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The Bulletin

of the

Vancouver Medical Association

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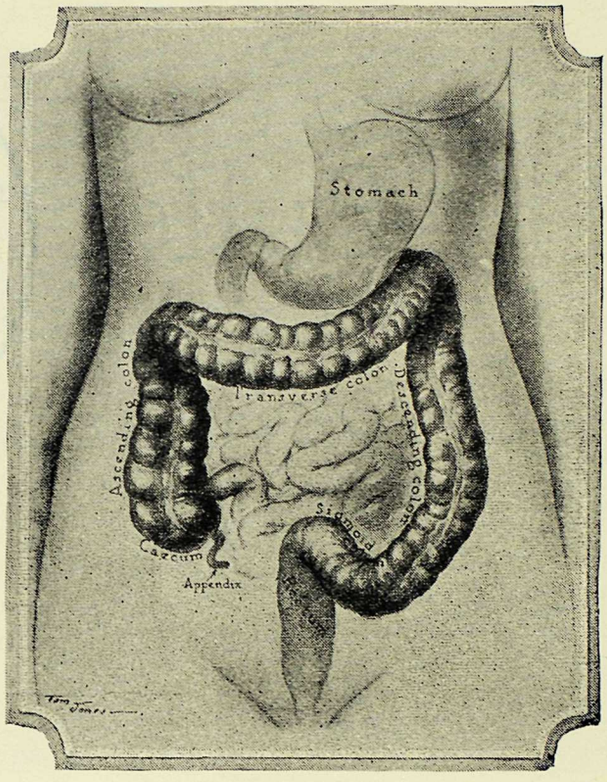

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THE VANCOUVER MEDICAL ASSOCIATION

BULLETIN

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EDITOR'S PAGE

The Library Committee has recently purchased a work of unusual character and value in Dr. Heagerty's book "Four Centuries of Medical History in Canada."

Strictly speaking this is not a history but an invaluable collection of unrelated facts and events which constitute it an important potential source of historical information. There is no connected story, no continuous attempts to assess the effect of medical development upon current conditions or the modifications which those conditions imposed on the medical profession or upon the hospitals and nursing organizations which preceded or grew with it. As a documented repository of information this work is of the highest import while the perseverance and enthusiasm which has gone to the compilation of its bibliography alone is worthy of admiration.

Do we want to know the salient facts about the origin of our medical schools, of those which still exist, of those which are defunct by reason of natural decay or by merger? This is the place to look for it. Part 5 of vol. II. contains nearly one hundred pages devoted to the origin and growth of medical education in every Province in Canada, except British Columbia; British Columbia is significantly blank. We score in the next section, however, Part 6 on Hospitalization. Here is the same careful condensed informative article which brings to us the long experience we have had in this business of hospitals since the Hotel-Dieu was founded in Quebec in 1639. More modern is the brief and sufficient account of the Sanatorium movement. We are glad to note that this (correct) method of spelling seems to be permanently adopted throughout the country.

The real thrills, however, come in volume I. At the very beginning Dr. Heagerty plunges into "Epidemics of Disease" and at once we are in the region of romance. Not in the region of the imagination, be it understood, but under the spell of the story of the real pioneers. For curiously enough this unlikely material, the account of these early recurring or, one might say, continuous epidemics of smallpox or Mal de Terre, which was a picturesque name for scurvy, or Mal de Baie St. Paul, which was apparently a virulent luetic outbreak, brings vividly before us the life of the peoples among whom these epidemics occurred, and *that* was the Canada of the time. Jacques Cartier made his three voyages which gave possession of Canada to the French between 1534 and 1541. On the last of these he brought the Sieur de Roberval who had been appointed by the King Viceroy and Lieutenant General of Canada. Either then, or soon after, the Jesuits came and it is from their records, the Jesuit Relations—that we gather the story of the early public health of the country. Dr. Heagerty in his "Foreword" says "The Jesuit missioner with meticulous care recounted the happenings of each day. . . . . These were forwarded at regular intervals to the headquarters of the Order in France where they were carefully preserved. The Jesuit Relations tell the story of early medicine in Canada day by day." These records were kept from 1627 to 1662 and we note a reference to a "Relation" of the year 1616. They constitute a wealth of documentary evidence of the

state of medicine in early Canada. From these Dr. Heagerty has drawn skilfully to build up his sketch of the principal epidemics of the time, in each case supplementing the story by a brief indication of the more recent evidence of the disease.

From the age of discovery, pioneering and warfare, we turn to the chapter on Medical Journals. By 1826 the young Canada had become sufficiently lettered to start a medical journal, "The Quebec Medical Journal" published in French and English. It lasted two years, dying, presumably, of lack of advertisements.

Medical Societies, oddly enough, begin in the same year and in the same place, Quebec being headquarters for both, and Dr. Xavier Tessier the editor and founder of the previously mentioned journal was requested to announce "the existence of the Society." So far as we can gather it is still in existence. Following this Societies multiplied, if not rapidly sufficiently frequently. Many are mentioned, some briefly, some more particularly. Our own Association is presumably included in the paragraph beginning "To give the history of the numerous medical societies would be futile; only the older and more widely known organizations have been discussed." Such is fame.

* * *

NEWS AND NOTES

Dr. A. Bazin and Dr. A. H. Gordon, prominent surgeon and physician respectively on the staff of the Montreal General Hospital, will address the Association at a special meeting in the Auditorium, Tenth and Willow on September 5th, at 8 p.m. With them is associated Dr. Gordon Bates of Toronto. The subject of Dr. Bazin's lecture will be "The Gall Bladder." Dr. Gordon will speak on "Digitalis Therapy" and Dr. Gordon Bates on "The Diagnosis and Treatment of Venereal Disease."

* * *

Dr. Andrew Hunter, who is now at the Dominion Biological Station near Nanaimo, has consented to give a paper before the Association at the end of August when he passes through Vancouver on his return East. The title of his address will be "Preventive Nutrition."

The Summer exodus, as the society columns say, has commenced in medical circles. It is being signalized by the pending departure of Dr. A. S. Lamb to attend the International Tuberculosis Congress to be held at Rome; and of Drs. Hamish McIntosh and C. W. Prowd, who have left for Stockholm, where they will attend the International Congress of Radiology.

Dr. W. J. S. Millar has been appointed radiologist to the Royal Columbian Hospital, New Westminster, and assumed his new duties on July 15th.

Dr. H. A. Rawlings is opening offices at 225 Birks Bldg. early in August for the exclusive practice of radiology. Since coming to Vancouver in 1923 to accept the post of Medical Director to the Rotary

Clinic for Diseases of the Chest, which position he has filled with conspicuous ability, Dr. Rawlings has made a large number of friends in medical circles will wish him success in private practice.

It is understood that Dr. W. H. Hatfield will be associated with Dr. H. A. Rawlings as part time medical officer at the Rotary Clinic.

Dr. S. H. Sievenpiper is to be congratulated on his successful recovery from appendicitis.

Congratulations to Dr. and Mrs. E. J. Curtis on the birth of a son who arrived at Grace Hospital on Saturday, July 7th.

We also extend congratulations to Dr. and Mrs. George Upham who have been blessed with a son.

Dr. H. W. Hill has been appointed a member of the Commission to investigate the milk supply of the Province.

Dr. C. H. Vrooman attended the meeting of the National T. B. Association in Portland and his report of the meeting appears in this issue.

Another member of the Vancouver medical profession has succumbed to the call of the open spaces. It is reported that Dr. George E. Seldon has purchased a farm at Murrayville, 47 acres in extent, upon which he will bring to bear the light and knowledge of his extensive surgical experience. The venture will, we trust, be attended with that success which has hitherto smiled upon the doctor's efforts.

