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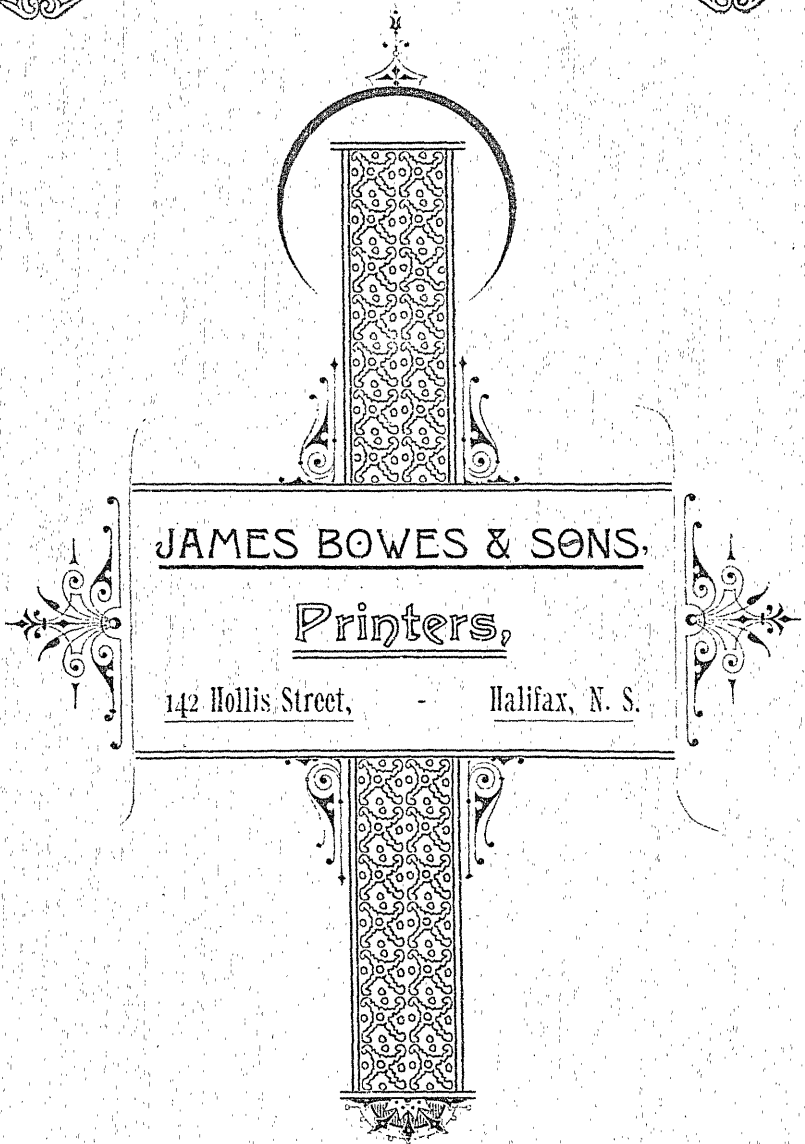
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The sixty-first session will commence on the 3rd of October, and will be continued until the end of the following March; this will be followed by a Summer Session, commencing about the middle of April and ending the first week in July.

Founded in 1824, and organized as a Faculty of McGill University in 1829, this School has enjoyed, in an unusual degree, the confidence of the profession throughout Canada and the neighbouring States.

One of the distinctive features in the teaching of this School, and the one to which its prosperity is largely due, is the prominence given to Clinical Instruction. Based on the Edinburgh model, it is chiefly Bed-side, and the student personally investigates the cases under the supervision of special Professors of Clinical Medicine and Surgery.

The Primary subjects are now all taught practically as well as theoretically. For the department of Anatomy, besides a commodious and well-lighted dissecting room, there is a special anatomical museum and a bone-room. The other branches are also provided with large laboratories for practical courses. There is a Physiological Laboratory, well-stocked with modern apparatus; a Histological Laboratory, supplied with thirty-five microscopes; a Pharmacological Laboratory; a large Chemical Laboratory, capable of accommodating 76 students at work at a time.

Besides these, there is a Pathological Laboratory, well adapted for its special work. It is a separate building of three stories, the upper one being one large laboratory for students 48 by 40 feet. The first flat contains the research laboratory, lecture room, and the Professor's private laboratory, the ground floor being used for the Curator and for keeping animals.

Recently extensive additions were made to the building and the old one remodelled, so that besides the Laboratories, there are two large lecture-rooms capable of seating 300 students each, also a demonstrating room for a smaller number. There is also a Library of over 15,000 volumes, a museum, as well as reading-rooms for the students.

In the recent improvements that were made, the comfort of the students was also kept in view.

MATRICULATION.—Students from Ontario and Quebec are advised to pass the Matriculation Examination of the Medical Councils of their respective Provinces before entering upon their studies. Students from the United States and Maritime Provinces, unless they can produce a certificate of having passed a recognized Matriculation Examination, must present themselves for the Examination of the University on the first Friday of October or the last Friday of March.

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Original Communications.

NOTE ON CONVULSIVE SEIZURES.

By W. H. HATTIE, M. D., Assistant Superintendent of the Hospital for Insane, Halifax, N. S.

(Read before Canadian Medical Association at St. John, 1894)

I do not think that I can be very far astray in asserting that of all diseases which have been studied by men of medicine, none has given less evident recompense, in the way of applicability to therapy, than that particular manifestation of disordered nervous action known as epilepsy. Despite the faithful attention given by many able investigators to the questions of the etiology and pathology of this dreadful disease, we are yet left in a position which compels us to admit that our knowledge of it is so limited and so crude that such treatment as we adopt is largely empirical, and not suggested by a rational understanding of the condition which we

desire to relieve. It is no doubt presumptive in me to offer any suggestions upon this subject, but my observations of several epileptic patients in the wards of the Nova Scotia Hospital for Insane has impressed upon me the belief that not all has yet been done in the study of the disease, and I am before you to ask your attention to an hypothesis which is perhaps only a modification of other hypotheses, but which is one that affords a basis for investigation. One principal reason for bringing it to your notice is the hope of being able to interest some of those here—more competent and better equipped than myself for the necessary laboratory work—to engage in developing the theory. It is my intention merely to make this paper a preliminary to a more ambitious communication which I hope ere long to make public.

Convulsions are supposed by Hughlings Jackson, and I think by all other authorities of note, to be due to a sudden violent discharge of nervous energy from the cells of one or other

portion of the central nervous system. According to the situation of the cells primarily discharging, we get various kinds of seizures which Jackson has designated as lowest level fits, middle level fits, and highest level fits,—the lowest level including roughly the cord, medulla and pons, the middle level, the "motor regions," and the highest level, the preafontal lobes. These several classes of fits differ very materially from one another in many particulars, but all agree in possessing as a most prominent symptom badly co-ordinated and bizarre movements of some or other muscle groups. It is only in the fits originating in the "highest level" of Jackson, that we regularly get unconsciousness, and it is these fits alone that are properly termed epileptic.

Save for the researches of Bevan Lewis and those of his bent, practically nothing definite has been done towards the demonstration of any morbid anatomical condition in connection with epilepsy. Lewis, however, claims that, by adopting certain simple staining methods for fresh sections of tissue, a fairly well defined and nearly constant vacuolation of the nuclei of the second layer of cortical cells can be made out. By no means the majority of microscopists in the pathologic field are able to make the same findings as Lewis, and some competent men declare that they are frequently able to detect very similar tho' perhaps not identical—conditions in the normal cerebral cortex after excessive fatiguing exercise. Although the claims of Lewis, therefore, are not absolutely disallowed, it is considered—by many at least—that the changes in the cells are consequent upon rather than causative of the epileptic discharge.

In a great many instances we can look back into the family history of epileptic patients and find evidence of a neurotic strain, and it is ordinarily

assumed that many come into this world with an excitable tendency of nerve cells. This may to an extent be true, but I feel that too much weight is attached to heredity as a cause of peculiarities of constitution which might with more reason, be attributed to association and environment. And I am loth to believe that an individual becomes a subject of epilepsy because a progenitor happened to be afflicted with that disease. I incline however to the conviction that epilepsy develops *de novo* in every person who is so unfortunate as to become its subject, and that what is ordinarily signified by the term epilepsy, instead of being a disease in itself, is a group of symptoms indicative of systemic disorder—that the lack of inhibitory power which we believe to exist in the motor cells is (in the "idiopathic" affection) the result of mal-nourishment consequent upon the insufficient removal of some waste product (*i. e.*, toxic material) which, as a mild but constantly acting irritant, tends to make unstable the cerebral cells—and that it is towards the discovery of such toxic material that we must direct our attention if we are to find the cause of the trouble. Perhaps instead of there being merely a defect in the elimination of the poison, there may actually be an excessive production of it. The convulsion may be determined either by the accumulation of the poison to an unbearable extent, or it may result from some slight external stimulus (as a sudden flash of light, or a loud noise) which ordinarily would have no effect, but which is nevertheless sufficient to cause the discharge of cells rendered highly unstable. It is, of course, necessary to assume that the seizure is effective in inducing an extra elimination of the poison. This I think is reasonable from the fact (definitely ascertained by Horsley) that the brain is hyperaemic during a convulsion—a

condition that certainly would aid in elimination, and also that the convulsion is so likely to be followed by an increase in the urinary secretion. Moreover, the cells are exhausted by their discharge, and require time for recuperation before another fit can occur. For these two reasons, then, the patient is not constantly convulsed.

