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CANADA MEDICAL RECORD

APRIL, 1899.

Original Communications.

VALEDICTORY ADDRESS TO THE GRADUATING CLASS, UNIVERSITY OF BISHOP'S COLLEGE, FACULTY OF MEDICINE

By ROBERT WILSON, M.D.

Professor of Materia, Medica and Therapeutics.

Mr. Chancellor, My Lord, Mr. Dean, Ladies and Gentlemen and my dear friends, erstwhile students, and now co-workers in the field of medicine and surgery:—Time in its relentless, never-ceasing, ever-recurring cycles, has again brought us to another halting place, given us a brief respite to regain a firmer foot-hold; an opportunity to make good the advance we have won. For the twenty-eighth time in the history of this Faculty, teacher and taught have met in the presence of the Corporation of the University and its many friends, to say the parting words, to give the encouraging hand-shake, and wish the God-speed that marks the confidence reposed in you by those who for four years have worked with you and for you; that marks the end of your struggles in the smaller school of Medicine, and the commencement of your fight in the larger school of Life. May your efforts in that larger University be as faithful and crowned with as much success as marks the end of our preparatory academic career. As I stand to-day to represent your various teachers, to bid you farewell at the portals of the University that has been your home for so long, I unconsciously cast my eyes backward, and see the long line of those who have preceded me in this task, and hear echo-

ing faintly down the corridors of considerably over a quarter of a century, the many words of advice and parting cheer given on just such occasions, and one's heart grows more faint, one's hand less steady, one's words come more falteringly, as one realises that one cannot hope to emulate the rhetoric and finished sentences of this one, the literary style and polish of that one, the kindly words of advice given by still another, whose 30 or 40 years practice give him the right to speak and advise. Let my sincerity then atone for my fewness of words.

I would ask you, gentlemen, graduates of 1899, to remember as you stand with your backs to your Alma Mater and your face to the whole world, that you re-enter that world through different portals to those that admitted you four years ago. Then you entered from the world—of the world, a member of the laity, educated, undoubtedly; refined, probably; a graduate of Arts, possibly. But to-day, you have completed the ordeal that admits you into one of the learned professions and you leave your Alma Mater to re-enter the world, with a distinguishing mark upon you. More educated in your understanding of your fellow-creatures, infinitely more refined by the world of suffering laid bare to you in your profession, a graduate, not only in art but science—in the foremost art and applied science, the science and art of medicine and surgery. I would ask you to remember the dignity of your profession, and to strive always and everywhere to maintain it against all odds. Remember, *you* are the University; remember it is as difficult for one to appear well-dressed if any portion of his wardrobe be torn or shabby; as difficult for a surgeon to do an aseptic operation if he forget one link in the chain of asepsis, as it is for a university to maintain its good name and fairer fame untarnished, if one of her sons, one of her integral units, forgets for one instant the duty he owes, not only to himself, his profession, but his Alma Mater as well. This, then is the key-note of my address this afternoon. **DO YOUR DUTY.**

FIRST, TO YOUR GOD.—Remember to whom many talents are lent, many will be required *and with interest*. See to it that amid the thousand and one distractions and wor-

ries of an arduous practice, you have still time to remember the Great Healer, whose apostles in bringing the greatest of his good gifts you have to-day promised to be. See to it that having invoked His presence as witness to your solemn oath of office, you so exercise your powers and gifts "*caute, caste et probe*," that at the final graduation day you may present a clean sheet of attendance, and at least a "pass" in the many trials, temptations and opportunities your profession will afford you at the hands of that excellent teacher, but hard task-master, experience.

SECOND, TO YOUR ALMA MATER.—Of part of your duty to your Alma Mater, I have already spoken. Let me remind you, however, that as she is feminine, so is she always grateful for being remembered. No mother so well off, but she feels the neglect of her son; no University so proud, that she can afford the neglect of her youngest graduate. Have you an interesting case? write some of your old teachers about it, they will be glad to know you have enough interest in your school to write them. Have you some wealthy young patient of 80 or 90 summers? remember to remind him that your Alma Mater's family is getting large and requires more room—that there is no more space at the table and certainly not enough cooks to prepare the mental pabulum her children require. That she has entered on a policy of expansion (like our good cousins to our south) and that there exists a fund for her new buildings which will gladly accept a few of his super-abundant thousands after he has no further use for them (and your bill has been paid). Be instant, in season and out of season, with a good word for her, and your grateful patients, seeing your enthusiastic love for her, will be imbued with some of your desire to help her. I have been in your midst now for 4 or 5 years, trying in my own humble way to fit you for your future walk in life as far as my department went, none the less do I regard with affectionate regard my old Alma Mater McGill, and the men whose counsel and help have been an ever present source of comfort and guidance.

3RD. TO YOUR PATIENTS.—At first sight any word here would seem superfluous, but you have other duties to your

patient besides giving him that attendance and care which is his due.

If you are wise you will aim to be, not the expert who is the intimate friend and bosom companion of every microbe and bacillus that exists; who knows their eccentricities of behaviour, their likes and dislikes, as well as you do those of your old college chum. Not the faddist, who sees in every ache and pain and ill that flesh is heir to, an insidious eye strain. Not the slight-of-hand operator who whips out an appendix "while you wait," after the style of "now you see it, now you don't." Aim first to become the family physician, the family friend; the one to whom the father, mother, daughter or son will first think of consulting in time of trouble and sickness. The one whom the children (your severest and most just critics) will point out as "my doctor," and when you have secured such a practice, and when you have been entrusted with such confidences, you will not need to be reminded that "*non sine gravi causi vulgaturum*," and when, in spite of all your skill, the tired and weary body refuses to be urged back to its pristine vigor, yours the inestimable privilege of guiding the thoughts of your patient from hopes of recovery, to the blessed boon of rest. Yours the duty to see that those in charge are aware of your opinions, and often, yours to soothe and make easy (by the thrice blessed power of your knowledge) the descent into the valley of the shadow of death. When you have been broadened by many years of such a practice, then, and then only, turn your thoughts to some specialty.

4TH. TO YOUR NEIGHBOUR.—"Do unto others as you would they should do unto you." How hard a saying this is, many of you will testify after a few years' practice. You will start out with the purest motives; happy he who will endure the treatment he will receive from some of his *confrères*—men who lack principle, who will steal his patients, who will slander him by the half-unconscious smile or ill-disguised sneer, who will so far forget, not his own dignity, for such men never had any, but the dignity of his profession, as to bargain for his services and degrade his profession below the cut-rate jobber who hopes to increase his trade by bid-

ding a fraction of a cent below his competitors. Apart from all consideration of principle, remember it pays in hard cash to treat your *confères* well. If you cannot speak well of him, hold your peace—silence is golden, even if speech be silver, and the man who has the reputation of never having spoken ill of his neighbour, has a reputation kings might envy.