* * *

SPECIAL MEETINGS

At a Special Meeting of the Association at the Auditorium, Tenth and Willow, on July 7th, addresses were delivered by Drs. H. B. Cushing of Montreal, and A. W. Canfield of Toronto.

Dr. Cushing spoke on the subject of the Use and Dangers of Anti-toxic Sera. He commenced by a brief review of the history of the discovery of diphtheria toxin and of anti-toxin and its development, illustrating his remarks by lantern-slides depicting the great pioneers and workers in what he characterized as the greatest advance of medicine in the past century.

The improvements in the production of diphtheria anti-toxin were enumerated as first, concentration, and then removal by precipitation of the irritating proteins in the serum which are responsible for the sequel known as "serum sickness." This led in turn to the great increase in dosage thus rendered possible. As the concentration of anti-toxin in the blood-stream following various methods of adminstration was studied, the necessity of giving large doses—usually concentrating the whole treatment into one large dose at the outset—became apparent. This dose should be given intramuscularly, and in malignant cases, intravenously. The chill which follows the latter method, while considered a drawback, is not dangerous. In very young children, for obvious reasons, in-

traperitoneal administration is a safe and good substitute for intravenous.

The *danger of anti-toxin* may be summed up in "serum sickness." By careful preparation, proper concentration and adequate maturation of the anti-toxin a very great deal of this danger is obviated. The comparative frequency of such a reaction after the use of scarlet fever and erysipelas anti-toxin is probably due to the fact that the newness of these products has not yet permitted their ideal manufacture, but it may be anticipated that with passage of time they may reach a stage of freedom from undesirable results, such as diphtheria anti -toxin now enjoys, where the mortality is only about 1 in 10,000. Another important measure in avoiding reactions of this sort is that of selection of recipients. It must be recognized that adults are more susceptible than infants, and that a history of sensitization to other proteins, indicated by asthma, urticaria, recurrent eczemas, or previous serum-sickness, is a warning to exercise care. *Anaphylaxis* in the true sense of the word appears as a phenomenon in laboratory amimals and not in the human, but about 10-15% of persons who have received a serum before are more likely to get earlier and severer reactions.

The *treatment of serum-sickness* is the hypodermic injection of 1-1000 adrenalin. Ephedrin has been disappointing. For the joint-pains, urticaria and pruritus, morphin has been found useful.

For *immunization against diphtheria,* 1000 units gives almost complete but brief protection. The anti-toxin is eliminated in a few weeks and the patient is as before. Its use is chiefly confined to children when they have been exposed. In scarlet fever it gives a briefer and less complete immunity. Here it should be given for this purpose only when the original source of infection is removed from further contact with those immunized.

In the *treatment of scarlet fever* the anti-toxin reduces the course and lessens the liability to complications, but it must be given early as it is ineffectual after the rash fades. In the very severe cases with temperatures ranging over 104° its results are less satisfactory.

In erysipelas anti-toxin has some undoubted value, but it must be given early, and in the worst cases (infants, and involvement of the body) it is ineffectual. With further improvement in the technique of its manufacture better results may appear.

Dr. A. W. Canfield, speaking on the Feeding of the Normal Infant, emphasized the importance of an early start. This start must be made *ante-natum,* and consists in proper care of the maternal nipple.

If breast-feeding is found to be resulting unsatisfactorily it should not be continued too long, but rather than immediate total weaning, Dr. Canfield suggested that artificial feeding be tried out tentatively at first. Cases which cannot take milk at all exist, but are rare. The securing of available quantities of safe raw milk is a national problem and duty. The speaker considered that where such a product is unprocurable, the next best is properly prepared powdered milk. No general law can be formulated for the modification of milk for all children. The first

essential requirements of a feeding formula is that it must be well within the digestive capacity of the child. This having been met, the building up can follow. Regarding the various sugars advised for use in feeding formulas it was felt there was little choice. Reasons for disagreement of the diet with the child were often matters of technique of feeding—a too rapid feeding, slow nipple, collapsed nipple, etc. These details are important, and instructions for their correction were given.

Emergency foods were only make-shifts, it was emphasized, and should be dropped as soon as the emergency necessitating them had ceased. Such examples as butter-soup, high protein milk, thick feeds, were mentioned, and their non-protective qualities and lack of balance pointed out. As soon as intolerance of any of them was indicated, they should be stopped. In the case of thick feeds, there was danger of dehydration, and they must be supplemented by interstitial fluids.

The appearance of the molar teeth indicated another important stage in the child's development. The child must be taught to chew as early as possible, and nothing could be better to learn on than the green vegetables, raw as well as cooked.

The importance of developing early habits of regularity—sleep, bowel movements, etc.—in avoiding later trouble was stressed. Interference with proper rest due to uncomfortable sleeping-places, such as bassinettes and feather-pillows hampering freedom of movement and creating too much warmth, was mentioned as an important error to be avoided.

In referring in conclusion to the development of the older child, of school-age, Dr. Canfield spoke strongly on the subject of the habit of loading the child so heavily with home-work. The result was that time for due relaxation before retiring was not available or that the time of retiring was postponed and sufficient and proper rest was interfered with. It had the further result of late rising in the morning, leaving the child insufficient time to attend to his personal duties—washing, care of the teeth, and bowel-movement before leaving for school. To this Dr. Canfield added a plea for maintaining simplicity in the child's life as far as possible; simplicity in amusements and recreations as well as in diet.

* * * *

The midsummer session of the North Pacific Paediatric Society was held at the Hotel Georgia on June 28th, 1928, Dr. R. J. Miles of Tacoma presiding, twenty-four members being present. The membership embraces Alberta, British Columbia, Washington, Oregon, Idaho, and Western Montana.

The Society was very fortunate indeed in having as guests, two Toronto paediatricians, Dr. George R. Pirie and Dr. A. P. Hart, who contributed papers and took an active part in all discussions. Dr. Andrew Hunter of Toronto was also a guest, presenting his subject in a very interesting manner.

The morning session commenced by the presentation of clinical cases by Drs. Kinsman, Curtis, Spohn and Davies of Vancouver. The

following papers were given: "Acrodynia, Neurosyphillis, Gynaecomastia," by Dr. John Davies of Vancouver: "Cerebral Hemorrhage" by Dr. R. P. Kinsman of Vancouver: "A Case of Extensive Staphylococcus Bacteraemia, with Recovery." Dr. Ivan Wooley of Portland: "Rural Paediatrics." Dr. F. M. Sprague of Pocatello, Idaho: "Report of Two Cases of Defective Inter-Ventricular Septum." Dr. V. V. Spickard of Seattle: "Some Observations re Rheumatic Fever." Dr. George R. Pirie of Toronto: "Case of Mediastinal Sarcoma with Unusual Symptoms." Dr. A. P. Hart of Toronto: "Ketosis and the Anti-Ketogenic Balance." Dr. Andrew Hunter of Toronto: "Results of 150 Cisterna Punctures in the Newly Born." Dr. L. Howard Smith of Portland: "Congenital Hypertrophic Stenosis-Experimental, Productive, Preventive, and Treatment." Drs. U. Moore and Brodie of Portland: "Report of Case with Unusual Blood Findings." Dr. D. M. Dayton of Tacoma.

The Vancouver paediatricians entertained at lunch at the Hotel Georgia. The evening was spent at the Vancouver Club, where after a delightful dinner, interesting reminiscences were exchanged.

