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Original Communications.

THE PLACE OF CHEMISTRY IN A MEDICAL  
EDUCATION.

THE INTRODUCTORY LECTURE IN THE FACULTY OF MEDICINE  
OF MCGILL UNIVERSITY FOR THE SESSION OF 1893-94.

BY PROF. R. F. RUTTAN.

We meet to-day in conformity with the well established custom of our Faculty to inaugurate by a lecture the session of 1893-94. To-day we plant the sixty-first milestone which marks the progress and development of our school. I need not tell you with what gratification I find myself, though almost the junior member of the Faculty, in the position which my colleagues have been courteous enough to assign to me—a gratification which would be complete were it not for the sense of responsibility which the position involves, a position which my own consciousness assures me might, with greater benefit and pleasure to you, have been conferred on one of the others about me.

One of the chief causes of gratification which the position gives me is that I am able to offer you all on behalf of the Faculty a hearty welcome back to the halls of your Alma Mater, to assure those of you who are now just entering on the threshold of a life of study that this welcome is more than the formal one of a professor to his class, but is that of friend to friend—to remind you that as fellow-students in a profession which demands such sacrifices of time and self as medicine, we all have the same great object in life.

In no profession, perhaps, is this sense of *camaraderie* so strong as it is in that of medicine, no class of students are so true to each other and to their Alma Mater as medical students, and of no other profession are the members so ready and glad to offer each other assistance, when called upon, as those of the profession to which you aspire. I refer to this, Gentlemen, not in any spirit of self glorification, but that I may the more thoroughly impress upon you the fact that your professors are your best friends, and assure you that if you come to them in time of doubt or trouble, the best fruits of their experience and knowledge will be freely and gladly given to you.

I have to congratulate you, Gentlemen of the first year, on entering McGill University at a period in her history marked by such prosperity as the present. It has been her province in the past to set a high standard in the practical and vital branch of education controlled by this Faculty. This duty has been done in the face of grave doubts and difficulties, and this duty our Faculty is now doing, not without the expenditure of much thought and labour, but thanks to our generous friends, without running that risk of financial failure which deters so many schools from adopting the most advanced methods of teaching, and fixing a high standard for their degree.

To a certain extent the laws of supply and demand apply to medical schools as well as to the price of wheat, and there is a perfectly natural tendency in many men towards a school which will give them a diploma for the least expenditure of time, money, and energy. Many schools have come into existence to meet this demand for a short cut to the degree of Doctor of Medicine. So detrimental to the best interests of the community has this undignified competition for students become in the United States, that it was seriously suggested in a recent report by a Commission of Education that every medical school in the country be required by law to provide forthwith an endowment of not less than three hundred thousand dollars. As Oliver Wendell Holmes wittily remarks: "A school which depends for its existence on the number of its students cannot be expected to commit suicide in order to satisfy an ideal demand for perfection."

I say it is partially true that the demand for medical education obeys laws analogous to those which rule the world of commerce, but this is only partially true. The better class of students, as the history of our own institution proves, will always go where a high standard of excellence is required, justly feeling that only when associated with men seeking the highest class of medical education they will find congenial friends, and meet with opponents for college honours who will compel them to exert their full powers.

But there is another aspect of this question, and that is, that the best medical instruction must necessarily be the most expensive, and the most desirable students are by no means those who can easily afford to pay very high class fees. Well equipped laboratories, good teaching museums and models, large reference libraries, and above all an able staff of professors and assistants, are the necessary but costly features of a great medical school. Our benefactors have set the excellent example of liberally aiding an already tried institution, instead of launching a new one among the many which are now struggling to float, recognizing the fact that by endowing a good medical school they have advanced the thoroughness of medical education, not only by making that school independent of large or small classes of students, but also by enabling it to provide a larger staff of officers of instruction and well equipped laboratories, without compelling that school to make its class fees almost prohibitory.

Before leaving this subject I may add that there is one feature in connection with these recent donations to which I would like especially to call your attention, for it is the one that will continue to give us the keenest satisfaction, and that is that they were bestowed as unsolicited gifts by those who are accustomed to use their eyes in estimating desert, and that this kindly act signifies a hearty approval on their part of our endeavours to advance the knowledge, train the judgment, and perfect the skill of those entering on the profession of medicine.

And so, Gentlemen, it is with a sense of thankfulness for the past, of satisfaction with the present, and of joyful hope for the future that the Medical Faculty begin the sixty-first year of their services to the profession, welcoming their new

friends, thanking their benefactors, and exchanging with each other their old students, and the Governors of the University, mutual congratulations and good wishes.

The beginning of a new session, the entrance on a new course of lectures, is always an event of great interest to professors and students. The chief interest attached to this period of the University year is due to the fact that it marks the advent of a new class of students. No introductory lecture, therefore, is worthy of the name that does not contain what might be termed its "Freshman's Corner." Herbert Spencer, according to his cold, logical, and scientific ideas of things, would regard you young gentlemen as social units in an embryonic condition. He correctly points out that all social as well as biological advancement is a progress from the general to the particular, a specialization. As your seniors in medicine know well, all embryos, at a certain period in their existence, are more or less alike, and biologists are not able to tell whether a given specimen embryo, at an early period, will become a sheep or a goat, a monkey or a whale. It is only later, when the limbs appear and the head becomes shaped, and we see how it is to go through the world, that it becomes easy to tell what manner of creature it intends to be. Similarly, as boys we were all more or less alike, and though past the boyhood stage, you, for instance, still possess many general but useless characteristics, which you have in common with young lawyers, curates and business men; but now that you are about to differentiate into physicians and surgeons, you must allow those useless appendages of your mind and character to atrophy and disappear from disuse, and develop, by calling them into special activity, your powers of reason and observation and knowledge of humanity in sickness and in health, in order that you may become adapted in the kind of your intelligence to your future environment; that is, to drop the metaphor, you have deliberately and fully chosen medicine as your profession. The world demands, at any price, men that are absolutely fitted to their position. You should, therefore, cultivate in every detail those qualities of mind, of person, and of manner, that will enable you to fill the place that the world reserves for the great physician. Your curriculum of study will not do all this for you. Much must be acquired by personal observation and thought.

It has been said that we all go through the world backwards. We see clearly the path we have travelled, but what is to come is either absolutely unknown, or indicated only by that shadowy knowledge our experience has given us. When we see others in whom we are interested coming blindly along the way we know so well, the impulse to shout back a warning or two is almost irresistible. Let this be my excuse for inflicting on you a little, a very little, of what is recognized in our profession as advice gratis. I do so entirely from a sense of duty, knowing full well that you will not be long here before you get more advice than you will know what to do with. It will pour in on you from all sides, and it will all bear the stamp of the genuine, disinterested article. I shall make this part of my address very short, as I am in full sympathy with that class of healthy-minded young men to which the great majority of you belong, who think twice before asking advice, and then think again before acting upon it. The first advice is: Do not let anything you hear from me stand you in the place of your own thoughtful observation and enquiry. Think out your own view of the profession honestly, liberally, and truthfully. You are entering a profession; you must, therefore, cultivate perfect freedom of personal judgment, and be conscious of your own responsibility. Your time is short; divide it up economically, and do not waste your odd half hours. Be particularly careful of your health; nothing is worth so much to you as that. Do not fear your examinations; above all, do not cram for them. This stuffing your brain with shapeless masses of unorganized learning is the worst possible preparation for examinations. Do not try to commit your text book by rote. No text book, not even Grey's Anatomy, has any claim to be verbally inspired. Make the thoughts on every page your own, and you will find no trouble about clothing the ideas in words.

I have selected as a topic for this lecture one which, though bearing on my own special department, will, I trust, be of sufficient general interest to justify its discussion on this occasion. The subject which I have taken is "The Place of Chemistry in a Medical Education."

First of all let us examine for a few moments the influence that chemistry and the study of chemistry have had on the development of medicine.

Chemistry took its rise from alchemy. It sprang up among those scientific dreamers of the first centuries of the Christian era, whose guiding star in their search for knowledge was their belief in the transmutation of the baser metals into gold. Their theory of the constitution of matter led them to believe in the existence of a sort of ferment, at the touch of which transmutation would occur. This philosopher's stone was also regarded by many as a panacea for all human ailments; so we find thus early the efforts of a class of men turned towards the discovery of a universal medicine, rather than of inexhaustible lucre. Alchemy, although almost divorced from medicine of the time, indirectly contributed not a little to its advancement. The later alchemists, despairing of finding this magic substance in the mineral kingdom, sought for it in the products of animal life. All parts of the human body were assayed. The philosophy of the period taught them to regard man as an epitome of the universe, a microcosm, and his body as a sort of mysterious agent by which the viler material composing his food was transformed into the nobler thinking individual. They naturally concluded that he must possess within him some great transforming agent, and that substances that remained for a long time in the body must be strongly impregnated with this powerful transmuting substance.

Besides many less important results, this search for the philosopher's stone in the human body led to the discovery and partial isolation of urea, uric acid, phosphoric acid and the element phosphorus, and thus gave us the first facts in physiological chemistry. The history of these fruitless endeavours to find a universal medicine, though, properly speaking, merely the history of a superstition, will always prove interesting to the student of science as a record of the strange phases through which scientific knowledge has passed in the course of its slow development; and also of the difficulties and obstacles against which the human intellect has had to struggle in the past, while seeking a solution of the great problems presented by nature.

Towards the end of the fifteenth century chemistry began to throw off the yoke of alchemy. It was just at this period that independent criticism began to spread, and traditional

beliefs to lose their power. The inductive method of reasoning, gradually forcing itself forward, called into existence the first indications of experimental science. This dawn of a new era in thought, which ushered in both chemistry and medicine, found its most powerful expression in the Reformation itself. Although chemistry did not entirely free itself from the fascinations of the hermetic doctrines until a much later period, another aim came into prominence, which gave it a distinctly scientific character. Medicine and chemistry were to be conjoined in the most intimate manner, for their mutual benefit and advancement. The leading physicians of the period became the chemists; as chemists they discovered new remedies, prepared them carefully, and determined their constitution, while as physicians they tried and explained their physiological and therapeutic action. It is to this interaction of medicine and chemistry that this period in the history of science owes its peculiar characteristics. The result was an enriching of both.

Chemistry passed from the cloisters and private laboratories to the universities—passed gradually from the control of vain dreamers and charlatans to that of a learned, and, for the period, scientific profession. Medicine, on the other hand, received from this union the greatest impetus in its history. Doctors became sceptical regarding the infallibility of the works of Galen and Hippocrates, and began to observe and record for themselves. The spirit of independence induced by laboratory experiment and observation extended to their daily practice, and a more careful study of the symptoms of disease followed. The fundamental object of chemistry then became not to make gold, but to prepare and examine medicines; and the knowledge of chemistry thus acquired led to the doctrine that the healthy human body is but a conjunction of certain chemical matters—a receptacle containing chemicals acting in a fixed way. When these underwent change, illness resulted, and the latter, therefore, could be cured only by means of chemical medicines. The spread of this doctrine resulted in the overthrow of the old school of Galen; but, of course, any successful treatment based on such an hypothesis could only be possible when chemistry had attained a higher development.



However, the important fact remained that medicine was now no longer guided by tradition, but by a scientific hypothesis which took its origin from human observation and experiment. In bringing about this union of chemistry and medicine, which was so mutually helpful, no one effected more than Paracelsus. His true name was Philip Hochner, but, on entering his medical course, he assumed the rather more pretentious name of Phillipus Aurelius Theophrastus Bombastus Paracelsus von Hohenheim. Although he was a pretentious charlatan, a man of widely extravagant and dissolute habits, yet the force of impact, with which this strange, erratic meteor met the opposition of his time, caused the whole fabric of mediæval medicine to totter on its base. The complete discomfiture, however, of the disciples of traditional medicine was effected chiefly by his successors, von Helmont and Silvius, with whom should also be associated Libavius and Glauber.

The views of Paracelsus and his school are naturally seen to be bristling with ridiculous errors, when examined from the altitude attained by medicine of our own day; yet the progress caused by their introduction was very great. The highest talent of the day was enlisted in the ranks of the medical chemists, to whose work he had given such impetus, and to him we owe the discovery of many facts in treatment and physiology, that have remained true to the present time. He was the first, for instance, to recognize the incorrectness of the doctrine that the heart was the centre of heat. His acute observation first called attention to the connection that exists between gout and urinary calculi. His reputation, however, rests chiefly upon the number and importance of the new remedies which he introduced. He was the first to employ as internal medicine the salts of mercury, lead, and antimony, sulphate of copper, and the various preparations of iron. All this, too, was done at a period when it was not the thing to use chemical medicines (and what greater condemnation, even in our own time, could a new departure in therapeutics receive?) No; the orthodox medicines of that period were of a different type. To give you a faint picture of medicine of the fifteenth century, let me quote a few ideas of the great Galen. The following is taken from a chapter entitled,

“The Head and His Parts,” in a book of medicine of the sixteenth century. Galen sayeth: “The head is divided into four parts; in the fore part hath blood the dominion, cholera the right side, melancholy in the left side, and flegma beareth rule in the hindermost part.” In anatomy and physiology such ideas as these prevailed: The spleen was the centre of wit; the size of the brain increased and decreased with the moon; the function of the liver is the seat of love; the lungs were employed to fan the heart, which, in turn, was the centre of animal heat. Based on such physiology, you will readily understand the scientific necessity for this prescription: “Take the right eye of a frogg, lap it in a piece of russet cloth, hang it about the neck, it cureth the right eye if it be inflamed or bleared; and if the left eye be grieved do the like by the left eye of the said frogg.” *Similia similibus curantur*. History repeats itself: We have heard of the homœopathic surgeons in the progressive republic to the south of us. Here we have homœopathic ophthalmology in the fifteenth century.

I have thus dwelt somewhat at length on this period in the history of medicine, on account of the effect which chemical views and knowledge had on the diagnosis and treatment of disease. The solution of the problem sought by these old physicians was, of course, impossible. On the other hand, the attempt to see in every occurrence in the body a process of fermentation and decomposition capable of explanation by means of chemical reactions had this beneficial effect: the doctors became accustomed to the thought that they might expect little from tradition and speculation, and everything from the examination of facts. Medicine owes much to the perception of this circumstance. Its effect lasted long after the absurd hypothesis which gave rise to it had passed away. Afterwards a new school of physicians arose, who regarded disease as the result of mechanical disturbances, such as stagnation of the blood, and, as they expressed it, of stagnation of the contents of the nerves. A violent controversy raged between this new dynamic school and the followers of Glauber and Libalius. The result was a partial defeat of the chemical doctrine of disease; but the inconsistencies and one-sidedness of both of these systems of pathology ultimately led to a blending of the two. Medical chemistry came thus to occupy a

subordinate position, and in the eighteenth century it became pharmacy only. All medical chemistry was taught in the drug shops, and its sole *raison d'être* was the preparation of medicines. Only here and there dotted about Europe were to be found men who had the time, means, and inclination to study for its own sake a science which had fallen into such disrepute.

The influence of Paracelsus was not entirely lost, and the profession of chemistry did not become absolutely disreputable until medicine came to be governed by another new doctrine. This new theory was an outgrowth of the dynamic doctrine of physiology which was originally advanced by Stahl. It was a compromise effected with the Church. This was the doctrine of animism. It ascribed all physiological and pathological change to an unknown and unknowable animal force. This has survived under the name of vital force, or *vis vitæ*.

Now, this acknowledgment on the part of the profession, that they not only do not know, but could never know anything about either the substances of the body or their mode of action, at once suggested that all scientific investigation regarding the cause of disease was superfluous. It was a wretched delay in the progress of medicine, as the result of this compromise was to close for ages that path in medicine which alone leads to discoveries of value, the experimental method, and to re-open the old path of empiricism and tradition. This belief in an inscrutable *vis vitæ* persisted, to the detriment of both medicine and chemistry, until the present century was well in the forties.

It is natural that such a doctrine, if this negation can be called a doctrine, should have prevailed. It is only human. When one does not understand a thing in science, the easiest way out of the difficulty is to give it a good name, and look wise. If the roots of that name are deeply mired in Greek, so much the better. *Vis vitæ* is only Latin, but that is compensated for by the alliteration. The words seem to have been born together, like the Siamese twins, and, as in the case of the latter, no doctor dare cut them asunder.

To the chemists Justus Liebig and Wohler we owe the beginning of the overthrow of this fatalistic doctrine, and to

them may be ascribed the credit of introducing the modern period of medical chemistry. Of the physiology and pathology of the eighteenth century only the knowledge which experience gained, and scientific observation disclosed, has remained in the possession of later times. Not one of the numerous systems of schools based on animism now exercises the slightest weight in modern medicine. The material having been collected, however, the few well-cut stones of experience and observation remain for use when an architect arises who can find a place for each in a symmetrical structure.

The belief in vital force has now almost entirely disappeared. We know now that the same chemical laws govern the animate and inanimate worlds, and that definite compounds formed in plants and animals can be prepared artificially, as soon as their chemical constitution has been worked out. The conditions under which the constituents of the body are produced we can only conjecture, but that they obey laws different from those which rule the inanimate world is a view which is no longer tenable.