5TH. TO YOURSELF.—And to the honour of the professor be it said, in no walk of life do men so often forget their duty to themselves as in the medical profession, as testify the high death rate and comparative youth of the mortality age—53 or 54 years. Year in and year out you will be tempted to forego a much needed rest for some good reason or another. In the first few years, because you are building up your practice and cannot afford to ; later, because you *have* built your practice and the difficulty of getting away from those who depend on you. The medical man who neglects to take at least 2, and, if possible, 6 weeks' rest out of the 52, is shortening his life by many times as much—take a holiday, if you have to do so by locking your door and spending most of it in bed—and if you take it at a stated time each year your patients will no more think of calling for you than they would outside your ordinary office hours. Should you advertise? Certainly—but—do not misunderstand me. If you wish to advertise yourself, do so in the loudest manner possible, and as “actions speak louder than words,” advertise yourself by your actions—gentlemanliness, courteousness, kindness of heart, attention to your patients, skill in your profession, promptness in your attendance, punctuality in your engagements. This is the advertising I would advise you, and leave to others less scrupulous the newspaper paragraph, which announce that “Mr. —— is at present in the —— Hospital, having undergone a serious operation which was successfully performed by Dr. ——, ably assisted by Drs. —— and ——,” or, that “Dr. —— has returned to the city, having been called to attend Mrs. ——, who had unexpectedly sneezed, and that her many friends would be glad to hear she had since quite recovered.” There are medical men who can afford to, and do have,

these things said of them. I pray you avoid the temptation—would there were more Kirkpatrick's in our profession!

See to your collections. No man living who earns his living so hardly and who is so careless of his receipts as the doctor; send your accounts out promptly. The labourer is worthy of his hire, and a service gladly paid for in a few months loses much of its apparent value in a few years. Never refuse attendance on a worthy poor person: Never attend twice a deliberate fraud who maligns you because you expect your due.

Once more, then, holding the hand and wishing you all the prosperity your work and indomitable pluck will win you, on behalf of the Faculty and myself, I would say to you,

“Thy sum of duty let two words contain,
(Oh, may they graven in thy heart remain),
Be humble, and be just.”

and now,

“Farewell—and stand fast.”

VALEDICTORY OF GRADUATING CLASS, 1899,
UNIVERSITY OF BISHOP'S COLLEGE,
FACULTY OF MEDICINE.

E. L. SUTHERLAND, M. D., C.M.

Mr. Chancellor, Mr. Dean, my Lord Bishop, members of the Convocation, Ladies and Gentlemen.

I have anticipated the share assigned to me upon this occasion with a great deal of trepidation, and for various reasons, the chief of which was the overwhelming conviction of my own unfitness to deliver an oration which would reflect credit upon my class.

However, my classmates have chosen me to deliver the traditional valedictory, and I trust you will bear with me, and overlook the shortcomings which I fear are only too numerous.

To-day we receive the insignia, which raises us from the level of students to that of Doctor, and at the same time we sever the cables and stays which for the past four years have moored us to the shore of our *Alma Mater*.

When we entered "Bishops" as freshmen and looked forward to this memorable occasion, the time seemed long indeed which separated us from our desired goal; but standing here to-day and glancing back over my college career, I cannot but admit, that the time has literally flown, and we are free to confess that a feeling of regret is mingled with our satisfaction, for during this time we have made friendships and formed ties and associations which will endure till death. The Freshmen's spread, Theatre night, annual dinner, the impromptu bouts in the basement, the chilly atmosphere of the dissecting room, and the vile smells of the chemical laboratory are now all things of the past, but their memory will remain with us always.

And not only have we formed ties as students, but the care and attention of you, our intellectual parents, during this time, has inspired us with a respect and admiration which it is hard to set forth in words.

Though there were times, most learned Sirs, when, as you well know, the feeling of strife was hot within us, and rebellion for the time reigned supreme, owing perhaps to an extra lecture or examination, which you in your wisdom had deemed necessary, and though we know that your patience was sorely tried on more than one occasion, yet you always disposed of these matters in a manner both diplomatic and satisfactory to us all.

All men's ways are not alike and all professors, ways are not alike, and this we have been brought to realize full well in the different methods used in imparting instruction to us.

But whether by the pleasing eloquence of our Professor of physiology or by the scathing criticism of our Professor of Obstetrics, the result has ever been the same, namely a thorough understanding on our part of the principles which you had labored so hard to inculcate.

We feel grateful, gentlemen, for the care and attention we have received at your hands, and the instances are numerous, when having a knotty problem clouding the cells of our cortex cerebri, some professor would linger with us, long after regular lecture hours, striving to elucidate the problem and dispel the mists by the sunshine of his eloquence and wisdom.

Here I must refer to the practical training we have received in the department of midwifery, thus enabling many of us to enter upon the practice of your profession with an experience in this important branch which would otherwise be acquired only after years of practice.

Gentlemen, by your untiring energy you have inspired us with a wholesome respect for our faculty, and with a love for our chosen profession, a profession of which we can well feel proud, a profession in which just as noble and heroic martyrs as ever suffered, have laid down their lives with no thought save that of duty and humanity, a profession in which the wise and good of every age have spent their daily toil. A profession with which the name of king, priest and soldier is indelibly linked.

The annals of history teem with deeds of self-sacrifice and heroism by members of our noble profession, and what loftier aim could we young men have upon the threshold of our career, than to strive to emulate the examples which have been set for us.

I might enumerate indefinitely these deeds of martyrdom and heroism ; but will mention only one, which can serve as a type of the ideals to which we look for inspiration and for guidance.

During "Napoleon's Egyptian campaign," in the retreat from St. Jean d'Arc through Jaffa, there is but little doubt that a number of his sick soldiers, suffering from the plague, were put out of their misery by opium. The retreat had to go on, the Turks were close behind, and a cruel torture awaited these unfortunates if they should fall into the hands of the enemy ; so as to whether the deed was justifiable or not may be considered an open question.

But, as "Alison" says, "History must record with admiration the answer of "Larrey," chief of the French Medical staff, when the proposal was made to him by Napoleon, "Sir, my vocation is to prolong life, not to extinguish it."

Now, the question has often been asked, is medicine a science? Can it show the advance and improvement during the century comparable with the great strides of the other arts and sciences, steam power, electricity and mechanical

invention? And now, on the verge of the 20th century, can medicine show the promise of development as in the other branches, many of which stagger the imagination.

Let us glance back for one hundred years. At the end of the last century, there was an overturning of the general order of things. The spirit of unrest and rebellion was in the air, and revolution was the order of the day. The revolt of the American colonies, the French revolution, the advocacy of new creeds and doctrines, showed that the old awe of tradition, and respect for the established order of things had gone forever.

Thus the time was ripe for advancement along all lines of research and learning.

And still who could have foretold the immense progress which was to mark the century? Who could have imagined the advent of the steam engine, railroad, steamboat, electric telegraph? And as for the possibilities of submarine telegraphy, electricity, photography, the telephone, who could have dreamed of it one hundred years ago? All these, along with others, too numerous to mention, have been the product of the present century. And now the question arises has medicine kept pace with these inventions? Or has it been outstripped in the onward march of progress and advancement?

Even one hundred years ago, the position which medicine held could be compared to any of the other sciences.

Anatomy was comparatively complete, while Hunter and others had made a beginning in the study of Pathology. Diseases had been accurately classified and described.

And later on Physiology had made a good start under Haller. Operative Surgery was well developed, amputations, ligations, the treatment of fractures, were carried out with intelligence and skill, though heavily handicapped, owing to the pain of operations, and to septic infection.

But there was no correct conception of the functions of the various organs of the body, no knowledge of pathologic processes, and ignorance as to the functions of the spinal cord, nerves, nutrition, etc., and with no instruments or methods for diagnosis.