I regret that I cannot as yet substantiate my opinion with any direct proof, but trust that the results of some experiments about to be undertaken will go towards showing that my statements are at least well grounded. Meanwhile there are certain points connected with convulsive disorders which we may advisedly consider.

Convulsions, no matter what muscles implicated, are due to abnormal functioning of cells in some part of the central nervous system. The location of the discharging cells determines the character of the seizure. The lower the situation of the discharging cells, the simpler and less general are the fits, while, *vice versa*, the higher their situation, the more complicated and more comprehensive are the convulsions. From a simple involuntary and incoordinated action of the muscles of a limited portion of the body, when the discharge originates in a "lowest level," we rise through a series of fits which grow more and more general and severe, and are attended by more and more complex involvement of the various parts of the muscular system, until we reach those fits known as "epileptic," which are believed to originate in the "highest level" of the encephalon, which are attended with more or less profound unconsciousness, and which, when frequently repeated, tend *in ultimato* to mental degeneration.

Our knowledge enables us to classify convulsions into those which *are* and those which *are not* due to some evident irritant. The fits following trauma of the brain, those associated

with tumor, abscess or other condition in which structure is disturbed (as in apoplexy, meningitis, general paralysis of the insane, etc.), class under those due to evident irritant. The so-called idiopathic epileptic fits, major and minor, the convulsions of hysteria, etc., might be placed in the list of those in which there is no evident irritant. And in some conditions which have long been regarded as due to the retention of effete matters in the system—as in what has been called uraemia, as well as in the early stages of many acute disorders regarded by modern pathologists as toxic (bacterial), we find convulsion to be a frequent and prominent symptom. It is true that these convulsions differ materially from one another in their appearances, but the differences are really minor, and depend upon the situation of the cells in which the discharge of nervous energy originates. And I think it is reasonable to suppose that in every case the cells are excited into discharging—or at least made extraordinarily unstable—on account of irritation, whether that irritation be evident as a tumor or gross lesion of some kind, or whether it be the more subtle but equally capable effect of some retained poisonous secretion.

It is unquestioned that the convulsions of asphyxia are due to the retention in the blood of CO_2 —which acts as an irritant to the cerebral cells. We cannot, it is true, trace so apparent a poison as CC_2 in all cases of convulsion, yet it is not beyond possibility that our rapidly perfecting knowledge of physiologic and pathologic chemistry may soon permit the demonstration of a substance or substances, existent within the body under certain circumstances, and to which may be attributed the causation of convulsive seizures.—Anaemia is a condition which is becoming more and more regarded as the result of defective elimination. The examination of the blood of many of our

epileptic patients at the N. S. Hospital for the Insane—carried on systematically for a period of some weeks—shewed undoubted tendency to anaemia, either in an actual diminution of the number of red cells, or in a lowered percentage of haemoglobin in cases where the red cells were not notably scanty. Of course the frequency with which anaemia is found associated with so many diseases renders this observation of comparatively little value, yet it is not advisable to overlook it entirely. It is possible that the condition underlying the anaemia of our epileptic cases may be also the condition upon which the cell-instability depends.

Physiology teaches that cerebral activity depends absolutely on a more or less perfect circulation of blood. Our knowledge regarding the metabolic processes in nerve tissue is still very deficient, but that during nervous activity some waste product is formed, and normally removed by the blood stream is not only likely by analogy, but practically proven by the fact that after compression of the bloodvessels of nerves the excitability of the nerve fails, and is restored again when the circulation is re-established. We know, too, that from nervous tissues certain chemic substances may be extracted, notably xanthin, hypoxanthin, kreatin, leucin, etc. And we know further that when certain substances found in urine—including kreatin, kreatinin, etc.—are sprinkled upon the motor areas of the brain of experimental animals, pronounced eclamptic convulsions occur, and are followed by deep coma. These facts are very suggestive in connection with what we are studying, and in this connection, too, it is interesting to note a case recently reported by Dr. B. K. Rachford, of Cincinnati, in which there were peculiar epileptoid attacks, and in which the urine contained a marked excess of paraxanthin.

The effete products of metabolism

are thrown off from our bodies by the skin, lungs, kidneys and bowels. Perfect action of the kidneys is especially necessary to health, but interference with the action of any of the emunctories results in unpleasant symptoms, of which those referable to the nervous system are by no means least important. It is now well established that sluggishness of the bowels allows of reabsorption of toxic materials with the production of the feelings of depression and malaise which always accompany constipation. The necessity for free action of the bowels in epilepsy has long been insisted upon. Constipation undoubtedly increases the frequency of the fits. On the theory that epileptic convulsions might sometimes be reflex to intestinal irritation, Peterson advocated the use of B-Naphthol, in order to secure intestinal asepsis. On the theory that the reabsorption of toxic materials from the intestine might be the cause of the convulsions, we adopted similar treatment at the N. S. Hospital for Insane. At first we used B-Naphthol alone, in doses of gr. x, t. i. d.—Pot. Brom. being discarded completely. The results were not good, and we tried the combination of Pot. Brom. with B-Naphthol. This was much more satisfactory, but the B-Naphthol was so repugnant to most of our patients that we decided to try some other drug for the purpose of disinfecting the intestine, and for this purpose we began the use of Aq. Cinnam. A comparison of results will best illustrate the effect of this treatment.

Eight patients were selected for study. The records of these patients for 1892, when they were getting the bromide treatment as ordinarily advocated in the books, shew that they averaged 12.3 fits per patient per month. At the beginning of 1893, five of these eight patients were put upon B-Naphthol for three months, during which time they averaged 16.1

fits per patient per month—an average increase of 3.8 fits over the results of the ordinary treatment. Three of these five were then placed on sulfonal and Salol (gr. xx. t. i. d.) for a short period. The average number of fits per month fell to 10.5, but the condition of the patients became so pitifully stupid that we abandoned the treatment. During the second and third quarters of 1893 the treatment was mixed, some patients getting the Pot. Brom. *with*, others *without* antiseptic. The average was reduced to 8.75. Then we adopted as regular treatment, and practiced it rigidly for eight months, the combination of Potass Brom. with Aq. Cinnam. The average was again reduced—that for the whole of this period being 6.32. On the first of May last, treatment was entirely suspended for 20 days. During this time the average rate of fits per patient per month was 23.4, and for the rest of the month (when the treatment was being carried on, but when the patients had scarcely become influenced by the drugs), it was 21.8. The treatment has since been continued, the average number of fits during June and July being a trifle less than 6.4 per patient per month.

A reduction in the frequency of epileptic convulsions from an average of 12.3 per month in 1892 under Pot. Brom. alone or in ordinary mixtures, to an average of 6.4 per month during the last half of 1893 and during 1894, when the bromide was combined with an antiseptic, is a result which is worth notice, although it is still far from satisfactory.

According to the theory here suggested, we would explain the action of bromide by attributing to it the power of blunting the cells, rendering them less reactive to irritation. It has been said that there is an unconscious memory in disease, and that if cells can be kept from discharging for a sufficiently long time, the memory

may be lost and a cure result. I feel rather like applying the law of habit to the condition. Cells which have once discharged in a certain direction, and in response to a certain stimulus, discharge more readily a second time under similar conditions, and with each succeeding discharge the reaction becomes more and more a habit. In our treatment of the disorder, we must first endeavor to eliminate the cause, to ensure perfect removal from the system of all matters which might act as irritants to the cerebral cells, and then endeavor to overcome the established habit by the judicious administration of some drug, which will directly or indirectly delay or suppress the reaction of the cells to slight stimuli. In the bromide of potassium we have a drug which unquestionably aids in that direction. Potassium however is a mineral which in itself has the property of inducing convulsions, when injected into the blood stream. Bouchard holds that of all ingredients in the urine, potash is the most toxic. It is therefore essential that the functions of the kidney be well performed during the administration of this drug, both that the ordinary toxic products of metabolism may be eliminated, and that there may be no danger of an overdue accumulation of potash in the system.

I regret that I cannot compare statistics of treatment by other bromides (in combination with intestinal antiseptics), with those which I have already presented, but this is a matter which will receive attention from me in the future.

A PRESCRIPTION FOR EXTERNAL HEMORRHOIDS.

R Chrysarobin, gr. xvi ;
Iodoformi, gr. vi ;
Ext. belladonnæ, gr. xii ;
Vaselin, ʒvi. M.

A small quantity to be applied to the swellings several times daily, the parts having been previously washed with a solution of carbolic acid (1 in 5).—*Medical Press and Circular.*

A CASE OF INTERSCAPULO-THORACIC AMPUTATION FOR CHONDRO-SARCOMA OF THE SHOULDER JOINT.

By FRANCIS J. SHEPHERD, M. D.,
Surgeon to the Montreal General
Hospital.

Read before the Canadian Medical Association at
St. John, August, 1894.