The officers elected for the ensuing year are:

Dr. E. D. Carder, *president.*
Dr. Charles Covernton, *vice-president.*
Dr. G. A. Lamont, *secretary-treasurer,*
all of Vancouver.

* * *

NATIONAL TUBERCULOSIS ASSOCIATION ANNUAL MEETING *at* PORTLAND

For the third time in its history the National Tuberculosis Association held its Annual Meeting on the Pacific coast. This year on June 19, 20 and 21, Portland was the host and over 700 registered out of a total membership of 2,600, which includes most of the active tuberculosis workers in the United States and Canada as well as a number of associate members.

To review the work of the Association alone during the year would fill a good-sized volume. It directs a Christmas seal sale which netted last year over five million dollars for tuberculosis work in the United States. Last year they gave material assistance to the Canadian Tuberculosis Association which for the first time put on a Christmas seal sale that netted over $85,000. The Committee on Medical Research has assisted a number of workers who have been doing most important scientific research on the tubercle bacillus and the pathology of tuberculosis. The statistical and publications departments have done valuable work and their studies are available to all who might be interested, so that entirely aside from the purely medical part of the programme the National Association is a most interesting gathering where the various phases of all sociological and administrative work of the Anti-tuberculosis Campaign are reviewed.

The medical part of the programme consisted of two sections, one clinical and the other pathological. Thirty papers were presented in

the course of the three-day meeting. In the pathological section two major subjects were discussed, the gross microscopical pathology of the tubercle and the chemistry and life-cycle of the tubercle bacillus. One, the most interesting of these papers, was an account of the research work done at Cornell University on the study of a single tubercle bacillus and the actual observation of its manner of reproduction.

In the clinical section the two major subjects discussed were heliotherapy and its application in the treatment of tuberculosis and the treatment of pulmonary tuberculosis by compression methods.

Regarding heliotherapy—the effect of the sun's rays—quartz light—certain arc lights, etc., were discussed and extended research is showing that we are only at the beginning of our knowledge as regards light treatment. Sunlight, it has been found, is a very potent therapeutic agent and while with careful handling may be of great value, it is also capable of doing very considerable harm. In dealing with pulmonary tuberculosis the use of heliotherapy has to be handled with extreme care and is only of value in the more chronic afebrile, quiescent case. Even here a quiescent case may be turned into an active one by its too enthusiastic use. As a rule heliotherapy has no place in the treatment of pulmonary tuberculosis in the active febrile stage and is likely to do harm.

Artificial pneumothorax has firmly established itself as a therapeutic measure of immense value in the properly selected case. Only about 10% to 15% of cases of pulmonary tuberculosis are suitable for lung compression but when a good lung collapse is obtained we can hope for a 50% good result as contrasted with a 10% to 20% result in these cases treated in the ordinary way by rest. It is not applicable either in the early case that is likely to do well anyway on rest treatment, nor in the far advanced case with much active disease in the contra-lateral lung.

Thoracoplasty was discussed both pro and con. Some enthusiastic surgeons have evidently been trying to annex pulmonary tuberculosis as a surgical disease. Thoracoplasty is a measure that can be used after pneumothorax has been tried and failed. Probably 30% of cases suitable for pneumothorax cannot be collapsed on account of adhesions. In some cases these adhesions if string-like can be cauterised with the aid of a thoracoscope—but in the majority of cases thoracoplasty done in a two or three stage operation has given most excellent results. These cases if uncollapsed have only about a 10% to 12% chance of recovery, but thoracoplasty increases their chances to 35 or 40%.

This, in a very general way, gives some idea of the work covered. The social side of the programme was well looked after in true western hospitality by the people of Portland. The attendance of Eastern medical men and Canadian medical men was not as large as usual. The discussions were lively and brought out many most interesting points.

—C. H. V.

INTESTINAL OBSTRUCTION

LYON H. APPLEBY, M.D., F.R.C.S. (Eng.)

Read at Annual Meeting of District No. 6 of B. C. Medical Association, Nanaimo, May 7th, 1928

Most of the standard books on Surgery devote quite a considerable space to Intestinal Obstruction. Such text-books present a rather wearying classification of this and that type of obstruction with a very elaborate chapter on symptomatology. The treatment, however, is briefly described as a rule, by saying that if the obstruction is not relieved, the patient will die, and that many do die, even if it is relieved. The striking thing is that Treves' monograph on Intestinal Obstruction in 1884 is not very materially different from articles of 1928. Was the last word said in 1884 or are we still seeking the truth?

Francis Bacon, in his Essay on "Friendship" written in 1594 says: "We know that diseases of stopping and suffocation are the most dangerous in the body." This was three hundred years ago, and since then, the science and art of medicine and of surgery have made many giant strides. We point today to the abolition of many of the then common ills; to the almost total suppression of many others, and with much pride do we point to the marvellous achievements and safety of modern surgery. Thirty years ago, the mortality rate in acute appendicitis was around 35%. Today it is about 5% or 6%. What have we to say about intestinal obstruction—the "stoppings" of Bacon's day, three hundred years ago? It remains today as the only surgical condition which has not shown an improvement in its mortality rate throughout the whole antiseptic and aseptic era of surgery. Patiently we have waited during 300 years for the key which would unlock the mystery of intestinal obstruction; the vigil has been long, and so far unrewarded. The mortality rate of 1927 was not lower than it was thirty-five years ago., The mortality rate is still around 50%. Why this stain on the page of an otherwise glorious achievement?

Now the purpose of this paper is not to discuss the routine conditions of intestinal obstruction which are in all the text-books and which you all know thoroughly well. It has not changed materially in many years. Rather I want to confine myself to a brief outline of the more recent work done on obstruction. Recent enough perhaps not to have been thoroughly proven, yet introduced by men of such reputation that we must, at least, investigate; recent enough that it has not yet got into the text-books.

The stationary mortality rate in obstruction wrings from all of us a confession of the failure of the present methods of treatment and in turn an admission that the fundamental ideas upon which these treatments are based must be fallacious. The war has long been waged against obstruction, and the arsenal entombs many weapons which once shone with promise, but which have been withdrawn with hope unfulfilled. The past year has seen three new weapons added which also give promise of being of value in the struggle against obstruction, and I propose briefly to consider these, describing the ideas which led to their

development, and such success as would appear to be attendant upon their use.

The three methods to which I shall refer are the rectal injection of bile; the intravenous use of hypertonic saline and the use of the bacillus Welchii anti-toxin—all of them, obviously adjuncts to the standard operative treatment of obstruction. The first obvious thing in reviewing the past year's work would appear to be the interest which the biochemist and physiologist are at last taking in this condition. The blood chemistry worker and the bacteriological chemist working with the contents of the obstructed loops appear to have provided certain information which has proved to be of great value.

To consider first the B Welchii anti-toxin treatment. A surgeon at St. Thomas's Hospital, London, while quietly reading a text-book of surgery was struck with the similarity of phrasing in describing three different conditions. The word picture of intestinal obstruction in its later stages was: "Face is pale, pulse is rapid and feeble, hands and feet and tip of nose become cold; he usually remains conscious to the end and may fail to realize the gravity of his condition."

Of Peritonitis: Face is pale and drawn, eyes are clear and bright, mental faculties are abnormally alert, face and extremities become cold and cyanozed, pulse small; remains conscious and expresses himself as feeling better."

Of Gas Gangrene: "Vomiting is frequent, the pulse becomes rapid and uncountable, the extremities are cold and blue, the mind remains clear to the last."