After this rather long historical sketch of the progress of chemistry and medicine, and the objections made to the theory of animism, it is but natural that you should expect me to maintain the thesis that the chemistry and physics of to-day are able to suggest a theoretical foundation for the art of medicine—to indicate a sort of mental *résumé* for all departments of the healing art. Such a brief description, or formulæ resuming all medicine chemistry has not found and may never find; but of this you may be sure, that its method of seeking for one is the sole possible method, and that the truth reached by this method is that which will most permanently satisfy the human judgment. You would misunderstand me if you imagined that I think it even possible that the psychical and biological enigmas underlying physiology and pathology can be elucidated in the chemical laboratory. That this can ever be done we have at present no evidence whatever. The gateway to the acquisition of a theory of medicine that will harmonize our past with our possible future knowledge is the experimental method of investigation—a method which is employed by chemistry, which was introduced into medicine, taught and especially illustrated by chemistry, and for the

advancement of medicine must be applied, not only to chemical research, but to biological and psychical research as well. Chemistry got beyond its depth when it undertook to analyze the complicated processes of life into their several factors, and to explain them in accordance with the rigid laws of chemical action, and the lesson taught has not been forgotten.

The goal of chemistry as an experimental science is to offer a complete interpretation of the constitution of everything animate and inanimate; but the goal is an ideal one. It marks the direction in which we travel, but never the spot we shall ever actually attain. For, as the late Kingdon Clifford says, "Scientific thought is not an accompaniment or condition of human progress, but human progress itself."

I have now tried to show that the history of medicine, as a whole, shows progress or stagnation in proportion as the experimental method of enquiry, the process of trying and thinking, has been used or neglected, and that this method is the one that will most surely sift facts from fancy, and, by the orderly arrangement of facts, enable us to see relations previously obscured. I now wish to emphasize the fact that a training in this method is of the highest importance to every student of medicine. You, as students, are not now so intimately concerned with the advancement of science as with the acquisition of the knowledge and training that will make you useful practitioners. "How, then," you may ask, "will a training in the experimental method of enquiry be of such advantage to us? Very few of us will be placed in circumstances that will enable us to become investigators; what we want are useful facts; we wish to be practical men, practitioners." Now, that is precisely what we intend to help you to become; investigators you may be some day, but you must acquire your profession first. It is obviously impossible to advance medicine until one has mastered it; he must first step to the front before his blows can tell in the strife, and I may add—I do not believe anyone can be thorough in any department of science without wishing to advance it. But I will tell you why this training is of such importance: because it educates your seeing powers—your mental vision. It teaches you to observe correctly, and to reason accurately from your observations. That you should receive a training

in this method is almost an essential to success, and it is the surest way of enabling you to assimilate and made part of yourself the very facts you feel are indispensable for your profession. I need scarcely remind you that the whole practice of medicine consists largely in the exercise of the power of observation. To make a correct diagnosis requires this power to be acute and highly trained, or some imperfectly developed symptom may escape recognition, and your own experience teaches you what a very difficult thing it is to observe correctly; to see everything, even in a small field of observation; to proceed methodically, overcome the desire to flit from one object to another; and to exclude what you wish to see, what you were told to look for, from what is actually there.

A training in experimental work also aids you in acquiring the facts of science, in learning your profession, not only because it educates your attention and precision of observation, but especially because it teaches you to question nature, to cross-examine her and yourselves as well. Cultivate, then, Gentlemen, early in your career, the habit of careful observation, and go to nature herself for information, whenever you have an opportunity. It is the pride of this Faculty that she has always insisted upon laboratory work as an essential portion of the preliminary training of her students, and that the chief portion of the final work is taught with a patient before you, at the bedside in the hospitals. But before you reach this later stage, you should have acquired the habit of mind which only the experimental sciences can give you. Now, chemistry, of all your primary work, presents you with the best examples of accurate and discriminative observation and of inference therefrom. It begins with the study of the simplest phenomena, and advances the investigation step by step to a complete and exhaustive analysis of complicated relations. You will never, however, acquire a scientific training from a mere literary acquaintance with chemical facts and theories. In this way you acquire only scientific information, an altogether different thing. You must seek out the information for yourselves, and obtain your knowledge of chemical facts at first hand, by making the best use of your time in the laboratory; and, believe me, if you do not train yourselves to observe and think for yourselves when the objects you have to

examine are comparatively simple, when the complex phenomena of disease in its many forms are presented to you, you will find that you cannot or will not do so, but will be guided by empiricism, or by what the text-book or lecturer says should be seen; and as the student is, so is the practitioner.

Lest you should think I am over-estimating the value of laboratory work in chemistry as a training for the profession of medicine, I will give a few reasons for the faith I have in its power of developing the scientific habit of thought. But first let me offer a word of explanation. I do not in the least under-estimate the training afforded by the other two great primary subjects, anatomy and physiology. They are, when properly studied, of very high educational value; but still, their greatest utility is in the intrinsic value of the subject matter taught. Every fact of these branches has a direct bearing on medicine and surgery. Anatomy, besides, is an excellent training for the memory, and also cultivates the observation, but not the same sort of observation that is developed by experimental science. You learn anatomy in precisely the same way that a cabman learns the streets and principal buildings of the city, by going over the ground again and again, till the relation of nerve, artery, and vein are as familiar to you as that of sidewalk, curbstone, and pavement to the city carter. It is only in this way you can learn anatomy. You must see the relative position of parts, and see them again and again, and from all sides, before you can find your way with certainty about the human body. You would be as much justified in undertaking to drive a London Hansom cab because you had made a study of Baedeker's Guide Book, as you would to enter the field of surgery without years of training in the dissecting room. Observation, and careful observation, is required and developed by anatomy, but not that which involves casual relations. Remember, I am speaking of human anatomy, not of general morphology, nor of comparative anatomy. In human anatomy, observation is not associated with reasoning as to the relation between one fact and another. There is no mental effort, such as tracing an observation back to the grounds of belief in its truth, and forward again to some other observation for discovery or verification. Such processes of thought are required, however, in

physiology; but experiments in this department are made with difficulty. The material and the forces are so complex, and altogether so little is actually known, and so much conjectured, that verification even of the simpler phenomena is difficult and uncertain, and requires much time and elaborate apparatus.

The problems of animal physiology, except those which are of a chemical nature, are far too difficult to serve as a means of scientific training for beginners in medicine, and should really be undertaken only after one has received a good laboratory course in chemistry.

Now, I have no intention of forcing you to select chemistry as the subject affording this most desirable training, by any process of exclusion. On the contrary, I wish to point out clearly, how by work in chemistry you may derive that scientific training which I have tried to show is essential for the successful study and practice of our profession. In the first place, lectures on chemistry, even when illustrated by experiment, are of comparatively small value as a means of training. Lectures are, of course, essential to expound the relations and theories of the science, and to illustrate them by experiments which are not adapted for a teaching laboratory; but it is by practical work only that a student can extract the full benefit obtainable from an experimental science such as chemistry. As Huxley says, "The laboratory is the fore-court of the temple of philosophy, and whosoever has not offered sacrifice and undergone purification there, has little chance of admission into the sanctuary."

One of the first surprises that a student of practical chemistry receives is to find out what a very difficult thing it is to do what you are told to do—to find out what little power mere words have to create a correct picture in the mind. This is due to the fact that to those untutored in scientific observation there seems to be scarcely any connection between words and the things represented by them, except in the case of affairs of every-day life. Now, this power of clearly picturing before your mental vision a sequence of things from a verbal description is a function of the brain called the scientific imagination, a power latent in all minds, and one which, unless developed by a training in scientific work, is likely to remain dormant throughout life.



Develop, then, this mental faculty at every opportunity by endeavouring to create before your mental vision a distinct image of the thing described—a picture of the reality. The power thus acquired will help you in every walk of life.

I have already dwelt on the importance of observation, and correct reasoning on the facts observed. In chemistry a student is brought face to face with nature, and with that field of nature which is capable of very accurate examination. He learns of her by reading and by experiment, and the juxtaposition of the two necessitates thought. He handles and sees the things he reads about, hence he gets definite ideas of things. He performs a certain experiment with a certain result—a result always the same, under the same conditions. The experiment is simple, the conditions easily controlled, and the result sure. This leads him to ask the cause of this inevitable result. What are the relations of the materials entering into the re-action—what the product? He has questioned nature and received a reply; he now questions himself, and the very asking the question causes thought.<sup>2</sup> He creates a theory, or applies one he learns elsewhere, and verifies it by further experiment. The whole process is, necessarily, when properly taught, an alternation of observation and thinking; and he must observe correctly, and think correctly, or his error will certainly find him out. The punishment for error in chemistry is quick and certain, if the student only works with care. It is just in this particular that chemical work affords the most valuable training for a medical student—his little mistakes are never productive of erroneous ideas; because from the very nature of the work he must, sooner or later, detect his own error, when the work has to be done over again. This self-inflicted punishment for error occurs again and again in a day's work. The little blows thus inflicted do not discourage, but tend to shape the mind, until constant watchfulness, accuracy of observation, and a determination to reach absolute truth in his work become a habit of life, a part of his very nature.

I might suggest to you, Gentlemen, many means of helping yourselves to cultivate this habit of close attention and accurate deduction; but I will refer to only one, the great value of which experience has shown me is not as fully appreciated by

you as it should be. What I refer to is the habit of carefully recording all your observations when directly in contact with Nature, and also all the chief facts connected with them. Do not trust to your memory, for you may forget an important detail, or, worse, it may return to you a distorted image of the original, an image that has been gradually altered in the process of keeping.

Gentlemen of the first year, begin this practice at once with the objects presented to you in botany and histology. Make rough sketches of some of your dissections, even if you destroy them immediately after. In the chemical laboratory it is absolutely essential to progress to record everything that happens—your reasons for the experiment, and the conclusions deduced from it. Make notes of what you see and do in the physiological laboratory; what you see at the bedsides and at the autopsies. It should be the constant habit, not only of your student life, but after you leave us to engage in practice; and especially remember that these notes are always to be made with the object you describe before you. Now, if you have any doubt regarding the importance of this habit, convince yourselves of its value by trying this experiment on yourself. Make a simple series of re-actions on a substance in the laboratory, or examine carefully a plant or a diseased organ, and afterwards, in the quiet of your own room, sit down and write out what you did and what you saw; and unless you are more than ordinarily gifted, I feel sure a comparison of your notes with the original, next day, will convince you of the fact that to delineate *ad Naturam* your model must be always before you.

Much more might be added regarding the educational value of laboratory work in chemistry, but I will content myself with pointing out, in conclusion, that although other subjects, notably practical physics, are able to afford much the same sort of education, yet in none are the materials so available and of such constant properties, or the apparatus so inexpensive and simple, or the experiments so easily made, and the results so quickly obtained as in chemistry.

The tendency of education to-day, in all branches, from the kindergarten to the university, is more and more towards placing laboratory work and personal observation before tra-

dition and theoretical instruction, and we hope, in the near future, when this wave of progress is felt by those who regulate our medical curriculum, to be able largely to increase the valuable laboratory work in chemistry, and in greater proportion to reduce didactic lectures. This change, however, can be effected only when a higher quality of chemical work is done in medical schools than is now possible. We are bound to our present system of teaching by two forces—the standard fixed by the licensing boards, and the absence of preliminary training in science on the part of the great majority of our matriculants. Higher chemistry should be taught in our medical schools, and much less of it. It is positively cruel to require a medical student in his first year, whose time is so fully required for those things which bear directly on his future work, to go through the drudgery of mastering the elements of chemistry. To obtain a knowledge of chemical nomenclature, and the nature of chemical processes, is not very interesting, and is hard work; and to do even this thoroughly certainly occupies for him one of the two precious years he has at his disposal for the preliminary studies, and in his second year but little time is left for either acquiring a knowledge of medical technical chemistry, or for the training which laboratory work affords him. It is not doing justice to chemistry, nor to the professors who teach it, that this condition of affairs should exist. The student naturally regards chemistry, up to within a few months of the end of his study of it, as something uncanny, made up of barbarous names and very crawly formulæ—as a science presenting all the difficulties of algebra, without its compensating accuracy. It is only too late when he finds out that formulæ and nomenclature are not chemistry, but bear about the same relation to it that the German irregular verbs bear to the poetry of Goethe's Faust.

The remedy for this is obvious—he should be required to know the elements of chemistry before entering medicine. The only chemistry taught in medical schools should be organic and technical medical chemistry, or what the late Dr. Carnelley has called bio-chemistry, which, as the name suggests, is the science which treats of chemistry in relation to life and its attendant phenomena. It treats in brief of the action of dead matter on life, and the reciprocal action of life

on dead matter; and, of course, includes what is usually called physiological, pathological, and sanitary chemistry. All the training which chemistry can afford in the experimental method of inquiry could be given in a chemical laboratory by experiments in medical chemistry, as well as, if not better than by using our present system. In fact, any portion of the field of chemistry does almost equally well as a training ground. In the course given here, the re-actions of the common acids and metals are used for this purpose, not because the information obtained is of value to medical students in particular, nor because that portion of the field of chemistry affords any better subject matter for experiment, but because it is as good a field as any other, and it is a very favourite hunting ground of the Board Examiners.

Apart from laboratory training, what every medical man requires is a clear view of the broad principles of chemistry, that he may intelligently follow advances in medicine made by chemical research, and a limited acquaintance only with the facts of chemistry. A knowledge of two classes of facts is required: first, those which are essential to a perfect understanding of the principles of the science, very few in number, and second, those which bear directly on his profession. It is the first class of facts that should be partially acquired before entering medicine, in order to give both professor and pupil time to dwell on the more congenial, important, and interesting facts that bear directly on the principles of the healing art.

Apart from its value as a means of training the student in those habits of thought especially useful to him in his profession, chemistry has another claim to a high position in a modern medical education—a claim based on what she has shown herself able to do in aiding physiology and pathology in the solution of the fundamental problems of medicine.

Time will not permit me to discuss even the more important advances recently made, and a mere enumeration of the results obtained would be tedious in the extreme. I shall have said enough on this subject when I remind you that although the great powers of the chemical and physical sciences to aid medicine have only recently been appreciated, these sciences, and especially chemistry proper, have shown

the existence of fields of research of unimagined fertility. The whole of preventative medicine, the medicine of the next century, is becoming more and more a chemical question.

Bio-chemistry has taken up the thread of research, where it has been lost to the highest powers of the microscope. There is no field of science which during the past few years has attracted the same public attention as that which is now being searched over by bio-chemistry and pathology. As I have hinted elsewhere, recent synthetical work has about completed the rout of those who believe that the higher products of life, the more complex of the constituents of plants and animals cannot be fabricated from their elements by artificial means.

The recent synthesis of grape sugar by Fischer and his pupils, and the synthesis from their proximate principles of too proteic substances by Schutzenberger, exhibiting the chemical and physical properties of peptone, show that the chemist can construct even the most characteristic compounds and the highest products of life. The construction of a starch granule or a muscle fibre, however, will always necessarily remain beyond his powers. It is as absurd as to expect the chemist to synthesize organized tissue as to expect that a workman who could combine copper and zinc to make brass could construct a *m. deru* chronometer. But the problem of synthesizing the different materials of which the living cell is composed is to the chemist of to-day a far easier problem than the construction of a telephone would have been to the electricians of the time of Volta or Ampère.

The greatest value of the contributions made by chemistry to our knowledge of disease is not so much the actual benefits they have conferred on medicine as the clear prophecy they utter of greater blessings to come. The study of medicine is carried on amidst the deepest mysteries of nature. We have been created with minds to enjoy, and reason to aid us in unfolding such mysteries. Nature calls us to study her, and all our better feelings urge us in the same direction; and, Gentlemen, I shall have missed the object of this lecture if I have failed to impress you to some extent not only with the necessity of studying Nature, but of obtaining your knowledge

of her at first hand. Agassiz has said, "If you study Nature in books, when you go out of doors you cannot find her;" so if you study disease only in lectures and text-books, when you go to the bedside you will not recognize it. Remember that the physician is a servant of Nature, never her master, and he only will rise in the service who can follow close in her footsteps, and successfully aid her in her struggle with disease.

## RARE FORMS OF GOUT AND RHEUMATISM.\*

BY SIR JAMES GRANT, Ottawa.

*Mr. President and Gentlemen,*—This I consider "a red letter day" in my professional life's work, and more particularly from the very fact of having received so generous an invitation, through the Secretary of your Association, to read a paper on this auspicious occasion. We Canadians, as a whole, delight in noting the advance of our American neighbours, in almost every line of thought, in medical and surgical science. The assembled wisdom of this Association, from the great State of New York, almost a kingdom in itself, is only an index to the intellectual power to-day at work in almost every State of your prosperous Republic. How gratifying it must be to con- over such names as Rush, Mott, McDowell, Sims, Gross, Pancost, Flint, Sayer, Thomas, Emmett, Dacosta, Bowditch, Godell, Pepper, Wier-Mitchell, Bull, McBurney, and a host of others equally great, but too numerous to mention, who by their skill and ability have added lustre to the name of America.

To-day I propose offering some observations on rare forms of gout and rheumatism—conditions not by any means frequent as to their occurrence.

