent the decomposition of the bicarbonate in solution.

Urbain found that dissociation is retarded when the solution contains sugar or gum. R. Henderson and O. Black, found that the addition of sodium hydrogen phosphate (Na2HPO4 NaH2PO4) helps to maintain the neutrality for medical purposes.

Some time ago we tried different methods of sterilization and tested various solutions with a view to determining some method of preparing sterile neutral sodium bicarbonate in solution.

| SOLUTION | METHOD OF STERILIZATION | TIME STANDING AT ROOM TEMP. | DECOMPOSITION |
|---|---|---|---|
| Solution from Operating Room | Operating Room Autoclave | Some Days | 33% |
| Solution made up freshly in Laboratory | Not Sterilized | 0 | No decomposition |
| Solutions made up freshly in Laboratory | Not sterilized | Not over 3 hours | 7% |
| Solutions made up freshly and put in bottles with ground glass stoppers | Laboratory Autoclave | Not over 3 hours | 22% |
| Solutions placed in flask with cotton plug | Laboratory hot air sterilizer 200 deg., 1 hr. | Not over 3 hours | 89% |
| Solutions placed in flask with cotton plug | Laboratory hot air sterilizer 150 deg.-160 deg 1 hour | Not over 3 hours | 74% |

| | | | |
|---|---|---|---|
| Solution freshly made up and saturated with $CO_2$ | Operating Room Autoclave | Not over 5 hours | 32% |
| Solution freshly made up and saturated with $CO_2$ | Laboratory Autoclave | Not over 3 hours | 29% |
| Powder in ampoules | Laboratory Autoclave | Immediately | 21% |
| Powder in ampoules | Laboratory Autoclave | 12 hours | 6% or less |

The solutions tabulated were all analyzed by means of the Van Slyke $CO_2$ apparatus which proved very satisfactory. The $CO_2$ was liberated from solution by an acid and the amount of gas measured. In this way the volume of $CO_2$ lost could be accurately measured. The solutions were also checked by titration.

Hence, the method of sterilizing in ampoules was the only satisfactory method tried. Test tubes were taken, drawn out to a narrow neck with the blow torch, and a weighed amount of the sodium bicarbonate introduced, using the top as a funnel. The tube was then sealed without heating the salt. These ampoules were sterilized in the autoclave at 120 deg. C (15 lbs. pressure). The heating decomposed sufficient of the salt to make this a wet sterilization, as evidenced by the water of condensation apparent on removing the ampoules from the autoclave. Strings containing spores were enclosed in several ampoules and cultures of them showed no growth. If these ampoules are opened immediately they show considerable pressure and about 25% of the salt is decomposed. If left for twelve hours the water of condensation disappears, and on opening there is no pressure and less than 6% of the salt is decomposed.

—*DONNA E. KERR.*

* * *

## B.C. MEDICAL ASSOCIATION NEWS.

Dr. and Mrs. George E. Darby of Bella Bella, B.C., are to be congratulated on the birth of a son, September 13th.

"Holiday House" is the form of the memorial planned in memory of the late Dr. Alison Cumming by the Vancouver Graduate Nurses' Association. This institution will be for the use of nurses and mothers in need of rest.

Dr. L. A. Patten, of Chilliwack, is taking his usual annual "hunting" vacation as from September 20th. His practice will be taken care of by Dr. H. H. Caple.

There was an excellent attendance at a luncheon meeting held by the B.C. Medical Association on the 15th of September, in honour of the visiting speakers to the Vancouver Medical Summer School, when Dr. T. C. Routley (General Secretary of the Canadian Medical Association) gave an able and particularly instructive address on the value of "Organization in Medicine." Dr. Wilson (Vice-President of the provincial Association) took the chair.

These luncheon meetings have become very popular and it is hoped to hold them more frequently in the future. Another will be held in the Hudson's Bay Store (Private Dining Room) on Wednesday, October 6th, when our guests of honour will be Drs. D. S. MacKay, B. J. Brandson and D. Nicholson, all well known Winnipeg doctors who are touring British Columbia in connection with the Extra Mural Post-Graduate Scheme.