Now it has long been known that the typical symptoms of late peritonitis were those of obstruction due to dynamic or paralytic causes. In other words, a peritonitis death is merely an obstruction death. This knowledge has been taken advantage of by drainage in extensive peritonitis cases. Williams who is responsible for this work, now decided that he would determine whether or not there was any connection between the terminal toxaemia of gas gangrene and that of intestinal obstruction or whether the phrasing was indeed purely accidental. He therefore undertook a great deal of experimental work.

In the first place, from an exhaustive study of the intestinal flora he proved that the preponderant anaerobic organism of the intestinal canal was the B Welchii. There were other anaerobes, but this was the preponderant one. Furthermore, he proved that in common with the aerobic organisms, its frequency increased from above downwards. Examining next the bacterial contents of strangulated or obstructed loops, he proved the presence of enormous quantities of B. Welchii in the loop. Control animals showed the presence of the normally few. Now a strangulated loop provides the most beautiful anaerobic culture tube imaginable, even the arterial supply to a strangulated loop is cut off and a condition of almost complete anoxaemia develops. Filtered extracts of this loop rendered bacteria-free proved to be powerfully toxic to control animals. We have thus, an extremely toxic material being obsorbed into the blood stream of a patient already profoundly shocked from involve-

ment of the splenchnic plexuses in the involved mesentery. We have all seen patients operated upon for acute obstruction apparently doing well, quite suddenly after operation, change, and become cold and clammy, and quickly die with every evidence of a complete overwhelming with some toxin, and the complete suspension of vital function—the patient rapidly dying a myocardial death of sudden exhaustion. Williams explains this on experimental work, that such post-operative deaths are due to the sudden absorption of strangulated loop contents which have not been drained out and which are rapidly absorbed after reduction. Again, in gangrenous appendicitis; they are almost of an obstructive nature; a faecolith causes a complete block; the distal part becomes occluded——becomes an anaerobic test tube for the development of organisms, and proceeds to eventual rupture and liberation of the living test-tube contents into the abdomen.

Now what is this organism that is responsible for the toxaemia which, added to the shock of obstruction, is proving so fatal? What are the properties of Welchii? Bacilli are divided into two great groups, those that produce an endotoxin, and those that produce an exotoxin. Of the latter type there are very few, and B. Welchii is one. The only others of much importance are the diphtheria bacillus and tetanus bacillus. Nearly all others liberate their toxin by death and disintegration of the bacillus—not so the diphtheria, gas gangrene and tetanus bacilli. They produce the toxin from the body of the bacillus and continue to pour it out, living on the while. Antigens to the first type are the various vaccines and sera, composed of the dead bodies of the bacilli or of sera derived from animals injected with the living or dead organisms and their use is obviously limited to prophylaxis and to chronic cases. Not so the exotoxins. From them, we derive the anti-toxins by injecting the bacillus: diphtheria, for instance, useful in the acute, desperate stages of the disease a real godsend to the diphtheria patient.

The happy results attending the use of diphtheria anti-toxin were duplicated by the French Government during the later stages of the war and since, in the treatment of gas gangrene by the use of gas gangrene anti-toxin, *the anti-toxin of B. Welchii.*

Now Williams had proven that toxins of gas gangrene and obstruction are the same, remembering of course, the shock of obstruction added to the toxaemia. The striking success attending the use of the anti-toxin of diphtheria and the similar anti-toxin for gas gangrene caused him to try it, he obtained a quantity of serum from the French Government. It was decided to try it for a year at St. Thomas's Hospital in London. The hospital was divided into two units, the obstruction cases coming to one unit all got anti-toxin; the cases going to the other did not, for purposes of control. The mortality rate of obstruction from all sources for the year, including strangulated hernia, was 24.8%. The unit in which antitoxin was not used continued to have a mortality rate around 30%; the unit using the serum, in 54 cases, showed a drop in the mortality rate to 9.3%, which is about in keeping with surgery for other serious acute intra-abdominal conditions. Be it remembered that the anti-toxin was administered in addition to the stan-

dard operative and other procedures, and did not, in any way, stand on its own.

It was decided to make a further test of the anti-toxin, using cases of gangrenous appendicitis, which are really obstruction cases in miniature. The mortality rate for the ten years previous was 6.3% and for those in the year the anti-toxin was used, it was 1.17% for the 256 cases of gangrenous appendicitis admitted that year. This fact has created something of a furore in England; every magazine I have picked up recently has had some reference to it. I tried to get some anti-toxin, but have been unable to prucure the amount required. Quantities of it are undergoing preparation, and is now available to everyone who desires to use it.

About the same time St. Leger Brockman, working at the Royal College of Surgeons in England realized that in spite of the brilliant advance in operative technique, instrumental methods would never be able to do more than put right the mechanical wrong prior to the development of acute ileus, and that once ileus was established, something entirely different was needed, as ileus is not remediable by mechanical means. Concerning the toxaemia, a great many theories were reviewed: the bacteraemia theory, the intestinal decomposition theory, the proteose level in the duodenum and numbers of others. Probably they are all in part, true, but the outstanding evidence of all of them was that there was a very serious and definite physiological upset, and beyond that, he could not go. The bacteria count of the gut interested him; he confirmed the scarcity of bacteria in the higher levels and the presence of great numbers in its lower reaches. Proof was forthcoming that this was not due to the HC1 of the stomach, because the same conditions hold in achlorhydria. He conceived the idea that some protecting media is secreted in the duodenum, and that this becomes progressively less potent as the lower levels of the gut are reached. The great gravity of high obstructions is explained by him as being due to the loss of this protective substance to greater stretches of bowel. We of course know in addition that the higher the obstruction, the greater the shock—up to a point.

Brockman, like Williams, proved the toxicity of the strangulated loop contents but he proved too that the toxicity of the gut below the level of obstruction was also very high. By experiment, he proved that if the strangulated loop be short circuited, the animal does not develop the extreme toxic symptoms, but does develop them as soon as the contents of the obstructed loop are permitted to be absorbed.

His next experiment was really based on the observation that obstructions above the level of the bile duct are very innocuous, witness the extreme chronicity of pyloric obstruction. He now strangulated loops of intestine and into the gut below the loop transplanted the bile duct. Again the animals failed to develop the extremely toxic condition and lived many days, usually dying of peritonitis and this in consequence of the rupture of the strangulated loop. In consequence, he assumed that is was necessary for bile to be in contact with the intestinal mucosa to prevent the development of the toxaemia of intestinal ob-

struction. This is clinically borne out perhaps by the presence of great shock and relatively little toxaemia in Richter's hernia—where the lumen itself is not obstructed, and the same holds for intussusception. How to bring the bile into contact with the mucosa was now his problem, and this he never quite solved. Nevertheless, he did find a way of putting his hypothesis to the test and with very gratifying results. He tried the use of bile per rectum, using vomited bile, aspirated bile, and bile from a biliary fistula, also ox bile. Ox bile and vomited bile were too painful for use; aspirated bile proved best and was given two or three ounces of bile to three ounces of saline. The result is still a matter of acrimonious discussion wherever surgical societies meet. I have no experience of my own worth speaking of, so shall briefly quote his results:

Thirteen cases all with stercoraceous vomiting; results:

1. Vomiting in most cases stopped forthwith.
2. Hiccough disappeared completely.
3. Tongue became moist and clean.
4. Drawn expression disappeared and remained absent even in the presence of an unrelieved obstruction.
5. Softening of the abdomen, without the passage of flatus or movement of the bowels. Where does it go? It must be absorbed.