Obstetrics was in the hands of midwives, and child-bed fever was prevalent.

Therapeutic measures were practically limited to lancing, purging and blistering.

With the exception of opium, remedies for the relief of pain were unknown.

Now, what is the position of medicine to day? In a few words I think I can demonstrate to you, that the progress made has been in no way less marvellous than in the other sciences.

Medicine can now attack any disease with an intelligence and a knowledge of the underlying morbid processes.

Physiology has set up with certainty the functions of the body. We have almost complete knowledge of the tissues in health and in disease.

Immense advances has been made in the methods of clinical diagnosis, prominent among which is the use of the X rays. Diseases have been differentiated and classified singly or in groups. And best of all, medicine has obtained an intelligent insight into the causation of disease. For a long time the causes of disease were enveloped in a mantle of theory and speculation. But now the discovery of micro-organisms, their culture, study of their forms, antagonisms, etc., has shown the way in which many of our diseases originate. The immense improvement in laboratory methods has enabled experts to study these organisms, their growth and products, and by the recognition of these products or ptomaines which act as a toxic poison on the system, there has followed, as a natural sequence, the discovery of an agent to counteract their noxious influence.

Thanks to the genius of Jenner, small-pox is no longer the dreaded scourge of former days, owing to preventive vaccination.

The anti-diphtheritic serum of Behring has proved itself of immense benefit in lowering the mortality in diphtheria.

The antistreptococcic serum of Marmoreck, while still in the experimental stage, has proved of benefit in many cases, and the ravages of hydrophobia have been lessened owing to the genius of Pasteur.

Active investigation is at present being carried on along these lines upon cultures of the germs of Cholera, Yellow Fever, Bubonic Plague and Tuberculosis, and we may receive the intelligence at any moment that a specific has been discovered for these dread diseases.

Much work has been done, but much remains to be thought out and demonstrated ; but to quote from " Eliot," " Growing thought makes growing revelation."

But we must always bear in mind the immense power invested in the minute invisible world which exists by billions in the air, soil and body tissue, also remembering that their function is mainly beneficial, and only under certain conditions do they assume a virulent character. There was recently raised a great outcry against the good old-fashioned habit of kissing, it being claimed that microbes were thus transmitted. But a French journal, in discussing the question, takes the ground that only beneficial microbes are encountered during the act, furnishing microbes useful in digestion, and the article concludes with the hint to dyspeptics, that kissing is both stomachic and digestive.

But to return to my theme, I would point to the glorious achievements of Lister, who has made curative surgery possible, shorn childbed of its dangers, and practically banished erysipelas and hospital gangrene from our hospitals and battlefields.

The discovery of anæsthesia has done away with the rack and torture of the operating table.

The great improvement in hygienic measures has done much to limit disease.

The substitution of extracts and alkaloids for the nauseous, bulky preparations of our forefathers is among the many advances made along this line.

I might extend the list indefinitely, but feel that I have said enough to prove that as a science, medicine need take no back rank.

It would seem indeed superfluous, that the branch of knowledge that has produced modern physiology, biology, and pathology, and discovered the essential causes of tuberculosis, leprosy and cholera, that has produced men like

Helmholtz, Virchow, Koch, Lister, Jos. Leidy, would need defence against the charge of being unscientific. But one more thought and I have done.

The medical profession has demonstrated the peril to health of unwholesome water and noxious surroundings, and yet much remains to be done to protect our people against these dangers.

The profession has established a code of ethics condemning quackery and charlatanism in every form, still many of these people pursue their practices unmolested.

I need hardly say that such evils are allowed to exist by reason of an insufficiency of our civic laws or to a laxity in enforcing them.

And now, dear professors, the hour is at hand when we must say farewell.

But whatever be our walks in life we shall always try to remember and to profit by the lessons you have taught us, and shall always endeavor to maintain the high standing of our faculty and the honor of our *Alma Mater*. And when the day of final reckoning has arrived and we stand before that great tribunal before which all men's actions are judged, we feel sure that the life work of class 99 will redound to the credit of you, our preceptors, and to the glorification of our Creator.

Selected Article.

THE CONDUCT OF THE HEART IN THE FACE OF DIFFICULTIES.*

By Sir WM. BROADBENT, M.D., F.R.C.P., London.

Consulting Physician to St. Mary's Hospital; Physician in Ordinary to H.R.H. the Prince of Wales.

I should like the Society to understand that I am in no way responsible for the title of this communication, but that I accepted it at your dictation. There are appeals more imperative than commands. Such was yours when, as an old pupil become president of this Society, you requested me to read a paper on the conduct of the heart in the face of difficulties. I was bound to obey, but I ventured to point out

* Paper read before the Medical Society of London, January 9th, 1899.

that the word "conduct" in this phrase might have two distinct meanings—the behaviour of the heart itself under difficulties, or the way in which it might be helped and guided through them by the physician, and to ask which of the two questions was to be discussed. You promptly answered "both." It is by your command, therefore, that a *double entendre* is inflicted upon the Society. In dictating the title, you practically also decided the way in which the question was to be treated.

The difficulties which the heart has to face are sometimes of its own making, sometimes imposed upon it from outside. An over-distended stomach, for example, pushes up the diaphragm and presses upon the right ventricle ; the heart is carried to one side or other of the chest by effusion into the pleural cavity, or more rarely is displaced by a mediastinal tumour or aneurism ; or the flow of blood towards the right auricle may be impeded by pressure on the superior vena cava. Difficulties of another kind may arise from obstruction in the arterioles and capillaries—in the pulmonic circulation by emphysema or by acute affections of the lungs ; in the systemic circulation by the numerous conditions which give rise to high arterial tension.

The heart adjusts itself to altered conditions in a wonderful fashion. It may be so much displaced by effusion into the left pleural cavity or by traction from a shrunken right lung that its beat is felt as far out as the right nipple, and yet we can trace very little inefficiency in the functional action. Time, however, is an element in this accommodation. The same degree of displacement occurring suddenly as in pneumothorax will be attended with severe dyspnoea, and great disturbance of the action of the heart will be occasioned by sudden and capricious distension of the stomach.

The difficulties arising out of flatulent distension of the stomach or colon or intestinal canal generally will require some attention, since they are the cause of most of the functional derangements to which the heart is subject, and give rise to the heart complaints which occasion in the aggregate perhaps more suffering than does actual heart disease. The heart often tolerates a considerable degree of upward pressure of the diaphragm, and it is not uncommon to meet with stomach resonance as high as the 5th space, and to find the apex beat displaced upwards and outwards to the 4th space and outside the nipple line without conspicuous symptoms. But the heart behaves very differently in different subjects in the presence of flatulent distension of the stomach. It partakes of the general constitutional condition of the individual ;

in the strong, therefore, it is vigorous, in the weak it cannot be anything but weak. Then the heart has very special relations with the nervous system ; it reflects every emotion, beats high with courage, is palsied by fear, throbs rapidly and violently with excitement, acts feebly under nervous depression, but it is not only through the cerebro-spinal system that the heart is influenced, it is in immediate relation with the vaso-motor nervous apparatus, and in a scarcely less degree with the sympathetic system generally. Normally afferent impulses are brought from the viscera to the central nervous system by means of which their blood supply is regulated, and their functional activity governed. These afferent impulses when perverted by functional derangement or disease may become serious disturbing influences. But the nervous system in a large and increasing proportion of people is unduly sensitive and excessively mobile, and the reactions to influences of every kind are exaggerated. A little emotional excitement gives rise to palpitation ; a piece of bad news or the bang of a door seems to stop the heart altogether. There is in such subjects no form or degree of cardiac disturbance which may not be caused by indigestion, scarcely any symptom of cardiac disease which may not be simulated. Add a touch of hysteria on the look-out for symptoms and for someone to give ear to the relation of the unparalleled agonies of the sufferer, and the difficulties of the heart, and it may be added of dealing with them, are complete.