I do not propose in this short paper to give an account of all the operations of this kind which have been performed up to the present time, but shall merely describe in outline the history of the operation, and put on record a successful case, the first I believe that has ever been performed in Canada. The operation of removal of the whole of the upper extremity was first done by surgeon Ralph Cumming in 1808 at Greenwich Hospital on a sailor suffering from severe gun-shot wound, and since then others, have frequently performed it for severe injuries of the upper extremity, chiefly due to machinery accidents. Dr. George McLellan of Philadelphia claims to have been the first to remove the whole upper extremity for disease, this he did in 1833. Mr. Syme in Great Britain successfully removed the whole upper extremity in 1863, and Sir Wm. Ferguson 1865. In both cases there had been a previous amputation of the shoulder joint. Dr. Paul Berger of Paris, first systematized the operation in 1882. He removed the whole upper extremity at one sitting. With these few preliminary remarks I shall now proceed to relate my case.

Mrs. S., an enormously stout woman, aged 32, native of England, entered the Montreal General Hospital June 8th, 1892, complaining of a large painful growth below and behind the right shoulder. She said her shoulder had been bruised severely some four years before by the falling on it of a piece of iron. At the time no external evidence of injury existed, but

she was never free from pain after the accident. In March, 1890, she first noticed a growth about the size of an egg behind the head of the humerus, this gradually increased in size and extended upwards and inwards almost completely surrounding the joint. All this time her general health remained good, and the condition of her shoulder never caused her any anxiety until a few weeks before entering hospital, when it began to seriously interfere with the movements of the arm, and was the cause of considerable suffering. The following notes were taken on entrance:—"Patient is a very stout woman of a healthy appearance, and no evidence on examination of any organic disease. On examining the right shoulder it is seen to be enormously enlarged and occupied by some form of growth, and measures 13 inches in breadth, 10 inches in length, and about thirty inches in circumference. The tumor is firm and immovable, with a tender soft fluctuating spot on the posterior edge of the axillary space. The skin over the tumor is tense and can with much difficulty be lifted from the tissue below, the tumour seems to involve the shoulder joint, which is quite immovable, movements of the arm carrying the scapula with it; patient has good use of her fore arm and fingers, and there is no œdema but the pain along the course of the brachial plexus is most severe and continuous." Having obtained her consent, removal of the arm and scapula was decided upon.

Operation performed June 17th, 1892. After the patient was well etherized an incision was made above the middle of the clavicle and through the deep cervical fascia and the sub-clavian artery searched for; owing to the raising of the shoulder and clavicle, and the stoutness of the patient this artery was much deeper down than usual and more difficult to find, the vessel was compressed by Dr. Roddick



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Physicians and patients have been much disappointed in the benefit anticipated, and often ill effects have been experienced from the use of the many imitations claiming to be the same or as good as Wyeth's. In purchasing or prescribing please ask for "Wyeth's" and do not be persuaded to take any other.



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against the first rib during the operation—the incision already made for the purpose of reaching the subclavian was extended outwards to the acromio-clavicular joint and from there continued over the shoulder and curving to the inferior angle of the scapular. This flap was dissected inwards towards the spine and the muscles attaching the scapula to the trunk divided and all bleeding scapular vessels secured. It was here all the hemorrhage occurred from the posterior and infrascapular vessels but it was easily controlled with the aid of skilled assistance. After separating the clavicle from the acromion process a second incision was made from the acromio-clavicular joint over the front of the shoulder and arm and backwards across the axilla to join the extremity of the first incision at the inferior angle of the scapula. Everything had now been divided except the latissimus muscle and the axillary nerves and vessels, they were now severed and the vessels tied—the flaps were brought together with silk—worm gut, a drainage tube introduced and gauze and absorbent cotton used as dressings. The whole operation occupied about half an hour. There was considerable oozing after operation but the patient had a normal temperature and was going about on the 4th day—the tube was removed on the seventh day, stitches on the 11th day and she went home in three weeks perfectly well. Since then she has remained well and no sign of any recurrence has yet appeared. On examining the growth it was found to consist of a large round pediculated tumor having two small attachments, the main one evidently the origin of the tumor was on the inner and posterior part of the shaft of the humerus behind the bicipital groove, the second attachment was to the axillary border of the scapula. The tumor was of a fibro-cystic nature being in some parts gritty and hard on section,

while in others numerous cysts containing a glairy brown fluid were seen.

Microscopically the tumor proved to be a chondro-sarcoma possessing both cartilaginous and sarcomatous elements.

The operation on the whole, proved to be much easier than I expected, the most difficult part being the securing of the subclavian artery owing to the altered position of the clavicle and the extreme stoutness of the patient. But little blood was lost and the shock was not perceptible. The clavicle not being involved was not interfered with, and the projection of its acromial end gives shape to the shoulder and lessens the deformity. Another interesting point in connection with the tumor is the fact that it undoubtedly followed injury.

NOTE.—I have since heard from Dr. K. Cameron who sent me the case that this patient died some time ago of some intercurrent disease, there was no return of the tumor.

REMINISCENCES OF THE LATE INTERNATIONAL MEDICAL CONGRESS AT ROME.

By W. TOBIN, F. R. C. S., official delegate from Canada to the Congress.

The Editor Maritime Medical News.

DEAR SIR,

In a previous paper published in your journal in August, I dwelt upon the social aspects of the late Medical Congress at Rome. In the present, I propose to give a short account of some of the scientific work done there.

The most important papers read, took the shape of general addresses delivered in full Congress, on the afternoon of each day of the meeting, after the sectional work at the Poly-clinic, was supposed to be over. The assembly room in which they were given, at the Via di Genova, was altogether too small for the purpose, and many had to be satisfied with seeing the distinguished orators—men

the most famous in the profession from Europe and America. The addresses were mostly in French that being the most generally understood language. The titles of the addresses were as follows :

"On Morgagni and Anatomical thought," by Dr. Virchow, (Berlin.)

"On the Organization of Science," by Prof. Foster (Cambridge University.)

"On the growth and regeneration of the Organism," by Julius Bizzorero. Prof. of Pathology in the University of Turin.

"On the position of the state in respect to Modern Bacteriological Research," by V. Bates, M. D., Prof. of Experimental Pathology in the University of Bucharest, (Roumania.)

"On Idiopathic hypertrophy of the Heart—and degeneration of Heart muscle," by Prof. Laache of the University of Christiania, (Norway.)

"On the adaptation of the Organism to pathological changes," by Prof. Northnagel, (Vienna.)

"On the part played by Nervous Debility in the production of Fever," by Prof. Bouchard. (Paris.)

On "Non Nocere!" by Dr. Jacobi, (of New York.)

"On the ground substance of protoplasm and its modification by life," by Dr. Danielewski, (St. Petersburg.)

"On the relation of Chemistry to Pharmacotherapy and Materia Medica," by Prof. Stokvis, (Amsterdam.)

I will summarize (briefly a few of them.

Dr. Virchow's address :

Dr. Virchow began by tracing the history of medicine from the time of Hippocrates and Galen (who introduced the Humoral Pathology) to that of the great Morgagni. He reviewed the Medical teachings of ancient Greece and Rome, of Egypt and of India : he described the theories of the Jews and Arabs (who combined a spiritualistic idea of disease, remnants

of which we still find in the animal magnetism and spiritualism of to-day) with an elementary knowledge of Chemistry, which later became the basis of accurate research. He indicted the catholic church in the middle ages, with founding Hospitals for the study of disease, but blamed that Institution for placing Galen and Hippocrates on the same footing as fathers of the church ; thus erecting their false pathology into dogmata, to doubt which was almost a sacrilege. The first blow to their teaching came from the Italian schools, when Mondino, Vesalius, Eustachius and others introduced the study of anatomy upon the Cadaver. Another blow was dealt them by the immortal Harvey and his follower Malpighi when they developed the sister science, Physiology. But it was to Paracelsus (a German) and above all to the great Pathologist Morgagni (circa 1700) that belongs the honor of absolutely destroying the old dogmata and founding the 'New Medicine.' His teachings are to be found fully developed in his great work "de sedibus et causis Morborum." This book was written for the purpose of making Anatomical observation in disease serve as the foundation of practical Medicine." Ubi Morbus? asked Morgagni, and he found the answer written in the tissues of the body.

"Anatomical thought," proceeds the author, consists in locating disease, through physiological and chemical knowledge, through previous history and etiological data, when even Pathological Anatomy has failed to answer the question.

Modern research has gone beyond Morgagni and his methods—from investigating tissue change we have got to investigating the changes in the elementary cells themselves. Medical treatment has in consequence, become more localized. To Morgagni however belongs the honor of dealing a death-

blow to the old superstition and of originating the change which has led to the modern scientific study of disease.

Prof. Fosters' address :

The Professor began his address by stating that the present tendency in science is towards specialization. Integration is required, that is reorganization on a basis that will bring scientific workers together. Everywhere we see waste of effort. Many kinds of enquiry might be benefitted by concerted action; statistical enquiry for instance and skilled enquiry—by the latter he meant enquiry on a given output by a number of specialists in that branch in different parts of the globe. It would be less expensive for governments, he said, to conduct scientific enquiries in common.

He proposed an International tribunal too for the nomenclature of science.

