THE VANCOUVER MEDICAL ASSOCIATION

BULLETIN

Published monthly at Vancouver, B. C.

A New Dialyzing Membrane

Workmen's Compensation Legislation

Open Air School

Cardiac Pain

FEBRUARY, 1926

Published by
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THE VANCOUVER MEDICAL ASSOCIATION

BULLETIN

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Offices:
529-30-31 Birks Building, 718 Granville St., Vancouver, B. C.

Editorial Board:
DR. J. M. PEARSON
DR. J. H. MACDERMOT DR. STANLEY PAULIN

All communications to be addressed to the Editor at the above address.

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VANCOUVER MEDICAL ASSOCIATION.

Founded 1898. Incorporated 1906.

Programme of the 28th 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.

1925.

OCTOBER 6th—	*General Meeting.* Presidential Address: DR. J. A. GILLESPIE. "The Progress and Future of Medicine."
OCTOBER 20th—	*Clinical Meeting.*
NOVEMBER 3rd—	*General Meeting.* Paper: DR. HIBBERT WINSLOW HILL. "The Part Played by the Laboratory in Clinical Medicine."
NOVEMBER 17th—	*Clinical Meeting.*
DECEMBER 1st—	*General Meeting.* Paper: DRS. WALLACE WILSON and LYALL HODGINS. "Intravenous Therapy."
DECEMBER 15th—	*Clinical Meeting.*

1926.

JANUARY 5th—	*General Meeting.* Paper: DR. G. F. STRONG. "Cardiac Pain."
JANUARY 19th—	*Clinical Meeting.*
FEBRUARY 2nd—	*General Meeting.* Papers: DR. J. TATE MASON, of the Mason Clinic, Seattle. "Surgical Treatment of Thyroid Diseases." DR. LESTER J. PALMER, of the Mason Clinic. "Some Phases of the Diabetic Situation." DR. MASON will probably give a Clinic at the V.G.H. on the morning of Feb. 2nd.
FEBRUARY 16th—	*Clinical Meeting.*
MARCH 2nd—	*General Meeting.* The OSLER LECTURE. DR. E. D. CARDER.
MARCH 16th—	*Clinical Meeting.*
APRIL 6th—	*General Meeting.* Urological Evening. DRS. B. H. CHAMPION, G. H. CLEMENT, G. S. GORDON, and A. W. HUNTER, on "Problems in Urological Diseases."
APRIL 20th—	*ANNUAL MEETING.*

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EDITOR'S PAGE.

It appears that two medical practitioners in England have lately been disciplined by the General Medical Council for unprofessional conduct. The conduct complained of in one of these cases would seem to involve the question of the publication of matters deemed to be advertising.

This procedure has aroused a good deal of discussion in and by the press, and may, it is said, be the subject of questions in the House of Commons—thus constituting a domestic storm the reverberations of which have been heard in quite distant quarters.

The gist of the comment is that the medical profession is advised to mend its ways, to abjure its mediæval habit, to live in the public gaze, and, above all, to change its attitude towards publicity in the form of advertising. In so doing it will get into step with the remarkable progress which is so noticeable in other branches of human activity.

We can agree that publicity or advertising (the terms are interchangeable) is the feature of the age. Ordinarily, commercial advertising has had in view the bringing to public attention of new inventions or improvements or of a specific article or want. In this way, also, the public is familiarized by constant repetition with the name of a firm or its product. To this has gradually been added a more specious form which seeks to create a want where none existed. A further development has been utilized by large institutions and public utility concerns in giving details of their business with a view to disarming criticism or securing co-operation or acquiescence from their patrons or the public.

We have been puzzled to know into which of these categories medical advertising would fit. Obviously if one is to advertise, all may do so, and the publication of a long list of doctors, with or without their qualifications, would mean no more benefit to the individual doctor or to the public than now results from the list in the classified section of the telephone directory. Even if more of a display form of advertisement were used, the same reasoning would apply. Advertising agencies would doubtless profit and the testimonial bureaux might recapture some of the easy money with which they were credited during the palmy days of the patent medicine era. The public indeed would have rather less means of discriminating than at present.

As matters stand now, the ancient and disreputable attitude of the medical profession is fairly common knowledge, so that people may infer that when medical advertisements do appear they are not of those who follow after the order of Melchizedek. Moreover, we believe that, as most of us are compelled at some time to entrust our families and ourselves to the care of the medical profession for want of a better substitute, some degree of reticence

is desirable on the part of those who share our secrets and see us when we are not equipped for the public eye.

As to the more general forms of publicity, we agree that increased knowledge is desirable. Just how far that can be conveyed by lectures, talks or special articles in magazines, is uncertain. In any event we must not forget that the mental perturbation which may be produced by a partial grasp of information is at times, as we know all too well, very alarming in certain types of personality. More probably a complete appreciation, if it ever comes, of disease and its ramifications, will come slowly as the result of a more complete general education which has as its ultimate purpose the promotion of sound judgment.

* * *

OPEN AIR SCHOOL.

At the Clinical Meeting of the Association, held on the 19th January, Dr. H. White, School Medical Officer, made an announcement with reference to the Open Air School to be opened on the 1st of February, on Clark Drive, near Kingsway. Dr. White urged the members to make use of this school in the treatment of under-nourished children, those suffering from anæmia, enlarged glands, early symptoms of chorea, and those having a history of exposure to (though not et showing any active symptoms of) tuberculosis; also children whose home surroundings are so unsatisfactory that a regular regimé, with plain, wholesome food, fresh air and sunshine, would benefit them. *No open cases nor any showing active symptoms of tuberculosis will be accepted.* The usual open air treatment will be given, as well as extra milk morning and evening, and a hot meal will be served at the school at noon. Parents of children may or need not pay, according to their financial position.

* * *

NEWS AND NOTES.

At the regular monthly meeting of the Association, held on January 5th, Dr. G. F. Strong gave an interesting paper on "Cardiac Pain," which is published in this issue.

We are very glad to say that Dr. O. S. Large is recovering satisfactorily from the effects of the accident sustained in a collision between his automobile and a street car, on Granville bridge, shortly before Christmas.