Now it is obvious that a treatment such as this must be fairly limited as to its indications. I have had only one experience with it. A man with an obstruction of four days' duration due to a carcinoma of the sigmoid. He was just commencing to vomit and was getting toxic. His abdomen was as tense as a kettle-drum. I advised immediate operation. He refused, pending the arrival of his wife who was en route from Horse Fly. Nothing could persuade him. I aspirated some bile from a staff case under my care at the hospital at the time and gave it to him per rectum. The vomiting stopped; the abdomen though still tumid, was obviously softer. I believe he was a better operative risk for the colostomy which I did next day than he would otherwise have been. A colleague reports the cessation of hiccoughs within twenty minutes following the rectal exhibition of bile in a case of temporary vicious circuit following gastro enterostomy. Now it is a well-known fact that the vomiting is a very serious factor in the higher obstructions and its relief would prevent a chloride depletion which is in itself a lethal factor.

The use of saline solutions in acute abdominal conditions is very old —introduced many years ago by Dr. J. B. Murphy of Chicago. It is still known in most places as the "Murphy drip." This rectal introduction of saline was rapidly followed by its intravenous use as a faster means of increasing the blood volume, but in every instance, it was iso-tonic saline or Ringer's solution or Lock's modification of it that was used. It resulted in a great improvement in the pre- and post-operative treatment of abdominal disease.

Recent studies in America by such men as Ross, Orr and Coleman have had to do with the blood chemistry of animals dying of obstruction.

The great changes shown to take place are dependent largely upon the presence or absence of vomiting. In other words, high or low obstruction. The constant findings have been a great reduction of blood and urinary chlorides due to washing of chlorides out of the stomach chiefly in the form of HCl, an initial rise in the haemoglobin and red blood cell count incident to the dehydration followed by a rapid drop due to progressive haemolysis. A very rapid rise in the non-protein nitrogen probably only relative in nature and due to symptomatic anuria secondary to dehydration. Now a high N.P.N. is itself a lethal factor but can be easily controlled by overcoming the dehydration, the low blood chloride is also a lethal factor. The low chloride content of the blood gave them the idea of trying quantities of strong salt solution intravenously in the hope of rapidly overcoming the chloride loss. To this end one or two hundred c.c's of 3—10 or even 30% salt solution was administered intravenously. The results were splendid, their idea of increasing the blood chloride naturally helped the patient. The real value of their experiment was wholly unforeseen, and purely accidental. Quite accidentally, they blundered into what has since become recognized as one of the best diagnostic signs so far brought out in cases of dynamic or paralytic ileus. In many of their cases of ileus, even before they had completed the injection of the salt solution, the patient's bowels moved into the bed with a miniature explosion which resembles nothing more than an oil gusher blowing in. Frequently, the bed is extensively soiled owing to the inability of the attendant to get a bed-pan fast enough. This of course, cannot act in cases of mechanical obstruction, but in ileus of the paralytic type, where there has been vomiting, the result in many cases, is magical.

The world has long awaited the coming of a purgative suitable for hypodermic use. Although the conditions have to be right—that is, reduction of blood chloride due to vomiting, hypertonic salt solution used intravenously is the best evacuant I know of, and by many times the fastest.

What is the value of this discovery? Just this. If the hypertonic saline does not work, there is no use temporizing with stoups—enemata, eserine, pituitrin, gastric lavage, etc. The case becomes at once operative, and many valuable hours are saved.

Let us take a typical case: the story has usually been one of timid delay.

Little Johnnie develops an acute appendix. He has an abscess. It has been drained and appendix removed and for some days, everything is going well, and then Johnnie starts to have pain, he commences to vomit, fails to expel gas, becomes distended. The usual aforementioned valuable remedies have been tried. An enema brings no relief. It is here that much valuable time is lost. Nobody likes to reopen an abdomen—the people are distrustful, you didn't do something you should have done at the first operation. Perhaps the next enema or the next course of pituitrin will bring relief and save you the necessity of explaining to the parents, etc., until finally you have to go in again—usually 36 hours later than you could have if you had had some reliable sign to guide

you in the early stages. Here is where the hypertonic salt solution does its best work. If such a case does not respond to 100 c.c. of 10% saline at once, then there is no use temporizing with any of the other measures. It is a surgical block, and not a simple ileus. Get in at once while your patient still has a chance. This is the greatest single advance made in the treatment of intestinal obstruction in the present century. It saves hours, and no cases require the saving of hours more urgently than do these. In this type of case—paralytic ileus—no longer is the mortality of delay excusable.

I wish now particularly to point out that the three lines of treatment which I have presented tonight, are by no means specific. They are intended to augment the treatment of obstruction as you and I and everybody knows it. Early surgical intervention remains today the treatment par excellence, and if these adjuncts help, so much to the good.

I am quite aware that the basic principles underlying obstruction are already known to you. Nevertheless, I would like to point out a few surgical axioms. Take for instance: intussusception. In seeking help from the text-books, what do you find—a classification of a dozen or more types, ileal and ileo-caecal, etc., all based upon their surgical pathology, and all very true. From the standpoint of the practical surgeon, there are only two; reducible and non-reducible. The first 90% curable, the second 99% fatal, and all early intussusceptions are reducible. Again the mortality is one of delay. No longer is it good practice to attempt the rectal injection of air, water or manual attempt at reduction. Get in quickly and remember it is much better to open an abdomen and find nothing than to fail to open one and subsequently find an irreducible intussusception.

Again, take the position of annular carcinoma of the sigmoid. Many times we open such an obstructed abdomen and out pops a small obstructing carcinoma just asking to be snipped off, and it looks so easy. Besides doing it would save the necessity of a further operation and you would save the many dressings of colostomy. Don't do it, gentlemen! It may be very tempting, and you may get away with it, but it really is bad surgery and in the end will let you down. Do a colostomy and go in next week and resect and your mortality rate will be lower. Radical surgery in the presence of obstruction is only rarely successful, and at best an unjustifiable gamble.

The position of strangulated hernia is perhaps a bit different. We are inclined to boast of the facts that obstructions from this cause have a mortality rate around 25%—really less than half that of obstructions as a whole. Now almost any ordinary layman can diagnose a strangulated hernia, and I don't just feel that it is altogether complimentary to the profession that we should have succeeded in diagnosing and treating the obvious, and should have failed in those internal strangulations that ought to be only slightly less obvious. The fact that an obstruction is outside and can be felt is surely not held responsible for a mortality rate 50% less than that of its internal relative. The position of strangulated femoral hernia is interesting. Nearly all the standard text-books in discussing it, refer to the hard, unyielding structures forming the neck

of the canal as the strangulating medium. Such is not the case except in very recent herniae. What usually happens is that the peritoneal sac irritated on all sides by unyielding structures, gradually thickens and becomes of almost cartilaginous hardness. Most femoral herniae are strangulated, not by the neck of the canal through which they pass, but by the induration in the neck of their own peritoneal sac. An inguinal hernia on the other hand is almost invariably strangulated by the tense lower margin of the external oblique.

Gentlemen, I am not going to further weary you. I have attempted to avoid the stereotyped address on intestinal obstruction one so often hears, by confining myself to a presentation of the newer work, feeling that you know as much about the older measures as anyone. I again want to emphasize the fact that the treatment of intestinal obsruction is still based on early diagnosis and early operative relief. The methods I have described tonight are of use only as adjuncts. The use of the anti-toxin which is having such a run on the continent is soon to be made available to us, thanks to the alertness of the Connaught Laboratories in Toronto who will soon be producing this in quantity. We out here have as yet, no actual experience in the use of this. As for the bile treatment, it is now in routine use in Vancouver. It does relieve hiccough, it does help to control vomiting, and it does apparently, reduce the distension of a slowly closing chronic obstruction. Such cases would be better operative risks with bile treatments than without. The use of hypertonic saline, I repeat, has produced the only sure and early way of knowing whether to get into an abdomen suspected of harboring a paralytic ileus or not. If they blow out, well and good. If not, get in quickly. But remember the case must show a diminished blood chloride, that is, must have been vomiting considerably before the saline can be said to have a fair chance to show its value.