Also, the Internationalization of such work as is done by the Zoological Station, at Naples. He also proposed the formation of a Universal Index of scientific literature (failing to have the same literature classified according to subjects and collected under one cover) as a good work for the present Congress to inaugurate as it would prove an inestimable boon and a great saving of labour to scientific workers of all nations.

Dr. Bates address "On the position of the State in respect to Modern Bacteriological research," was thoroughly practical. He began by dilating on the importance of Hygiene, for economic reasons, to the State. He dwelt on the want of executive power extended to Medical officers of Health and to their inadequate remuneration. He recommended the foundation of State-endowed Sanitary Institutions, where Medical men could obtain the highest possible training in Hygiene and instanced the working of such an Institution in Roumania.

This institution should have (1) a veterinary department for the study of diseases of animals peculiar to themselves and communicable to men, (2) a Department of Protective vaccination for animals and men, (3) a Department of Bacteriological research, (4) a Chemical Department, for the examination of air, food, soil and water, (5) a Pathological Department for the systematic examination of the dead from the Hospitals with which the Institution should be affiliated. This Institution should be presided over by a competent Medical man. He should have under him a leading staff to give instruction to Subordinate Health officers. The elements of Hygiene should also be taught to the general public here, or by competent teachers possessing the diploma of the Institution in the public schools. A Library, Laboratory and Lecture Halls, &c., should form part of the Public Building.

He also recommended the foundation in each State of a Ministry of Public Health having a Professional Head and a Sanitary administration, under the Minister, but without his political instability. The administration should be independent of party politics, should be properly paid, and on urgent occasions, should have the free right of direction.

He insisted on the importance of Bacteriological research in the interests of the public health.

Bacteriology has put us on sure ground in fighting disease, (1) by the precaution it has taught us to take against the microbic contamination of air, food, soil and water, (2) by ensuring or rectifying our diagnosis of such diseases as Tuberculosis, Cholera, Small Pox, and the infective diseases of animals, (3) by giving us Protective Vaccinations against such diseases as are communicable through bacteria from man to man, or from animal to man, such as Hydrophobia, Glanders

Cholera and Diphtheria (Anthrax in sheep) &c. Whatever progress Medicine has made of late years is mainly due to Bacteriology. In its own interests the State should liberally encourage its study.

Dr. Bouchard, (Paris) address :

I listened with much pleasure to my friend Dr. Bouchard's paper, but it covered so much ground that it would be impossible to summarize it briefly and yet make it intelligible. He dealt with the causes of fever in debilitated persons and gave clinical instances to show how slight causes will produce rise of temperature in such persons, the rise not being due to an aggravation of the disease by the disturbing influence but directly to the cause itself. He showed how our organism is adapted to keep itself automatically at a fixed temperature and how through the reflexes we react to external and internal heat and cold, so long as we are in a healthy state. In debility, this nervous reaction is soon exhausted—and then comes collapse. He spoke also of the ingestion of food as causing a rise of temperature in such persons—Dyspeptic fever—of fever due to intellectual effort and mental disturbance in the convalescent—all going to prove that, "if a robust nervous system can protect the economy against variations of temperature, nervous debility makes the protection less vigilant and less effective." The weakened nervous system is a reagent peculiarly sensitive to the action of the factors which produce Fever.

Prof. Laache's (Norway) address :

The Professor in dealing with Heart Hypertrophy began with a history of Cardiac Pathology, mentioning the work done by Harvey, Laennec, Lancisi and Baur—who first described Idiopathic Hypertrophy—by which I mean, said he, enlargement of the Heart without mechanical (anatomical) obstruction to the circulation. He divided the causes of Heart Hypertrophy into (1) Predisposing, (Heredity, Defec-

tive Nutrition) and (2) Determining (Alcoholism, Beer-drinking in Germany—particularly in Munich, where the disease is most common overstrain, excessive muscular exertion, athletics. Here the professor dilated on the abuse of Athletics in his own country and of the dangers of ski racing—a form of snow-shoeing—and recommended precautions and an age limit in races—intellectual over pressure may also cause the disease, leading to heart as well as brain fatigue, over feeding, over smoking and excess in fact of all kinds). These varying causes make the disease common to all classes. It is as difficult to diagnose as it is dangerous. As to prognosis the common verdict is inevitable death (by heart failure). But such a termination may be warded off by appropriate medicine and by prophylactic exercise and training of heart muscle and hygienic treatment directed to that organ, the indication being to bring about compensatory action.

Dr. Jacobi's address :

Dr. Jacobi of New York, gave a very interesting address taking for his motto "Non Nocere !"

He showed the injury which the profession sustains in many ways, from specialism, from quackery, from the prescription of patent medicines in lieu of the Pharmacopoeal preparations, from running after new fashions in medicine and new fads such as (Tuberculin, Elixir vitæ &c). He spoke of the abuse of the Expectant treatment on the one hand (the do nothing treatment) and the over use of operative treatment and over drugging on the other. He mentioned many mistakes made in the dieting and medical and surgical treatment of children especially, and wound up an exceedingly clever, interesting and thoroughly up to date address by insisting on the motto which headed his paper "Non Nocere !"—do as little harm as possible.

I have taken a synopsis of the other papers read, but think the above (the most interesting from my point of view) will be sufficient for your readers' patience and will more than fill the limited space you can place at my disposal.

In a future paper I propose to summarize the work done in the sections, at the Congress.

Maritime Medical News.

OCTOBER, 1894.

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All manuscript, and literary and business correspondence to be addressed to

DR. G. M. CAMPBELL,

9 Prince Street, Halifax.

We have to thank many of our subscribers for a prompt remittance. There are still some to hear from.

WHEN cholera assumed epidemic proportions in Europe in 1892, and fears were widely entertained that the disease would be carried to America by immigrant vessels, it was generally recognized that the port of Halifax was a point of danger, especially after the closure of the St. Lawrence ports owing to the very imperfect facilities for dealing with infected steamers at the quarantine station. The danger was promptly recognised by the citizens of Halifax, and the port physician who were well aware that a steamer infected with cholera could not be conveniently and effectually dealt with at the quarantine grounds.

Urgent representations were made

to the Dominion Government asking them to deal promptly with the matter.

Temporary arrangements were made which proved satisfactory to all concerned, and now the improvements and additions recently completed give Halifax one of the most convenient and best equipped quarantine stations in America.

Lawlor's Island is well adapted for a quarantine establishment. It is a small island lying at the entrance of the harbor, about six miles distant from the city. It rises abruptly from the water, is well wooded, and has an abundant supply of pure water. The landing ground is perfectly sheltered from storms.

The improvements recently carried out include:—A commodious wharf at which the largest ocean steamers can be easily docked at the lowest tide. On the wharf is an elevated tank capable of containing enough fluid to disinfect a steamer. A solution of mercuric perchloride will be used for this purpose.

At the head of the wharf are buildings and appliances for disinfection of the baggage and personal effects of passengers. Steam under pressure will be largely used, except for articles that would be damaged by that method. A short distance from the wharf is a large well built structure for the reception of steerage passengers, and on another part of the island accommodation is provided for cabin passengers.

At a considerable distance from these buildings are the small-pox and cholera hospitals, wooden structures which can be made comfortable in cold weather.

The keeper's residence is within a convenient distance from these buildings. The establishment is under the charge of the port physician Dr. W. N. Wickwire a gentleman who enjoys the confidence of the profession and mercantile community of Halifax.

Correspondence.

AUG. 30TH, 1894.

The Editor Maritime Medical News:

DEAR SIR:—

I am very anxious that the Medical Register of Nova Scotia should be as correct as possible, but notwithstanding my efforts and the fact of a foot note being printed each year requesting to be notified of changes of residence, and the intimation that all such alterations will be made without payment of any fee, practitioners frequently move from one place to another without thinking of sending a card acquainting me of the change they have made. As it is impossible for me to divine things it is quite likely that some of the addresses given are incorrect if so the fault is mine. Again as there is no regular registration of births and deaths it is impossible for me ever to receive any official notification of the death of any member of the profession, all I have to depend upon is the newspaper, and as all deaths are not published in the city papers it is quite possible that I may not be informed of every death, and so may continue a name on the Register for some time after the person's decease. This difficulty could be largely obviated, until the advisability of keeping a provincial record of mortuary statistics is appreciated—if, say the Secretary of the Medical Society in each county, would send me a clipping of the death notice from the local newspaper of the district in which the death occurred, or if no such notice were published would simply send a card acquainting me of the death. I would be greatly obliged if you or any of your readers could help me to supply deficiencies in reference to the following persons whose names are on the register.

NAME.	RESIDENCE.
Cadegan, John C.	<i>Unknown.</i>
Fritz, Howard Douglas,	<i>Unknown.</i>
Fullerton, W. S.	<i>Massachusetts.</i>
Graham, John Mck....	<i>Unknown.</i>
Harris, Jas. W.	<i>United States.</i>
Patton, A. N.	<i>Unknown.</i>
Somerville, A. McLean,	<i>Unknown.</i>

Any information which will tend to make the Register more accurate will be gladly received by yours faithfully,

A. W. H. LINDSAY,
Registrar.

TREATMENT OF DIPHTHERIA BY ANTITOXIN.

DR. ROUX, Pasteur Institute.