CASE I.—*Pneumonic Gout.*—The following brief notes are of a pneumonic form of gout, associated with slight hepatic complications. H. V., aged 78 years, stout habit of body, not plethoric, but generally vigorous, and accustomed to long hours of arduous official duty. Cannot trace gout to his ancestors, and always lived well and liberally. February 10th, 1893,

\* Read in Mott Memorial Hall, New York, Oct. 11th, 1893, before the Medical Association of the State of New York.

suddenly seized with acute pain in the right side of chest, opposite the middle lobe of lung, with general malaise and rather severe cough; no excessive flushes in the cheeks; the breathing was somewhat hurried, about 30 per minute, temperature  $101\frac{1}{2}^{\circ}$  to  $103^{\circ}$ , and the pulse for several days ranged from 100 to 114. The cough after the first day was associated with the expectoration of a thick, tenacious mucus, rusty-coloured, not uniform, however, in its character, but somewhat patchy as to the distribution of the blood through the tough sputum. The left side moved more freely during the respiratory process than the right, and over and about the seat of pain, in right side, there was an evident area of dulness on percussion, and yet the breath sounds were heard with a degree of almost unexpected clearness, with an occasional slight mucous rale. The posterior aspect of the right lung held its ground, kept moderately clear, and in fact the pulmonic trouble was chiefly confined to the lateral and anterior aspect, middle lobe, right lung. Throughout the sputa presented an unusually tenacious character, and up to the 21st of February exhibited a patchy, rusty and most peculiar appearance, after which date it became clear, but retained the sticky, glutinous peculiarity up to the 27th of February, when it subsided. During the entire illness, the pain in the side was not of the usual pleuritic type, but more of the burning, throbbing, aching and piercing pain, and out of all proportion to the ordinary defined pulmonic condition. From his well-known gouty diathesis, I was led to believe the attack was really one gouty in character, and informed the friends that metastasis to the feet, of the lung condition, was not unlikely. On the 22nd both feet became very painful and swollen, a condition of system (as to his feet) he had experienced several times during the past ten years. Almost immediately the lung improved in every particular, which quite settled the point as to the gouty character of this attack in the lung tissue as a primary development. Throughout, the usual course of treatment was adopted, with the free use of elixir salicylate of lithia, and lithia water as well. During the entire attack, I saw no special indications of hepatic trouble, beyond a degree

of uneasiness about the liver generally. Four years ago he had a well defined attack of jaundice, unattended by any anatomical lesion to account for its development; it was of short duration, and passed off quickly.

CASE II.—*Perityphlitic Gout*.—The same individual whose case I have just cited was the subject of the following. Date, September 10th, 1892, aged 77 years. Almost up to the present attack had been enjoying apparently good health; retired to bed this same evening, and in the middle of the night was suddenly seized with a severe pain in and about the region of the appendix vermiformis, attended with a sensation of throbbing, together with a degree of tension in this particular region, and which radiated more or less over the entire abdominal walls; considerable heat of skin, with a degree of restlessness, general febrile disturbance, and a sense of uneasiness about the stomach, with occasional vomiting. Temperature, 102°; pulse, 116, full and regular. The pain and sensibility of the abdominal wall chiefly over the ileo-cæcal region. The bowels were constipated, and the tongue moderately coated with a moist white fur, pointing to evident gastric derangement, for a few days. Knowing the gouty history of this patient for some years, although not of a hereditary type, I expected from the character of the pain—boring and growing, such as I had observed more than once in his feet—that it might prove a case of gout, of which there were well defined results, such as tissue thickening about the tarsus and heels of both feet, owing to the deposition of gouty material during past years. The fingers of both hands showed also evidences of disturbed chemistry in the system, resulting in gouty thickening in and about various joints. The bowels, though at once relieved by an enema, still continued painful. Linseed poultices were freely applied, sprinkled with chloroform liniment, and tablets of sulphate of morphia freely administered, to relieve the intense suffering, which was so acute as to almost prohibit the most moderate bed clothing. Salicylate of lithia and lithia water, were freely given, so soon as admissible, and the bowels were freely washed out with warm water, which almost played the part of an internal



poultice. The pulse and temperature continued high for fully five days, when both gradually lessened in intensity, and about the sixth day pain was complained of in both feet, particularly about the toes, but not by any means as severe as in the marked metastasis after the attack of pneumonic gout.

At this date there was a marked amelioration in the entire character of the symptoms; the abdomen became more flaccid and much less painful on pressure, and the decidedly caky area in the ileo-cæcal region gradually parted with its suspicious indications. McBurney's appendix point was for days an interesting and instructive look-out, until rendered less attractive by the evident outcome of metastatic, gouty action. Undoubtedly there was well marked and circumscribed induration in the ileo-cæcal area. The precise condition or character of this induration was difficult to define, and yet the rapid change consequent on metastatic action pointed to gouty deposition, in or about the region of the appendix, so peculiar and transitory in its manifestations. At the end of three weeks an excellent recovery was made, and since that date there has been no recurrence of intestinal trouble.

CASE III.—*Rheumatic Perityphlitis*.—Miss T., aged 12 years, vigorous and robust habit of body, conformation regular, and organs, as a whole, normal, prior to present attack; of a highly nervous temperament, but usually enjoyed excellent health and spirits. June 1st, 1893, complained of pain and a sense of uneasiness in her feet, with a general feeling of systemic irritability. June 3rd, was suddenly seized with severe pain in the bowels, but more particularly in and about the ileo-cæcal region, where tenderness on pressure was most marked. Fully two days prior to June 1st, a sense of heat and feverishness was experienced, and prior to being under my charge. Temperature  $102\frac{1}{2}^{\circ}$ , and pulse 120. The bowels were at once washed out by a warm water enema, which afforded much relief. Hot linseed poultices applied, and placed on milk diet and an aconite mixture. From June 2nd to 8th the pain experienced over the bowels was very considerable, and the tenderness so severe that coughing or stretching of the legs

increased the pain in a most marked manner. Turpentine enemata also afforded considerable relief. June 4th, there was a decided hardness on moderate pressure over the ileo-cæcal region, which gave one the impression that some tissue change had taken place, and the fact that rigidity in the abdominal walls was more marked on the affected side than on the other led me to view the condition with a degree of suspicion, although the actual position of hardness was a little lower down than McBurney's point. For fully three days the temperature was over  $102^{\circ}$ , on which account suppuration would not be an unlikely result. June 7th, the right shoulder, elbow and wrist joints exhibited well defined symptoms of acute articular rheumatism, these parts being painful on pressure, swollen, and moved with difficulty. Just in proportion as these almost outside rheumatic conditions developed, the abdominal symptoms actually lessened in intensity, and on the 10th the entire features of the case evidenced a marked change for the better, no relapse being experienced whatever. The question very naturally arises, What was the attack, and how developed? True, the recognition of appendicitis is not all that is needed. In this case, almost from the first, there was localized pain, associated with tenderness over the region of the right iliac fossa and ascending colon, with well defined swelling, and for days the pain was so severe that it was increased at once by coughing or deep inspiration, and the almost constant desire was to elevate both knees to relieve the suffering. For days, also, there was entire inability to take nourishment, owing to attacks of vomiting. The bowels were frequently injected with warm linseed tea, which afforded a degree of nourishment, as well as clearing the contents of the canal. In this case I concluded there was lodgment of undigested material in the cæcum, and most likely induced by inability to assimilate the food, owing to deflected nerve power from over-mental strain, as is frequently the case in our schools and universities at the present day. In the ordinary avocations of life, we can trace the operation of like results, interfering seriously with the very principles of sanguinification and blood change.

The next question is, How is rheumatism associated with perityphlitis? True, the essential cause of rheumatism is still a doubted point. Errors in diet, as an etiological factor, have much to do with the production of both gout and rheumatism, and such strengthens the metabolic theory that rheumatism depends on a morbid material produced within the system, the result of defective processes of assimilation. True, Prout, Latham, Richardson, Mitchell and Dr. William H. Porter, of New York, have thrown much light on the subject of rheumatism, and certainly the present case points to rheumatic complication as the outcome of defective assimilation, an important factor in its production. Thus, the chemical laboratory of the human system becomes disturbed, resulting in false products, enabling us to establish a connecting link between even perityphlitis and rheumatism. In the structure of the intestinal walls, there is undoubtedly a large amount of fibrous tissue, just as in the fascia and tendons of the joints, and it is reasonable to suppose that these structures should be influenced in the same manner; and assuming that the case under consideration was even quasi-rheumatic in its character, it affords one more illustration of the importance of giving due consideration to the line of action embraced in medical or surgical treatment under like circumstances.

In a recent paper by A. Haig, M.A., M.D., Metropolitan Hospital, London, on Gout of the Intestines, he states "that his chemical and experimental experience has led him to believe that a very large number of cases of colic, enteralgia and enteritis, and cases which are clinically indistinguishable from typhilitis, are neither more nor less than a gout of the walls of the intestinal tube, or a rheumatism," as has just been defined.

In Canada, as a whole, gout is almost an unknown quantity, except in occasional cases of an hereditary type. Our people, in the midst of life's pursuits, live in a moderate way, which contributes greatly to the promotion of health. On the other hand, rheumatism is of frequent occurrence. The coldness of our winter climate, the occasional absence of flannel,

and excessive exposure, contribute to develop rheumatism. After noting the life history of many thousands of our "lumbermen," I have been amazed at the few attacked by rheumatism. Bread, pork and strong tea constitute their chief articles of diet, and the general experience is, that the tea enables them to digest the pork with remarkable comfort; and certainly, after a hard winter's work, they return home well nourished and healthy, in every particular. These facts point to the importance of simplicity as to diet. Our progenitors frequently attained the age of "three score and ten," nourished by grain, ground between two stones. As a rule, the people of the present generation live too fast, resulting in mental strain and the absence of simplicity. With greater attention to diet, simple in its character, in conformity with the normal functions of the alimentary canal, and the avoidance of alcoholic beverages, as a whole, I feel confident, perityphlitic and appendix troubles, even unconnected with gout and rheumatism, would become less troublesome factors in the line of disease. To avert various irregularities in the alimentary canal, which if neglected will undoubtedly lead to trouble in time, is as important as subsequent treatment when the stage is passed, in which the efforts of nature are powerless to afford relief. What active agent in the system is more frequently tampered with than gastric juice, which requires a normal temperature to perform its part in the economy? Ice water at the commencement and ice cream at the end of a meal, may be fashionable, but certainly not life preserving. Unassimilated food makes its way to parts not designed by nature to transform and absorb. As the result, how frequently, on percussion, we find extensive portions of bowel ballooned by abnormal efforts to accomplish the digestive process? Such conditions result from irregularities in living. No portion of the alimentary canal is more liable to diseased manifestations than in and about the appendix, which is a species of *Loop Line* to the digestive tract.

Insurance associations cannot note too carefully the probabilities of life in this connection. There is still much to be accomplished, and let our medical education be so directed as to bring about simplicity in living as near as possible to the normal functions of our organs, and our generation will be greatly benefited.

SOME UNUSUAL CONDITIONS MET WITH IN  
HERNIA OPERATIONS.\*

BY JAMES BELL, M.D.,

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As navigators by common consent and for mutual benefit map out reefs, shoals and other impediments or dangers to navigation when they are discovered, so, too, physicians and surgeons for similar reasons have adopted the method of recording in the literature of the profession, such rare and unusual conditions, met with from time to time, as may add to the sum of scientific knowledge and contribute to a better understanding of its separate departments, as well as serve as guides to future practitioners. It is with this object that I venture to call the attention of the Association very briefly to the following cases:

CASE I.—*Right Femoral Hernia with Sloughing Sac and Contents Simulating Large Intestine.*—J. W., a farmer's wife, aged 55, was admitted to the Montreal General Hospital on the night of the 24th of March, 1890, complaining of swelling in right groin, which was causing severe constitutional disturbance. The patient was a large, fleshy woman, the mother of eleven children, and accustomed to hard work. Her intelligence was of a low order, and a clear history of her illness was obtained with difficulty. The family history was not remarkable and had no bearing on the present illness, which began ten days before admission (March 14th, 1890), when she discovered a lump in the groin as large as a "doubled up fist." This lump was painful and tense and gradually increased in size and became red and swollen and very tender, so that on the 20th of March, four days before admission, she consulted a doctor, who diagnosed hernia and partially reduced it, giving her marked relief. The mass did not entirely disappear and the swelling continued to increase till she came to the hospital. During all this time the bowels had been moved regularly and there had been no vomiting or other symptoms of strangulation beyond the acute local symptoms described. On admission the patient was in great pain and was unable to stand on account of the painful mass in the groin. Tempera-

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\* Read before the Canadian Medical Association, September 21, 1893.

ture, 102° F.; pulse, 100; tongue coated. The swelling was as large as an adult's head and occupied the region of the right groin and Scarpa's space. It was of a livid red color, hard and indurated at the base, and fluctuating over the convexity—in fact, evidently a pointing abscess. On being questioned patient admitted that she had had a lump as large as a hen's egg in the groin for the past nine years, and that she had suffered from habitual constipation all her life. On the 25th of March, the patient having been etherized and the parts cleansed and prepared, an incision was made over the prominent pointing part of the tumour. About a pint of fetid sanious pus escaped and exposed a large sloughy mass at the base. On examination this was found to be omentum, which was removed by drawing it down and cutting through the healthy tissue, which was first ligatured in sections. In the centre of this, however, was found a tubular cavity exactly resembling the interior of the large intestine, although there was no sign of fœcal discharge or odour from it. This tubular prolongation extended up into the abdomen as far as the finger could reach, and so closely resembled intestine that it was stitched into the skin wound. The distal portion which had been removed was a mass of slough and threw no light upon the condition. To the outer side of the mass above referred to was found the appendix vermiformis strangulated and sloughy from about three-quarters of an inch below the cœcum. It was ligatured and removed and the cœcum returned to the abdominal cavity. The wound cavity was packed with iodoform gauze and a sublimated gauze dressing applied. All the symptoms at once improved and the bowels moved naturally within twenty-four hours. The wound was next dressed on the fourth day and all the sutures removed, as there was no longer any question of the integrity of the bowels. Recovery was uninterrupted and the patient was discharged on the 12th of May with the wound perfectly healed.

CASE II.—*Congenital Oblique Hernia Attached to the Bottom of the Tunica Vaginalis Testis by a Hydatidiform Prolongation from the Omentum.*—F. L., aged 32, engine driver consulted me in the summer of 1889 about a right inguinal hernia, with a view to having an operation performed for radical cure.

The patient, a healthy, vigorous and intelligent man, had suffered for about a year and a half from the hernia, and had tried to retain it in position with trusses of a great many varieties, but had completely failed to keep it reduced. It was small and easily reduced, but in spite of all his efforts it would soon come down again, producing a sickening feeling until it was again reduced. On examination I found the canal of moderate size, and considered the case an excellent one for treatment by truss, and so advised the patient. I suggested a new form of truss and saw it properly applied, and also took some trouble to assure myself that the patient understood the principles involved in this form of treatment. He returned to me, however, from time to time, protesting that it was useless for him to try to go on with his work unless his hernia could be cured by operation, and finally, on the 3rd of January, 1890, I had him admitted to the hospital, and on the 11th of the same month operated by McEwen's method. The hernia proved to be omental and congenital, and the unusual feature which explained the impossibility of retaining it by a truss proved to be a hydatidiform cyst (cyst of Morgagni) growing from the omentum and adherent to the bottom of the sac of the tunica vaginalis testis. This was just long enough to allow the hernial contents to escape within the internal ring and yet short enough to maintain a constant traction upon this portion of the omentum and bring it down in spite of any form of truss. The omental protrusion was ligatured off and removed with the cyst and the tubular prolongation of the tunica vaginalis dissected away from the spermatic cord and drawn up within the internal ring after McEwen's method of dealing with the sac. The conjoined tendon was then brought over and sutured to Poupart's ligament. The patient made an excellent and uninterrupted recovery, and resumed and has continued his work as an engine driver ever since, wearing no truss or other form of support. When last seen, 21 months after operation, he declared himself perfectly well and capable of any exertion. This condition must be extremely rare, as I have failed, after a fairly exhaustive search into the literature of hernia, to find any similar case reported. (I have recently seen a case operated upon by a colleague in which the omentum was firmly adherent to the bottom of the sac.)

CASE III.—*Congenital Cecal Hernia*.—R. E., aged three years, was admitted to hospital September 8th, 1891, with right scrotal hernia, which was said to have existed from birth and to have been irreducible. Operation for radical cure on the 3rd of November. On laying open the sac (which was identical with the sac of the tunica vaginalis testis) a thin, semi-transparent, diaphragm-like protrusion of peritoneum, through which the hernial contents could be recognized as the cæcum and ileum and which was adherent to the spermatic cord and the borders of the ring was discovered. It was found to be impossible to reduce the hernia, even after sitting up the inguinal canal, until the peritoneum was opened and retraction made upon the ileum, when it readily slipped back into its place. The superfluous tissues of the neck of the sac were dissected away and the remainder sutured down around the cord, the conjoined tendon brought over and sutured to Poupart's ligament, and the canal closed by suture. Recovery was uninterrupted, and the patient when last seen (September 15th last) was in perfect health, with no sign of return of the hernia.