We take pleasure in reminding our readers that at the next General Meeting of the Association, on February 2nd, Dr. J. Tate Mason and Dr. L. J. Palmer, of Seattle, will be the speakers. Dr. Mason will give a clinic on the morning of that day at the Vancouver General Hospital. We are hoping for a large attendance both morning and evening.

Since our last issue appeared, the Board of Directors of the Vancouver General Hospital has appointed the Visiting Staff for the ensuing three years. The appointments are as follows:—

Medicine—Drs. F. J. Buller, Alison Cumming, B. D. Gillies, Lyall Hodgins, G. F. Strong and Wallace Wilson.

Surgery—Drs. J. H. MacDermot, P. A. MacLennan, H. W. Riggs, A. B. Schinbein, G. E. Seldon, and J. W. Thomson.

Dermatology—Drs. J. Christie and T. R. B. Nelles.

Neurology—Drs. F. Brodie and W. F. MacKay.

Orthopædics—Drs. F. C. McTavish and F. P. Patterson.

Urology— Drs. B. H. Champion and A. W. Hunter.

Psychiatry—Drs. W. A. Dobson and J. G. McKay.

Pædiatrics—Drs. E. D. Carder and C. C. Covernton.

Tuberculosis—Drs. P. W. Barker and C. H. Vrooman.

Gynæcology—Drs. W. B. Burnett and J. J. Mason.

Appointments in the Eye, Ear, Nose and Throat, and Dentistry sections, were deferred.

In a reprint from the U. S. Public Health Reports, dated June 26th, 1925, recently received in the Library, the attention of the medical profession is called to the occurrence during the years 1921 to 1925 of eleven cases of tetanus (nine of which were fatal) following the use of bunion pads as a dressing after vaccination. On an investigation of 200 pads of the makes used in these cases, approximately 25% were found to contain tetanus organisms. This clearly indicates the danger of using bunion pads or anything except clean surgical dressings following vaccination.

The Summer School Committee has fixed upon the week of September 13th as the date for this year's meetings. The Committee is working upon a plan whereby it is hoped to augment the regular session by speakers obtained through the Canadian Medical Association scheme for postgraduate medical instruction.

The monthly Clinical Meeting of the Association was held on January 19th. Dr. A. J. MacLachlan presented a case of a man, æt. 64, with good personal and family history, with negative Wasserman, in which a condition of myocarditis with heart block was obvious. The ventricular rate was 22 per minute, and the auricular rate about 70. Patient gave a history of having suffered from transient attacks of faintness without loss of consciousness and with attacks of blindness. B. P., 220/64. Dr. MacLachlan showed the electrocardiograph tracings and X-rays. There was a loss of weight from 180 to 135 pounds in a period of 18 months. The blood vessels were much thickened.

Dr. W. D. Patton presented an interesting case, thought by him to be polycythæmia. The patient was a woman of 50, with good personal and family history. She had recently noticed that her hands and face became flushed while working, and in July, 1925, had a sudden protrusion of painful hæmorrhoids. Hæmor-

rhoidectomy was done on July 14th by clamp, and cautery method under general anæsthetic, followed by marked and prolonged nausea with fullness in the head, congestion of conjunctivæ commencing three days after operation, sore eyeballs, generalized abdominal distress, irritation while passing urine, with a distinct red flush, with tenderness over each shin. Thirty-six days after operation, nausea and vomiting were still present, with pulse of 100, irregular temperature and marked acetone reaction in urine, but no sugar or albumen. B.P. 165. W.B.C. 7,000. Polys 70%. R.B.C. 4,200,000. Hg. 61% (although Talquist scale showed 90%). Blood sugar normal, blood culture negative. Glucose with insulin rapidly removed the acetone, but nausea continued. Patient regained strength and weight, but oedema of the feet became more marked and the eyelids were swollen. Examination of the fundi by Dr. E. H. Saunders showed marked venous engorgement. In the discussion which followed the question was raised as to this being a true polycythæemia or erythræmia, in the presence of the low red cell count and Hg. index, with absence of palpable enlargement of liver and spleen. Dr. Patton quoted exhaustively from the literature to prove his contention. In discussing treatment, it was generally accepted that benzol and X-rays were no longer considered of special benefit, but that phenylhydrazin hydrochloride and blood letting are the most satisfactory therapeutic agents.

Dr. F. P. Patterson presented three cases of paralysis which had become noticeable at varying periods after fracture or dislocation, although no nerve lesion had been noticed by either patient or doctor at the time of the accident. One case was a dislocation of the head of the femur with crushing of the acetabulum, with subsequent foot-drop owing to the dislocation not having been reduced and pressure on the peroneal part of the great sciatic nerve in the sciatic notch.

Another case was a fracture of the bones of the forearm through being caught by a belt, with subsequent wrist-drop, which upon investigation disclosed a neurofibroma in the musculo-spiral nerve between the nerves of supply of the supinatus longus and external head of the triceps, although no evidence of tissue injury was noticed at the operation.

The third case was somewhat similar. The man had been caught by a belt, with outward dislocation of the elbow joint and a large cut across the pectoral muscles, exposing the axillary vessels. He developed wrist-drop and anæsthesia to near the elbow joint. The musculo spiral nerve was exposed and about three inches were found to be considerably compressed by fibrous tissue which was dissected away from the nerve, the latter being embedded in muscle. Up to date nothing has been done in the region of the axillary wound, but improvement is now quite noticeable both in the region of the musculo spiral and ulnar distribution.

Dr. Patterson called special attention to the necessity for immediate investigation of the possibility of nerve lesions in all cases of fracture and dislocation.

* * *

VANCOUVER GENERAL HOSPITAL LABORATORIES.

A STERILIZABLE DIALYZING MEMBRANE. H. W. HILL, M.D., D.P.H., L.M.C.C., DIRECTOR VANCOUVER GENERAL HOSPITAL LABORATORIES; PROFESSOR OF BACTERIOLOGY, AND OF NURSING AND PUBLIC HEALTH, UNIVERSITY OF B. C.