Since the investigations of Behring and Kitasato, the treatment of certain infectious diseases by the serum of immunised animals has been one of the questions of the day. The first attempts in this direction were made with tetanus, but this treatment did not yield the results that were expected of it, owing doubtlessly to the fact that, when the first symptom of tetanus is manifested it is already too late, the disease having entered upon its last stage.

In diphtheria this is, fortunately, not the case, the appearance of exudations furnishing us the means of recognising the disease at the onset. Since 1891, Dr. Martin and myself have been experimenting with the treatment of diphtheria by antitoxic serum, though we did not deem it wise to publish the results before they were sufficiently numerous to permit of passing judgment on the method. These results corroborate fully former publications by Behring, Ehrlich, Boer, Kossel, and Wassermann:

The animals from which the antitoxic serum is derived are immunised against diphtheria, that is to say, are habituated to the diphtheritic toxin; it is, therefore, indispensable to say a

few words about the preparation of the latter.

The toxin is produced by cultivation of the virulent diphtheritic bacillus in broth, in contact with the air. Under usual conditions, the cultures must be maintained for months at a temperature of 37°C, in order to get the poison to accumulate. A quicker method which I have employed in conjunction with Dr. Yersin consists in placing the cultures in a current of moist air. For this purpose flat-bottomed vessels provided with a lateral tubing (Fernbach's bottles) are employed, and into these a 2 per cent. peptonised alkaline broth is poured so that there is but a thin layer of liquid. After this has been sterilised in the autoclave, a fresh culture of a very virulent diphtheritic bacillus is introduced and the stove is kept at 37°C. When the development is fairly started, the current of air which penetrates through the neck, of each bottle, after having first passed through a wash bottle, is regulated by a very simple arrangement. This method is preferable to arranging the culture bottles one after the other, so that the same current of air passes through all. When three weeks, or a month at the most, have elapsed, the culture is sufficiently rich in toxins to be used. At the bottom of the bottles is seen a thick layer of microbes, and at the surface a thin coating of younger microbes. At this stage the reaction is strongly alkaline. All diphtheritic bacilli, even when they appear to be equally virulent on inoculation in a guinea pig, do not furnish the same quantity of toxin in cultures. Experiments with bacilli, from various sources will soon show which among them elaborate the most active toxin. No bacteriologist will be surprised on being told, that the power of toxin is not always the same in cultures made apparently under the same conditions. It is, therefore, preferable to make

sure of a sufficient supply of toxin, before commencing a series of experiments, in order that the latter may be fully comparable.

When the cultures are completed, they are filtered by a Chamberland filter, and the clear liquid is kept at the ordinary temperature in well-filled, stoppered bottles, which are to be protected from the light. Thus prepared, the toxin usually kills a guinea-pig of 500 grammes in weight within from forty-eight to sixty hours, when administered in a dose of $\frac{1}{16}$ cubic centimetre. It ultimately loses its activity though but slowly, if kept under the conditions which I have indicated.

When the toxin has been prepared, the next thing is to immunise the animals from which the serum is to be taken. It is first necessary to attenuate the activity of the toxin, so that it shall not determine serious symptoms in the animal. The method which we prefer for this purpose is that of iodised toxins, which Dr. Vaillard and I employed in our researches on tetanus. The diphtheritic virus combined with iodine is much less dangerous than the toxin alone. The toxin is mixed with one-third its volume of Gram's liquid when it is to be used, and a few moments after this is done the mixture is injected hypodermically. A rabbit of medium size can support $\frac{1}{2}$ cubic centimetre, of this liquid at once; this dose is repeated at intervals of a few days for some weeks after which the dose of iodised toxin may be increased or the proportion of iodine diminished. Ultimately the toxin is given pure. The animals must be weighed frequently, and the injections suspended the moment they lose weight, as otherwise death would ensue from exhaustion.

In such experiments, to proceed slowly is in reality to gain time.

Dogs immunised against diphtheria furnish a very active serum; sheep,

and particularly goats, on the other hand, are very sensitive to the diphtheritic poison, and their immunisation must be done with great care. The same holds good of cows, of which the milk may become an important source of antitoxin.

Of all the animals capable of furnishing large quantities of antidiphtheritic serum, the horse is the easiest to immunise, because it tolerates the toxin much better than any of those alluded to. It is not rare to find horses, in which a hypodermic injection of from 2 to 5 cubic centimetres of strong toxin only determines transient fever and a local α -dema, which soon subsides. If we admit with Behring, that an animal furnishes a serum, the antitoxic properties of which are stronger in proportion to its sensitiveness to the action of the toxin, the horse would seem to be a very unsuitable subject. Since 1892, however, I have, in conjunction with Prof. Nocard, chosen horses for immunisation against diphtheria, because the experiments carried out by Dr. Vaillard and myself on the subject of tetanus showed that horse serum, even in large doses, does no harm to the animals usually employed in laboratories, or to man. When injected under the skin, it is absorbed in a few moments, without any local reaction. Moreover, nothing is easier than to withdraw from the jugular vein of a horse, as often as may be desired, large quantities of blood, from which a perfectly clear serum is obtained. We have horses, from which blood has been taken more than twenty times with a trocar of large size; still the vessel is just as supple and permeable as on the first day. The immunising power of the serum of these animals is in the neighborhood of 100,000, and it may easily be increased.

Another advantage of using the horse for the production of antitoxic serum is the rapidity with which this

animal can be immunised, in two months and twenty days, beginning with doses of $\frac{1}{4}$ cubic centimetre, of toxin mixed with 10 per cent. of iodine, we were ultimately able to administer 250 cubic centimetres of pure toxin, without either marked local reaction or rise in the temperature. To keep up the condition in a horse, the most convenient method is to inject the toxin at the moment when the bleeding is done, and then let the animal rest for about twenty days, although this procedure is less efficacious than injecting at frequent intervals small doses of toxin.

If antidiphtheritic serum is added to diphtheritic toxin, the latter is rendered harmless, injections of the mixture into various animals causing no inconvenience, not even a local lesion. This effect is produced not only *in vitro*, but also in the organism. A guinea-pig to which a sufficient dose of serum has been administered, can bear without difficulty a quantity of diphtheritic toxin which would inevitably kill animals not so prepared. The toxin may even be injected first, and the serum several hours later, without the animals dying. It is self-evident that the quantity of serum needful to save the animal varies according to its weight, the dose of toxin, and the time of intervention. Serum has a preservative and remedial effect not only on the toxin, but also on the living virus. These properties of antidiphtheritic serum were discovered by Behring, and form the basis of the serum treatment of diphtheria. They are due to a special substance, called "antitoxin," but the nature of which is as much of a mystery as the diphtheritic toxin itself.

Animals to which the diphtheritic antitoxin is administered become refractory to the disease in a very short time, almost immediately in fact, though this immunity does not per-

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When taken into the stomach, diluted as directed, it stimulates the appetite and digestion, promotes assimilation and enters the circulation with the food—it then acts upon the nerves and muscles, the blood and the secretions. The heart, liver, lungs, stomach and genitals receive tone by increased nervous strength and renewed muscular fibre, while activity in the flow of the secretions is evinced by easy expectoration following the stimulant dose. The relief sometimes experienced by patients who have suffered from dyspnea is so salutary that they sleep for hours after the first few doses.

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The success of Fellows Syrup of Hypophosphites has tempted certain persons to offer imitations of it for sale. Mr. Fellows, who has examined samples of several of these, FINDS THAT NO TWO OF THEM ARE IDENTICAL, and that all of them differ from the original in composition, in freedom from acid reaction, in susceptibility to the effects of oxygen, when exposed to light or heat, IN THE PROPERTY OF RETAINING THE STRYCHNINE IN SOLUTION, and in the medicinal effects.

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Albuminuria—MM. Constantin Paul and Germain See, have both reported that strontium bromide and lactate have been employed in Rheumatism and Bright's disease with good results. Dujardin-Beaumetz reports the employment of strontium lactate in a number of cases of Albuminuria due to various causes, in all of which the proportion of albumin was reduced fifty per cent. in from one to four days. His remarks upon this matter conclude thus: "In lactate of strontium we possess an invaluable agent whose action is at the same time certain and inoffensive."

The dose of strontium bromide will vary from ten to twenty grains, for the relief of Atonic Dyspepsia, Nervous Disorders, Rheumatism and Bright's Disease. In Epilepsy, double the quantity mentioned above.

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WYETH'S ELIXIR STRONTIUM BROMIDE. Each fluid ounce contains forty grains of the pure crystalline salt.

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Per dozen bottles of 16 fluid ounces	\$19 00	\$23.00
Per Winchester " 80 "	7.00	8.00
Per Demijohn " 128 "	10.00	11 50

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Per doz. 16 oz. bot., \$9.00.
Per. Winch. 80 oz., \$35.00.

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sist, but disappears within a few days or weeks, the effect being, consequently, quite different from that obtained by successive injections of diphtheritic poison.

In order to determine the immunising activity of serum, Behring was the first to propose a system of notation, which consists in measuring the power of a certain serum by the quantity needed for the immunisation of 1 gramme of an animal against a dose of toxin which is necessarily fatal, when injected twelve hours after the serum. Thus, the power of a serum is said to be 1000, when 1 gramme of this serum immunises 1 kilogramme of guinea-pig against a dose of toxin, capable of killing it within a given time under ordinary conditions.