CASE IV.—*Hernia of Tubercular Ovary and Tube through Inguinal Canal in Female Infant*.—S. G., aged 12 months, a pale, feverish female child, was admitted to hospital December 20th, 1892, with a tumour in the right groin, which was thought to be an irreducible inguinal hernia. She had contracted whooping cough four months previously and one month afterwards the hernia appeared. Several unsuccessful attempts had been made to reduce it under chloroform, and the tumour had trebled in size from the time of its first appearance. It was solid to the feel, freely moveable, distinctly pediculated, and could be traced into the inguinal canal. As far as could be made out it was at most very slightly sensitive and gave no impulse when the child cried. The bowels moved regularly, but the child was poorly nourished and fed badly. There was marked tubercular history in the mother's family. Omental hernia was diagnosed and operation proceeded with December 21st. On exposing the mass it could be distinctly traced through the inguinal canal into the abdomen and the sac was adherent throughout. It was separated without much trouble and exposed a mass as large



as a small pigeon's egg and covered with a glistening membrane. It was clearly not omentum, and for the moment I was nonplussed. It looked like a swollen testicle. I incised it and found that it gave no gross character which would suffice for a diagnosis, but that it was undergoing cystic degeneration. The pedicle was well drawn out and ligatured and the mass removed. The canal was closed by suturing the conjoined tendon to Poupart's ligament, and the patient made a rapid and uneventful recovery.

Prof. Adami, who kindly took the specimen in hand, demonstrated that it consisted of an ovary and fallopian tube in an active condition of tubercular disease, giant cells and tubercle bacilli being both found in abundance.

CASE V.—*Suppurative Inflammation of Hernial Sac Simulating Strangulation.*—A. T., aged 17, a strong, rugged looking young man, was brought to the hospital in the ambulance early in the morning of February 21st, 1893, suffering from symptoms of strangulated hernia. On the afternoon of the 19th while skating he had had a fall on the ice, which was immediately followed by severe pain in the lower part of the abdomen, which soon settled itself definitely in the neighbourhood of the left inguinal canal. He was obliged to go home and go to bed, and a physician was called who discovered a lump about as large as a hen's egg in the painful region and diagnosed a hernia. The patient himself had not noticed the lump and asserted positively that there never was any enlargement there prior to the fall above mentioned. Prolonged but ineffectual efforts at reduction were made that evening and next day, and late the next night Dr. Williams saw him and sent him to the hospital. On admission the tumour was as large as a small fist, discoloured, tense and tender. The abdomen was distended and tender in lower third. Temperature, 100; pulse, 120; patient very restless and complaining of great pain, although he had had considerable quantities of morphia. There was constipation, but no vomiting. Operation was performed at eight o'clock in the morning. Dissecting down upon the tumour, the sac was found to be greatly thickened and œdematous. On opening it about half an ounce of sero-pus escaped and it was seen to be occluded above. Another incision was then made into the sac

above the occlusion and a loop of small intestine which was scarcely constricted slipped back into the abdomen. The sac was ligatured off well within the internal ring and the conjoined tendon drawn over and sutured to Poupart's ligament. The patient made an uninterrupted recovery and was discharged on the 21st of March, exactly one month after admission. In spite of the history I think there can be no doubt but that this patient had suffered from hernia before, the most probable explanation being that he had outgrown a hernia of childhood, the sac of which had become obliterated at the external ring, and that the strain of the fall upon the ice protruded a portion of the abdominal contents into the neck of the sac, pushing it further down. The manipulations carried out for its reduction set up an inflammation in it, which rapidly went on to suppuration, possibly through the agency of the *amaeba coli*.

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### PARALYSIS FOLLOWING APPLICATION OF ESMARCH'S BANDAGE.

By W. C. CROCKET, M.D., L.R.C.P. (Lond.)

The case of paralysis of the arm following the application of an Esmarch's bandage, reported to the Montreal Medico-Chirurgical Society by Dr. Bell, and subsequently published in the *MONTREAL MEDICAL JOURNAL*, recalls to my mind a somewhat similar and, I think, remarkable case which occurred in my practice a few years ago. On July 10th, 1887, I operated on a young man about 21 years of age for traumatic aneurism of the right ulnar artery. An ordinary Esmarch's bandage was applied a little below the middle of the humerus. The whole operation lasted about twenty or thirty minutes. After the effects of the anæsthetic had passed off, the patient complained of numbness in his hand. I attached little importance to this, till I removed the dressings, a few days later. On taking off the splint which I had applied to support the hand, I found the patient had complete wrist-drop. The Esmarch, which was applied with no more force than usual—not a sign of blistering being present when the bandage was removed,—had evidently compressed the musculo-spiral nerve, as it had also

the ulnar, as the parts supplied by that nerve were markedly affected, both as regards sensation and motion—so much so that I feared for a time that I had in some way injured it during the operation. Under the use of electricity, the wrist-drop gradually improved, though it was many months before the patient had complete use of his hand. The most interesting feature of the case, however, presented itself about three months after the operation. The young man one day went partridge shooting, and as he was unable, on account of the wrist-drop, to carry his gun in his right hand, he had slung it by a flat strap over the left arm, the strap passing in a spiral direction over the humerus. On returning home in the evening, he hastily set out for my office, which he entered in a state of considerable anxiety, as he stated that he had lost the use of his left hand also. I found upon examination that he had complete wrist-drop of his left arm, caused undoubtedly by the pressure of the strap with which he had slung his gun. The parts supplied by the other nerves of the arm were not affected. Had the second occurrence taken place shortly before, or before the wrist-drop in the right arm had begun to improve, the patient would have been unable to feed himself, so complete was the paralysis at the wrists, and, even as it was, the young man's condition was most pitiable. Electricity was applied, as in the case of the right arm, with complete restoration of power over the wrist, both arms regaining their power about the same time.

I found upon inquiring into the family history that a maternal aunt, who was a tailoress, had to give up her employment, as the use of the scissors had crippled and weakened her wrist and hand; that a maternal uncle, who was a painter, was compelled to change his occupation on account of double wrist-drop, caused by lead-poisoning; while a brother of the patient informed me that he was unable to stand if he sat for a few minutes with the hollow of one knee resting on the front of the other.

This case, which appears to me to be altogether unique, illustrates the necessity, as Dr. Bell has stated, of the careful application of the Esmarch bandage, as it does, too, the good effects resulting from the judicious use of electricity in these fortunately rare cases.

Fredericton, N.B., Oct. 26th, 1893.

## Correspondence.

*To the Editors of THE MONTREAL MEDICAL JOURNAL.*

DEAR SIRs,—A number of months ago, I met the following case, which I send to you for publication, on account of its novelty:—I was consulted by a mother in regard to trouble around the umbilicus of her child. The history of the case is very meagre. The child, apparently a healthy infant of four months, had an enlargement of the umbilicus, which, the mother said, had only been noticed a few days before. The impression which one received from first observation was that of a serous membrane drawn tightly over a dark object, which came to light through a very minute opening in this seemingly serous membrane. The thought of an umbilical hernia came into one's mind, but on close observation, even with the naked eye, the dark object which appeared from the minute opening in the summit of this dome-shaped elevation could be noticed to move. On closer observation with a magnifying glass, the head of a grub could be distinctly defined. After enlarging the opening with the aid of a pair of dressing forceps, the object was easily extracted. To my surprise and the great astonishment of the parents, a plump and active horse-bot— $\frac{3}{4}$  in. long and  $\frac{3}{8}$  in. broad—was brought to light. The seemingly serous membrane was the stretched skin surrounding the umbilicus. The grub being really encysted, I washed out the cavity with an antiseptic solution, dressed, and no more trouble was given.

How this peculiar object came in this place is only solved by the aid of theory, the most plausible one to my mind being: While the umbilicus was still in a raw condition, the child's clothing, which probably had been airing out of doors, had received an egg of this type, and, being replaced, soon found a field on which to thrive.

HARRY H. McNALLY, M.D.

Millville, N.B., Oct. 25th, 1893.

## Reviews and Notices of Books.

**Transactions of the Association of American Physicians.** Eighth session. Held at Washington, D.C., May 30th, 31st and June 1st, 1893. Volume VIII. I. MINIS HAYS, M.D., Recorder, Philadelphia.

This volume contains the following articles:—

On the Course and Treatment of Certain Uræmic Symptoms.

By Beverley Robinson, M.D., of New York.

The Reaction of Ether with Urine. By Andrew H. Smith, H.D., Physician to the Presbyterian Hospital; Professor of Clinical Medicine in the Post-Graduate Medical School, New York.

Probable Origin and Early Symptoms of Certain Chronic Diseases of the Kidneys. By Charles S. Bond, M.S., M.D., of Richmond, Indiana.

A Study of Addison's Disease and of the Adrenals. By W. Gilman Thompson, M.D., of New York.

Two Cases of Cystin Calculus. By James Tyson, M.D., of Philadelphia.

On a Simple Continued Fever. By G. Baumgarten, M.D., Professor of the Practice of Medicine, St. Louis Medical College, Washington University, St. Louis.

Creosote in Tuberculosis Pulmonum. By J. T. Whittaker, M.D., of Cincinnati.

The Intestinal Origin of Chlorosis. By F. Forchheimer, M.D., of Cincinnati.

Note on Use of Quinine in Chorea. By H. C. Wood, M.D., of Philadelphia.

Eye Tuberculosis and Anti-Tubercular Inoculation in the Rabbit. By E. L. Trudeau, M.D., of Saranac Lake, New York.

Some Problems in the Etiology and Pathology of Texas Cattle Fever, and their bearing on the Comparative Study of Protozoan Diseases. By Theobald Smith, M.D., Chief of the Division of Animal Pathology of the Bureau of Animal Industry, U. S. Department of Agriculture.

The Bacillus Pyocyaneus Pericarditidis. By Harold C. Ernst, M.D., of Jamaica Plain, Mass.

The Results of Inoculations of Milch Cows with Cultures of the Bacillus Diphtheriæ. By A. C. Abbott, M.D., First Assist-

ant in the Laboratory of Hygiene, University of Pennsylvania.

Gonorrhœal Myocarditis. By W. T. Councilman, M.D., Shattuck Professor of Pathological Anatomy, Harvard Medical School.

Acute Follicular Tonsillitis. By Starling Loving, M.D., of Columbus, Ohio.

Sarcoma of the Right Lung Diagnosticated During Life by the Use of the Microscope; Secondary to Sarcoma of the Testicle which had been Removed Four Years Previously. By D. W. Prentiss, M.D., of Washington, D C.

Pulsating Pleural Effusion. By J. C. Wilson, M.D., Professor of the Practice of Medicine and of Clinical Medicine in the Jefferson Medical College, Philadelphia.

Subphrenic Abscess, with Special Reference to Those Cases which Simulate Pyo-Pneumothorax. By A. Lawrence Mason, M.D., Associate Professor of Clinical Medicine in Harvard University.

On Subphrenic Abscess. By S. J. Meltzer, M.D., of New York.

Cases of Subphrenic Abscess. By William Osler, M.D., of Baltimore.

The Detection and Significance of Proteids in the Urine, By Charles W. Purdy, M.D., of Chicago.

Coffee-Drinking as a Frequent Cause of Disease. By Norman Bridge, A.M., M.D., Professor of Clinical Medicine, etc., Rush Medical College, Chicago.

On the Parasitic Nature of Cancer. By Heneage Gibbes, M.D., Professor of Pathology in the University of Michigan.

The Importance of Uterine Displacements in the Production of Vomiting During the Early Stages of Pregnancy. By George M. Garland, M.D., of Boston.

Two Cases of Diaphragmatic Hernia. By James Tyson, M.D., of Philadelphia.

Myxœdema: the Functions of the Thyroid Gland, and the Present Method of Treatment of Myxœdema. By Francis P. Kinnicutt, M.D., Physician to St. Luke's Hospital and to the Presbyterian Hospital, New York.

Cases of Myxœdema and Acromegalia Treated with Benefit by Sheep's Thyroids. By James J. Putnam, M.D., of Boston.

A Contribution to the Subject of Myxœdema, with the Report of Three Cases Treated Successfully by Thyroid Extract. By M. Allen Starr, M.D., Ph.D., Professor of Diseases of the Mind and Nervous System, College of Physicians and Surgeons, New York.

A Case of Myxœdema. By W. Gilman Thompson, M.D., of New York.

On Sporadic Cretinism in America. By William Osler, M.D., Professor of Medicine in the Johns Hopkins University and Physician-in-Chief to the Johns Hopkins University.

**Text Book of Ophthalmology.** By W. F. NORRIS, A.M., M.D., Professor of Ophthalmology in the University of Pennsylvania, and CHARLES A. OLIVER, A.M., M.D., one of the Surgeons to the Wills Eye Hospital. Illustrated with 5 coloured plates and 357 wood-cuts. 627 pages. Philadelphia: Lea Brothers & Co. 1893.

By this book another has been added to the list of first-class works on ophthalmology. With volumes like Fuchs', Berry's and the present work, the student of ophthalmology need no longer complain of the lack of really trustworthy, comprehensive text books. The treatise under consideration is elaborate and in some details exhaustive. Dr. Oliver contributes the section dealing with embryology, anatomy and optics. This occupies nearly half the book, and is entered into in detail. The chapter on the correction of errors of refraction shows the author's thoroughness in doing work. As a mydriatic he prefers atropin to all others, and in the shadow test employs the plane mirror. The third chapter deals with the physiology of vision, and here is supplied a good, clear diagram illustrating the relations of the visual apparatus to the cerebral cortices. The authors, although not believing entirely with Stevens in reflex epilepsy and chorea being due alone to eye strain, yet attach some weight to the graduated tenotomies in heterophoria advised by Stevens; the great drawback to the latter being the uncertain result and necessity for repetition. Dr. Norris writes the section dealing with the diseases of the eye. This is copiously illustrated and clearly written, although, by the by, nearly all the illustrations are borrowed; doubtless it is far better to have good

borrowed ones than inferior original, e.g., the gumma of the iris, No. 221, p. 358. The chapter on muscle troubles is well throughout. Indeed, the whole work is so well done that it is difficult to detect flaws. The book is well gotten up, clearly printed, and paper good.

**Manual of Diseases of the Ear.** By GEORGE P. FIELD, M.R.C.S., Aural Surgeon to St. Mary's Hospital. Fourth edition; 371 pages; illustrated. Lea Brothers & Co., Philadelphia. 1893.

This valuable little work on the diseases of the ear appears in its fourth edition. The work of the previous editions is brought well up to date. The strong point in the book is the number of illustrative cases appended to the descriptions of the various diseases, which are simply invaluable to the student in impressing the subject. For instance, in treating of osseous tumours of the meatus, twenty five cases are mentioned. There is an extremely useful chapter on pain as a symptom in ear disease, full of valuable points. As we would expect, there is a detailed account of the action of pilocarpine in labyrinthine disease, a subject in connection with which the author has obtained such fame. The book is fairly illustrated, and, on account of its succinctness and clearness, is a valuable guide for physicians and students.

**Anatomy, Descriptive and Surgical.** By HENRY GRAY, F.R.S., F.R.C.S., Lecturer on Anatomy at St. George's Hospital Medical School. The Drawings by H. V. CARTER, M.D., late Demonstrator of Anatomy at St. George's Hospital, with additional Drawings in later editions. A new American from the thirteenth English edition. Edited by T. PICKERING PICK, Surgeon to and Lecturer on Surgery at St. George's Hospital; Senior Surgeon, Victoria Hospital for Children; Member of the Court of Examiners, Royal College of Surgeons of England. Philadelphia: Lea Brothers & Co. 1893.

The thirteenth edition of Gray's Anatomy is an improvement on previous editions, the text being altered in places to give greater force and clearness to the descriptions, and the illustrations being improved and some added. This work has always held a high place as a text book, and the improvements



have made it more than ever the most useful work on systematic anatomy for students. The work comes to hand in two editions, one with coloured plates and the other with the illustrations in black and white.

**Index Catalogue** of the Library of the Surgeon-General's Office, United States Army. Authors and subjects. Vol. XIV. Sutures—Universally. Washington: Government Printing Office. 1893.

We have received the fourteenth volume of this work, containing a list of the books and pamphlets, with their authors, in the Library of the Surgeon-General's Office, United States Army. This volume begins with the word "sutures," and ends at the word "universally." It is an exceedingly useful work in looking up the bibliography of any subject.

### Bibliography.

**Manual of the United States Hay Fever Association** for 1893, containing a report of the Annual and Adjourned Meetings of 1893, Scientific Essays, etc.

**The Bile Salts, Urea, etc., as Therapeutic Agents.** By SAMUEL G. DIXON, M.D. Reprint from *The Medical Bulletin*, May, 1893.

**Address on Hygiene.** Delivered by Prof. SAMUEL G. DIXON at the meeting of the State Medical Society, Williamsport, Pa.

**De l'Emploi des Essences et Surtout de l'Essence de Cannelle ou Cinnamol comme Topique en Chirurgie.** Par le Dr. JUST CHAMPIONNIÈRE, Chirurgien de l'hôpital Saint-Louis. Extrait du *Journal de Médecine et de Chirurgie Pratiques*, 10 Juin 1893.

**Traitement du Pied Bot Varus Equin par l'Ablation de la Plupart des Os du Tarse.** Par de Dr. JUST LUCAS-CHAMPIONNIÈRE, Chirurgien de l'hôpital Saint-Louis. Extrait du *Journal de Médecine et de Chirurgie Pratiques*, 25 Juin 1893.

**Erotopathia.—Morbid Erotism.** By C. H. HUGHES, M.D., St. Louis. Reprint from *The Alienist and Neurologist*, St. Louis, Oct., 1893.

## Society Proceedings.

### THE MONTREAL MEDICO-CHIRURGICAL SOCIETY.

*Stated Meeting, April 28th, 1893.*

JAMES STEWART, M.D., PRESIDENT, IN THE CHAIR.