The following information re the forthcoming Post-Graduate Tour should be noted by "out-of-town" doctors. Cranbrook meeting will be held at the St. Eugene Hospital at 2 p.m., Saturday, September 25th. Nelson meetings in the afternoon and evening of September 29th. Kamloops (including the annual meeting of the Okanagan Medical Society) on September 30th. Victoria on October 2nd and 4th, with luncheon on October 4th. Nanaimo on October 5th. New Westminster October 6th. Luncheon, Vancouver, (B.C. Medical Association), October 6th. Prince Rupert October 9th. Prince George October 12th.

The lecturers will be prepared to take the following subjects:

Dr. D. S. MacKay—

1. Uterine Haemorrhage.
2. Pelvic Congestion.
3. Pelvic Infection.
4. Septic Uterus.

Dr. D. Nicholson on—

1. The Prevention of Contagious Diseases. Diphtheria (Schick Test), Scarlet Fever (Dick Test), Smallpox, etc. (New methods of Vaccination).
2. Laboratory procedures for office and bedside.
   Haemorrhagic disease of the newborn with demonstrations.
   Bleeding time and coagulation time. Gastric analysis—smears of pus. Renal Function, etc.
3. What remedies should we use?
4. Inflammation.
5. Recent advances in the treatment of malignancy.
6. Cures (Popular).

Dr. B. J. Brandson—

1. Appendicitis and some of its problems.
2. Management of duodenal ulcers.
3. Sarcoma of bone.

A cordial invitation is extended to the members of the Vancouver Medical Association to attend the Post-Graduate Meeting at New Westminster on the evening of October 6th.

Dr. H. H. Murphy fo Kamloops will represent the B.C. Medical Association at the Cranbrook, Nelson and Kamloops Meetings. Dr. H. E. Ridewood at Victoria and Nanaimo. Dr. Lyall Hodgins, Chairman of the B.C. Medical Publicity and Educational Committee, at New Westminster, Prince Rupert and Prince George.

Dr. H. B. Rogers of Chemainus, is taking a month's vacation from September 10th.

Dr. Alan Beech has left Cowichan Lake to engage in practice with his brother at Salmon Arm. Dr. K. I. Murray, of North Vancouver, has gone to Cowichan Lake as assistant to Dr. E. L. Garner.

Dr. G. F. Young, of Michel, B.C., spent two weeks' holiday on the coast in September.

Dr. L. W. Kergin, of Prince Rupert, recently made one of his rare visits to Vancouver where he was kept very busy renewing old friendships.

At a recent meeting of the Prince Rupert District Medical Society, Dr. J. P. Cade was elected President and Dr. L. W. Kergin, Secretary.

Dr. R. C. Weldon, late of Natal, B.C., has started practice in Vancouver. Dr. Weldon has been absent from the province during the last two years, taking Post-Graduate work in Europe.

Dr. Carl Ewert, of Prince George, is in the east taking Post-Graduate work. He will be away for about two months. His colleague at Prince George, Dr. E. J. Lyon, is taking care of his practice.

* * *

## ANNUAL DUES.

The Treasurer desires to again call the attention of the members to the fact that fees for the current year were due and payable last April. The early remittance of these fees would much facilitate the work of the Executive, and avoid the necessity of issuing drafts later, at a time when, perhaps, money is less readily available.

* * *

Diagnostician and criminal detective have this in common: that for each the discovery of a clue is a first and an essential step in the train of reasoning. Each in his own field must be quick to sense the possibilities suggested by the infinitesimal deviation from the normal; the detective by a blood stain or a bit of ash, the medical man by a tiny gland or a barely palpable spleen. (Freemont Smith)

# CITY HEALTH DEPARTMENT

Vancouver, B.C.