Of late, however, this system of measurement has been replaced by another, proposed by Ehrlich, in which the immunising unity is represented by $\frac{1}{10}$ cubic centimetre of serum which, when mixed with $\frac{1}{10}$ cubic centimetre of normal toxin, neutralises the latter to such an extent that, when the whole is injected under the skin of a guinea-pig, no oedema is produced.

Be that as it may, it is sufficient to say that $\frac{1}{10}$ cubic centimetre of the toxin which we employed kills a guinea-pig of 500 grammes, and that, if this quantity is mixed with $\frac{1}{10}$ cubic centimetre of toxin, no oedema is produced in the animal. Nor is there any local reaction, if 1 cubic centimetre of a mixture containing $\frac{1}{10}$ th part of serum be injected; but with a mixture containing $\frac{1}{10}$ th part of serum a slight oedema is produced, though otherwise the guinea-pig remains in good health.

The preventive power of the serum is manifested when it is administered before the toxin. Under these conditions, the animals always resist the poison, if the quantity of serum is proportional to that of the toxin. A dose of serum $\frac{1}{100000}$ th part of the weight

of a guinea-pig, administered twelve hours before, is sufficient to protect the animal against a dose of toxin which kills the control-animals within five days. With a dose of $\frac{1}{100000}$ part its weight, it is able to bear the injection of a dose of diphtheritic culture which is fatal to the control-animal within forty-eight hours.

If the toxin is injected first, the quantity of serum must be increased proportionately to the length of time which elapses before intervention. Within six hours, injections of serum in the proportion of 1:1000 are still efficacious, but twelve hours after the administration of the toxin they are powerless. On the contrary, after hypodermic inoculation of the bacillus of diphtheria, intervention produces the desired effect even twelve or eighteen hours after the infection.

To sum up, antidiphtheritic serum is far from possessing the same immunising properties as antitetanic serum, which exercises a preventive influence on the poison in the proportion of 1:100,000,000; yet its therapeutical results are much superior to those obtained from the latter.

If, after a preventive injection of antitoxic serum, vulvar diphtheria is set up experimentally in a female guinea-pig, the local lesions are seen to subside, beginning with the second day, and the exudations become detached, while in the control-animals the mucosa is red and oedematous, the temperature high, and the general condition bad.

If, on the other hand, after the inoculation of diphtheria, serum in the proportion to the animal's weight of from 1:10,000 to 1:1,000 is injected, recovery is readily obtained, and the exudations begin to loosen already on the second day.

When, in order to imitate as closely as possible the conditions of human pathology, a preventive injection of antitoxic serum is practiced on a

rabbit, which is then inoculated with tracheal diphtheria, it is found that the disease is not manifested by any apparent ill-effect, provided the quantity of the anti-diphtheritic serum was sufficient. In the same manner, an injection of this serum after infection rapidly arrests a diphtheria, which is already well under way, if resorted to promptly enough.

In diphtheria associated with other microbes, streptococci in particular, the results obtained have been much less satisfactory. We have on several occasions saved rabbits, when treated within six or eight hours after tracheal infection, but the injections of therapeutic serum had to be repeated several times. When twelve hours elapsed before the treatment was instituted, the animals invariably died.

After having carefully studied the question of antidiphtheritic serum from an experimental point of view, I endeavoured to apply the treatment to human diphtheria. All experiments were made at the Hospital for Children's Diseases, in connection with Drs. Martin and Chaillon. From February 1st to July 24th, 1894, 448 children, were admitted to the diphtheria ward, and among these there were 109 deaths, being a death rate of 24.33 per cent. Now, the average death rate in a total of 3,971 children, from 1890 to 1894, was 51.71 per cent; all the conditions remaining the same, 27.38 per cent. were consequently, saved by this treatment. During the same period of time, 500 children affected with diphtheria were admitted into the Trousseau Hospital, of whom 316, or 63.2 per cent., died.

In order, however, to present the question fairly, there must be deducted from the 448 patients admitted into the diphtheria ward 128, who were not, as bacteriological examination showed, affected with true diphtheria, due to the Klebs-Löffler bacillus, as well as 20, who died before any kind of

treatment was instituted. Of the remaining 300 cases of true diphtheria death ensued in 78, that is to say, 26 per cent. : whereas previous statistics taken under the same conditions, show a death-rate of 50 per cent.

The serum which we employed was obtained from immunised horses, and its activity measured between 50,000 and 100,000. To all the patients admitted, without exception, we administered 20 cubic centimetres of this serum in a single injection under the skin of the side of the body. The injection was not repeated, in case bacteriological examination showed that it was not a case of true diphtheria. In no case did we meet with any untoward result from this treatment.

This injection is not painful, and if made antiseptically, no ill-effect follows. Twenty-four hours after the first injection, we administered a second of 10 or 20 cubic centimetres, and these two injections were usually sufficient to bring about recovery.

Still, if the temperature remained high, we practised one more injection of from 10 to 30 cubic centimetres. The average weight of the children being 14 kilogrammes (30 pounds), they received in general more than the $\frac{1}{1000}$ th part of their weight of serum, and in some exceptional cases nearly the $\frac{1}{100}$ th part.

Sequelæ of diphtheria are extremely rare after the disease has been treated by serum, though paralysis does sometimes occur. Occasionally we have also seen eruptions supervene in the course of convalescence, resembling urticaria in appearance and determined by the serum.

The cases of diphtheria which we treated are to be divided first into two classes; angina and croup. Among the former are distinguished such as were pure, and such as were associated with other microbes. The cases of pure angina numbered 120 with 9

deaths, the death-rate being thus 7.5 per cent. Among the 9 children who died, 7 were at the hospital only twenty-four hours, and if these are deducted from the number, the death-rate is 1.66 per cent.

Moreover, the two patients who died were effected, in addition, one with tubercular peritonitis, and the other with malignant measles. We may, therefore, fairly conclude that every case of pure diphtheritic angina will recover, if treated in time.

Under the influence of the serum injections, the general condition remained perfect, and the false membranes ceased growing within the twenty-four hours following the first injection. Within thirty-six, forty-eight, or seventy-two hours at the latest, they were detached. In seven cases only did they persist for a longer time.

The temperature fell suddenly, often after the first injection; but in grave cases the pyrexia continued, only to abate by lysis after the second or third injection. The pulse became normal more promptly than the temperature.

Statistics show that one-third of diphtheritic patients present manifestations of albuminuria, and inasmuch as this symptom was found to exist in only 54 of the 120 cases treated by serum, it seems to be evident that this medication diminishes the frequency of albuminuria.

Cases of diphtheritic angina combined with other microbes acted quite differently. Those in which a micrococcus was found, 9 in number, all recovered, as did also the 5 in which the associated microbe was the pyogenic staphylococcus. In 35 cases of diphtheritic angina, on the other hand, associated with streptococci, a combination the extreme gravity of which is well known, 12 of the patients died, that is to say, a proportion of 34.28 per cent., the usual death-rate being 87 per cent. The general symptoms were markedly improved, and the false membranes were more readily detached; but it

was invariably found necessary to practise repeated injections of serum, as much as 75 cubic centimetres being sometimes employed of this substance.

The cases of diphtheritic croup must also be divided into two groups, those operated and those not operated upon. Of the latter we treated, 10 cases with a single death, and this was a case of diphtheritic laryngitis associated with streptococci. The cases of croup operated upon numbered 121, with a mortality of 56, the proportion of deaths thus being 46.28 per cent. Just as in angina, cases of pure diphtheritic croup operated upon must be clearly distinguished from those associated with other microbes, inasmuch as these two classes of the disease materially differ in gravity.

Of the first category we had in all 49 cases, with 15 deaths, or 30.61 per cent.; but if we deduct from this number 4 deaths, which ensued within less than twenty-four hours after admission into the hospital, all being cases of toxic diphtheria, we get a death-rate of 22.44 per cent.

Among the cases of diphtheritic croup associated with various microbes, there were 9 cases of micrococci, with 1 death; 11 cases of staphylococci, with 7 deaths, a death-rate of about 63 per cent (50 per cent. if from the cases of diphtheritic croup associated with staphylococci be deducted 3 deaths which occurred within less than twenty-four hours after admission); 52 cases of streptococci, with 33 deaths, this is to say, a death-rate exactly the same as that of the last division, 63 per cent. It is well to remember, both from a statistical and a clinical point of view, that the majority of these deaths were due to bronchopneumonia and sometimes to pseudo-membranous bronchitis. Lastly, on several occasions the gravity of the diphtheria, great as it always is, was still further enhanced by being complicated with measles or scarlatina.

The most serious of all cases of diphtheritic croup are certainly those, in which the diphtheria is associated with streptococci, as is evident from the fact that 7 children suffering from toxic diphtheria remained less than twenty-four hours in the ward. If we deduct from the total number of cases of croup operated upon, the 14 who were in this condition and really cannot be regarded as instances of a failure of the method, we arrive at a total of 107 cases operated upon, with 42 deaths, and a death-rate of 39.25 per cent.