*Rupture of the Pulmonary Artery*—Dr. WYATT JOHNSTON exhibited the specimen which, he said, illustrated a very frequent mode of sudden death. The patient, an elderly man, was overtaken suddenly on the street by a hæmorrhage, and when seen by a physician was practically in a dying condition. He was taken to the General Hospital, where he died. Owing to certain features of the case, especially owing to the body not being identified, an autopsy was ordered by the coroner, to make sure of the cause of death.

A quantity of blood was found about the mouth and fauces, and a large clot lay at the back of the pharynx. Blood was found in considerable quantities throughout the bronchial tubes, and also in the finer bronchi. In the right lung there were spots of hæmorrhage into the lung, small pulmonary apoplexies, apparently due to the rupture of little blood vessels, caused by extraordinary respiratory efforts. The cause of death was easily found. At the apex of the left lung, which was adherent to the pleura, was found a cavity as large as a goose egg. Springing from the wall of the cavity could be seen a small aneurysmal sac, at one point of which was seen a rupture which was partly closed by a blood clot. An interesting feature was the state of the lining membrane of the cavity, which was covered with a grayish, ragged material, which upon removal left a smooth membrane behind, evidently a distinctly pyogenic membrane. The fibrinous flocculi on the surface were evidently the results of previous hæmorrhages, for as the blood exuded from the smaller vessels into this cavity in considerable quantities on several occasions, the walls became covered with fibrin.

This form of lesion is the commonest cause of death from pulmonary hæmorrhage; the other principal causes of hæmoptysis being rupture of the wall of an artery without the previous formation of an aneurism, or, less frequently, hæmorrhage from the granulating membrane lining the

cavity. This latter, however, is more likely to give rise to small, slight hæmorrhages than to serious complications.

This case further shows the advantage of doing an autopsy on persons who die under mysterious circumstances. In this case it was thought that there might have been some foul play, some chest injury to account for the hæmorrhage, but when the result of the autopsy was made known the coroner decided that there was no necessity for an inquest.

*A Case of Addison's Disease.*—Dr. A. D. BLACKADER showed a patient suffering from what he believed to be Addison's disease, a disease characterized by two or three very prominent features: First, the discolouration of the skin, which in this patient is fairly well marked. More than that, it has the minute spots of discolouration which have been pointed out by Greenhow as being tolerably characteristic. He has also, on the front of the chest, pretty well marked patches of leukoderma. The symptoms, too, are fairly characteristic. The patient first entered the hospital complaining of asthenia, breathlessness, palpitation on slight exertion, inability to walk or perform work of any severe kind. At present he is scarcely able to walk across the hospital ward without getting out of breath. There is also associated with these symptoms a tolerably moderate amount of anæmia, his blood now containing only 2,500,000 red capsules to the cubic millimetre.

One other symptom which has been put down as characteristic this man has not yet had, viz, symptoms of gastric irritation; there has been no vomiting, no diarrhœa. Still, considering the short time the patient has been complaining of any symptoms at all, that is only from about the middle of February, we are scarcely warranted in expecting the disease to have reached its full development.

With reference to the treatment, Dr. Blackader proposed to treat the case by feeding with finely minced supra-renal capsules. He was led to do so by the similarity which can be traced between this disease and myxœdema, which similarity is especially touched on by Dr. Osler. In both we have distinct histological changes met with in the tissues, being in the one an increase in the mucin, in the other an increase in the pigment of the cells; and they are both accompanied by marked nervous phenomena. In myxœdema we have mental dulness,

in Addison's disease profound asthenia. We may also trace the likeness still further, when we come to consider the history of the respective glands which give rise to them. In myxœdema, before the connection was made out between it and the removal of the thyroid, it was stated that that gland was of no account in the economy, and that it could be removed without giving rise to any serious symptoms. Now, the same thing has been alleged of the supra-renals, and the question is whether they have any use in the economy, and whether their administration by the mouth will prove of any service in cases where the glands themselves are diseased.

Dr. MIGNAULT referred to a case of this kind which had occurred many years ago in the General Hospital under the care of Dr. Osler. The patient, a young man, was brought there with a discolouration of this kind; every one was much surprised at the condition and many theories were advanced to account for it. Dr. Osler finally diagnosed the case as Addison's disease. The young man only lived three or four weeks. Both supra-renals were found diseased, thus confirming the diagnosis.

Dr. G. P. GIRDWOOD could just recollect having seen the case alluded to, and as far as he could remember the colour was very much the same as in this case.

Dr. ADAMI briefly noted a few cases of the disease which he had had the opportunity of observing. One of these was at the Addenbrooke's Hospital at Cambridge, England, a young woman, presenting all the cardinal symptoms of the disease, who, nevertheless, to the surprise of all, recovered under the arsenic treatment. He called attention to an autopsy held by him at the General Hospital the previous week, in which one supra-renal had become a caseous tubercular mass, the other being unaffected, and neither the history of the patient nor the post-mortem appearances yielded the slightest indication of Addison's disease. He referred to this case inasmuch as recently there had been recorded instances, contrary to the general rule, of Addison's disease associated with cancer, etc., of one supra-renal. He agreed with Dr. Blackader that the treatment by supra-renal juice was well worthy of being tried; the eminent success of Dr. Murray's plan of treatment of myxœdema by thyroid extract rendering it advisable that

other extracts should be tested in other more or less parallel diseases, though he deprecated the excesses that were already being recorded in the employment of body juices.

Dr. FINLEY knew of two cases of Addison's disease which had occurred at the General Hospital within a few weeks of each other. The first case was one in which the pigmentation was very marked, as the patient came in late in the disease. There was excessive nervous prostration, vomiting and fever, the patient dying in a few days.

The other case was one in which pigmentation was absent, and therefore it was not possible to make a diagnosis during life. Yet the train of symptoms was markedly similar in both cases—vomiting, nervous prostration, delirium and death.

He recollected a case in which he had performed an autopsy for the late Dr. Howard. There was an injury involving the right supra-renal, but without any of the symptoms of Addison's disease.

Dr. WYATT JOHNSTON remembered the two cases referred to by Dr. Finley, and which were called Addison's disease in the hospital. One of the patients showed a considerable amount of bronzing of the skin; they both suffered from diarrhoea, vomiting, nervous prostration and died, one of them rather suddenly. He had had some doubts about the correctness of the diagnosis. However, they have been looked upon as Addison's disease for some time. As to the condition of the supra-renals, in the one case there was slight tuberculosis, slight caseation; in the other there was none; at all events they were obscure cases, certainly not typical ones. He had examined the semi lunar ganglia, with negative results, as far as finding any special fibrosis or atrophy of the nerves was concerned.

Dr. KIRKPATRICK referred to a man who came to the hospital complaining of general asthenia, and after some time developing illusions he was sent to the Verdun Hospital for the Insane. The asthenia increased until the man died, but shortly before death he developed marked bronzing of the face. At the autopsy the only lesion that could be detected was marked caseation of one supra-renal capsule.

Dr. McCONNELL said that the treatment which Dr. Blackader is about to try seems to be in keeping with the principle which

is supposed to exist, viz, that the organs of the body seem to be amenable to their own secretions when taken as remedies. The idea originated in Brown-Séquard's elixir of life. A great deal of fun was made of Brown-Séquard at the time, but his remedy does not appear to be discarded even yet. Some short time ago Dr. Hammond, of New York, announced a new remedy for heart troubles, which he calls "Cardine," and which he thinks will prove a strong tonic for weak and fatty degenerated hearts. All have read of the effects of the juice of the thyroid gland in myxœdema, which is simply carrying out the same idea as that now about to be tried by Dr. Blackader. We all will look forward anxiously for the results of this application.

Dr. J. E. MOLSON asked if a slow pulse is not a sign frequently found in Addison's disease.

Dr. BLACKADER, in answer to Dr. Molson, said that in all the literature he had read on this subject he had not noticed any such symptoms dwelt upon. With reference to the cases Dr. Adams alludes to of one gland only being affected, he understood that both glands are invariably affected in Addison's disease. However, it is most likely one gland becomes involved before the other, so in the post-mortem room one supra-renal may be found to have undergone destruction, while its fellow is only in the early stage. Both Addison and Wilkes and others in Guy's Hospital considered it necessary for both glands to be affected. Cases where only one gland is involved do not seem to stand very severe criticism, but recent investigations seem to show that there may be symptoms developed when only one gland is affected. Of course if one gland is perfect it should be able to do the work of both, and there should consequently be no Addison's disease. If, however, this is the case, if with a perfect supra-renal capsule in the body we have still Addison's disease, my remedy is not likely to prove of much account, as that would destroy the theory that it is the want of this tissue that gives rise to these symptoms.

*Sclerosis of the Brain.*—Dr. JOHNSTON exhibited this specimen and gave the following report of the autopsy: Head only examined; nothing unusual about the scalp or external surface of skull cap; veins moderately full of blood; skull cap

of ordinary thickness; tables not denser than normal; veins of diploe moderately full; in inner surface no irregularities or abnormal appearances; dura only slightly adherent to the calvarium, which is removed with ease; outer surface of dura normal; longitudinal sinus contains soft, dark, non-adherent clot in its posterior half. On reflecting dura the pia over both hemispheres is thickened and has an opaque, milky appearance. Beneath the pia is excess of clear fluid, somewhat distending the membrane in the regions corresponding to the sulci. Moderate adhesion of dura to the pia along the convexity. Pacchionian bodies not unusually large; brain removed with ease; slight excess of cerebro-spinal fluid escapes during removal; dura at the base normal; sinuses normal. In the petrous bone on both sides the upper surface presents several small areas 0.1 to 0.2 inches in diameter, where a small cavity exists, only separated from the cerebral cavity by a thin, transparent, fragile membrane, readily broken with the point of an ordinary dissecting forceps. On examining the brain the contour appears to be normal; the vessels of the base are normal in size and arrangement and are free from obstruction. There appears to be some thickening in the pia arachnoid extending out into the sylvian fissure. No signs of hæmorrhage and no appearance at all suggesting the presence of old hæmatin pigment. Over the convexity the pia is greatly thickened and detached from the convolutions with much difficulty; when removed the convolutions appear to be normal in size and outline; no cysts. There is no trace of localized disease in the convolutions; in regard to this point the third left frontal and motor areas of the cortex were examined with special care and with perfectly negative results.

On opening the lateral ventricles they are found to be of normal size. The choroid plexus is somewhat denser than normal and is slightly adherent to the surface of the ventricle at the head of the right corpus striatum. Adhesions between the floor and the roof of the ventricle also exist in the region of the corpora quadrigemina, and the fornix is reflected with some difficulty. The ependyma of the lateral ventricles is smooth, but on passing the finger over it the ganglia at the base feel denser than normal. The fourth ventricle appears widened, the ependyma covering its surface is thickened and

covered with minute translucent grey granulations. The cerebellum is found to be normal.

On dissecting the ganglia at the base of the head of the right corpus striatum in the anterior one inch is smooth and of a dull greyish-yellow colour in patches. This region cuts with greatly increased resistance and leaves a smooth, pale, firmly resisting surface. On incising the substance of the hemispheres the white substance is found to be moderately firm and its vessels contain but little blood. The grey matter of the cortex throughout the whole of both hemispheres is greatly increased in consistency and cuts with great resistance; in cutting it a slight creaking of the knife is constantly noticed. On the cut surface the grey matter forms everywhere a raised ridge projecting above the level of the adjacent white matter. To the touch the grey matter feels firm and dense, the consistency being about three times that of normal grey matter. The colour of the grey matter is somewhat deeper and redder than normal and the thickness of the cortex is everywhere considerably reduced, being on the average 1 mm. and the maximum thickness being only 2 mm. This condition appears to be diffused uniformly throughout all parts of the cortex and no focal lesions can be detected.

Microscopical examination.—Throughout cortex, ganglion cells reduced in size and fewer in number; stroma dense, and contains more nuclei than normal; no infiltration about smaller arteries; section of cervical cord in upper cervical region shows no sclerosis.

Remarks.—It is difficult to say to what extent syphilis is to be held responsible for the state of the cerebral cortex in this case. A diffuse cerebral sclerosis with atrophy of the nerve elements proper is thought by some to be always due to syphilis. Others only recognize syphilis when marked endarteritis is present. The absence of arteritis in any degree sufficient to explain the change seems to lead to the inference that while the syphilitic poison possibly was the cause of the lesion in the right corpus striatum, its irritative powers had probably passed away at the time of death. The lesions in the brain do not appear to be definitely syphilitic, though the absence of syphilis can hardly be held proved where no examination of the other organs was made.



Dr. PERRIGO gave the clinical history. In November he was called in to see the patient owing to the results of his falling down stairs. At that time the appearance of his face was so peculiar that it was thought he had been drinking, but afterwards this was found to be a mistake, he was an abstemious man, and had been so for years; but in the course of the enquiries a history of syphilis occurring some 50 or 60 years ago was obtained. His condition then and afterwards showed something as follows: In walking, while he could perfectly co-ordinate, he would suddenly have to sit down, as if struck on the head, owing to loss of power in his legs; it was this that caused him to fall down stairs. He was ordered the iodides, and that treatment was followed by a gradual improvement. Then he developed epileptiform attacks and some loss of memory and defects in the power of speech. This last was not of an aphasic nature, nor yet one of articulation; he seemed to stop in the middle of a sentence or middle of a word and go on to something else, all the time being unconscious of this defect.

On being sent to the hospital he appeared to improve, his speech became better, memory better, epileptic attacks ceased, the attacks of sudden sitting down became less frequent, and he was discharged practically a well man. In regard to the iodide treatment, at one time he was taking as much as 320 grains during the 24 hours.

The patient then went on a trip to Baltimore, and while there he grew worse. His defect of speech returned, patellar reflexes were gone, memory was lost, epileptic attacks returned, and he appeared to lose at times control of his muscles. In going to bed, for instance, in sitting on the edge of the bed, his legs would go through a series of irregular motions. He never, however, had any difficulty in feeling the ground. He then became maniacal and finally died.

Dr. LAFLEUR asked if the epileptic attacks were those of true epilepsy, or of a Jacksonian character. The reason for asking was because he had seen a precisely similar case, in which the same diagnosis was made—cerebral syphilis with meningitis, right-sided paraplegia beginning in the foot and gradually travelling up the leg. The patient was put on anti-syphilitic treatment, without much result. At the autopsy

there was no evidence of syphilis in the brain or viscera, in fact, no obvious lesion of the brain. But on more careful examination just such a condition as Dr. Johnston has described was found—diffused sclerosis, narrowing of the cortex. There was no lesion of the basal ganglia. There is a close similarity between the cases, both from the clinical history and the autopsy.

Dr. ARMSTRONG related the condition of the patient while in hospital. His symptoms were mixed ones. He was maniacal and required a man to keep him in bed. His symptoms were largely irritative; noise would irritate him; lifting an arm would cause general spasms of the body. The right side of the body was distinctly weaker than the left; the grasp of his right hand was nil, while that of his left was fair. In addition to these he was unconscious for two or three days; no questions could be asked at all, and when consciousness and speech returned he was distinctly aphasic. Not being able to get any information from himself the diagnosis had to be made from the history and remarks of his friends. A diagnosis of cerebral syphilis had been made in London, and on the strength of this he was put upon the iodides and mercurial inunctions. Improvement took place, the power returned to his right side, his memory returned, speech returned, and his general condition was one of apparently very considerable improvement, supposed to be in consequence of the anti-syphilitic treatment.

*Cirrhosis of the Liver with Jaundice.*—Dr. WYATT JOHNSTON exhibited the specimens from a case under the care of Dr. Perrigo and read the history of the autopsy as follows:

Autopsy 28 hours after death.—Body of a large elderly woman; abdomen distended. Body intensely jaundiced over the entire surface of deep bronze tint; conjunctivæ deep yellow. Moderate rigor mortis and lividity. Subcutaneous fat in fair amount of deep bronze-yellow colour; in peritoneum about three quarts of clear, bile-stained fluid; peritoneum smooth; omental fat abundant; colon and small intestines considerably distended; liver does not extend beyond costal border. Spleen very large, over 300 gms.; on section dark and abundant; consistency not increased. Kidneys both appear to be nearly double normal size, are soft and deeply jaundiced.

The cortex appears swollen; supra-renals normal, pelvic viscera appear normal. Stomach contains about a tumblerful of brownish-black fluid. Mucosa reddened and shows signs of ecchymosis; mucosa soft, not thickened. Duodenum contains dark, slaty, greyish fluid. Bile papilla normal in appearance and no signs of catarrh in its neighbourhood. On slight pressure on the bile duct a clear, almost colourless, greyish mucous fluid readily flows out of the papilla. Bile ducts rather large, walls thin; their mucosa appears normal; no increase of connective tissue about the ducts; glands in portal fissure not increased. Gall-bladder contains a tablespoonful of pale greyish, thin fluid, not in the least bile-stained. Hepatic artery normal; portal vein rather small in calibre but appears normal. Liver weighs 1,900 gms., is of a deep yellow-brown colour, mottled with small pale yellow spots, evidently fatty. The surface is uneven and has a fairly well marked hob-nail appearance, the projecting portions of tissue being separated by fibrous strands running in all directions between the lobules. On section the organ cuts with but slightly increased resistance and to the touch does not feel very dense; the surface yields a greyish pulp on scraping; pancreas normal. Intestine contains greyish faeces; near the ileo caecal valve the mucosa is normal. No enlargement of retro-peritoneal or retro-thoracic glands; lungs crepitant. Heart not opened. Brain not examined.