Gentlemen, obstruction is still obstruction. I can bring you no news of new and startling discoveries which are destined to conquer this somewhat desperate condition, as for instance, the early acute appendix has been conquered.

Surgery and earlier surgery remain the only hope for a safe and better result. We can still say as Bacon said three hundred odd years ago, "Diseases of stopping and suffocation are the most dangerous in the body."

The work completed the past year or so, and the evidence of acute interest now being taken in the matter by the physiologists and biochemists may, it is true, represent a few pink streaks in the eastern sky, but the dawn is not yet. As far as intestinal obstruction is concerned, to use the title of a modern popular song, "The world is waiting for the sunrise."

* * * *

PURE MILK

In connection with the Commission recently appointed for the investigation of the milk supply in the Province, to which Dr. H. W. Hill has been appointed, as noted elsewhere, it may not be generally known

to our members that the Vancouver Medical Association took the first active steps in this Province for the securing of a pure milk supply. A perusal of the Association records supports this statement.

A Committee was formed in December, 1907, composed of Drs. Underhill, Kendall and Riggs with Dr. McKee as secretary and bacteriologist. This Committee was styled "The Vancouver Medical Association Milk Commission," and under its immediate supervision bacteriological examination was made of milk and special caps were approved for use by dairies whose product reached the requirements of the Commission.

This Commission continued to function until the outbreak of the war, with very satisfactory results, the herd being kept T. B. free. Following the outbreak of war and the formation of the Fraser Valley Association, milk inspection dropped into abeyance and while the Committee was reformed after the war (1921) under the title of the Vancouver Medical Association Milk Committee, composed of Drs. Proctor, G. B. Murphy and C. F. Covernton, the bacteriological examination had passed in the meantime into the hands of the City Health Department. The work of the Committee was confined to inspection of the premises and the methods of handling in a few dairies.

The dairymen themselves saw, as early as 1908, the advisability of marketing a product under a seal of official approval, corresponding to the "Certified" milk sold in the United States, and attempts were made by Messrs. Twiss and Hope, followed by others, to market such a product but it could not be made to pay.

The new Milk Committee of the Association above referred to functioned chiefly in an advisory capacity to the City and Provincial Boards of Health.

* * *

MEETINGS

The Sixth Annual Meeting of the Canadian Society for the Study of Diseases of Children was held in Vancouver on June 29th. When one takes into consideration the very tender age of this Society and the far-western locale of the meeting, the membership attendance—33%—was indeed excellent. Following as it did on the heels of the midsummer session of the North Pacific Paediatric Society several men from the adjoining States of Washington and Oregon were enabled to remain over for the meeting.

The sessions were held in the Patricia room of the Hotel Georgia and opened with the presidential address of Dr. Geo. R. Pirie of Toronto. His remarks, and the paper of Dr. H. P. Wright which followed, dealt with an outbreak of acute intestinal infection in Toronto last year. A very prolonged and excellent discussion on the rational approach to disturbances of nutrition in infancy followed. Dr. F. M. Fry's paper, which was read in absentio by Dr. A. P. Hart, dealt with the very pertinent question "What is a Pediatrist" and drew attention to the looseness in spelling this and other medical terms. Dr. Howard Spohn reported a rare case of "Teratoma of the Neck" in a boy of five. Dr. Frank H. Boone's paper dealt with "Chronic Diffuse Nephritis in Young

Children with report of a case." Dr. H. B. Cushing of Montreal, outlined the different types of erysipelas in children and discussed the value of treatment with erysipelas anti-toxin. The morning session closed with a paper by Dr. S. G. Ross and Jessie B. Scriven (by invitation) on the "Use of Bananas as a Food for Normal Infants and Young Children."

The afternoon Session opened with the showing of a moving picture reel of a case of "Amyotonia Congenita" from the Boston Children's Hospital, discussed by Dr. H. P. Wright. Dr. A. P. Hart's paper on Birkhaug's Rheumatic Toxin brought out the disappointing results obtained in Toronto with the use of this test, which Dr. Birkhaug said the speaker, appeared to think might be due to a different strain existing in Toronto. Dr. Alan Canfield's talk on "Some Observations in Child Life with special Attention to Feeding and Physique" dealt with the treatment of the type of child to which the speaker gave the name "Underling". "A Case of Cerebellar Abscess" was reported by Dr. Geo. Boyer in which the apparent impossibility of correct diagnosis had resulted in the death of the patient. Each paper was followed by an excellent discussion. At the business meeting which followed the reading of the scientific papers, the following officers were elected for the coming year: President, Dr. Crossan Clark; Secretary, Dr. Frank H. Boone, both of Hamilton, Ontario.

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GANGRENE *of the* EXTREMITIES *with* PARTICULAR REFERENCE TO BUERGER'S DISEASE

Read before the Summer School of the Canadian Medical Association in June *by* Dr. Scrimger.

Not more than five years ago there was set a question in the final examinations at McGill asking for a description of the pathology and treatment of peripheral gangrene. Very little of the then accepted pathology and treatment would stand today, and both have been and still are, the subjects of discussion.

I am no great lover of classifications and avoid where possible the making of new ones. I will, therefore, refer briefly to the types by what I hope are familiar names, senile, pre-senile, or Buerger's, diabetic, traumatic and infective. I will try to give you for what it may be worth, my present beliefs and so far as I have reasons, the reasons for that belief in regard to peripheral gangrene. The peripheral gangrenes divide themselves naturally into two groups. First, those in which the main blood vessels in the limb are healthy and the gangrene is caused by some outside agency such as heat, cold, trauma, carbolic acid, etc. These have the common factor of a normal blood supply leading to the injured part. The old principal still holds that one waits for the line of demarcation. In other words, one waits to see how far the injury has been destructive and acts accordingly, remembering that in most of them the widest destruction is superficial.

Of the peripheral gangrenes whose cause lies in an interference with the main blood supply to the limb the most definitely understood and

therefore the least interesting, is gangrene of the senile type. It depends on a general degenerative change in the arterial system, an arteriosclerosis and atheroma; a replacement of the elastic elements in the vessel wall by fibrous tissue in which are deposited calcium salts. This results in two distinct effects on the circulation. The rigid tubes lose the impulse of the elastic recoil and the flow must depend largely or wholly on the force directly transmitted by the heart. Secondly the roughened walls tend to encourage clotting and thrombus formation. I have never seen a gangrene of the senile type in which the artery was not thrombosed at least as high as the popliteal.

Our outlook is here determined, as I will point out later, by the fact that the change is a general change and involves equally the primary and secondary circulations. There is, therefore, little hope for the widening of collateral channels.