Although these results are certainly very encouraging, I have no doubt they may be made still more favourable. It is particularly by appropriate hygienic treatment, and a more rigorous seclusion of patients, that secondary contagion, which is one of the most frequent causes of death in hospitals, can be avoided. I refer not only to measles and scarlatina cases of which are not exceptional, but to infections of all kinds, especially that of the streptococcus. We have, in fact, seen 12 children who, on admission, presented pure diphtheritic croup, suddenly die from bronchopneumonia with streptococci, owing to the fact that tracheotomised children were kept in the general wards. It is not infrequent, indeed, to see veritable epidemics of bronchopneumonia determined by the arrival of a child, suffering from diphtheritic croup combined with streptococci.

Lastly to obtain more favourable results, it is indispensable that the treatment should be instituted as soon as possible after the onset of the affection. Many children could be spared the necessity of tracheotomy, which throws the gates wide open for infection, if the serum could be administered more promptly. I have even great hopes, that the necessity for this operation will become less and less frequent by practising intubation in connection with injections of serum.

Such are the results which we have obtained, and I think I am fairly entitled to pronounce them encouraging. Let me add, in conclusion, that when we employed serotherapy, every other local treatment was rigorously prescribed, the only adjuvant of which we made use being irrigations of the throat simply with boiled water, or mixed with 50 grammes of liquor sodæ chlorinatæ to each litre of water.

ON THE INDUCTION OF PREMATURE LABOR BY CHAMPETIER DE RIBES'S BAG.—ERNEST HERMANN, of London, thinks that the bag devised by Champetier de Ribes to induce abortion or premature labor is a great improvement on Barnes's bags. The advantages of this bag are the following: 1. With Barnes's bags successive sizes have to be put in, one after the other; and the introduction of each needs a visit from the doctor and manipulations troublesome to him and disagreeable to the patient. One operation only is required with Champetier de Ribes's bag; when this is in its place, it dilates the cervix to the full extent without any need for further interference, and the doctor may leave the patient, trusting the nurse to send when pains become strong. 2. Barnes's bags are made of India rubber, which stretches when fluid is pumped in. Hence the operator has no clear indications when the bag is full; and hence, also, if the cervix is rigid, the part in the cervix remains unexpanded, while the part above, and especially the part below, bulge out instead. Champetier de Ribes's bag is made of inelastic material; when it is full, no more fluid can be pumped in, and it does not alter its shape. 3. Barnes's bags are put in with a rod or sound in a little pocket at the side of the bag. This little pocket is very apt to give way. Modifications have been made in the bags by others to remedy this imperfection, but Hermann has seen no way so satisfactory as the convenient forceps by

which Champetier de Ribes's bag is put in. 4. It is not possible with Barnes's bags to get complete dilatation of the os. Champetier de Ribes's dilates it fully. 5. In the introduction of Barnes's bags the membranes are sometimes ruptured, and the presence of the bag in the lower segment of the uterus sometimes displaces the presenting head, changing a natural into a transverse presentation. With Barnes's bags these are serious drawbacks, for, if these accidents have happened, there is much risk to the life of the child in turning and extraction.—*British Medical Journal*.

GROWING PAINS.—In a very instructive article Dr. P. B. Bennie (*Archives of Pediatrics*, May 1894) states that this malady with its concomitant growing fever, like its congener, disorders of dentition vanishing from the realm of pathology through that of fancy, is fast sinking into oblivion in the medical literature of the past. As a separate morbid entity it exists now principally as an article of faith. The cases diagnosed as growing pains have, in his experience, usually proved to belong to one of the following conditions: myalgia from the fatigue of over-exertion, rheumatism, diseases of the joints and bones, fevers, and adenitis.—*International Surgery*.

GYNECOLOGY.

Vulvitis with "Gonorrhœal Rheumatism" in a Child aged 2.

Lop (*Gaz des Hop*, No. 42, 1892) relates a case of mono-articular arthritis following vulvitis in a girl aged 2. It demonstrated the close relations between vulvitis in virgins and true gonorrhœa. The child was admitted into hospital on January 5th, 1892. She had suffered from discharge for a fortnight; it was free, tenacious, and greenish yellow; the vulva was acutely inflamed. On the ninth day after the

commencement of the discharge a painful swelling appeared in the right radio-carpal joint. On admission the wrist was red, tender, and much swollen. There was absence of fever, urethritis, albuminuria, and cardiac or pulmonary complication. It appeared that there was no reason to suspect venereal taint of any kind. The discharge was carefully examined, and gonococci discovered. Sublimate lotions, and painting of the parts with a 5 per cent. solution of nitrate of silver soon cured the local discharge. After fifteen days of antiseptic treatment no more gonococci could be found. At the same time the articular complication subsided. Opinion is still divided, but many authorities deny that the gonococcus is a specific germ, and declare that they have detected it in the vulvitis of virgins.—*Med. and Surg. Report*.

(40) CHLORAL HYDRATE IN HAEMOPTYSIS.

J. PAL (*Centralblatt f. die gesammte Therapie*, July, 1894), in the first place, refers to the two extremely old measures advocated in cases of hæmoptysis, namely, bleeding and ligaturing of the extremities, the latter procedure having been recommended by Hippocrates. The object is to relieve the venous circulation, while permitting the arterial flow. Several times at the onset of a hæmoptysis the author thus ligatured the four extremities below the axillæ and above the knees respectively, in this way obtaining good results. However, their application can only be extended over about half an hour, and unless the bandages are very carefully and gradually loosened there is a possibility of the thrombus in the lung being detached during the increased venous flow. The author therefore tried chloral hydrate, which he expected to produce the same therapeutic result, without the attendant

mechanical disadvantages. Fifteen patients were thus treated, the heart in each having previously been declared sound. The drug was injected *per rectum* in doses of from 15 to 25 grains, and an effect was always produced within half to three-quarters of an hour. Several times repeated doses were given, and as a prophylactic the drug also seemed to be valuable. Several cases are described, and further research in this direction is recommended.—*Brit. Med. Journal*.

A story is told of a good woman who joined the Methodist Church, but after a while she became dissatisfied and went to a Baptist pastor, and he immersed her and she joined the Baptist Church. After a while she came tearfully and sorrowfully to see her Baptist parson, and she said: "Oh, pastor! pastor!" He said: "Why, my good sister, what's the matter now? You've been sprinkled and you've been immersed. What else do you want?" "Oh, pastor! she said; "oh, pastor! I want to be circumcised!"—*Exchange*.

ASEPTIC DRESSING FOR THE UMBILICAL STUMP.—ALLEN (*American Journal of Obstetrics*, April, 1894) divides the cord about two and a half inches from the abdomen. After the child is washed, the cord and the abdomen are wiped off with 1 to 1000 bichloride solution; the cord is cut about one and a half inches long and stripped out. The bichloride solution is used freely, a sterile elastic ligature is placed around the cord, and its cut end is touched with a bichloride tablet. A piece of sterile gauze four inches square is prepared by cutting a hole in its centre and saturating it with pure glycerin. In this the stump of the cord is entirely enveloped. It is then turned up on the abdomen, another pad of gauze soaked in glycerin placed over it, and the whole held in place by a sterilized flannel bandage. Cords thus

treated fall off in three days. Until this occurs the bandage is opened twice daily and the cord wrapping is saturated with glycerine, the top pad being replaced with a fresh piece of gauze. After the cord falls the umbilical fossa must be filled with aristol, a dry pad of gauze placed over it, and the bandage reapplied. Of course the surgeon should prepare his hands as for a formal operation.—*Therapeutic Gazette*.

RESPIRATION VERSUS NOURISHMENT.
—"What's the patient's temperature this evening, nurse?" "I've just charted it," returned the nurse, "and I've taken it and the pulse and respiration every two hours." The doctor looked surprised, but silently held out his hand for the neatly marked record. "What nourishment have you given?" he asked, after looking at it. The nurse seemed startled. "I'm afraid I can't tell you. I know she had some milk once, and since then some beef tea, but I did not remember about the nourishment this evening. I was so anxious to get the pulse and respiration right." "Then perhaps I had better attend at feeding times, and see to the nourishment myself," retorted the old-fashioned doctor sharply.—*Hosp.*

COCAINE ANÆSTHESIA RENDERED HARMLESS BY THE ADDITION OF TRINITRINE.—GAUTHIER—(*Revuegen. de Clin. et de Ther.*, No. 37, 1893).—The author proposes the following formula in which trinitrine is introduced, with the effect of preventing the anæmia of the brain:

R Cocaine muriate, centigrams. xx.
Alcohol, solution of trinitrine, 1 per cent, gtt. x.
Distilled water, grms. x.

Each cubic centimeter contains two centigrammes of cocaine, and one drop of the trinitrine solution. Gauthier has used this formula for two years with great satisfaction.—*Therapeutic Review*.