Microscopic examination of liver shows intense jaundice of the hepatic cells in places, with marked fatty infiltration irregularly distributed. Increase of fibrous tissue, which penetrates between and into the acini. No changes in connection with the bile ducts; no proliferation of epithelium or connective tissue in connection with the smaller ducts.

Remarks.—The rarity of icterus as a complication of cirrhosis of the liver makes it worth while to study carefully every case of this kind met with. In the present instance no changes were discovered at the autopsy or by microscopic examination to show that the jaundice was obstructive or had anything to do with anatomical changes in the bile passages, and is therefore not the biliary cirrhosis of French writers. According to Fagge icterus occurs in about 10 per cent. of all cases of cirrhosis of the liver, and is almost always a bad omen.

Dr. PERRIGO said that the patient had been under his observation for the last 14 or 15 years. She was a lady who was a good illustration of the difficulty of obtaining a reliable history in family practice. It was only the day after the autopsy that he succeeded in eliciting a true account of her private habit of dram-drinking. The case shows well to what an extent tipping can be carried on and yet kept secret from both husband and family. The patient was of a remarkably despondent temperament, always looking at the blackest side of every question. She was the subject of chronic rheumatism as well as chronic bronchitis, the latter, however, improving during the last year or two. About nine weeks ago, shortly after having a cataract removed from her right eye, she developed jaundice. Previous to that she had morning vomiting for six or seven days. The jaundice continued for six or seven weeks, but finally it disappeared under treatment, and remained away for three or four weeks. During this interval, however, she did not pick up her strength as well as might have been expected. Suddenly the jaundice reappeared and became very intense, and just as suddenly, a couple of weeks before death, ascites appeared. The latter rapidly filled up the peritoneal cavity and impeded respiration so much that it was thought advisable to tap her, which was done a few days before death, and several ounces of fluid drawn off. This, however, was not followed by much improvement as she finally became comatose and died.

From her facial expression he had suspected tipping, but always received such positive assurances to the contrary that he was obliged to put that possibility aside. During the last five or six months she had a peculiar drawn expression that made him suspect malignant disease.

Dr. BLACKADER endorsed Dr. Perrigo's remark of how frequent the habit of tipping exists in ladies in whom one can find no reasonable signs of it, ladies who had been secret tipplers for years, and yet in whom he was unable to detect the slightest symptoms of it; the tongue was clean; no excitement in conversation was ever evinced, no flushing of the face and, in fact, nothing which might point to the real cause of their trouble, namely, alcoholism.

The PRESIDENT suggested an examination of the urine for alcohol in such cases as a means of arriving at the diagnosis.

*Appendicitis Occurring in a Patient with Sacro-Iliac Disease*—Dr. ARMSTRONG related the following case: A young girl, 14 years of age, came to the hospital with a letter saying that nine months before she fell down stairs. Nothing was thought of the injury at the time, until about three months afterwards she developed a tumour in the right iliac fossa, accompanied by a temperature running about 103°. This condition improved, the temperature became normal, she was considered convalescent, but the right thigh became flexed and has remained so.

As she appeared in the hospital clinic, as to diagnosis, two very good arguments could be made out: one man could argue very strongly in favour of sacro-iliac disease; another man could produce just as convincing evidence in favour of appendicitis. In favour of the first we had the history of an injury, tubercular family history, flexion of the thigh, lateral curvature of the spine, that peculiar hitching up of the right side of the pelvis, which on looking at it from behind makes the perfect picture of sacro-iliac disease. In favour of the second we had the tumour, the high temperature, the pain, nausea, vomiting, etc. To settle the matter he decided on a exploratory incision, and on doing so very readily came down upon the appendix lying in a little pocket of pus. As this point it seemed quite clear that the case was one of appendicitis. However, after the appendix was removed and everything made nice and clean, he noticed that the right iliac fossa seemed to come forward more than usual, and on closer inspection decided there was evidence of inflammatory products within the sheath of the psoas muscle. On making another incision, then, this muscle was found throughout nearly the whole of its extent infiltrated with the ordinary cheesy material, commencing near the crus of the diaphragm and extending down to Poupart's ligament, where, no doubt, if left long enough, it would ultimately have pointed. Over the sheath of the psoas, and attached to it, the appendix was lying; at one spot there looked as if some necrosis had taken place, but there was no actual communication between the abscess in the appendix and that in the psoas.

So that, as may be seen, the evidence in favour of both conditions was well founded, the truth being that here we had a

case of sacro-iliac disease, in the course of which an appendicitis was developed. The patient made a good recovery after the operation; her temperature is normal, and she appears to be doing nicely in every respect.

Dr. ADAMI regretted that his investigation had not been as thorough as he would have wished. Examining some of the cheesy substance, however, he succeeded in finding some bacilli. In the appendix he found some chronic thickening, the outer wall being especially thickened and congested. On making the bacteriological examination he found in addition to inflammatory products, a large number of diplococci, micrococci and other pyogenic organisms; so that bacteriologically he came to exactly the same conclusion as did Dr. Armstrong clinically, viz, that in the appendix there was a simple inflammation, as shown by the presence of the ordinary pyogenic organisms, while in the cheesy matter we had tubercle, as shown by the presence of the bacilli.

*Poisoning by Paris Green.*—Dr. WYATT JOHNSTON, exhibiting the specimens, said that lately this usually quiet community seems to have taken to poisoning itself with paris green, as within the past month four or five cases of this nature have come before the public. On Tuesday last two inquests were held on cases of this nature by the coroner. In one case a large dose was taken about one week before death; the duration of life after the inception of the poison was due to the treatment which was inaugurated very soon afterwards, the pump and emetics being employed with a fair degree of success. In the second case a smaller dose was taken, but owing to the man not coming under treatment for some considerable time afterwards, he died much sooner than the first one.

The first specimen is from the case in which a relatively small amount of poison was taken and in which little after treatment was employed. There is intense engorgement of the vessels and ecchymosis of the stomach walls. As a rule, in arsenical poisoning the changes in the stomach wall are not nearly so profound as one might expect to meet with according to the descriptions given in the text books. In this case, however, there is an extreme degree of ecchymosis of the mucosa, hæmorrhages into the deep mucosa. The duodenum

also shows intense congestion, which evidently has gone as far as complete stasis. More or less hæmorrhage has also occurred in places throughout the intestinal tube, and well down in the jejunum particles of paris green were found.

The other specimen is one in which the dose of the poison was larger, but where the contents of the stomach had been speedily evacuated, death occurring one week afterwards. There is some congestion, although the reddening in the specimen is more pronounced than at the post-mortem owing to the action of the fluid in which the specimen was preserved. There is no ulceration here, no necrosis, simply a congestion of the mucosa. Congestion in this case, however, is not a symptom diagnostic of poisoning. The man just before taking the poison had been on a rather prolonged spree, and was besides an old drunkard, and under these circumstances some congestion of the mucosa might have been expected, independent of the poisoning.

An interesting feature in connection with the first case is that in the brain a region of softening was noticed in each hemisphere, almost symmetrical and situated in the region of the internal capsule. It is very unusual to find lesions of this kind bilateral, and still more so to find them situated in almost the same region on each side. In this case they go to show the existence of an old standing brain disease. This is a very important discovery from a medico-legal point of view. In the eyes of the law wilful suicide is a crime, but suicide while insane does not constitute a crime. This has important bearing socially, and also has certain religious relations which makes it very important to determine, if possible, whether suicide occurs in an insane person or not. In this case an autopsy was ordered for the special purpose of determining whether insanity could be established or not, and there was no doubt that a man with this condition of brain would be certainly one that would be extremely liable to suffer from mental weakness. We know that where there is a tendency to softening of the brain it is customary for patients to show more or less an unsound condition of mind, and in this case the history of the man's life during the last few years seemed to point to some cerebral trouble.

Dr. W. F. HAMILTON related the clinical history. The first

case which came to the hospital was that in which a small quantity of the poison was used, half an ounce being the amount stated to have been taken. The man said that he had taken the poison at about 3 p.m., he walked home about 5 p.m. and was first noticed by his wife and daughter to be ill. To their enquiries as to the cause of his illness he admitted having taken poison, and a doctor was at once called who administered emetics and antidotes, and succeeded in having ejected some paris green and a considerable quantity of blood. At about 7 p.m. he, Dr. Hamilton, was called in, when he found the patient in a condition of collapse, his pulse being very weak, etc. Thirty grains of zinc sulph. with large quantities of warm water were given and then washed out the stomach with the stomach tube. At about half-past nine he was sufficiently revived to be conveyed to the hospital in the ambulance. On his arrival there another very efficacious emetic was administered, namely, a teaspoonful of mustard with a large quantity of warm water, which was followed by copious emesis, in which more paris green was noticed. At 12 p.m. he appeared to be a little easier; at 7 a.m. he complained of intense pain in the abdomen; his pulse was 120, his respiration 30. Bismuth sublimate gr. xxx. with  $\frac{1}{2}$  gr. opium, as well as hot applications to the abdomen, were given. Little or no relief was experienced from this, and he died about 8 a.m., judging from the general symptoms, of cardiac failure.

The second case was another alcoholic. On the morning of the 20th he took three ounces of paris green. Immediately upon taking it he started for the hospital, and rushing into the office told what he had done. He was already being purged from its effects. About half an ounce of dialyzed iron was given to him immediately, as well as some zinc sulphate, until he vomited freely. He was then transferred to the ward and doses of zinc sulph. 30 grains were repeated until in all about 180 grains had been taken; no dose was administered until the previous one had produced free vomiting. At the end of each act of emesis he ejected large quantities of an intensely green substance. In addition to the emetics we administered both dialyzed and oxide of iron. At 3 o'clock that afternoon he passed by the bowel some green substance which



was considered to be *paris green*. On the 21st he seemed considerably better. On the 22nd the temperature went up to 100°, the heart became weaker, and he became very restless. Through the latter part of his life he was constantly retching. Later he developed an intense congestion of the fauces, which interfered with swallowing. He died at 10 a.m. on the 25th, or about five days after his admission.

*Report of the Committee Appointed to Draw Up Rules for the Prevention of the Spread of Tuberculosis.*—Dr. ADAMI read the report, which appeared on page 14, July number of this JOURNAL.

Dr. A. D. BLACKADER moved that the report be adopted and printed for circulation.

Dr. HINGSTON thought that the practical suggestions in the middle of the paper were admirable, but there is at the very outset laid down a principle which may not be universally adopted, and which, for the public, is certainly not necessary. It is that in every case of tuberculosis the tubercle must have been obtained from some pre-existing case where tubercle was present, and in that way alone. This question is a very large one and, as yet, a very debatable one, and a great deal may and has been said to modify that view. What, for instance, becomes of those experiments of Cruveilhier, with which you are all no doubt familiar. In the healthy rabbit taken from the field he induced tuberculosis and caused its disappearance at pleasure. He caught them, confined them in a dark, damp place, and tubercles were developed. This he proved by killing several of them one after another and finding them in different stages of phthisis. Others, again, after they had shown symptoms of the disease, he liberated, and after they had been at liberty for some time he recaptured them, and examination showed that one after another the tubercles were being eliminated. Now, if tubercle is always due to the existence of tubercle bacilli in others, where did the healthy rabbits get the bacilli? Or were the bacilli responsible for the mischief in the imprisoned rabbits? That is impossible to say, as in the days of Cruveilhier the bacillus was not recognized as the cause of tubercle, and even at the present day it is not universally recognized as the cause, while some think it the result.

In joint affections, and of these he spoke with more confidence, we commonly find the healthy child of healthy parents afflicted. On enquiring as to the previous health of the patient, we frequently get the answer, "Yes, the healthiest of my children." Then there is a history of an injury some time previously; the child, in the act of running or climbing, fell and injured the knee, the hip, or the sacro-iliac synchondrosis perhaps, as the case may be. An inflammation follows in the injured joint, and this inflammation is said to be due to the bacillus, rather than to the clearly recognized fall or injury! Where does this healthy child get the bacilli from? It is true that in the course of time tubercles may develop; but have we the right to say that they do so as the result of the child being brought in contact with the tubercular disease, rather than as a result of perverted nutrition? From time immemorial, inflammatory affections of this kind were treated, and generally without benefit, as strumous; it is only since they came to be recognized as inflammatory and the result of traumatism that treatment has become successful. This is one of America's great contributions to surgery.

Moreover, is it as yet quite settled whether the bacilli develop themselves in the course of the disease, or whether they already exist in the system, and manifest themselves only in the injured parts? In joint affections it is certainly not generally admitted that the bacilli are the cause. Cases sometimes occur where the origin of the disease is supposed to be due to some depression of the vital energies of the part, consequent on over-work or injury, inducing a condition where we should look rather for the spores of inflammation than for the bacilli of tubercle. Even now the latter are by some supposed to contain the former.

He fully endorsed all the other points of the instructions to the public: those relating to ventilation, cleanliness, etc., but thought we should stop there, and not say needlessly that which we will often find difficult to substantiate clinically, and which is unnecessary in a set of practical instructions intended for the public.

Dr. ADAMI, in reply to Dr. Hingston, said that this subject is an enormous one, and one that at this late hour of the evening it will be impossible to go into in detail. While he

could not now enter into all the evidence showing that tubercle is always obtained, directly or indirectly, from pre-existing tubercle, this, however, he would say, that in every case of typical tuberculosis if one takes a piece of the diseased tissue, be it lung or joint, and inoculate it into a guinea-pig, he will have set up a typical tubercular inflammation in which bacilli shall be found. In regard to the experiments of Cruveilhier, they are on a par with those kindred investigations where it was shown, or supposed to be shown, that tubercles could be produced by the injection of particles of dust, or inoculating with bits of paper, string, etc., and of all these only the one thing need be said, viz, that they were made before the discovery of the bacillus, before the bacteriological method had come into use in such investigations, and as such they are imperfect and, he thought, must go by the board. In fact, it is highly probable that the inflammation which these men set up was not true tubercular inflammation at all, and therein lay their mistake.

In laying down the principle alluded to we are acting in accordance with the views held by the leading minds of France, of Germany, of England, and he did not think there was in England to-day a single man of scientific note who disbelieves in the bacillary origin of tuberculosis, and further still, we are acting in accordance with the views held by the majority of this Society.

As a reason why every case of tuberculosis must be derived from some previous case of the disease, he might say that the more one examines the habits of life of the tubercle bacillus the more certain one becomes that they will not grow at a temperature but three or four degrees below the blood heat, even if they be cultivated upon specially prepared broth. Now, the temperature of an ordinary room is always considerably below that point, and consequently bacilli could not propagate or manage to survive beyond a certain time in such a medium, and so we may infer that wherever a case is found it must have originated from a preceding case. In fact, Dr. McEachran pointed out that the disease was not confined to man, but that it existed and was prevalent amongst animals. It is one of the four great scourges of the bovine race. In joint diseases, therefore, we must not be content with looking

for previous disease in other members of the family, but we must also investigate the meat supply as well as the milk of these people.

Dr. GIRDWOOD said that supposing the person does not contract the disease from some preceding case, man or animal, how, then, does the tubercle bacillus become developed, unless by spontaneous generation, which at the present day cannot be admitted.

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## MONTREAL CLINICAL SOCIETY.

*Stated Meeting, Oct. 14th, 1893.*

DR. ALLAN IN THE CHAIR.

It was proposed by Dr. KENNETH CAMERON, seconded by Dr. SPRINGLE, "That the resident staff of the Montreal General and Maternity Hospitals be elected temporary members of the Society."

This motion was carried.

The SECRETARY then read the following report of the work done by the Society during the preceding session:—

*Mr. Chairman and Gentlemen,*—It is with a feeling of considerable satisfaction that I present to you the Annual Report of the work done by this Society during the session which has just been brought to a close.

Before proceeding further, I feel that it is my melancholy duty to record the deep loss which the Society, and the medical profession at large throughout the city, have suffered through the death of one of our members. I refer to the late Dr. Hugh Berwick. Although following the practice of dentistry, he showed his desire to be a thorough scientist by taking the degree of M.D. at McGill University. He took a most active interest in this Society, as was shown by the regularity of his attendance at its meetings, and would have proved one of our most hard-working members had he been spared. His cheerful face and kind ways will be greatly missed by the many friends whom he made, both in and out of the Society. Although we can no longer have our friend among us, let us all honour his memory by taking that active interest in the Society in which he set the example.

The past session has been one of uninterrupted progress in every sense of the word, and the Society has to congratulate itself upon both the quality and quantity of the work done and the number of new members who sought admission. The increase in our membership has surpassed all our expectations, being an increase of about 70 per cent. We started with 27 members, and ended the year with 46. It is a matter of regret to us that two of our members have left the city to practice elsewhere—Dr. Douglas Corsan having gone to British Columbia and Dr. W. Burnett to the United States.

Our record of attendance is very good, the average for the whole session being 16.22, our largest attendance being 23 and smallest 11. This may not appear to be a very large average, but it must be remembered that the majority of the new members did not join until after the new year. There were 18 meetings during the session, and but one member was present on all occasions. Two others were present 17 times, one 16 and one 15, the others coming below that. I regret to say that four members failed to appear even once.

Three evenings, early in the session, were devoted to a discussion concerning the attendance of medical men on benefit societies, when the following motion was adopted by the Society: "That, in the opinion of this Society, the system as at present existing, of medical attendance upon benefit societies, is prejudicial to the best interests of the profession."