It is of course of the greatest importance that we should be able to distinguish these functional affections of the heart from troubles due to organic disease, and this is especially the case where there is severe pain in the cardiac region. The absence of physical signs of valvular or structural change will be a help, but murmurs may be present at one or more of the orifices during palpitation when there is no valvular affection, and there may be actual mitral or tricuspid incompetence when all the symptoms are really of neurotic or dyspeptic origin.

Angina pectoris is one of the cardiac affections which may be closely simulated by the effects of dilatation or functional derangement of the stomach. The first question to be put in a case of cardiac pain of anginoid character is "As to the circumstances under which it comes on?" Whether as an effect of exertion or during repose? The earlier attacks of true angina are practically always provoked by exertion, while spurious angina is specially liable to come on during repose. It is true that angina when established may come on in the night, or may be induced by the act of undressing and

the contact of cold sheets, but there will be a history of attacks during exertion. Pain and a sense of suffocation may also be brought on by the pressure of the abdominal viscera reinforcing that of a distended stomach on lying down whether the heart is diseased or sound, and a weak heart may actually be brought to a standstill in this way. Speaking generally, angina pectoris in a woman is always spurious, and the more minute and protracted and eloquent the description of the pain the more certain may one be of the conclusion. Again, when palpitation or irregular action of the heart, or intermission of the pulse, or pain in the cardiac region, or a sense of oppression follows certain meals at a given interval, or comes on at a certain hour during the night, there need be little hesitation in attributing the disturbance, whatever it may be, to indigestion in one or other of its forms. Nightmare from indigestion is not a bad imitation of true angina. So also if any cardiac symptom or pain can be walked off, it may usually be set down as functional, and due to some outside disturbing influence or to nervous irritability. The same may generally be said of intermission of the pulse, of which the patient is conscious, and, though with less confidence, of irregularity of the heart's action—if the patient feels it the irregularity is usually temporary, and not the effect of organic disease.

In these functional affections, it is not the heart which is to blame; it is more sinned against than sinning, and if its difficulties are removed there will be nothing to find fault with in its conduct. The difficulties are, as has been said, the state of the nervous system, on the one hand, and of the digestion on the other, and according as the neurotic or the dyspeptic element predominates will be the treatment required. No details need be entered into, but one observation may be made. Patients suffering from these functional derangements of the heart usually make them a pretext for avoiding exercise and fresh air and often for taking stimulants or drugs, whereas exercise and fresh air are what he or she most needs. The best way to prevent the expenditure of superfluous energy on the part of the heart in the form of palpitation is to give it a fair amount of legitimate physiological work to do, and to relieve one attack of palpitation or faintness by alcohol is to invite another, while the terrible danger of drifting into alcoholism is incurred.

One of the most common difficulties with which the heart has to contend is high arterial tension, or rather the obstruction to the onward movement of the blood in the capillaries and arterioles, which is the cause of the high pressure in

the arteries. While dyspeptic troubles and other reflex sources of irritation give rise merely to functional affections of the heart, high arterial tension when persistent is a frequent cause of actual disease. The resistance in the peripheral circulation has to be overcome and the heart rises to the occasion. It puts forth the increased energy required, and in doing so becomes hypertrophied. Hypertrophy is not disease, though sometimes the heaving impulse and powerful throb of the apex are complained of by the patient and looked upon with suspicion by the medical man, but the development of additional muscular fibre is accompanied by the development of increased connective tissue, and when in the decline of life the nutrition of the more highly organized structures is no longer vigorous, the fibroid element may gradually predominate over the muscular, or fatty degeneration may take place.

But the valves may suffer before the muscular walls. Where greater force is required to propel the blood into the aorta there is greater strain upon the mitral valves during systole, and a more violent recoil upon the semilunar aortic valves during diastole. This gives rise to chronic inflammation of the valves, with thickening and contraction, and, in the long run, insufficiency.

It was necessary to mention high arterial tension on account of its frequency and importance as a source of cardiac difficulty, but I have dealt with it so often and so recently that I will forbear from further dwelling upon it on the present occasion, only remarking that the recognition of unduly high pressure in the arteries affords one of the most valuable indications for treatment in a great variety of conditions.

I am afraid it often escapes recognition, and sometimes digitalis is given for the relief of the cardiac discomfort which may attend it. This is like knocking the head against a stone wall, for digitalis not only acts on the heart, but tightens up the vessels, and so increases the obstruction already too great.

Coming now to the serious difficulties to which the heart is exposed by reason of damage to one or other of its valves, we discover, say, a systolic murmur at the apex or at the right second intercostal space, indicative of leakage of the mitral valve or of interference with the blood current at the aortic orifice. What are we to do? Frighten the patient out of his life or out of his peace of mind? Condemn him at once to live on one floor, and forbid him exercise and excitement and all that makes life tolerable, and give digitalis? Certainly not. Or shall we ignore the murmur on the chance

that it may not be serious, which is a not uncommon proceeding when a medical man has predicted sudden death once or twice, and found the patient to go on living for ten or twenty years? This would be equally unreasonable.

The first thing to be done is to ascertain what the murmur really means ; whether, when it is mitral, there is much or little regurgitation, or, if aortic, whether it signifies mere roughness or actual constriction. Numerous considerations enter into the determination of these questions, of which we need specify only those arising out of the conduct of the heart. If, in the case of mitral incompetence, there is any considerable reflux into the left auricle, the first effect will be damming back of the blood entering it by the pulmonary veins, and the obstruction thus created will make itself felt in the pulmonary artery, raising the blood pressure within it. There is no branch of the pulmonary artery on which we can place our finger or a sphygmograph, but the high pressure is at once accused by accentuation of the pulmonic second sound. If the circulation is to be maintained under these circumstances, something must be done to overcome the obstruction in the pulmonary circulation and neutralize the mitral reflux. This can only be by increase in the capacity and strength of the right ventricle. The right ventricle accordingly becomes dilated and hypertrophied, and the dilatation and hypertrophy which we call compensatory become for us the measure of the regurgitation. This is the conduct of the heart in the face of this particular difficulty, and we learn from the amount of compensatory change required to neutralise the effects of the valvular lesion whether the lesion is severe or slight ; our conduct then will be guided by the degree of efficiency of the compensation. When there is no appreciable hypertrophy of the right ventricle or marked accentuation of the pulmonic second sound, and the patient has no heart-symptoms, the murmur means nothing, and there is no need to interfere in any way with the patient's mode of life even if this includes hunting or climbing, or swimming, or cricket. I should draw the line of football or training for races of any kind.

If with marked hypertrophy and dilatation there is still no breathlessness on ordinary exertion or other circulatory symptoms, the regurgitation is considerable, but it is neutralised by the compensatory changes. We are not called upon to do anything, but the patient must be warned that the compensation may easily be broken down, and that a single imprudent act of violent or sustained exertion may do irreparable injury.