In searching for a sterilizable dialyzing membrane, a suggestion came from the Christmas festivities of 1925, which presented much candy and many candy-boxes enclosed in transparent glistening sheets of "paper." The resemblance of this "paper" to thin sheets of collodion induced me to try its dialyzing powers, which for silver nitrate, sodium chloride (Donna E. Kerr and H. W. Hill, independently), and glucose (Donna E. Kerr), proved perfect. The next step was to test its resistance to sterilization. Fifteen pounds steam pressure for twenty minutes in the ordinary laboratory autoclave left it unchanged in appearance, feel, etc.; and its dialyzing qualities were unaffected (Donna E. Kerr).

The various uses of such a membrane in physics, chemistry, and especially in biology and bacteriology, both scientific and applied, are obvious, and need not be enlarged upon here. With Dupont's Household Cement, probably collodion dissolved in acetone (R. E. Coleman), the sheets may be made up into tubes, into flat, square or round bags, etc., etc. Diaphragms may be cemented across bowls or beakers, or glass tubes, etc. It would appear to make practicable a whole field of bacteriology as yet hardly explored.

The material is said to be named "cellorhane," and to be made in France (now made by the Dupont Company of U. S. A.). It sells wholesale at about 25 cents a square yard. So far as we have been able to discover, this substance has not been previously advocated as a sterilizable dialyzing membrane, for the above purpose.

* * *

IN LIGHTER VEIN.

From the V. G. H. Laboratories.

It has been reported that a certain young lady, who has been under very close observation for diabetes mellitus, was completely cured by drinking "radioactive" water from a well-advertised jar. The truth is that, after four months' consumption of six to eight glasses of the water per diem, no change has been demonstrable. A possible reason for the apparent failure is suggested in the 21st November issue of the *Journal* of American Medical Association, where it is stated that to obtain the very minimum of demon-

strable therapeutic effect one would have to consume at least 120 gallons, or sixty jars, of the water each twenty-four hours. One hundred and twenty gallons is twenty-four hundred glasses, or almost two glasses every minute of the day and night. As the young lady has to earn her living, suppose she were to devote two hours of the morning and four hours of the evening to the "good of her health" (?) she would have to drink a glass every nine seconds.

* * *

PULMONARY TUBERCULOSIS.

Summary of Cases Discharged from the Vancouver General Hospital in 1924.

REPORT MADE TO THE STAFF OF THE HOSPITAL BY THE DEPARTMENT OF TUBERCULOSIS.

Total discharges	123
Conditions on Admission—	
Far advanced	103, or 84. %
Moderately advanced	18, or 14.5%
Incipient	2, or 1.5%
Number with positive sputum	110, or 89 %
Number with negative sputum	13, or 11 %

Note.—About six with "negative sputum" had no sputum examined or only one sample.

Condition on Discharge—	
Died	58, or 47%
Unimproved	32, or 26%
Improved	33, or 27%
	123

Longest stay in Hospital of those who died	710 days
Shortest stay in Hospital of those who died	2 "

Died within 60 days or less of admission	35
Discharged unimproved within 60 days or less of admission	26
Total terminal cases	61
Number who had a chance of improvement	62
	123

Results in 62 cases admitted in adequate time for some effective treatment—	
Died	23
Discharged unimproved	6
Improved	33
	62

Classification according to symptoms—

Severe	79
Moderate	38
Slight	5

CONCLUSIONS:

1. Fifty per cent. of cases admitted have no chance of even improvement. They either do not seek medical aid until too late, or are not diagnosed early enough.
2. Of those who live longer than 60 days, over 50% show improvement and qualify for sanatorium treatment.
3. The means of isolating dying cases from those who have a chance, are inadequate.
4. The total accommodation for tuberculosis is most inadequate—eight and nine patients frequently have to be accommodated in other wards of the Hospital waiting for room in Ward "O." It is also well known that patients have to be kept at home for weeks because of lack of accommodation.
5. The accommodation that would be provided in the building formerly occupied by the University should not be alienated for any other purpose. It is all needed at once for tuberculosis patients. The health of the community is suffering now because of the lack of this accommodation.
6. Histories for the tuberculosis patients are not being written, and there is not an adequate interne service on Ward "O."
7. Ward "O" does not protect the community from a number of advanced and infectious cases.
8. Ward "O" does give a chance for life to a number of cases who otherwise would have no chance. Thirty-three were discharged improved.

   A number of those under sanatorium or home supervision have had their disease arrested and have been able to return to work.

* * *

WORKMEN'S COMPENSATION LEGISLATION.

BY E. S. H. WINN, ESQ., K.C., CHAIRMAN WORKMEN'S COMPENSATION BOARD OF B. C.

The principle of systematic compensation for losses due to industrial accident has been known in Europe for over a century, the earliest examples being found in the mining industries. As these industries were the first to be operated on a large scale with large numbers of employees whose lives and safety depended on the care and skill of the manager and of their fellow workmen, and, in addition, at a high danger rate, it was but natural that attempts should be made to provide in a definite manner for the relief of the distress of employees caused by accidental injury or other physical disability.

Compensation to workmen injured by accident arising out of and in the course of their employment, like many other ideas involving the progress of civilization, was a slow growth. Emerging from the hard soil of economic study in the books of the German scholar Schaeffle, the idea gained the power and force of official recognition by being embodied in the social insurance system of Germany promulgated by William I and Bismarck.

The emperor's famous message to the Reichstag on November 17, 1871, said in part: "We consider it our imperial duty to impress upon the Reichstag the necessity of furthering the welfare of the working people . . . . a bill for insurance of workmen against industrial accident will first of all be laid before you; after which a supplementary measure will be submitted providing for a general organization of industrial sick relief insurance. Likewise, those who are disabled in consequence of old age or invalidity, possess a well-founded claim to more ample relief on the part of the state than they have hitherto enjoyed. To devise the fittest ways and means for making such provision, however difficult, is one of the highest obligations of every community, based on the moral principles of Christianity."