BELL (W. B.) ON THE INTERNAL USE OF IRON IN ERYSIPELAS.—In a recent paper Bell quoted the opinions of many of the leading medical men of the present day, whose statements on the subject he had consulted. The views of most of them were favorable to the use of iron. Bell specially emphasized the fact that the tinct. ferri muriatis of the *Ed. Pharmacopœia* should be used, in doses of xx. ℥ , every two hours, day and night. The want of success in the use of iron, he believed, was due to the fact that the tinct. ferri perchloridi was too often employed. He said that probably the greater amount of rectified spirit in the first preparation formed with the muriatic acid ethers which acted as antiseptics after absorption into the blood. He recommended the judicious administration of purgatives, with free stimulation and nourishment.—*Edinburgh Med. Jour.*

HERNIA IN CHILDREN.

WIRT (*International Medical Magazine*, February, 1894), in an excellent contribution on hernia, gives the following table of the relative frequency of the different forms of hernia as found in 19,756 cases treated in the Hospital for Ruptured and Crippled, New York City:

	No. Case.	Male.	Female.	Under 1.	Right.	Left.	Double.
Inguinal . . .	13,831	14,991	1870	4348	7806	4375	4686
Umbilical . . .	1,188	599	919	789			
Femoral . . .	1,155	418	717	26	700	379	56
Ventral . . .	269	95	174	13			
Total . . .	19,756	16,076	3680	5176	8506	4754	..

He classifies treatment under three heads: 1. General treatment; 2. Mechanical support; 3. Operative measures.

General treatment is directed toward the relief of the conditions causing the hernia, as vomiting, coughing, calculus, a rectal polypus, or chronic diarrhœa, or when necessary, to tonic treatment, out-door exercise, etc.

Mechanical treatment as given in the Hospital for Ruptured and Crippled, consists in using a steel spring truss for all reducible cases except umbilical and ventral. The Knight truss is used most, and is efficient and cheap. In cases difficult to hold the Hood truss is employed, and in the worst cases a combination of the Knight and Hood.

Umbilical herniæ are treated by means of a wooden button held in place by rubber adhesive plaster.

Operation for hernia requires strict antiseptic precautions, great care in dissecting out the sac and handling of the spermatic cord. The sac should be tied off well down in the wound, the external portion removed, and the stump returned into the abdominal cavity. The wound should be closed and dressed antiseptically, and over all a plaster-of-Paris spica should be applied from ankle to umbilicus. The casing should be removed in eight days and the wound then dressed.

SYPHILIS.—In the Skin Clinic of the Post-Graduate Medical School of New York, in the later so-called secondary and tertiary stages of the disease a mixed treatment, composed as follows, proved most serviceable:

- R. Ferri et ammonii citratis. ℥j.
- Hydragryri bichloridi. gri.
- Potassi iodidi. ℥ij.
- Vini ferri dulcis (Malaga) ad. ℥ijj.

M. Sig.: Teaspoonful in water after the meals.—*Post-Graduate.*

TREATMENT FOR VARIX.—

1. Avoidance of standing position as much as possible. No garters.
2. Constant wearing of an elastic stocking.
3. Taking during 15 days each month at meals a pill of
R. Ergotine. Grains.

Ext. Hamamelis aa ℥

EDITORS AND EDITORS.—While the average editor of other periodicals looks to his publication for a livelihood, medical editors edit and often largely manage their own publications, and usually, in payment, receive only the close drill which the work itself affords. In this particular, being much like the average medical college professor, except that the work of the editor is placed for the inspection of active practitioners, while the college professor submits his work for criticism to the undergraduate. If a medical editor and publisher receives an increase of income, he simply increases the size and scope of his journal. The consummation of a medical publisher's ambition is reached when the income account shall equal that of expense.

Medical editors deserve the greatest possible amount of praise for what ever good they may do, for it is their gold and their silver, and, also, the utmost leniency should be manifested in estimating their short-comings.—*E.v.*

TYPHOID GERMS IN DRY SURROUNDINGS.—According to investigations made by Uffelmann, typhoid bacilli retain their vitality in a dry state, for at least a month, or in contact with sand, cloth or dirt, for a considerably longer period. The need of scrupulous cleanliness and care in the disposal of typhoid stools thus becomes imperative.—*E.v.*

A NEW TREATMENT FOR HYDROCELE.—A new treatment for hydrocele is proposed by J. Neumann in *Deutscher Medizinische Presse* No. 45, 1894. It consists in the withdrawal of the fluid by means of a trocar and cannula, leaving the latter in the hydrocele sac to act as a drain. A slightly compressing bandage is applied over a small thickness of cotton. Healing is said to occur in a few days. The cannula is removed on the second or third day.—*North American Practitioner.*

How dear to our heart is
Cash on subscription,
When the generous subscriber
Presents it to view ;
But the man who don't pay—
We refrain from description.
For, perhaps, gentle reader,
That man might be you.—*E.v.*

DR. E L KEYES is said to have received \$60,000, as a professional fee from Mr. Vanderbilt, for accompanying him on a four months' yacht excursion.—*E.v.*

PERSONALS.

General regret was expressed that Dr. John Black, through illness, was unable to prepare and read the address in Surgery before the Dominion Medical Association.

Mr. J. H. Chapman, of Montreal, had a splendid lot of surgical instruments at St. John, for inspection by the members of the Dominion Medical Association.

Parke, Davis & Co. also made a fine display of their Pharmaceutical Preparations. Dr. Myshrall and Mr. Turner ably represented this enterprising firm.

The Halifax Medical College begins the session of 1894-95 with good prospects for a large attendance.

We note with pleasure the marriages of Dr. W. G. Putnam of Yarmouth and Dr. A. Halliday of Stewiacke. We extend congratulations.

Dr. Murray MacLaren, of St. John, accompanied by Mrs. MacLaren, has gone to England on a two months' trip.

Dr. John Stewart has returned from his trip to Europe. Our readers must have been pleased with his letters to this journal.

Treatment of Cholera.

Dr. Chas. Gatchell, of Chicago, in his "*Treatment of Cholera*," says: "As it is known that the cholera microbe does not flourish in acid solutions, it would be well to slightly acidulate the drinking water. This may be done by adding to each glass of water half a teaspoonful of **Horsford's Acid Phosphate**. This will not only render the water of an acid reaction, but also render boiled water more agreeable to the taste. It may be sweetened if desired. The **Acid Phosphate**, taken as recommended, will also tend to invigorate the system and correct debility, thus giving increased power of resistance to disease. It is the acid of the system, a product of the gastric functions, and hence, will not create that disturbance liable to follow the use of mineral acids.

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In calling the attention of the profession to the institution, the Faculty beg to say that there are more major operations performed in the Hospital connected with the school, than in any other institution of the kind in this country. Not a day passes but that an important operation in surgery and gynecology and ophthalmology is witnessed by the members of the class. In addition to the clinics at the school published on the schedule, matriculates in surgery and gynecology, can witness two or three operations every day in these branches in our own Hospital. An out-door midwifery department has been established, which will afford ample opportunity to those desiring special instruction in bedside obstetrics.

Every important Hospital and Dispensary in the city is open to the matriculates, through the Instructors and Professors of our schools who are attached to these Institutions.

FACULTY.

Diseases of the Eye and Ear.—D. B. St. John Roosa, M. D., LL.D.: President of the Faculty: W. Oliver Moore, M. D., Peter A. Callan, M. D., J. B. Emerson, M. D., Francis Valk, M. D.

Diseases of the Nose and Throat.—Clarence C. Rice, M. D., O. B. Douglas, M. D., Charles H. Knight, M. D.

Veneral and Genito-Urinary Disease.—L. Bolton Bangs, M. D.

Diseases of the Skin and Syphilis.—George T. Elliot, M. D.

Diseases of the Mind and Nervous System.—Professor Charles L. Dana, M. D., Græme M. Hammond, M. D.

Pathology, Physical Diagnosis, Clinical Medicine, Therapeutics, and Medical Chemistry.—Andrew H. Smith, M. D., Wm. H. Porter, M. D., Stephen S. Burt, M. D., George B. Fowler, M. D., Farquhar Ferguson, M. D., Reynolds W. Wilcox, M. D., LL.D.

Surgery.—Lewis S. Pilcher, M. D., Seneca D. Powell, M. D., A. M. Phelps, M. D., Robert Abbe, M. D., Charles B. Kelsey, M. D., J. E. Kelly, F. R. C. S., Daniel Lewis, M. D., Willy Meyer, M. D., B. Farquhar Curtis, M. D.

Diseases of Women.—Professors Bache McEvers Emmet, M. D., Horace T. Hanks, M. D., J. R. Nilsen, M. D., H. J. Boldt, M. D., A. Palmer Dudley, M. D., George M. Edebohlis, M. D., Francis Foerster, M. D.

Obstetrics.—C. A. von Ramdohr, M. D., Henry J. Garrigues, M. D.

Diseases of Children.—Henry D. Chapin, M. D., Augustus Caille, M. D.

Hygiene.—Edward Kershner, M. D., U. S. N.

Pharmacology.—Frederick Bague, Ph. B.

Electro-Therapeutics and Diseases of the Mind and Nervous System.—Wm. J. Morton, M. D.

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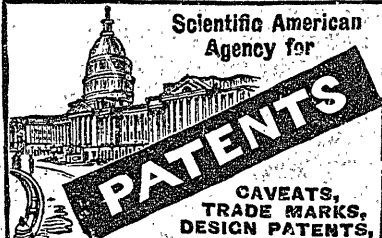
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