Cardiac symptoms, such as breathlessness on slight provocation, show that the compensation is inadequate, and it is only by great carefulness that the serious effects of the valvular lesion can be put off. Let us suppose that we have the heart landed in extreme difficulties from incompetence of the mitral valves, the liver enlarged till its lower border crosses the abdomen at the level of the umbilicus, the veins of the neck distended and pulsating, the face and lips livid, the lungs congested, the legs dropsical, the urine scanty, turbid and albuminous, the patient gasping for breath and unable to lie down. It is in mitral incompetence that digitalis and such like remedies find their opportunity. But first the right side of the heart must be relieved from the over distension which is paralyzing its efforts. Unless this is done the digitalis may simply help the straining ventricle in the work of self-destruction. The nearest approach to a modern therapeutic miracle is seen on bleeding in a good case of this kind. When I say a good case I mean one in which the onset of the severe symptoms has been sudden under the influence of some adequate exciting cause such as over-exertion or chill in a fairly robust subject with a powerful right ventricle. The venesection must be followed up by a good calomel purge, two or three grains of calomel with, say, five of colocynth and hyoscyamus, and perhaps a dose of white mixture. Bleeding, however, is too heroic a method for these degenerate days, and it is not always easy to say whether it is really demanded. A good alternative is 6, 8, or a dozen leeches over the enlarged liver followed up of course by the calomel purge. In less severe cases we may content ourselves with the mercurial aperient.

The right heart having been relieved, digitalis may be given with excellent effect in different combinations, according to the condition, with nux vomica and ammonia and perhaps ether, or with acetate of iron and potash. If the œdema is considerable, it should be drained off by Southey's tubes, and any pleural effusion should be withdrawn by aspiration at an early stage.

Mitral incompetence will serve as an illustration of the difficulties imposed upon the heart by disease of the valves. They differ in the different valvular affections, and the heart responds in a special way for each one. It is unnecessary to go into details with regard to all of them, and the time at my disposal would be quite insufficient. The principle which I wish to emphasize is that when the heart is in difficulties, we can generally do more for the relief of the patient indirectly by removing the difficulties than directly by aiding it

to overcome them. This is the case whether the disturbing influence is external to the heart, as, for example, a dilated stomach, or distended colon, or resistance in the peripheral circulation, or is a secondary effect of disease of the heart itself, as illustrated by over-distension of the right ventricle; or, to take another instance, if the heart is in a state of fatty degeneration, it is useless to give cardiac tonics; but its work can be diminished by keeping down the arterial tension, and a fatal issue may be for a time averted by preventing distension or dilatation of the stomach. Such illustrations might be multiplied indefinitely.

When, therefore, we are considering the treatment of cardiac disease or disturbance, the first question to engage the attention is how we can relieve the labouring or harassed heart by the removal of some condition which is causing or aggravating the difficulties with which it is contending. In doing this we often put an end to the symptoms which have given rise to suffering and anxiety, and in all cases we make the action of digitalis or other cardiac tonics more efficacious.—*The Medical Press*, Jany. 18, 1899.

Progress of Medical Science.

MEDICINE AND NEUROLOGY.

IN CHARGE OF

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THE INFLUENCE OF X-RAYS ON BACTERIA.

Some-interesting experiments on the influence of X-rays on bacteria have been made by Dr. Rieder, *privat docent* at Munich University, and have been published by him in the *Munchener Medicinische Wochenschrift*; *Treatment*. He used for this purpose different media, such as agar, serum and gelatin, spread on glass plates placed under a piece of lead with a circular aperture in it, the whole being so arranged that a portion of the culture plates was freely exposed to the X-rays which passed through the aperture, while the remaining part of the plates was protected by lead, which is quite impervious to the rays. Ordinary light was excluded by covering the aperture in the lead with black paper. The culture media on the glass plates were inoculated with cholera bacilli, anthrax bacilli, diphtheria bacilli, *Bacterium coli*,

staphylococci, streptococci and tubercle bacilli, and the whole was exposed for a period of from one to three hours to a very powerful Roentgen apparatus furnished by the Voltohm Company of Munich, the vacuum tube being placed at a distance of 30 cm. (12 inches) from the glass plate. In this way Dr. Rieder succeeded in ascertaining that the bacteria under the opaque leaden screen developed freely, while under the circular hole, where the X-rays had free passage, no colonies or only a few small ones, appeared. The X-rays also had the effect of stopping the development of cultures in process of growth. Unfortunately, the experiments made with tubercle bacilli were inconclusive, as Dr. Rieder had accidentally omitted to fix the black paper over the hole in the lead, so that the influence of ordinary light was not totally excluded. The X-rays proved to be much more powerful than sunbeams in stopping the development of bacteria cultures. Dr. Rieder is opposed to the opinion that the influence exerted by the X rays may be in reality an effect of heat, for the gelatin was not liquefied by the rays, and the fact that germs derived from the air subsequently developed on the gelatin plates in the ordinary way seemed to show that there was no chemical alteration of the media. He concludes from these preliminary experiments that the results obtained by him must be completed by observations on animals, and eventually on the human subject. He says that it would not be necessary to destroy all the bacteria which occur in the body, but that it would be a great advance if we could stop the further development of pathogenic germs; the powerful bactericide action of the blood would then easily succeed in destroying the rest. The X-rays must only aid the organism in its struggle against its enemies. The facts now published are obviously of great theoretical interest, but further observations are necessary to ascertain whether they are capable of practical application, as the conclusions arrived at by other observers do not altogether coincide with these preliminary experiments.

LIFE-EXPECTANCY IN SYPHILIS.

Dr. J. N. Hyde (*Medical Examiner*, April, 1898) contributes an interesting paper on this subject, and comes to the following conclusions:

1. *Inherited Syphilis* is one of the most fatal of all disorders affecting mankind, and under the most favourable circumstances, apart from abortion and miscarriage, nearly 90 per cent. of children born living subsequently die.

2. *Acquired Infantile Syphilis* is very rare and is very

easily treated, and probably a large proportion of all infants so affected survive.

3. *Acquired Syphilis in Adults.*—Between 80 and 90 per cent. of all adults affected with acquired syphilis escape gummata. The percentage of patients affected with gummata who die is not known, but probably does not exceed 2 per cent.

4. The expectancy of life is probably not affected by the coincidence of syphilis with other diseases, and the prospect that the patient with acquired syphilis will ever suffer from "struma," cancer or tuberculosis is exceedingly small.

5. The natural evolution of acquired syphilis in untreated cases in the adult is not in the direction of a fatal issue, but rather in the line of physical degeneration and grave complications due to involvement of the nervous system and the bones without affecting the organs essential to life.

6. It is unfair to charge an extra risk for the insurance of syphilitic applicants otherwise in sound health and insurable. The syphilitic applicant for life insurance should be examined with a view, not so much as to his syphilitic history as to his condition with relation to all the other items making up a satisfactory risk. In other words, if he has a good family history, a sound constitution, excellent habits, and has reached, but not passed, a satisfactory age, his expectancy of life is probably that of other individuals in similar conditions, without added risk on account of his syphilis.

PROTARGOL.