A brief outline of what led up to this legislation might be interesting, as a proper conception of the circumstances that formerly prevailed is necessary to a thorough understanding of the theory of workmen's compensation. In discussing the subject it is assumed that you are familiar with the principles applicable to those sustaining the relationship to each other of employer and workman, and therefore only such reference to common and statutory law on the subject of employers' liability will be made as seems to be imperative.

At the time of the adoption of the common-law rules of liability, industrial conditions radically differed from those which prevail to-day. The employer employed comparatively few workmen, with whom in the performance of their work he was brought into intimate association and was able to exercise a supervising care and control. He was acquainted with the habits and characteristics of each of his employees; the employees knew the employer personally in the same way, and, moreover, were brought into such close relationship with one another that their habits and peculiarities were mutually known and understood. The business carried on was small in extent; the appliances which were used in the work consisted in the main of hand-tools; the power, when any was used, was simple in character, afforded by the utilization of horses or of water-power applied directly to the machinery, which was neither complicated nor particularly dangerous in character. Under these conditions the rules of the common law originated.

The injured workman could recover at common law from the employer only by showing that he was guilty of negligence; that is, that in the given case he had failed to exercise a proper

degree of care, and that the injury had resulted therefrom. From time to time in the development of the law, qualifications to the liability of the employer for negligence were introduced. It was held that, notwithstanding the fault of the employer, if the employee himself had likewise been guilty of negligence contributing proximately to his injury, he could not recover; that he assumed the natural and ordinary risks and perils incident to the performance of his services, and he was denied the right of recovery whenever the injury was occasioned by defects in appliances or premises with or upon which he worked with knowledge thereof, actual or imputed. It was further held that where the injury was occasioned by the negligence of a fellow-servant, he could not recover. These various substantive rules and defences were not unjust or unreasonable when applied to the conditions prevailing at the time of their adoption, but they have come to be recognized, not only in this country, but all over the civilized world, as no longer justly applicable to modern industrial conditions.

In the industries to-day, often thousands of men are employed in the service of a single employer; the appliances with which they do their work consist in the main of more or less complex machinery, kept in motion, and often in highly rapid motion, by the elemental forces of steam and electricity. This machinery so propelled is not always under the immediate control of the workman who uses it, but its operation is governed by other workmen at more or less remote points. These and other changed conditions have so impressed intelligent observers in this country that attempts have been made to modify the rules of the common law to meet them, and from time to time legislation has been adopted, sometimes abrogating an existing rule and sometimes altering it, in accordance with the opinions of the various legislative bodies which have dealt with the question. Thus the doctrine of contributory negligence has in some Provinces and States been so changed as to allow recovery where the negligence of the workman is slight as compared with that of the employer. The doctrine of assumption of risk has been so altered as to permit recovery where the defects, although known to the workman, consist in the absence of safety appliances, etc., prescribed by law. The doctrine of fellow-servant negligence has been modified by the introduction of the separate department and the superior-servant rule. Statutes have been passed imposing specific duties upon the employer, having for their object the promotion of the safety of his workmen and making him liable to workmen sustaining injury because of their non-performance. These attempts and others which might be enumerated, all indicate a clear recognition on the part of legislatures and courts that the common-law system of employers' liability for negligence, with its various controlling defences, can no longer be justly applied to modern industrial conditions.

Not only has this been the case in our own country, but the same tendency is manifest in the legislation of nearly every civil-

ized country in the world. Most of these countries have gone far beyond Canada and the United States in the direction of remedial legislation. England and her colonies and the various countries in Europe, with few exceptions, have adopted laws which either expressly or in effect abrogate the laws of liability for fault, and substitute the law of compensation, under which the injured workman, or, in the case of his death as the result of accident in the course of his employment, his dependents, receive certain definite compensation proportioned in various ways to the wages paid at the time of or during a prescribed period before the accident.

The general theory of workmen's compensation is that industry should bear the loss of life and limb incurred in the production of its finished product, just as it bears the expense of replacing worn-out and broken machinery; and that for every injury incurred in the course of employment some fixed amount should be provided in the way of compensation to the person incurring the injury, or to his dependents in case of his death; and this without regard to the question of fault or negligence of the employee, because many injuries or deaths are bound to occur under modern conditions, even when the utmost care is exercised by both the employer and the employee. The practical application of the doctrine involves a virtual abandonment of the common-law principles of employers' liability and the many statutory enactments commonly known as "Employers' Liability Acts," thus giving every employee injured in the course of employment the right to secure something in the way of compensation for his injury, and as soon as possible after he sustains his injury, and at a minimum of expense.

Following the above referred-to German legislation, practically all of the European governments abolished the negligence litigation system for that of compensation, irrespective of fault. The first Acts passed in the United States were passed by the States of Washington and Kansas, on March 14th, 1911. Up to June 30th of this year there are forty-six States with collective liability systems, and in Canada eight of our Provinces have workmen's compensation legislation, with six of them based on that of collective liability. The first Canadian compensation Act of any kind was passed in British Columbia in 1902, followed by Alberta in 1908, Quebec in 1909, and Manitoba and Nova Scotia in 1910. These were all administered by the courts. In 1914, Ontario adopted the collective liability system, followed by Nova Scotia in 1915, British Columbia in 1916, Alberta and New Brunswick in 1917, and Manitoba in 1921. The last six referred-to Canadian systems are based upon the mutual liability system of Germany and upon the exclusive State fund of Washington.

CITY HEALTH DEPARTMENT.

VANCOUVER, B. C.