The onset of the gangrene is usually determined by some trivial infection or trauma. The foot may gradually shrivel and become hard and black. Amputation is still our usual recourse and this amputation must be high at least as high as the knee. I may here express my preference for amputation through the condyles of the femur just above the joint. The under surface of the patella is sawn off to give a bone surface and turn down over the end of the femur. I have slightly modified this, the Stokes Gritti amputation, by making the incision almost transverse across the level of the patellar tubercle on the tibia, with the fashioning of a short posterior flap. These flaps are then cut back holding close to the bone until the point for section of the femur is reached. The femur is sawn through. The vessels isolated and tied, the nerves cut back. The under surface of the patella is sawn off and if neatly done should fit over the end without tendency to slip. The flaps are closed without drainage. The whole procedure is carried out under gas anaesthesia without a tourniquet. The advantages are an end bearing stump, the flaps contain the patella, the quadriceps expansion and the collateral branches around the knee which come from the profunda. I have not had such an amputation fail to heal kindly. I never fasten the patella to the femur.

This amputation I have described in some detail because it is applicable to all cases where amputation at this site is done; because I have seen it done badly; or because higher amputations are done without securing an end bearing stump and have necessarily a more poorly nourished flap.

This used to be our belief equally with regard to the diabetic gangrene. The blood vessel changes are of the same order. The determining factor of slight injury or infection the same. There are, however, two reasons which have led us to materially alter our practice in regard to the treatment of threatened diabetic gangrene. First, not infrequently, rather as a rule, the profunda branch of the femoral artery is not so much affected by the atheromatous process as is the superficial. This permits a hope for the development of a collateral circulation much as will be described in considering Buerger's Disease. The second reason is the better control of the hyperglycaemia which is possible with modern methods of control diabetes. We feel that now a diabetic can be held,

other things being equal, as good a surgical risk, as regards life and healing, as a non-diabetic. As a result, of the last fourteen gangrenous toes associated with diabetes, only five have been amputated at the knee, the others had one, two or three toes removed, and one has had a Syme's amputation with satisfactory healing. Sometimes pain of the typical kind has forced us to higher amputation. For this we have tried, but without much benefit, a Leriche periaterial sympathectomy. The role of this operation will be referred to later.

With the true Raynaud's gangrene I have no experience and will not burden you with views which are as accessible to you as to myself.

Of the Buerger's or pre-senile gangrene, to give it its proper term thromboangeitis obliterans, I will speak somewhat more at length since for the past two or three years I have been interested in its manifestations.

With the details of the pathology I must weary you to some extent for, again as always, a mode of rational treatment can only be reached when at least the main features are clearly visualized.

It was first recognized as a clinical entity by Buerger in 1908. The gross pathology indicates that most of the main arteries and veins are obliterated over a large extent of their course. The primary occlusion is caused, as Miller has shown, by large red thrombi which are patchy in their distribution. The thrombus may become organized and so complete the occlusion or it may become canalized and be of aid in re-establishing the circulation. Another striking feature is the presence of perivascular inflamation in the form of replacement fibrosis binding together the vein, artery and nerve.

The earliest changes in the vessels consist of an acute inflammation of all the coats. The walls are infiltrated with polymorphonuclear leucocytes and the lumen of the vessel filled with the clot. This passes on to chronic changes of the replacement of fibrosis type and the clot may become canalized.

This is the essential series of changes representing the disease itself. As a result of this obstruction to the circulation, secondary changes in the nature of an effort to re-establsh the circulation take place in the formation of a collateral circulation, mostly derived from the profunda branch. If the obliterating process progresses faster than the compensatory circulation, gangrene may result. If the collateral circulation outstrips the obliterating process the blood supply is restored and the limb saved.

The tendency is to advance by irregular steps. The x-ray evidence derived from injecting amputated legs with opaque media, tends to show what a really remarkable restoration of the circulation may take place if conditions are favorable and gangrene does not supervene. Naturally I cannot show those in which the circulation has been restored most completely for in these the limbs were saved. Some of my older plates, when amputation was resorted to almost as routine, have unfortunately gone astray.

The clinical course and manifestations are as a rule reasonably typical. The patient is usually a young male adult often of Russian, Polish or Jewish stock and of sedentary habits. I have seen cases, however, among the English and French Canadian and in Assyrians, Miller has reported 25 cases seen in China, and it is also reported to be fairly common among the Japanese.

The onset is usually heralded by vague pains in the toes and foot, occasionally in the calf of the leg. These patients suffer from numbness and tingling in cold weather. Often cramping pains in the leg after walking occur. There may be pain, tenderness and even redness over the superficial veins which shows a tendency to disappear and to reappear in an irregular manner. These symptoms may persist for months and years with remissions, but, become gradually more troublesome until the pain may be an almost intolerable ache day and night. At any time during this course ulceration may supervene spontaneously or as the result of slight trauma, a burn or frost bite, an ingrowing toenail. This refuses to heal and tends gradually to spread. On account of the pain and the unhealed ulcer the patient becomes confined to bed or at least has his activities greatly restricted. Often too, the skin of the foot becomes glazed and reddened. On examination the infected limb is colder than the other. The skin is glazed and atrophic in appearance. The reddening, seen best with the foot hanging, begins over the affected toe and spreads up the dorsum of the foot. On elevating the leg it grows gradually white in marked contrast to the good leg which grows pale only to a point when the color remains constant. On lowering the leg the reddening gradually passes downwards in a wave towards the toes and ultimately the foot becomes redder than the good leg. Pulsations of the vessels cannot usually be felt.

Any rational treatment must depend on an understanding of the pathological process of the disease. It may be directed along two lines, first remove all of the cause and secondly, the encouragement of the collateral circulation. As regards the cause, we are still in the dark. In spite of the strong presumption of an infective origin, positive cultures from portions of vein have not been obtained. Suggestions that excessive smoking, exposure to cold, increase in the viscosity of the blood, food containing vaso constrictors, alterations in the blood chemistry, endocrine disturbances, are etiological factors, all lack confirmation; nor have therapeutic measures based on these theories been followed by beneficial results. We must turn then to the mechanical side and encourage as we may the development of the collateral circulation. One of the most potent influences tending to the non-development of this collateral circulation is the immobilization of the patient and the limb on account of pain. One of the most favorable influences is active use. If, therefore, we can relieve the pain and promote exercise or, better, return patient to active work, we will do much to save the limb.

Very naturally this type of case came into mind when Leriche began to publish his experiences with periarterial sympathectomy.

May I halt for a few moments to recall to your minds some of the beliefs in regard to the sympathetic nerve supply to the vessels. The

vascular system is under the control of the autonomic nervous system, the sympathetic and the para sympathetic. This nerve supply reaches the vessels by two routes. Branches from the sympathetic pass down along the great vessels in the form of a nerve plexus which runs in the adventitia and is believed to be distributed in a more or less segmental manner.

Other branches as you know, join the spinal nerve trunks, pass down in them and are again distributed in a segmental manner . If the adventitia is dissected off the main vessel as for instance the femoral, the sympathetic fibres are removed with it and as Leriche pointed out, this is followed by a series of typical changes if the vessel is patent. The vessel first contracts almost to the point of obliterating its lumen and the foot gets pale. This is followed by a dilation of the vessel, an increase of heat and a feeling of warmth. To a leg threatened with gangrene from a lack of arterial supply this it seemed obviously could be beneficial. It was, however, soon found, both experimentally and clinically, that this alteration was only temporary and there is no evidence to show convincingly that there is any permanent increase in the blood flow following this peri-arterial sympathectomy. This, I say in spite of statements to the contrary and the not infrequent testimony of the patients themselves. Removal of the lumbar sympathetic cord does give a hot paw in a normal animal. There is, however, another factor to be considered. The question of the perception of pain by the sympathetic route has never been clearly defined yet we all know that pain is perceived through these paths. The exciting stimulus is not usually the same as that for the spinal nerves. It is well known that one can cut, burn or pinch the intestine without any perception of pain but you cannot stretch or over contract it. Similarly an appropriate stimulus will cause pain to be perceived through the sympathetic paths in the vessels.