Bossalino (*Gazzeta degli Ospitali*, November 27 1898) recommends protargol, or albuminate of silver, in inflammatory conjunctiva and lachrymal duct. It appears as a yellowish powder, soluble in water, but not precipitated by acids or alkalies, nor reduced by light. He has found it beneficial in catarrhal conjunctivitis and in dacryocystitis. It was not particularly satisfactory in blepharitis or phlyctenular conjunctivitis. Bossalino has used it in $\frac{1}{2}$ -per-cent. solution as a lotion, and in 5- to 10-per-cent. solution as an application. It does cause smarting or irritation, and it is not precipitated by the tears.

Guillou (*Revue de Thérapeutique Médico-Chirurgicale*, No. 14, 1898) claims that protargol is a useful disinfectant in diseases of the genito-urinary tract. In gonorrhœa he has obtained the same results with protargol as with potassium permanganate and silver nitrate, perhaps somewhat less rapidly, but with less local irritation, less recrudescence of discharge,

and less pain. The drug does not stain the fingers of the surgeon or the linen of the patient.

ON GONOCOCCI FOUND IN THE GENITAL SECRETIONS OF PROSTITUTES.

Kopytowski (*Archiv. f. Dermat. und Syph.*, July, 1898, *Treatment*) has made experiments on the purulent secretion from the genitals of prostitutes whom he had under his care in Warschau. Directly after their admission into the hospital he examined separately the secretion taken from the cervix uteri, urethral canal and Bartholini's glands, both before and after menstruation. The preparations were stained with a saturated solution of methyl blue, to which was added 5 per cent. carbolic acid, and only those micro-organisms were called gonococci which were found within the pus corpuscles. In all he carried out about 300 experiments. In 100 patients he examined the cervical secretion, which was more or less purulent, and found gonococci in 9 per cent; in 100 patients who were examined the day after menstruation, when the secretion was more or less purulent and sometimes mixed with blood, gonococci were found in 10 per cent. In the urethral secretion, gonococci were found in more than half the cases examined—that is to say, in about 60 per cent. In the secretion from Bartholini's glands and in pus obtained from abscesses he found gonococci in 4 cases—that is, about 25 per cent. Kopytowski allows the possibility that gonorrhœal infection may be more easily acquired during or directly after the menstrual period, because at that time the number of micro-organisms is exceedingly increased. Some authors assert that gonococci are localized in deep rows in the uterine mucous membrane, and even in the uterine muscle; Kopytowski asserts that either they penetrate only in a few cases into the deeper parts of the mucous membrane, and rarely increase after menstruation, or that the blood exercises a certain hemming-in influence on them, and so arrests their development. In Warschau the prostitutes were discharged from hospital after the complete disappearance of the secretion from the urethra and Bartholini's glands. The patients, who remained from three weeks to two months in hospital, were treated with 5 to 10 per cent. solutions of silver nitrate or tincture of iodine, or strong solutions of cupric sulphate with which the cervix and entire body of the uterus were periodically touched. Kopytowski ends by saying that the urethral and Bartholini's glands are the chief seat of gonorrhœal infection in women, and the secretion from them should always be carefully examined.

FORMALIN FOR SWEATING FEET.

Gerdeck (*Riformo Medico*, November 15, 1898) recommends formalin in sweating feet. The sole but not the dorsum should be painted with pure formalin three times a day, and the region between the toes once a day. Four or five drops of the drug may also be applied to the shoe, as it serves to disguise the fetid odor, as well as to preserve the leather. When the pure formalin cannot be tolerated, a 30-per-cent. solution may be employed. The good effects last three or four weeks, when the treatment may be repeated. Under the applications the skin become dry and leathery.—*University Medical Magazine*.

SCURVY IN INFANTS.

Bovaird, David. (*Philadelphia Medical Journal*, 1898, Vol. ii. No. 8; *Pediatrics*.)

This paper is an analytical review of cases of scurvy reported since the publication in 1894, by Northrup and Crandall, of their paper on scurvy. That paper was the only one containing a detailed account of a considerable number of cases published before the report last spring by the American Pediatric Society. The author attempts to supplement that paper by a review of the cases found in literature since 1894. He evidently wrote before the publication of the report of the American Pediatric Society.

He reports 64 cases. Of these 64 children the youngest was six months old, the oldest two and one-half years; the average age was twelve months. Only 4 were more than eighteen months of age, and 35 or 54 per cent. were from nine to thirteen months old. Of 50 cases in which the sex was noted, 24 were in girls, 26 in boys.

Forty-five of the cases were seen in private practice; 12 only at hospitals or dispensaries; in 7 there is no reference to this point.

In only one case were the surroundings so bad as to call for special remark. In many the hygienic conditions were of the best. The reports come from all parts of the country. It seems evident that even the most healthful surroundings cannot in themselves prevent the development of scurvy.

Pain is noted in practically all of the cases. In nearly all there is a definite statement of pain elicited by motion or touch of the affected limbs. In most cases the pain is so severe that the patients watch with anxious eyes every motion of the observer and scream loudly on the first attempt at examination. Unwillingness to move the limbs,

sometimes termed pseudo-paralysis, sometimes disability, was noted in 28 of the 64 cases. In 49 cases the affection was bilateral; in 9 unilateral; in 1 case there was no lesion of the extremities; in the remainder the location of the lesion was not specified. Although both sides of the body are usually involved, one is affected earlier and more severely than the other. The legs were affected in 56 cases; the arms in 8 cases, but never without an accompanying affection of the legs. In 8 cases there was either no affection of the extremities or no definite statement on this point. In most cases the affected part is reported to have been swollen, and in many deep thickening of the limb was noted.

The mouth-symptoms are hardly less characteristic of scurvy in infants than the pains in the extremities. Of the 64 cases, 52 presented a definite affection of the gums; in 2 cases the record is incomplete in this respect; in 10 the gums were normal. Of the latter group two cases have a definite record of absence of teeth; in a third, the child being but six months' old, the same may be inferred. One case is of peculiar interest, for, although two teeth were present, and the child was suffering from pains in the extremities and ecchymosis (all of which yielded promptly to anti-scorbutic treatment), the gums were normal. In the remaining 6 cases of this group there is no statement regarding the teeth, although the ages range from nine to ten months. The condition of the gums is variously described as spongy, or swollen and purple, congested and bleeding, ecchymotic, or ulcerated. In these terms various degrees of the same process are evidently described. The process begins as a simple congestion about the roots of the teeth present. As the congestion deepens, diapedesis occurs and the gums become swollen, softened, purple, and bleed easily, the condition usually described as spongy. If the affection persists, slight injury may cause ulceration and a condition of ulcerative stomatitis is seen. In the worst cases the swelling of the gums has been sufficient to prevent closure of the mouth. In some cases the mouth symptoms have been the most prominent feature; usually they are noted only after examination.

It is interesting to note that the pathological basis of these apparently different symptoms is the same. The pains in the extremities, as the autopsy-reports of Barlow, Northrup and others show, are due to hemorrhages beneath the periosteum. The mouth-symptoms are due to a similar hemorrhagic process in the gums.

There may be hemorrhages in other parts to fortify the

diagnosis. Twenty-one cases present a hemorrhagic affection of the skin, designated variously as hemorrhage, petechiæ or purpura; in 3 cases hemorrhage into the orbit produced the familiar "black eye", while bleeding from the nose, stomach, bladder, intestines is recorded, and one case is said to have shown hemoglobinuria.