STATISTICS — DECEMBER, 1925

Total Population (estimated)	126,747
Asiatic Population (estimated)	9,960

		Rate per 1000 of Population per Annum
Total Deaths	142	13.2
Asiatic Deaths	20	23.6
Deaths (Residents only)	108	10.0
Total Births—Male, 157 Female, 146	303	28.1
Stillbirths—not included in above	11	

INFANTILE MORTALITY—

Deaths under one year of age	13
Death Rate per 100 Births	42.6

CASES OF INFECTIOUS DISEASES REPORTED

	November		*December*, 1925		*January 1st to 15th*, 1926	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Smallpox	0	0	0	0	1	0
Scarlet Fever	28	0	14	0	4	0
Diphtheria	31	2	18	2	10	0
Chicken-pox	20	0	8	0	4	0
Measles	0	0	3	0	3	0
Mumps	101	0	77	0	5	0
Erysipelas	2	0	0	0	2	0
Tuberculosis	11	10	22	11	5	1
Whooping Cough	5	0	1	1	0	0
Typhoid Fever	3	1	3	2	0	0
Cases from Outside City—included in above:						
Diphtheria	8	8	0	0	1	0
Smallpox	0	0	0	0	1	0
Scarlet Fever	8	0	7	0	1	0
Typhoid Fever	1	0	2	2	0	0

* * *

B. C. MEDICAL ASSOCIATION NEWS.

Members of the profession in Vancouver will be interested to hear of the arrangement that has recently been made by Woodward's, Limited, with its employees. Under this agreement, there is no regular medical man appointed to deal with sick members of their association, but each member is free to choose his or her own doctor. The association will pay the first call or consultation in each case. This agreement was entered into after the company had consulted the B. C. Medical Association, and is, in our opinion, a good one for all those concerned.

Recently, in Vancouver, a large committee of prominent men has been formed to devise schemes for ameliorating the lot of certain ex-service men who are handicapped in their search for employment by physical disabilities of various kinds, due to their

service. Such committees in other parts of Canada have been very successful, and have accomplished great good. Several well known business and professional men have allied themselves with the project, amongst them Dr. R. E. McKechnie. The B. C. Medical Association was asked to appoint a representative, and Dr. A. M. Warner, of this city, has consented to act. As an overseas man himself, with an enviable record, and as one who has kept in close touch with returned men through his appointment as Vocational Medical Officer at Shaughnessy Hospital, Dr. Warner is peculiarly fitted for this work, and will, we are sure, have the hearty endorsement of all medical men.

Arrangements for the forthcoming Annual Meeting of the Canadian Medical Association are well under way in Victoria. All members of the profession are asked to plan their arrangements for the summer with this meeting in mind.

Copies of a booklet issued by the London Life Assurance Co. of Ontario, on the work of Child Welfare Clinics, are being obtained for circulation through the province to medical men. These are full of valuable and interesting information, and will be found useful.

The books of the B. C. Medical Association to the end of December, 1925, shew a credit balance of about $1200, with some more cheques to come in. The records of the office shew a busy year in various ways. For instance, 22 permanent positions were secured for B. C. men, 34 *locum tenens* were supplied, 46 men in the province applied for help in finding locations or assistants, and so on.

The Medical Board of the W. C. B., whose talk to the Vancouver Medical Association was reported in the last number of the BULLETIN, paid a similar visit to the Fraser Valley Medical Society on January 7th. These meetings are an extremely wise innovation, as well as being very welcome to the profession at large. The experience of our Industrial Committee, which deals with a great many cases where there is dispute, shews that in the vast majority of cases the trouble is due to misunderstanding on the part of the doctor, much more than to any deliberate carelessness or neglect. The frank and friendly words of these gentlemen of the Medical Board have done a tremendous amount to help us in doing our share towards the carrying out of the W. C. Act, and we hope this visiting of theirs will extend to all the centres in the province. It cannot but help them as well as us.

* * *

CARDIAC PAIN.

G. F. STRONG, M.D.

(Read before the January meeting of the Vancouver Medical Association.)

The various clinical conditions in which cardiac pain occurs, omitting that due to aortitis or to pericarditis, may be discussed under four headings:

1. Pain due to fatigue;
2. Pain of irritable heart;
3. Paroxysmal pain—angina pectoris;
4. Pain of coronary thrombosis.

(1.) PAIN DUE TO FATIGUE.

The idea that pain may arise from fatigued heart muscle is strengthened by the fact that pain occurs in voluntary muscle that is overstrained. Fatigue is more easily produced, less effort is required to overstrain the muscle, in the presence of disease or any diminution of the blood supply. When a muscle contracts actively, it requires more blood than when quiet; therefore, when the heart is called upon to meet increased demands, its blood supply must be increased. The reserve power of a healthy heart is considerable, and it is only severe overstrain that will produce pain. This sort of pain commonly occurs in hypertrophied hearts, the result of long standing hypertension or any other cause, in hearts with chronic valvular disease (possibly more particularly aortic) those types of cardiac arrythmia characterized by excessively rapid rates, and may also be seen in untreated cases of permanent fibrillation.

This type of pain, simple fatigue pain, occurs usually around the apex in the sub - mammary region, and radiates, if at all, around the chest to the back. The pain is generally of a dull aching character, though at times it may be sharp and stabbing, even to being confused with a mild angina. It is a continuous ache rather than a paroxysm of severe pain. It may present features that make its distinction from the more ominous types of cardiac pain difficult. In that case a therapeutic test will frequently be of assistance. Fatigue pain is invariably benefited by rest and digitalis, and is not relieved by the nitrites, whereas the pain of angina, with which it is most likely to be confused, is usually immediately relieved by one of the nitrites.

(2.) THE PAIN DUE TO IRRITABLE HEART.

The pain occurring in irritable heart or effort syndrome is probably an expression of hyperexcitability of the nervous system. In this discussion we must bear in mind that in the production of pain there are always two important factors—first, the stimulus, and second, the nervous mechanism. We know that people vary considerably in their interpretation of pain. A stimulus sufficient to produce severe pain in one, may produce a mild pain in another, and no sensation at all in a third. The pain of irritable heart is felt because of the individual's lowered threshold for pain. An amount of strain borne with ease by a person with normal nervous mechanism will produce pain in these patients with the so-called effort syndrome.

The pain in irritable heart, unlike other forms of cardiac pain, arises as a result of excitement as often as a result of effort. Like simple fatigue pain, this is a continuous precordial ache ra-

diating, if at all, around the chest to the back. There is no doubt that many cases present combinations of these two types of pain—simple fatigue and irritable heart pain.