The question of the admission of female medical practitioners to membership of the Society was introduced, and a motion to allow of their admission was put to the Society, but, after being very thoroughly discussed, it was thrown out.

Before giving a detailed account of the work done, I must thank the members for their assistance in compiling the programme, for without their aid the debates could not have been so interesting. I only hope that you will accord to my successor the same forbearance and co operation which you have shown to me.

The following microscopical specimens were shown to the Society:—1. Ovarian Carcinoma—Dr. Bruère. 2. Melanotic

Tumour of the Eye-Ball—Dr. Bruère. 3. Pediculis Pubis—Dr. G. Campbell. 4. Mammary Tumour—Dr. Bruère. 5. Suppurating Gland—Dr. Bruère. 6. Sarcoma of Lower Jaw—Dr. Bruère. Dr. Birkett exhibited a series of sections of the human eye mounted in glycerine, for the purpose of demonstrating the parts of the eye.

*Pathological Specimens.*—1. Ovarian Carcinoma—Dr. Bruère. 2. Scirrhus of Breast—Dr. Allan. 3. Uterine Fibroid—Dr. Bruère. 4. Bones of Finger with Anchylosed Joint—Dr. Kenneth Cameron. 5. Fibroid Tumour removed from a Tendon Sheath of Finger—Dr. Kirkpatrick. 6. Hydrocephalic Fœtus—Dr. Evans. Dr. Kirkpatrick exhibited some interesting photographs of a case of cloasma, and Dr. Morrow showed a very ingenious breast pump which he had modified.

*Case Reports.*—1. Pelvic Abscess—Dr. W. Grant Stewart. 2. Labial Chancre—Dr. Kirkpatrick. 3. Suppurating Inguinal Glands—Dr. Kirkpatrick. 4. Gastric Crises in Tabes Dorsalis—Dr. Gordon Campbell. 5. Appendicitis—Dr. Elsdale Molson. 6. Typhoid followed by Suppuration of Parotid—Dr. G. Brown. 7. Diabetes in Child of Thirteen—Dr. Vipond. 8. Peculiar Vaginal Adhesions—Dr. Springle. 9. Iodine Idiocyncrasy—Dr. Springle. 10. Difficult Diagnosis between Gout and Rheumatism—Dr. E. H. Blackader. 11. Strangulated Hernia—Dr. G. Brown. 12. Cystic Degeneration of Chorion—Dr. Hackett. 13. Post-Partum Syncope—Dr. Springle. 14. Carcinoma Testis—Dr. Thompson. 15. Two Cases of Bradycardia—Dr. Gunn. 16. Tracheotomy for Foreign Body—Dr. Orr. 17. Puerperal Septicæmia traced to Defective Drainage—Dr. Hackett. 18. Accidental Hæmorrhage, with Intra-Uterine Death of Fœtus—Dr. Kirkpatrick. 19. Two Cases of Tetany—Dr. Evans. 20. Summary of Cases of Scarlet Fever—Dr. Spiers.

*Papers* were read upon the following subjects:—1. Gall-Stones Accompanying Fever—Dr. Finley. 2. Artificial Feeding of Infants—Dr. Evans. 3. Varicose Veins—Dr. Schmidt. 4. Masked Tuberculosis—Dr. Morrow. 5. Anorexia Nervosa—Dr. Gunn. 6. Treatment of Puerperal Eclampsia—Dr.

Kirkpatrick. 7. Strangulated Hernia—Dr. Haldimand. 8. Malignant Sore Throat—Dr. H. D. Hamilton. 9. Asthma—Dr. Gordon Campbell. 10. Empyæma—Dr. Allan. 11. Diagnostic Value of Gastric Juice—Dr. Gunn. 12. Guaiacol in Tuberculosis—Dr. H. D. Hamilton.

Since writing the above, the report of the President of the Medico-Chirurgical Society has been read, and it is to be noted that the average attendance at their meetings was higher than it had ever been before, thus showing that the Clinical Society was, at any rate, not detrimental to its senior. Among the papers enumerated by the President were two by members of our Society, and special stress was laid upon their excellence.

With these concluding remarks, I beg to submit my Annual Report to the Society, hoping that it may be found satisfactory.

F. A. L. LOCKHART,

Secretary.

The Treasurer's report was of a highly satisfactory nature. It was shown that the Society had a handsome balance, and that there were absolutely no liabilities.

The reports were adopted.

The posts of Secretary and Treasurer having fallen vacant, Drs. Evans and H. D. Hamilton were elected Secretary and Treasurer respectively.

After votes of thanks to the retiring officers and some general business, the meeting adjourned.

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## THE CANADIAN MEDICAL ASSOCIATION.

*(Reported by Dr. J. N. E. Brown, Official Stenographer of the Association.)*

WEDNESDAY, September 20th, 1893.

EVENING SESSION—*Continued.*

Dr. ECCLES' paper, "Movable Kidney, with Two Cases of Nephroraphy," came next. This condition, he believed, was often overlooked and something else treated (often hysteria) for it. This resulted from neglecting to examine the kidneys—a matter always to be attended to in obscure cases with symptoms

of hysteria, melancholia and general nervousness and dyspepsia. This organ having no special support was in danger of displacement. The thirty cases Dr. Eccles reported were all females. Patients had a dragging down feeling, or aching in the back or along the ureteral lines. In most there was dyspepsia, accompanied by constipation, diarrhoea occurring in only four. In six there was an exacerbation of symptoms during menstruation. In some seven there was inability to lie on the side opposite the displacement. Intermittent hydronephrosis was observed in seven. Dr. Eccles then outlined two cases fully. The first had most of the typical symptoms for a number of years, the most prominent being the frequent attacks of severe pain, which at first lasted about an hour and latterly forty-eight. These were accompanied by swelling in side followed by its disappearance and a great flow of pale urine. The doctor could feel the kidney; had support and pad applied with complete relief. Movement, no doubt, of the organ had kinked the ureter. The speedy relief of this condition was conservative to the kidney.

In another case reported the abdominal support failed to give relief; operation was advised. After the usual incision the capsule was opened along the convex border one inch in width. Two silkworm gut sutures were passed into the parenchyma three-eighths of an inch deep, two catgut sutures through capsule and fatty capsule above and below, continued through the muscle and fasciæ. The fasciæ were united by separate catgut sutures before those through the kidney and its capsule were tied. Good recovery.

In a second case of operation Dr. Eccles did similarly, but did not dissect up capsule, as it was thickened and a cystic condition appeared underneath. A good recovery followed.

Dr. HINGSTON pointed out that a misplaced kidney was easily felt if the patient leaned forward during the examination. He showed how one might be mistaken by telling of one patient who came to him suffering in this way upon whom double ovariectomy had been done for its relief. This mistake would not be made if one, by grasping the kidney and making gentle traction downwards, found that pain was experienced, while



pushing it upwards gave relief. The reverse would take place in the case of the enlarged ovary. In many cases he thought operation unnecessary.

DR. BETHUNE had had a few cases; they were all in women, on the right side. The trouble proved most annoying during pregnancy. One case he had, the kidney on removal was found to be cancerous. He thought cases of displaced liver more common than was generally supposed. He did not see how operation could help the patient much, as there would be difficulty in retaining it in position, even after operation, so little was there to which it could be solidly attached.

Dr. BELL, of Montreal, agreed that many of these cases needed no treatment. The condition was often accidentally discovered; but in cases where hydronephrosis developed some operation seemed to be necessary. He had no personal experience in the use of the pad and band, and did not think it likely they would do much good. He had operated on patients where this treatment had been tried and found to be a failure. He thought the operation of nephrorrhaphy in many cases effectual in making a permanent cure. At first he was skeptical regarding the operation, but he got over that; he knew of no other means of relief.

Dr. LAPTHORN SMITH agreed with Dr. Bell. The frequency of cases he believed to be due to improved methods in diagnosis. Formerly they were called hysteria. Dr. Smith wished Dr. Eccles would show his ingenious method of retaining displaced kidney in such cases as are not bad enough for operation. He was reminded of the principal causation of the trouble when he heard a young man remark to his friend, after a tight-laced young lady passed by them, "I wonder where she puts her thirty yards of intestines." He (the speaker) had not seen any cases of men with this affection. He considered the ounce of prevention to be a modification of the corset.

Dr. ECCLES closed the discussion.

Dr. H. S. BIRKETT, of Montreal, read a paper describing a "Case of Sub-Cordal Spindle-Cellled Sarcoma," and its successful removal by thyrotomy. The doctor outlined a history of

the case. The principal symptoms were marked dyspnoea; hoarseness until almost complete aphonia occurred; in the latter stage, almost complete suffocation when in the prone position. Patient was thin and anæmic; was pregnant; was compelled to sit upright with mouth open. On examination, the laryngoscope showed a large sub-glottic tumour nearly filling the lumen of the larynx, dusky red in colour; vocal cords free. Tracheotomy was performed, low down; a tube made breathing easy. Labour was induced; tumour, strange to say, decreased in size. In three weeks tumour was removed by thyrotomy. Incision was made between the alæ down to upper border of cricoid. On separating, tumour was well exposed; was attached to right ala of thyroid, just below vocal cord. After removal, site was cauterized with chromic acid. Three deep silkworm gut sutures closed deeper structures, and superficial ones the wound externally. Microscopical examination revealed it to be a spindle-celled sarcoma. The condition was unique. The operation of thyrotomy was practically devoid of danger in itself; its result depended much upon what it was done for. As to its employment in tuberculosis, opinion was divided. The doctor closed by detailing at length why he adopted the method he did rather than removing the growth *per vias naturales*.

Dr. OSBORNE, of Hamilton, commented on the decrease in the size of the tumour after delivery. He supposed it was on account of some reflex condition between the uterus and the tumour.

Dr. BIRKETT explained that the whole arterial system was in a state of great tension during pregnancy; after delivery, this would lessen much, and hence there might be a lessening in the size of the tumour due to the fact.

A splendid banquet was given to the visitors by the local members of the profession at the Tecumseh House, beginning after 9 o'clock. About 200 sat down. Dr. Hodge presided, and introduced the toast list. "The Queen" was honoured with the National Anthem. Dr. Hingston, of Montreal, and Dr. Præger, of British Columbia, responded for "The Domi-

nion," in witty speeches. Dr. Harrison, of Selkirk, spoke on behalf of the Ontario Medical Association. The Chairman, in toasting "Our Guests," warmly welcomed the visitors. He regretted that the meeting was at the same time as the Western Fair, as it had interfered with arrangements. Dr. Sheard, the President, replied warmly. Dr. Canniff, of Toronto, and Dr. Birkett, of Montreal, also spoke to the toast. Mr. C. W. Davis sang, and "The Ladies" were proposed by Dr. J. S. Niven, vice-chairman, and championed by Drs. Thorburn and Anglin.

#### THURSDAY MORNING.

Dr. HOLMES, of Chatham, read a paper which consisted of a report of two cases of laparotomy for unusual conditions. The first gave a history of miscarriage, preceded by hæmorrhage, and this was followed by pain in the left iliac region, where a swelling was discovered, like an orange in size and shape, two inches to the left of the uterus, and fluctuating. Laparotomy was performed, and an ovary containing three ounces of pus removed. The abdominal cavity was flushed and usual dressings applied; no drainage tube. The important point in the case was that there was no disease of the tubes. This was unique, as far as he was able to judge from the records. The second case Dr. Holmes had seen after the patient had been ill ten days. Pain was present in the right iliac region, where the attending physicians detected some hardness. Chills and fever, constipation, vomiting and great prostration were succeeding symptoms, also great tympanitis. No tumour could be made out at this time. Exploratory incision was deemed necessary. Appendix was sound. There was no obstruction, but peristalsis was absent. The gut was stitched to the wound, with the idea of incising if bowels did not move soon. This had to be done, the patient being then almost *in extremis*. A copious evacuation of faecal matter from the fistula took place. Stimulants could then be retained, and the patient improved. But the fistula was a great annoyance. Dr. Holmes made several unsuccessful attacks to close it, but failed. Patient was then transferred to Harper's Hospital, Detroit. Resection of the affected portion of bowel was made,

and the ends joined by Murphy's buttons. Patient made a good recovery. The doctor showed the kind of button used, and gave a report of operations in which it had been successfully employed.

Dr. ATHERTON agreed with Dr. Holmes that abscess of the ovary without affection of the tube was rare. In regard to peritonitis with paralysis, he found puncturing to allow the gas to escape a good measure—two or three times if necessary. He had seen no trouble arising from such proceeding. This might be tried, and laparotomy avoided.

Dr. HOLMES replied to this by saying that he had employed this measure, but it was in cases where the abdominal walls were thin. Where the walls were thick, as in the case reported, he considered it unwise. In fact, when the abdominal wall was opened, one of the assistants introduced a small trochar, but without relief of the symptoms.

Dr. BELL, of Montreal, then presented a paper on "Some Unusual Conditions met with in Hernia Operations." See page 348.

Dr. CANNIFF asked how Dr. Bell diagnosed the omental tube which was cut off from intestine.

Dr. BETHUNE detailed at length a case of strangulated hernia which was not operated on, on account of stubbornness of patient. Suppuration occurred and a fœcal fistula established, which finally closed and patient made a good recovery.

Dr. McFarlane, President of the Ontario Association, and Dr. Temple, delegate from that body, were invited to seats on the platform.

Dr. BRYCE was not present to read his paper on "Prophylaxis in Tuberculosis." but his paper was handed in as read. It was pleasurable, the writer said, to see so much attention directed to a disease causing a greater economical loss than any other agent except alcohol. He gave some condensed results of a study of the subject taken from the mortality returns of the Registrar-General's Department of Ontario, and arranged the table so as to show the number of deaths occurring in persons of the same family. He also gave a tabular statement of

the total mortality returns of Ontario institutions for the insane for 1892, showing the proportion of deaths from consumption among patients. He also presented a tabulated list of the various diseases, showing from the annual report of the Inspector of Public Institutions for 1892 a large proportion suffering from this disease. Five per cent. of the total inmates of our hospitals suffered from this disease. The elements in prophylaxis partook of three qualities, individual, municipal and governmental. Individual prophylaxis depended almost wholly upon the intelligence of the infected person, his habits of life, and the extent to which he is impressed with the duty of protecting others. As to municipal, the first measures are largely those of improved local sanitation. As to governmental, it consists mainly in giving direction, financial support and legislative sanction to municipal efforts. He said, had he not been an interested and active spectator for two years of the manner in which legislation has kept in touch with public and professional opinion, he would think this visionary. He cited the numerous Acts providing for treatment of the blind, dumb, etc., and thought from the fact that there were but two limits to the class of municipal and governmental work, viz, the degree to which the public are informed regarding the need for work in this direction and the extent of municipal and governmental financial ability. This work was not to be considered relegated to the police, but to the action of intelligent, Christian men and women. The two objects to be held in view were, (1) the alleviation or cure of the tubercularized patient, and (2) to lessen the danger to the healthy public. In the higher altitudes of our Province we had suitable climatic conditions. In such places homes might be established for patients—places where they may go and live. These places might be made self-sustaining, as many of the patients would be able to work. That such homes would be popular may be concluded from the success of such semi-private institutions in Germany.

The Nominating Committee presented their report as follows: It first recommended that the next place of meeting be St. John, N.B.

Dr. Canniff did not favour going so far. Few, if any, physicians came from that section to the annual meetings in Ontario.

It was explained that St. John was tacitly promised the meeting next year in view of London getting it this year, on account of the movement westward to the World's Fair.

Dr. Praeger urged the claims for British Columbia for 1895. The St. John recommendation was adopted.

The report, after a few amendments, resulted in the election of the following officers for the ensuing year :

President—Dr. Harrison, Selkirk, Ont.

General Secretary—Dr. F. N. G. Starr, Toronto.

Treasurer—Dr. Small, Ottawa.

Vice-President for Ontario—Dr. F. R. Eccles, London.

Vice-President for Quebec—Dr. Stewart, Montreal.

Vice-President for New Brunswick—Dr. Christie, St. John.

Vice-President for Nova Scotia—Dr. Muir, Truro, N.S.

Vice-President for Manitoba—Dr. Spence, Brandon.

Vice-President for North-West Territories—Dr. Mewburn, Lethbridge.

Vice-President for Prince Edward Island—Dr. Taylor, Charlottetown.

Vice-President for British Columbia—Dr. McKechnie, Nanaimo.

Provincial Secretaries elected were—Ontario, Dr. I. Olmstead, Hamilton ; Quebec, Dr. Anglin, Montreal ; Nova Scotia, Dr. Keen, Cowe Bay ; New Brunswick, Dr. McLaren, St. John ; Prince Edward Island, Dr. Johnston, Charlottetown ; British Columbia, Dr. Walker, New Westminster ; Manitoba, Dr. McDiarmid, Winnipeg ; North-West Territories, Dr. Calder, Medicine Hat.

It was moved and seconded that all the papers be read in the order received by the Secretary, and if the writer be not present at the time it should be read, that the paper be placed at the bottom of the list ; and further, that it was desirable that an abstract of the paper be made and forwarded to the Secretary at least three weeks before the date of the Association meeting. After a good deal of discussion this was carried.

## THE ASSOCIATION VISITS THE ASYLUM.

On invitation of Dr. Bucke, of London Insane Asylum, the members of the Association went out to that institution for luncheon, being conveyed out on a special C. P. R. train. They were taken first to inspect the sewage system. The sewage is used as a fertilizer on the farming land of the institution. The luncheon was thoroughly enjoyable; numerous toasts were drunk heartily, while the asylum orchestra, under Prof. Sippi, discoursed sweet music.