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## STATISTICS — AUGUST, 1926.

| | |
|---|---|
| Total Population (estimated) | 128,366 |
| Asiatic Population (estimated) | 10,100 |

| | | Rate per 1000 of Population |
|---|---|---|
| Total Deaths | 100 | 9.1 |
| Asiatic Deaths | 18 | 21.0 |
| Deaths (Residents only) | 69 | 6.3 |
| Total Births | 277 | 25.4 |
| Male, 150 | | |
| Female, 127 | | |
| Stillbirths—not included in above | 11 | |

INFANTILE MORTALITY—

| | |
|---|---|
| Deaths under one year of age | 7 |
| Death rate per 1000 Births | 15.3 |

## CASES OF INFECTIOUS DISEASES REPORTED IN CITY

| | July, 1926 | | Aug., 1926 | | Sept. 1st, to 15, 1926 | |
|---|---|---|---|---|---|---|
| | Cases | Deaths | Cases | Deaths | Cases | Deaths |
| Smallpox | 0 | 0 | 2 | 0 | 1 | 0 |
| Scarlet Fever | 4 | 0 | 5 | 0 | 7 | 0 |
| Diphtheria | 11 | 0 | 11 | 1 | 8 | 1 |
| Chicken-pox | 16 | 0 | 4 | 0 | 2 | 0 |
| Measles | 69 | 1 | 25 | 0 | 7 | 0 |
| Mumps | 1 | 0 | 3 | 0 | 1 | 0 |
| Erysipelas | 2 | 0 | 1 | 0 | 2 | 0 |
| Whooping Cough | 1 | 1 | 0 | 0 | 2 | 0 |
| Tuberculosis | 9 | 12 | 11 | 7 | 7 | 0 |
| Typhoid Fever | 1 | 0 | 0 | 0 | 3 | 0 |
| *Cases from outside city included in above.* | | | | | | |
| Diphtheria | 1 | 0 | 3 | 1 | 1 | 0 |
| Scarlet Fever | 3 | 0 | 0 | 0 | 0 | 0 |
| Typhoid Fever | 1 | 0 | 0 | 0 | 3 | 0 |

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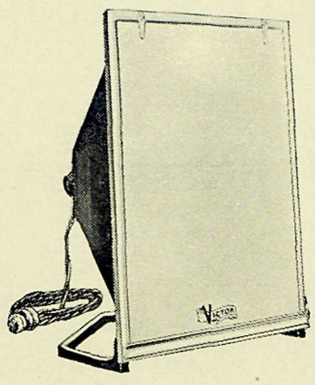

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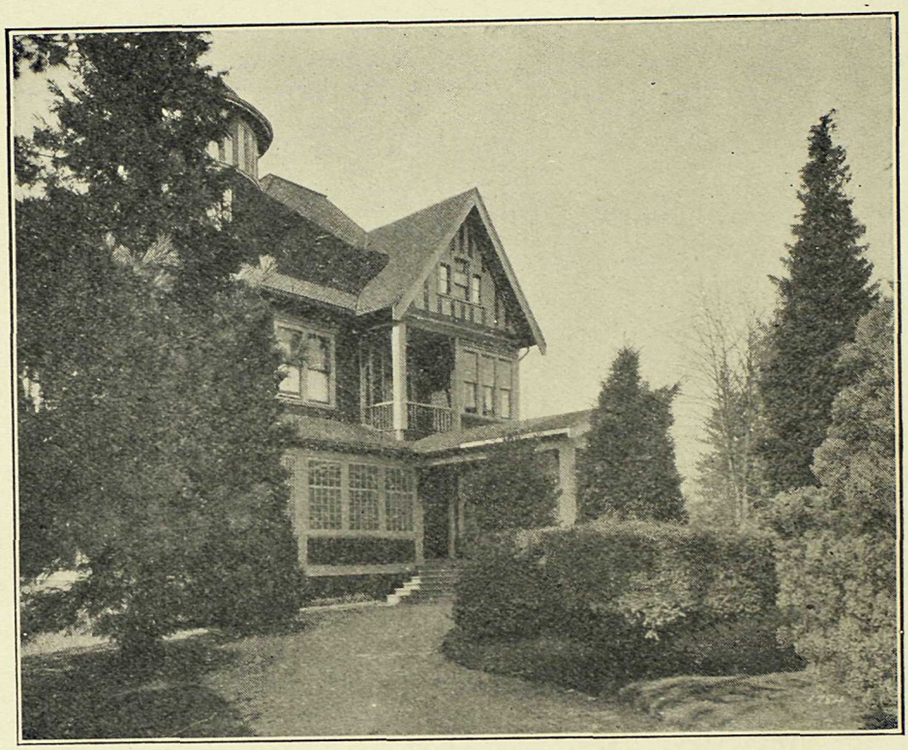

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