(3.) PAROXYSMAL PAIN—ANGINA PECTORIS.

Angina pectoris is notably an English disease. From the time the name and first description were given by Heberden, in 1768, practically all of the important views have come from English physicians, though it must be admitted that, except for theories as to its cause, little of importance had been added to the clinical conception of the disease until the monumental work by the late Sir James Mackenzie. When we come to study angina pectoris, or cardiac pain in general, we realize what a tremendous influence Mackenzie has left on our ideas in this regard. Of the various theories as to the cause of angina—and there have been many, Huchard at one time collected eighty—there seem to me to be only two that warrant careful consideration at the present time:

1. The theory that the pain arises from the muscle of the heart;
2. Allbutt's theory that angina is due to disease of the first part of the aorta.

The idea that the muscle may, under certain conditions, give rise to severe paroxysmal pain, is by no means new, although it is an idea that Mackenzie has done much to clarify. Any of the older theories that angina depended on coronary vessel disease, presumed that the way in which this vascular damage brought about angina was by the alteration, always diminution, in the blood supply to the heart muscle. Mackenzie has broadened this conception by the idea that pain is due to exhaustion of the heart muscle. This exhaustion is brought on by overstrain in the healthy heart and by lesser strain in the diseased heart, in which ischemia to some degree is usually present. Ischemia in these diseased hearts may be produced (1) as a result of arterio sclerosis of the coronary arteries (2) as a result of diminution in the size of the orifices of these arteries due to disease of the aorta or aortic valves, and (3), as a result of a regional vascular crisis affecting the coronary vessels, a temporary constriction or spasm causing ischemia of the heart muscle. Arterio sclerosis of the coronary arteries may occur as a part of generalized arterio sclerosis, in which case the cause of the angina will usually be clear, but arterio sclerosis of the coronary arteries may also occur as a circumscribed patch of arterial disease, with perfectly normal systemic vessels. In either case the disease of the coronaries may be of sufficient extent to produce a relative ischemia of the heart muscle with resulting paroxysms of pain. On the other hand, it is not unusual at all to see cases at post mortem with extensive coronary disease, that have had no history of anginal attacks. This only emphasizes the wide variation in individual response, not only as to the reserve power of the heart, but also in the individual's interpretation of pain. Diminution of the orifices of the coronary arteries is quite likely

to produce angina, but it does not often occur as an isolated lesion, that is to say, there is usually some additional involvement of the coronary vessels. That angina may be due to arterial spesm in the coronary circulation is based on the following evidence:

1. Many clinically well-defined cases of angina pectoris show at autopsy normal hearts, aortæ and coronary vessels;
2. Regional vascular crises do occur in the vessels of the brain, retina, and various systemic arteries.
3. The coronary vessels are under the influence of vasomotor nerves, and so are as susceptible to spasm as any other arteries.

Certain European critics of Mackenzie's views of angina claim that the pain is due to fatigue of the muscle, not exhaustion. This seems a distinction without a difference, a mere quibbling over words, because in either case the actual stimulus for the production of the pain is probably a chemical one, resulting from the improper elimination of the end productions of muscular activity.

Allbutt's theory that in angina the pain arises as a result of disease of the first part of the aorta with resulting stimulation of the sensory nerve endings found there, seems to me a far less comprehensive view than that of Mackenzie's. There are, no doubt, cases of aortitis in which pain and even paroxysmal attacks of pain may be produced by this mechanism, but I cannot believe that we can explain all cases of angina by this theory. Cases are recorded in which pathological examination failed to reveal any evidence of aortic disease. Allbutt answers by saying that the pathological examination in such cases is not extensive enough to demonstrate the causal lesions in the wall of the aorta. The opinion on this continent and in England favors, I believe, Mackenzie's idea. Allbutt's theory is not without support, however, for recently two prominent European cardiologists, Vaquez in Paris and Wenkebach in Vienna, have lent the weight of their prestige to his beliefs.

(4.) PAIN OF CORONARY THROMBOSIS.

The pain resulting from coronary thrombosis differs from any other form of cardiac pain in the degree of its severity. It is a long, continued, very severe, substernal pain, not relieved by rest, digitalis, or nitrites, but demanding large doses of morphine for its alleviation. There is no doubt that many of the cases of *status anginosus* of the older writers were instances of coronary thrombosis. Coronary thrombosis frequently occurs in an artery already diseased, and may therefore occur in a patient suffering from angina, although it may also occur as a bolt from the blue in a patient apparently in perfect health. The onset of the attack is constant, a sudden prostrating pain occurs usually following some exertion, the pain substernal as in angina, not apical as in simple fatigue or irritable heart. The pain may occasionally be epigastric or right or left hypochrondrial, in which case a difficulty

may arise in the differential diagnosis between coronary thrombosis and gall stone colic or perforated gastric ulcer. A fair number of cases have been reported recently from well-equipped surgical clinics where the abdomen has been opened for an upper abdominal lesion, only to find that the patient is suffering from coronary thrombosis. It is important to remember that recovery may, and frequently does, occur in these cases, and the fact that a patient recovers and leads a moderately active life after one of these attacks is not evidence of a mistake in diagnosis. The diagnosis of coronary thrombosis can usually be made from the character of the pain. The electrocardiograph may be of use in diagnosis, as most of these thrombosis cases will show a very definite deviation from the normal tracing.

Before leaving this part of the discussion, I want to discuss the pathology of these four conditions—fatigue, irritable heart, angina, and coronary thrombosis. We must remember that these conditions (except coronary thrombosis) are functional. The pain arises as a result of exhaustion of the heart muscle, and there will be, therefore, no constant pathologic picture. I am not at all sure to what extent the infarct itself gives rise to the pain in thrombosis; the resulting strain on the unaffected portions of the heart would undoubtedly be sufficient to cause some, if not all, of the agonizing pain these patients suffer.