Anemia is recorded 14 times, marasmus 7. The more recent do not give such prominence to anemia and emaciation as the earlier reports. In a number of cases the records declare that, apart from the leg-pains and spongy gums, the infants appeared quite well, were even plump and rosy.

Fever was noted as present in 8 instances. In 2 of these the record is remarkable, in 1 the temperature reached 105° F., and in the other 106° F. In both the elevation of temperature was ascribed to the scorbutic affection, and no other explanation was afforded. In the other case, the fever recorded was slight, in correspondence with previous reports.

The condition of the alimentary tract is referred to in only a few cases—vomiting, constipation and diarrhœa being each reported in several instances.

The relation of scurvy to rickets has from the first been of interest. In 38 of the records there is no report on this point; in 16 cases rickets was present, in 10 definitely absent. In 5 of the 16 cases in which it was observed the rachitic affection was severe, in 11 slight. No argument, the author acknowledges, can be founded upon these figures, but the fact that in 60 per cent. of the reports there is no mention of this point shows clearly that the doctrine of a close relationship between rickets and scurvy has made but a slight impression.

The most interesting feature of these reports lies in the feeding of the scorbutic children. The substance of the reports can best be presented in tabular form, as follows:

Proprietary foods (including condensed milk).....	32
" " and sterilized cow's milk.....	4
" " and fresh milk.....	1
" " animal broths and milk.....	1
Cow's milk (very dilute mixture)	1
" " (milk and cream mixture).....	1
" " sterilized.....	15
" " " and flour	1
" " and porridge (very dilute).....	1
Oatmeal gruel.....	1
Graham gruel and milk	1
Bread and butter, sweet potatoes and bananas.....	1
Breast-milk.....	3
Not stated.....	1

In all but 2 of the cases the sterilization was accomplished by boiling the milk ; in 1 of these cases 180° was the limit set in heating ; in the other the milk was regularly pasteurized at 167° . In the latter case the reporter states that he considered the proportions of the milk, which were 3.50, 6.50, 1.00, to be the cause of the trouble, and that the child promptly recovered when the formula was changed to 4, 7.10, 2, the milk still being pasteurized ! In 1 case it is said that the child, having developed scurvy on a diet of sterilized milk, treatment was begun by simply giving it orange-juice ; but little progress was made, until pasteurization was adopted instead of sterilization, when rapid gain ensued. On the other hand, 2 cases are reported to have recovered when sterilized milk was substituted for a proprietary food. In 2 cases recovery followed a change from sterilization to pasteurization.

Sterilized milk would seem by the report to have caused and to have cured scurvy. The author believes that further evidence must be obtained before sound conclusion can be reached with reference to its influence.

Three interesting cases are those of children who were said to have been nursed. In one the reporter states that under supposition that the child was suffering from specific taint, both mother and child had been kept for several months strongly under the influence of mercurials. Analysis showed the mother's milk to be deficient in every respect. In the second case details are not given. In the third case, which was reported in detail, the reason for the occurrence of scurvy is very obscure.

From the cases here tabulated two inferences seem to the author to be justified :

1. The contention that there is no evidence that scurvy has been caused by sterilized milk must be given up. The evidence presented is not considered conclusive, but it renders it highly probable that persistent sterilization of the food by boiling may produce scurvy.

2. It must even be admitted that scurvy may develop in nurslings.

The admission of this proposition carries with it a frank confession of inability to accept as wholly adequate any theory of the causation of scurvy thus far advanced.

THE TREATMENT OF EPILEPSY WITHOUT DRUGS.

The conviction that the bromides have a very limited range of usefulness in the treatment of epilepsy is a growing

one. The mere suppression of the convulsion is not a cure of the disorder. The disturbance of nutrition and lessened stability of the nervous system, as a result of the bromide treatment, is often a more serious matter than the epilepsy itself.

Henry B. Hurd read an excellent paper before the Johns Hopkins Hospital Medical Society (*Johns Hopkins Hospital Bulletin*, December, 1898; *Medicine*). He says that within a few years past a new departure has been made in the treatment of epilepsy. The former treatment by medicine alone has been unsatisfactory, and remedy after remedy has been used and discarded. Surgical operations also have been performed, in some cases with good results, but in a great majority of instances with little benefit.

In epilepsy we do not deal with the epileptic paroxysm alone, but with a complexus of symptoms, among which the epileptic convulsion may be regarded as the last of a series of morbid processes.

The majority of epileptics possess an extremely weak nervous system, perhaps inherited, and the individual patient is always unduly susceptible to disturbing influences. It has been known for a long time that the causes of epilepsy varied. In many instances epilepsy has been thought to be due wholly to disturbances of digestion, but it is now pretty evident that we have to deal with a more serious trouble. It is not primary digestion alone but often secondary digestion that is at fault. There is some defect in metabolism, as a result of which the system becomes poisoned. The neurotic organization to which he refers, being unduly responsive to the action of this poison, is overwhelmed by it, and we have an epileptic paroxysm. It was formerly thought that if some remedy could be found to control the paroxysm, epilepsy was cured, but now we know that remedies which merely control the paroxysm do very little to cure the disease. It is like tying the hands of a maniac to cure his excitement. The general effect of the bromides and of similar remedies has not been to prevent the generation of the poison in the system, but merely to restrain its manifestation in an epileptic attack. Such restraint may be effective for a time, but finally the poison becomes so overwhelming that a paroxysm can no longer be restrained, and a furious convulsion follows which probably equals in force the sum of the minor paroxysms which had been prevented by the remedy. It has been found by experience that the condition of such a patient is worse than if he had more frequent but milder convulsions.

Recent observations have indicated the character of the

poisonous substances which enter the circulation and produce the epileptic seizure. They are probably leucomaines, but their exact relations to the disease have not been fully worked out, and much remains to be done to determine the means of preventing the formation of these poisons in the system. There has, however, grown out of these investigations a system of providing for epileptics which promises much for the future. In this system it is not intended to substitute hygienic and moral influences for medical treatment, or to decry medical treatment, but rather to relinquish the idea of depending upon drugs alone in the treatment of the disease.

From our present knowledge the best treatment for an epileptic is an open-air life, carefully selected food, and a judicious amount of labor.

RECENT IMPORTANT INVESTIGATIONS CONCERNING THE CAUSE AND NATURE OF IMMUNITY.

One of the most important advances in the study of immunity is the discovery of Pfeiffer's phenomenon. Upon this interesting phenomenon are based discoveries of more recent date which throw a brilliant and interesting light upon the nature of the chemical processes by which immunity is established against bacterial and toxic infections and the invasion of animal tissues by noxious agents in general. For the sake of clearness it may be not amiss to recapitulate what is understood by Pfeiffer's phenomenon, the condition under which it takes place and its scientific explanation. The phenomenon is observed when cholera vibrios are injected into the peritoneal cavity of cholera immunized animals and consists in a solution (digestion) of the vibrios. The same phenomenon is observed in the case of certain other pathogenic organisms, for instance, typhoid fever bacilli. The agglutination, which precedes the bacteriolysis, is due to a process separate and distinct from the latter, and has no direct bearing upon the elucidation of recent investigation which will be referred to further on. The same phenomenon of bacteriolysis which takes place in the peritoneal cavity under the stated conditions can also be observed in the test-tube, as Metschnikoff has first pointed out, when cholera vibrios are mixed with the "fresh" serum of cholera-immunized animals. If the serum is old, however, the phenomenon does not appear unless some normal serum is added to the mixture. Thus, the old immune serum has passive immunizing proper-

ties which become active upon the addition of normal blood serum. In the peritoneal cavity of a normal (*i. e.*, not immunized) animal the same phenomenon is observed when cholera vibrios enter the same in conjunction with such "passive" immune serum. These phenomena become intelligible by the acceptance of Pfeiffer's application of Ehrlich's theory; according to which the "side-chains" of the molecule of immune serum contain two groups of atoms, one of which enters into chemical union with a corresponding atom-complex of the cholera vibrio and the other attaches to itself the ferment contained in all normal sera. If this ferment then, is added to the "passive" immune serum in the presence of cholera vibrios, these, or *mutatis mutandis*, certain other organisms undergo bacteriolysis.