I must now venture out on rather thin ice, not too well thickened by facts. Let us start with a fair assumption that in Buerger's disease we have a local condition of the vessels leading to thrombosis of the main channels. That there is a good hope for the development of an adequate collateral circulation if time is given for the vessels to enlarge. What is the main urgent reason for amputation? In my experience it has been pain. If then we can relieve the pain we give time for the development of the collateral circulation. Further, if we relieve pain the patient will walk and use the leg, another important factor in the development of the essential collateral channels. Our experience has to do with ten peri-arterial sympathectomies. In three of these there was a very remarkable and dramatic relief of pain as a result. In two, amputation was postponed and a local removal of the gangrenous area done, in one case the distal phalanx of the toe, in the other the whole toe; both have healed and the men are walking and at work. The wounds have remained healed one for three years and one for nearly one year, the other seven had no relief of pain, in two other cases the pain gradually became less as they began to get about and they have passed through a period where the vitality of the limb was threatened, into apparent safety.

Why these three were relieved and others not, I do not know. I am anxious to know and am waiting an opportunity to try to find out if

the relief does not follow a femoral periarterial sympathectomy will it follow a removal of the lumbar sympathetic cord? I have some reason to believ it may.

In contrast to our previous practice I believe that if we can relieve the pain and the obliterating process does not advance too rapidly we can hope to save these legs. Louis has advocated tying the femoral artery and has carried it out in at least three, perhaps five, instances. His argument in that this forces the collateral circulation and relieves pain, would not the relief of pain do as much. In one instance within my knowledge the ligation of vessels was followed by gangrene of the leg. Moreover in many instances a periarterial sympathectomy reveals an already thombosed vessel. As further aids we advocate heat and exercises, raising and lowering the legs. We reserve amputation at the knee only for those cases where gangrene has become extensive or is progressing. We have at least four instances where conservative methods have resulted in a useful painless leg at the sacrifice of one or more toes only.

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B. C. MEDICAL ASSOCIATION NOTES

Dr. G. A. C. Roberts and Mrs. Roberts left last week for Queen Charlotte City where the doctor intends to practice in future.

* * *

Dr. R. H. Mason of Clinton, has taken over Dr. Campbell's practice at Bella Coola.

* * *

Dr. D. J. Miller, formerly on the staff of the Workmen's Compensation Board and more recently of Powell River, has taken up practice in North Vancouver.

* * *

We very much regret to inform our readers that Mr. C. J. Fletcher, the indefatigable executive secretary of the B. C. Medical Association is in poor health and will be absent from the office for two or three months.

* * *

Dr. F. Stainsby, formerly of West Vancouver, has left for Mayo, Yukon Territory, where he will engage in practice.

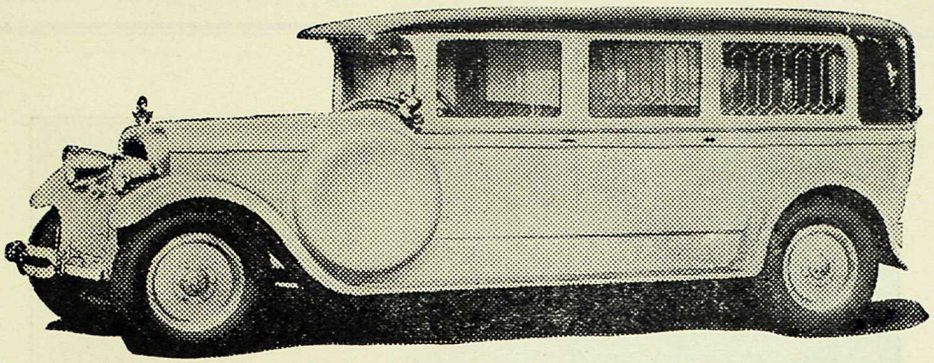
VANCOUVER HEALTH DEPARTMENT

STATISTICS, JUNE, 1928

Total Population (estimated)		142,150
Asiatic Population (estimated)		10,940
	Rate per 1,000 of Population	
Total Deaths	160	13.73
Asiatic Deaths	8	8.92
Deaths—Residents only	116	9.96
Total Births:		
Male 127		
Female 141	268	23.00
Stillbirths—not included in above	6	
INFANTILE MORTALITY—		
Deaths under one year of age	8	
Death Rate per 1,000 Births	29.85	

CASES OF INFECTIOUS DISEASES REPORTED IN CITY

	May, 1928		June, 1928		July 1st to 15th, 1928	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Smallpox	16	0	4	0	5	0
Scarlet Fever	2	0	6	1	4	0
Diphtheria	49	3	43	7	23	2
Chicken-pox	78	0	26	0	2	0
Measles	5	0	2	0	1	0
Mumps	48	0	14	0	1	0
Whooping-cough	5	0	4	0	6	0
Typhoid Fever	1	0	2	0	0	0
Tuberculosis	22	14	18	16	10	—
Erysipelas	6	0	5	0	1	0
Cerebral-spinal Meningitis	3	2	0	0	0	0
Cases from Outside City—Included in Above						
Diphtheria	11	1	17	4	10	1
Scarlet Fever	1	0	3	0	2	0
Smallpox	2	0	0	0	1	0
Typhoid Fever	1	0	1	0	0	0



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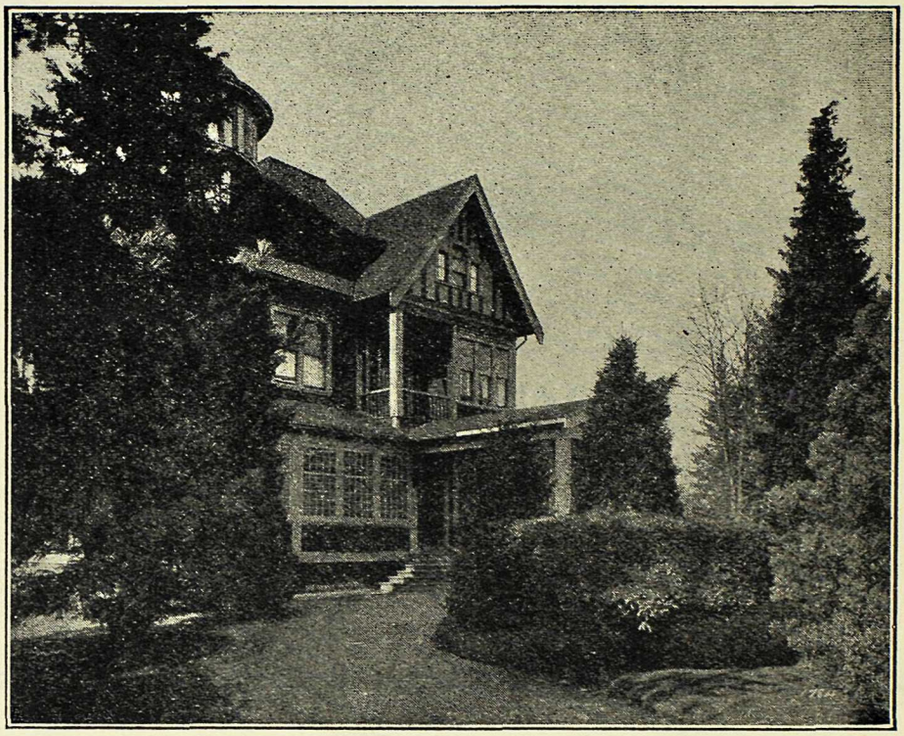

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Reference ~ B. C. Medical Association

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