## THURSDAY AFTERNOON.

The Association assembled in Victoria Hall at 3.30.

Dr. MCPHEDERAN addressed the Association on the subject, "The More Recent Methods of Diagnosis and Treatment of Diseases of the Stomach." He said that formerly it was thought that the stomach was the principal and only organ of digestion, but now it was known that the whole alimentary tract takes part in the digesting process. He said the function of the stomach was three-fold, viz: 1. To receive food and to partly change starchy and albuminous food into absorbable bodies. 2. To prevent the fermentation of the food. 3. To discharge its contents partly into the blood, but chiefly into the duodenum.

For the first three-quarters of an hour no free hydrochloric acid was, he said, present in the stomach, as it combined with the albuminates; if present, there was hyper-secretion of it, which arrested the digestion of the starches. It reached its maximum in amount in four or five hours. The gastric juice retarded the action of, or destroyed more germs, specific and non-specific, than any of the other digestive ferments. The duration of normal digestion, he said, depended on the character and amount of the food, also on the age of the patient. The symptoms of stomach disorders were multiple and various. Until the last decade our knowledge of gastric disorders depended on experiments and symptoms, accidents, etc.; now we owe much of our knowledge to the stomach tube. This, he said, should be soft. The patient not only readily became accustomed to it, but even often would request its use. An

approximate knowledge of the stomach's contents would in most cases be all that was requisite for the physician in active practice. A test breakfast should be given consisting of a round of toast or a dry roll, with a cup of water or of weak tea or coffee, without sugar or milk. This should be withdrawn from the stomach after one hour's digestion. The acidity of a normal stomach, he said, should be due to lactic acid for the first 30 or 40 minutes; after this time to free hydrochloric acid. These acids were discovered by Uffelmann's and Cunzberg's tests respectively, which the doctor described. It had been taught that absence of hydrochloric acid indicated carcinoma; this was not the case. It might be absent in other conditions and present, even excessively, in this. However, it could be said that its persistent presence formed strong evidence in favour of cancer. The tube was useful in discriminating between gastric catarrh and carcinoma. The washing out would be followed by improvement in cases of the first, but not much in the second. Its principal use, however, was in dyspepsia, in determining the acidity of the contents. On this our treatment could be based. The lavage stimulated the gastric gland secretion, and stimulated the muscular walls to renewed activity. Proper diet and general treatment would suffice to cure many cases. This treatment was particularly useful in alcoholics, also in infantile digestive disturbances. Constipation was relieved by its use; also the gastric neurosis, reflex vomiting of pregnancy, the patient being fed through the tube. The subject was one of immense importance, on account of the immense frequency of disease of the stomach,—four-fifths of all the ailments medical men were called on to treat being caused by derangements of this organ.

Drs. Ferguson, Wesley Mills, Gardner and Praeger discussed the paper.

The meeting then divided into sections, Dr. I. H. Cameron presiding over the Surgical side, while Dr. Moorhouse presided over the Medical.

#### SURGICAL SECTION.

Dr. PRIMROSE presented a paper, subject, "A Large Sarco-



matous Growth in the Neck, with Secondary Deposit in the Lung." It was found in a boy four years of age, a patient in Victoria Hospital, Toronto, under Dr. Cameron. It extended on the right side of the neck from the median line in front to a point near the vertebral spine, and from the lobule of the ear to the clavicle. Was noticed two years and three months before, corresponding to the region of the right lobe of the thyroid gland. Caused little pain. Was somewhat lobulated, with prominent veins coursing over its surface. Fluctuation distinct. Measurement on tumour side of neck, horizontally,  $13\frac{1}{2}$  in.; left side, 6 in. From lobule of ear on right side (over tumour) to outer extremity of the clavicle, 7 in.; on left side,  $2\frac{1}{2}$  in. Left pupil twice size of right. Some dysphagia. Child died in July. The tumour was found in the post-mortem to possess several processes, but it had not infiltrated or eroded the surrounding tissues, a point to be considered in the diagnosis. There were secondary deposits in the lungs. The anatomical relations of the various structures adjacent were much altered. The large vessels on the tumour side were entirely obliterated; those on left side were enlarged. The processes spoken of were in the direction of least resistance. The muscular structures in the neighbourhood were atrophied. In the upper part of the tumour there was a preponderance of fibrous tissue, and septa of this tissue divided it off into lobules of spongy tissue. A peculiar condition was found in the spinal canal, the cord being surrounded below the dura mater by a mass of tissue resembling in gross appearance the tumour growth, but it was not the same. It contained connective tissue corpuscles and nerve cells and fibres. Its nature Dr. Primrose had not made out. The tumour itself was examined microscopically, and proved to be sarcomatous.

The beauty of Dr. Primrose's paper was that he had frozen transverse sections through the child, which exemplified in a most splendid way his paper. The sections were much admired by the Association. Photographs of the same were also presented for inspection.

Dr. PRAEGER spoke in high terms of the paper and the sections.

Dr. R. FERGUSON, of London, then gave a report and presented a recent successful case of cholecystotomy. The symptoms of gall-stones in this case were for a long time obscure, the pain being referred to the epigastrium. No pruritus, fæces lacking the characteristic colour, and the absence of jaundice. Pulse and temperature remained normal. She had many attacks of pain, which were relieved by hot appliances and morphia. These paroxysms did not appear or disappear suddenly. Gastric ulcer, gastritis and intestinal colic were excluded. Gastralgia was probable. Stomachic treatment gave no relief, the ordinary treatment for gall-stones afforded no relief; but finally some of the typical symptoms of gall-stones began to show themselves. Patient was transferred to the hospital, with a view to operation, but after lying quietly two or three weeks she improved so much that she went home, operation being postponed. But she soon became worse. On one occasion she had felt, after a severe paroxysm of pain, a dropping of something in the region where the pain existed. Operation gone on with. Eighty gall-stones removed, the edges of incision of the gall-bladder being sutured to the edges of the wound. A cough retarded the process of healing. Repair did not take place well. Suppuration set in, parotitis in left gland set in, also localized peritonitis. The attacks of pain returned. Dr. Ferguson then tried to insert a catheter through into the bile duct, which he thought he accomplished. The side of the catheter appeared to grate on some hard substance, but improvement took place, and patient returned home in ten and one-half weeks after the operation. But in four weeks the symptoms reappeared; pain very severe. Chloroform had to be administered constantly, as morphia seemed insufficient. She inhaled thirty-six ounces. Another operation was decided on. The incision was extended downward one and a half inches lower, allowing exploration with the finger in the region of the bladder. A body  $2\frac{1}{2}$  in. long and  $\frac{1}{8}$  in. thick was scooped out of the gall-bladder. The patient made, although very nearly collapsed at the close of this operation, a good recovery. The pain in the second instance, the doctor thought, might have been due to

the presence of the mucous cast (if such it was), which might have been forced out of the bile ducts into the bladder.

The doctor's paper was valued highly. The patient was present, and the seat of operation exposed for inspection. A small biliary fistula was still to be seen, but in other ways the patient seemed perfectly well.

Dr. CAMERON, chairman of the section, asked why cholecystectomy might not be done in such cases rather than cholecystotomy.

Dr. PRAEGER had had a case where the pain was referred to the epigastric region. The doctor then outlined the case. It proved to be much like Dr. Ferguson's, only that the stones were in the duct, instead of in the bladder, and were adherent to each other. In closing, the edges of the bladder were stitched to the sides of the wound. He was of the opinion that cholecystectomy should be preferred to cholecystotomy.

Dr. MEEK had seen and helped with Dr. Ferguson's case, and agreed with him as to the causation of the recurrence of pain after the first operation. Dr. Meek cited another case, in which the peculiarity was the immense dilatation of the bladder—one they had recently operated successfully upon. He was surprised to hear that Tait had adopted cholecystectomy instead of cholecystotomy.

Dr. PRAEGER told of a similar case he had to that of Dr. Meek. The bladder contained one and a half pints of bile and some forty stones.

Dr. SMITH, of Fingal, then reported on Dr. Meek's last case, which was under his care. Patient was doing well. A point he dwelt on was that the temperature at the time of operating was  $105^{\circ}$ ; in three hours it was normal and had remained so.

Dr. CAMERON then spoke of the propriety of removing the gall-bladder. In cases especially where there was great distension and the presence of a number of stones that operation was preferable; there would thus be less danger to the peritoneum after the operation; the persistence of a biliary fistula is done away with. The bile instead of escaping externally should

take its natural course and thus carry out its digestive function in the intestines. Dr. Cameron spoke of the administration of large doses of glycerine, two or three ounces each hour of the paroxysm, for the relief of cases of gall-stones. He supposed it acted by its hydrogogue effects, dehydrating, and thus relieving, the swollen mucous membrane. He had seen satisfactory results from its use.

Dr. FERGUSON said he had tried equal parts of glycerine and succinate of iron (about half an ounce of glycerine) four times a day.

#### MEDICAL SECTION.

“Some of the Uses of Sulphurous Acid,” was the subject of a paper read by Dr. Arnott, of London. He began by saying that he had in his experience profited most by learning new applications of old remedies. Sulphurous acid was an old remedy; Homer spoke of its use in fumigation; the doctor spoke of its application in typhoid fever. It was particularly useful in that class (for he held typhoid had different causes) of typhoid due to rapid multiplication of bacteria in the blood. The remedy should be freshly prepared and administered early in the disease. He would give from half a drachm to a drachm every two hours, or even more, if the patient could stand it. With it he had not lost one per cent. of his cases, and his patients, he said, were never given alcohol. To his mind it was the remedy in typhoid; in early phthisis it was useful; it did not hurt the stomach. He had almost discarded the use of cod liver oil. It had been noted that consumptives who laboured in sulphuric acid works improved in health.

*(To be continued.)*

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VERTICAL HANDWRITING.

In an article in the *Popular Science Monthly* under the heading of "An Argument for Vertical Handwriting," J. V. Witherbee points out that not only is the present mode of teaching writing contrary to Nature, and the writing so taught difficult to read, but that writing in which the lines are upright, instead of at a slant of fifty-two degrees, is easier both to read and to write. The main point, however, is that the position assumed by the pupil who slants his letters is very bad from a hygienic point of view. As a rule, he sits sidewise to the desk, with only one arm supported, and as a result one shoulder is higher than the other, besides the head is commonly turned until a line connecting the pupils of the eyes is parallel to the line on which he is writing. Nature impels him to twist his neck, so that one eye shall be at the same distance from the letters he is making as the other. Unless he does turn his head, the eyes are not equidistant from his work, which tends to shorten the sight of one eye and lengthen that of the other. This accounts in a large measure for the need of two glasses of different power for the same person, so frequently met with at the present time. This position, with one shoulder higher than the other, continued day after day, results in a lateral curvature of the spine. With the vertical writing this is impossible. At the foot of each copy slip the following directions are printed:—  
"Sit squarely facing the desk, with feet flat on floor. Raise seat so that both forearms, when placed half their length on the desk, are nearly level. Place paper squarely in front of

breast bone. Keep elbows close to body. Sit erect." Compare such a position with that usually assumed by the pupil who writes the ordinary slanting hand, and at once a strong argument in favour of the vertical handwriting is seen. Other advantages of the system are that it can be written more rapidly and occupies less space on the paper. In England this new style is making rapid headway, so much so that the examiners require its use in all branches of the civil service. Many English and Continental schools have adopted it, and Professor John Jackson has prepared a set of copy-books, which have been published by Messrs. Sampson, Low & Co., London. We commend the idea to the members of the medical profession, and hope that they will endeavour to have the system introduced into the schools. If anyone doubts the superiority of the vertical handwriting, let him follow the directions we have given and see for himself which is best.

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#### THE PARASITIC PROTOZOA OF CANCEROUS TUMOURS.

In an interesting article in the October number of the *Journal of Pathology and Bacteriology*, Messrs. Ruffer and Plimmer continue the discussion on the parasites of cancerous tumours. To the account of their further researches are appended numerous coloured plates illustrative of the microscopical specimens examined by them.

As viewed in the light of present experience, the parasite is a unicellular organism existing chiefly in the protoplasm of the epithelial cell, though occasionally found within the nucleus. It has a nucleus (or, at all events, a body which resembles the nuclei of other protozoa) whose structure varies, and whose microchemical reaction is such as to enable us to differentiate it not only from the nucleus and nucleolus of the epithelial cell which it has invaded, but also from the invagination forms concerning which so much discussion has recently taken place.

Observations on the parasite have been made with both hardened and fresh specimens; for the former method, osmic acid, chromic acid and Fleming's solutions being employed. Of the staining media used, most satisfaction was obtained

from the employment of hæmatoxylin with cochineal, and from Biondi's reagent. The parasite, however, may be examined in fresh specimens, when it is seen to possess a capsule and a translucent nucleus whose form varies from time to time. After the parasite has attained a certain size, it is observed to assume a radiate appearance, the striae starting from the parasite itself, and not from its capsule. As regards the capsule itself, observations point to its being secreted by the invaded cell, leading recent workers to consider it as a protective act on the part of the cell. However, the relation existing between the capsule and the cell still awaits a more lucid explanation, inasmuch as the cell is frequently observed leading an existence outside, and perfectly independent of, its capsule.

The protoplasm of the organism may be homogeneous or granular. The nature of the granules, though not fully understood, are believed to be possibly due to the process of hardening under which the specimens have been treated. That they bear no relation to the process of reproduction seems conclusive, for neither do the granules possess any regularity of growth or development, nor have they been seen to burst the capsule or otherwise set themselves free.

Interesting results have also been obtained by these writers concerning the method of reproduction of the organism, in which they are enabled to refute the theories of falciform bodies found by Wickham, Sjöbring, Sawtschenko and others. The parasite is reproduced by fission, thus resulting in the formation of two organisms or a multiple of two. The nucleus first elongates, becoming oval, then divides into two exactly equal parts, which gradually separate from one another, though connected together for a long time by fine, thread-like filaments. The capsule has now a variable experience, though it generally divides contemporaneously with the nucleus, throwing out from opposite folds processes which form a septum between the divided halves of the nucleus. In one and the same cell may be seen several nuclei undergoing this process, which while thus reproducing numerous parasites in the same cell, yet allows to each its own capsule and an independent existence.

The article closes with a lengthy criticism of the theories

of Arnold and Wickham concerning the endogenous cell formations, which the writers regard as merely invagination cells or leucocytes, and substantiate their views by reference to differential stains. In differentiating the parasite of the cancer cells from the other nuclei present, many staining fluids are employed. With hæmatoxylin and saffranin combined, the nucleus of the epithelial cell absorbs the saffranin, while that of the parasite takes on the hæmatoxylin stain; with hæmatoxylin and cochineal, the nucleolus of the epithelial cell stains blue, while that of the parasite becomes red. Such and many other differential points are mentioned in attempting to prove not only the presence of the parasite in the cell, but its distinguishing features and properties as opposed to the invagination forms of other authors. The subject of the etiological relation of the parasite to the disease is not dealt with, the writers awaiting the completion of their researches.

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### Obituary.

DEATH OF PROF. MARCUS BECK.—We regret to announce the decease of Professor Beck, Professor of Surgery at University College, London. The *Lancet* states that he had for years suffered from the affection (diabetes) which has carried him off in the height of his career, but he never allowed the consciousness of his grave condition to interfere with the discharge of his duty in the profession to which he was so keenly devoted. A fellow-student and former colleague writes:—“To those who knew him, Marcus Beck was a man of unique characteristics. Gifted with a ready facility of speech, at once apt, clear, incisive, attractive, and even fascinating by its vigorous originality, he was a clinical teacher of rare power, intelligible alike to the beginner and to the oldest student. No one could listen to him without gaining new knowledge, clearer views, and an impetus to think out the problems, practical and theoretical, which modern surgery presents.”



## Personal.

Jas. E. Trueman, M.D., (McGill, '81), has obtained the license of the California State Board of Examiners, and has settled in San Jose.

## Medical Items.

—On reading over some “practical hints to the nurse,” in a popular medical journal, we noticed the following: “Sore lips should be anointed with a little diluted water.” No information is given as to the method of diluting the water.

—We take the following from the report of a case of uterine hæmorrhage in which the patient had been so much reduced that “she was so weak she could scarcely speak above a whisper, was greatly emaciated, and nearly dead in every respect. For the hæmorrhage I gave fld. ext. of erigeron can. and lycopus virgin. aa., and directed it given teaspoonful dose every three or four hours. For constitutional treatment I gave :

R. Nux vomica fld. ext.....  
 Bryonia alba fld. ext .....  
 Oesculus hippo. ext.....aa.....dr. ss.  
 Chionanthus virgin. ext.....  
 Mandrake ext .....  
 Hydrastis (fluid).....aa.....dr. iv.  
 Cascara sag ext.....oz. j.  
 Xanthoxylum frsx. ext.....oz. iij.  
 Elix. zinziber.....q. s.....add.....oz. viij.

Sig. Teaspoonful in a little water before each meal.

“For her ‘nervous spells,’ I gave :

Gelsemium and hyosiamus .....aa.....dr. iv.  
 Elix. zinziber.....q. s.....oz. iv.

M. Sig. Teaspoonful in a little water every hour until relieved.”

The shot evidently scattered so that some of it struck the weak spot, for we are told that the patient recovered rapidly.