Much has been written regarding visceral pain, but when we come to look for an explanation of cardiac pain we find very little. Most theories as to the cause of the pain in angina, for instance, carry us only so far. Beyond that to the actual origin of the sensation, little had been done until Mackenzie's work. Exhaustion in muscular tissue is brought about by muscle contraction. That muscle contraction under certain conditions may produce pain, has been shown in different ways. In involuntary muscle excessive contraction, or spasm, with some resulting muscle exhaustion, is capable of causing pain. Mackenzie says: "The severe pains which go by the name of colic—bowel, renal, gall-stone—are all associated with hollow muscular organs, and it is a justifiable inference that pain in 'colic' is a result of violent contraction of the hollow muscle." Another type of pain arising as a result of fatigue, that is excessive contraction, in involuntary muscle, is that occurring in the ciliary muscle of the eye as a result of errors in refraction. Pain also arises from voluntary muscles under suitable conditions. We all have experienced the painful muscles resulting from violent and unusual exertion, as after the first tennis of the season. To quote from Mackenzie again: "Voluntary muscles can give rise to pain. The pain in all these cases only arises when the muscles have been exercised by a considerable and long continued effort. If in an elderly person the arm be emptied of blood and a tourniquet be applied so tightly as to prevent any blood reaching the forearm, opening and shutting the hand is followed speedily by loss of power, then by severe pain if persisted in." Pain may arise from any muscle tissue, but such a sensation is only produced under certain circumstances, severe prolonged contrac-

tion. It seems a reasonable conclusion that it is not the contraction *per se* that produces pain, but only the exhaustion produced by the excessive activity. Exhaustion is relative. A diseased muscle or one with a diminished blood supply will become exhausted more readily than a healthy one.

The heart is a hollow muscular organ, but its activities are modified because of the nature of its work. The pain of various kinds of colic is due to spasm of certain muscular organs. Spasm of the heart is incompatible with life. Pain arising from the heart is not due to spasm. The heart may produce pain when it is called upon for greater effort than is normally expected of it, or, with slowly progressive disease of the heart muscle or the arteries supplying it, pain may arise as the first evidence of the heart's inability to carry on its customary activities. If the immediate cause of the pain is exhaustion, then the pain should occur at the time the heart is strained. In certain patients this is not the case. The pain may come on at a period of bodily quiet, as at night when the patient is asleep, or during the day when he is resting. This pain may be explained as a summation effect of many small stimuli. In a nerve muscle preparation when a sub-minimal stimulus is applied to the nerve, there is no response from the muscle, if this stimulus be repeated frequently enough a contraction eventually occurs. This same summation effect may be responsible for the pain in cardiac conditions. The exhaustion of the muscle may produce stimuli sub-minimal in character which can only cause pain by a summation effect. In this connection it is of interest to note that most angina cases have their first attacks as a direct result of exertion, subsequently they attempt to avoid the exertion sufficient to bring on an attack, and it is then that these rather atypical attacks occur at a time when the body is at rest. Whether the pain be due to simple fatigue, irritable heart, coronary disease, or spasm, the immediate cause of that pain is always exhaustion of the heart muscle. The tremendous influence left on the medicine of our day by Sir James Mackenzie will be ascribed in the future, I am sure, to his insistence on the importance of the factor of muscle exhaustion in the whole field of the study of cardiac disease.

The stimulus, I have said, to the production of cardiac pain is a chemical one resulting from exhaustion. When a muscle contracts, a definite chemical change occurs. There is an oxidation of glucose with a resulting production of lactic acid, carbon dioxide, and water. In a relative deficiency of the oxygen supply to a contracting muscle, as would occur either in excessive strain or in conditions where there was a diminution in the blood supply, the production of lactic acid is increased. The actual cause of pain arising from a contracting muscle may be lactic acid or some similar metabolite present because of deficient oxidation. Other factors than muscle exhaustion may be present in cases of coronary thrombosis where a cardiac infarct occurs with the usual pathologic results.

The nerve supply to the heart was then considered, both afferent and efferent nerves being described.

Following this the lecturer took up the question of the surgical relief of pain in angina.

The first clinical experimental study on the afferent cardiac nerves was the operation performed by Jonnesco, in 1916, for the relief of pain in angina pectoris. Jonnesco has been doing his operation of sympathectomy, which consists of a complete, usually bilateral, cervical sympathectomy, including the stellate ganglion, since 1896, during which time he has done over 200 for the relief of such conditions as exophthalmic goitre, epilepsy, migraine and glaucoma. It is of some interest, that in 1923, he reported that in those 200 cases he had never seen any bad effects produced by this operation, and yet three out of the first six cases of angina operated on by him died very soon after operation, and died a cardiac death. Apparently a normal heart may get along with its sympathetic supply practically removed, whereas a diseased heart may be considerably embarrassed. Since Jonnesco's first operation, in 1916, there have been a number of attempts at the surgical treatment of angina which throw light on the afferent nerve supply of the heart. Jonnesco removed all three cervical ganglia and the first thoracic ganglion, and advised that this be done on both sides. Coffey and Brown, of San Francisco, were the first to attempt the operation on this continent. In their first case they decided to do the operation in two steps in order to do only what was actually necessary, and as a first step they cut the sympathetic trunk below the superior cervical ganglion and the superior cervical cardiac sympathetic nerve. The patient had such relief from this that they dropped the idea of any more extensive operative procedure. They have reported six cases with one death, the other five patients much relieved.

Other surgeons, using some modification of the Jonnesco operation, have also reported successful results. The surprising thing has been the success achieved with the very different surgical procedures adopted. The superior cervical ganglion alone has been removed, the superior and middle ganglia have been taken out, and all three ganglia have been removed, and these procedures carried out on one or both sides with apparently a certain amount of success in any of these methods. The success of the operation following such varying technique makes one suspect that in some of these patients the element of suggestion and the enforced rest during the post operative period are partly responsible for the alleviation of the pain. Langley has pointed out the physiological error in these operations, and suggests the section of the major and minor accelerator nerves, which he admits would cut most of the efferent as well as the afferent sympathetic fibers. In cases so operated no bad effects were noted. The other operation in angina cases is to cut the afferent cardiac fibers associated with the vagus. Wenkebach has urged this procedure, and he reports five cases from his clinic, in which Hofer has isolated and cut the depressor nerve

with some relief. Just why Wenkebach, who has committed himself to Allbutt's theory of angina, should advocate cutting the nerve from the aorta that is supposed to reflexly lower the blood pressure when the first part of the aorta is distended, is hard to understand. This nerve would seem to perform a valuable protective function in angina cases. The only objection Wenkebach raises to this procedure is the difficulty, in fact the impossibility, of recorgnizing the depressor nerve.

Mackenzie, in an article written not long before his death from angina, criticized all these operations on the ground that, in the first place, the surgeon didn't know exactly what he was cutting, and in the second place, the pain in angina is in itself a danger signal that may be most valuable to the patient.

To summarize: there are four conditions in which pain arises from the heart itself—simple fatigue, irritable heart, angina pectoris, and coronary thrombosis. The important factor in the production of this pain is exhaustion of the heart muscle. The afferent pathways by which the impulses are transmitted to the central nervous system are not yet clearly defined, though afferent fibers undoubtedly accompany both the vagus and sympathetic efferent nerves.

* * *

BOOK REVIEWS.

Minor Surgery: By Lionel Fifield, F.R.C.S. (Eng.), London. Pp. 425; 273 illustrations. H. K. Lewis, Ltd., London.

A book such as this is particularly opportune, as there is really no modern text book on minor surgery at present in print. Mr. Fifield has launched his first work at a time when it is badly needed. As demonstrator of minor surgery in the London Hospital, with its thousands of outpatients, he has had an unrivalled opportunity for collecting relevant data. That he has done this well will be at once obvious to readers of his little classic.

Almost every phase of minor surgery has been covered—personal opinions and methods, based on routine experiences at his great hospital, predominate. Such conditions as cellulitis, abscess, infections of the hand, etc., receive careful and detailed treatment. About half the book is devoted to that most important field of minor surgery, fractures, and each of the more common fractures is carefully explained and the best types of splint shown in the accompanying illustrations. Such minor operations as tracheotony, tonsillectony, reduction of dislocations, cystoscopy and urethroscopy, urethrotony, minor amputations, hydroceles, and operative and non-operative treatment of herniæ, are fully and well dealt with. Teeth extraction is fully covered. The final chapter deals with anæsthesia and the suitable choice of anæsthetic for the various minor operations.

Profusely illustrated, well bound, clearly printed on good paper, and carefully indexed, this little volume ought to fill a place in every practitioner's library. L. H. A.

* * *

International Clinics, Vols. 2 and 3. Thirty-fifth Series. 1925. J. B. Lippincott Co., Montreal. $3 a volume.

These two volumes are in accord with the usual excellence of these publications, and contain many short articles of generally useful medical and surgical information.

Particularly interesting is the article on removal of angiomata with carbon dioxide snow by McLean and Cannon, of the Babies' Hospital of New York City. A discussion on right-sided pain in relation to abnormality of the proximal half of the colon, by Dr. Emanual Lipschutz, tends to explain the many failures of appendectomies and other abdominal operations to afford symptomatic relief to the patients.

Deaver presents the differential diagnosis in the acute abdomen, while articles on "The Present Status of Affections of the Kidney," "Dysentery, Its Diagnosis and Management Through the Microscope," "Infectious Arthritis," by Lewellys Barker, and "Reconstruction Surgery," by Fred Albee, make the volume well worth while. H. R. S.

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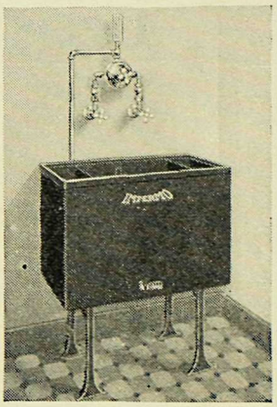

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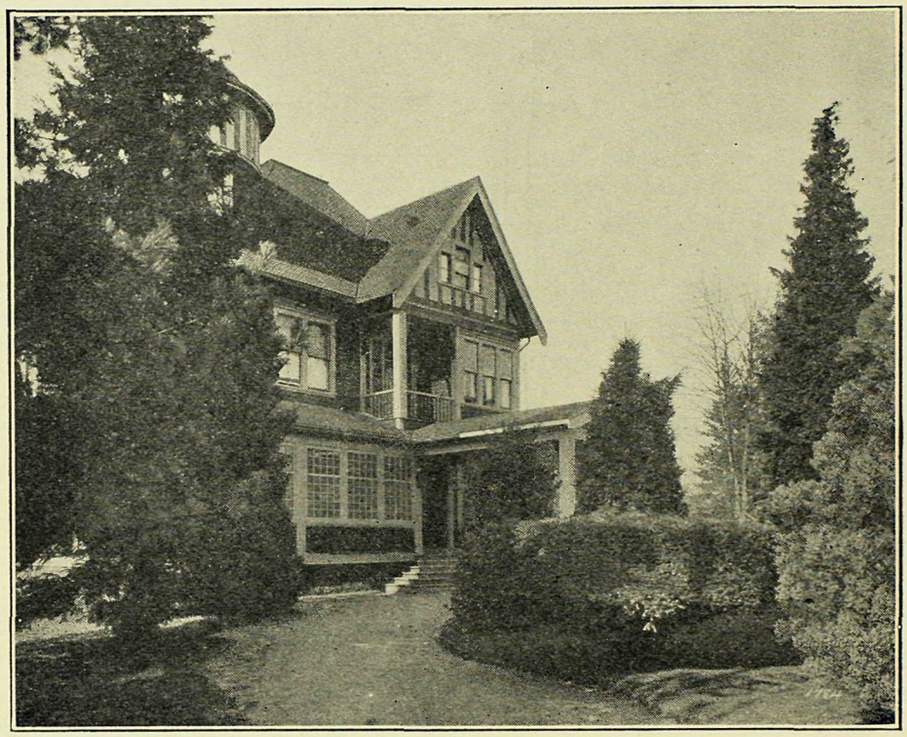

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