Bordet* has shown a series of investigations that the laws which obtain in the case of the specific bacteriolytic action of immune sera are also applicable to certain specific lysogenic phenomena concerning the red blood corpuscles. Bordet treated guinea-pigs with repeated subcutaneous injections of defibrinated blood of rabbits. The blood of guinea-pigs thus treated dissolves in the test-tube the blood of rabbits quickly and with great intensity, while serum of normal guinea-pigs produces no solution of rabbit blood. Previous to the dissolving process, a strong agglutination of the erythrocytes takes place. Heating to 55° C. deprives the guinea-pig serum of its hemolytic function, while its agglutinating action is thereby not destroyed. The serum which has been made inactive by the heating process regains its hemolytic property by the addition of a small quantity of normal guinea-pig serum, or normal rabbit serum. The "active" guinea-pig serum is inactive with regard to dissolving the blood corpuscles of guinea-pigs and pigeons; it is active, but in a much smaller degree toward the blood corpuscles of rats and mice. The active guinea-pig serum has a strongly poisonous action when it is injected into the ear-vein of the rabbit. The analogy of these processes with the phenomena of bacteriolysis is far-reaching as Bordet points out, and Ehrlich† states that the mechanism of hemolysis and bacteriolysis appear to be very similar, and the study of hemolysis consequently gains a not unimportant theoretical significance. Ehrlich‡ has experimented with the blood of a goat which had been for eight months subcutaneously injected with sheep

* Annal. Instit. Pasteur, Vol. XII, No. 10.

† Ehrlich und Morgenroth, "Zur Theorie der Lysinwirkung," Berkl. Wochenschr., No. 1, 1899.

‡ Ibidem.

serum containing a large number of blood corpuscles. The result of his investigations with regard to hemolysis are identical with those of Bordet. Ehrlich points out that, with regard to furnishing an explanation of the process of hemolysis, one is compelled to accept, according to Pfeiffer's explanation of the process of bacteriolysis, the existence of two substances. A specific active and stable substance to which he applies after Pfeiffer the term "immune-body" (Immun-körper) and a substance, present in the normal animal, which Ehrlich preliminarily chooses to call "addiment." By the injection of an animal of a certain species with defibrinated blood of another animal, an "immune-body" forms in an analagous manner as antitoxins and bactericidal antibodies are formed. This immune-body possesses two different haptophorous atom complexes; one atom complex which has a great affinity for the corresponding haptophorous group of atoms of the red blood corpuscles, and a second haptophorous group of atoms of less chemical energy, which is capable of more or less completely attaching to itself the "addiment" contained in the blood serum. This theory corresponds with Ehrlich's* "side-chain theory," which furnishes the most plausible explanation of the formation of antitoxins and bactericidal antibodies. The experiments which Ehrlich and Morgenroth describe in the above-cited article certainly justify the acceptation of Ehrlich's side-chain theory in an equal degree, as it has been accepted for the formation of antitoxins and antibodies in general. For the sake of brevity, we have omitted a description of these experiments. If, according to Ehrlich's theory, any body, be it a toxin or a toxoid, a ferment, or a part of a bacterium or of an erythrocyte—if any such body possesses the capacity to unite with the side chains of protoplasm, the conditions are fulfilled for the formation of the respective antibody. According to this theory, the molecule of any one of these antibodies must possess that group of atoms which unites with the haptophorous (*i. e.*, the specifically binding) group of atoms of the original body, *i. e.*, the toxin, toxoid ferment, bacterium, or erythrocyte. The soluble substance, therefore, which is produced by the action of the original body (by the toxin, bacterium, erythrocyte, etc.), must chemically combine with the original body. If the original body is a soluble substance from the beginning, as the toxins, this "neutralization" takes place in the solution. If, on the other hand, the original body is not directly soluble but consists originally of an insoluble substance, for instance, of a particle

* Ehrlich understands by side chains (Seitenketten) lateral groups of atoms in the molecule.

of a bacterium or a blood cell, then the respective antibody, which exists dissolved in the blood, is removed from this fluid by the respective particle of cell substance (the original body) and becomes anchored to this cell substance. A similar process takes place in Wassermann's classical experiment—which constitutes a splendid corroboration of Ehrlich's side chain theory—where the original body (the tetanus toxin) is removed from its solution in the blood serum by entering into a chemical union with the side-chains of the molecules of the pulverized brain cells.

The phenomena observed in Ehrlich's experiments, concerning the nature of hemolysis, are interpreted by this investigator as follows: At a temperature of 30° (Celsius) the red blood corpuscle enters into chemical combination with free molecules of the "immune-body" as well as with molecules of the immune body which have already united with the "addiment." In the latter case the immune-body represents the chain which attaches the addiment of the erythrocyte, which is thus placed under the influence of the addiment. Under the influence of the addiment phenomena take place which must be considered—in harmony with Pfeiffer's interpretation—analogueous to the process of digestion, and it will therefore not be improper, says Ehrlich, to look upon the addiment as invested with the character of a ferment. That ferments like toxins, possess two different groups of atoms, of which one is of an haptophorous (*i. e.*, specifically binding) nature, and the other (which corresponds to the toxophorous group of atoms in toxins) is the bearer of the ferment action, has been made highly probable by Morgenroth, who has succeeded in proving the existence of a specific antibody produced by a process of immunization with a ferment.

In accepting, then, the theory that Ehrlich's addiment is a ferment, the phenomena which present themselves in Ehrlich and Morgenroth's experiments are explained by these investigators by the supposition that the immune body attaches to itself the—in the blood normally existing—small quantities of (digesting) ferments and transmits them to those substances, for instance, blood corpuscles or bacteria, for which it (the immune-body) possesses, owing to its other haptophorous group, specific affinities. This behavior alone, of the immune-body, furnishes an explanation why the digesting activity is not manifested when erythrocytes are mixed with the addiment (*i. e.*, digesting ferment) until the immune-body is added to the mixture, as is shown by Ehrlich and Morgenroth's classical and convincing experiments, a

description of which we have omitted for brevity's sake, as already stated. We will only state, with regard to Ehrlich's experimental investigations of hemolysis, that they have been crowned by most positive and unequivocal results. They show that under the necessary precautions a chemical union takes place between the immune-body and the red blood corpuscles; also between the immune body and the "addiment"; but not between the red blood corpuscles and the addiments before the immunity body is added. The three ingredients (1) the immunity-creating body (viz., blood cells, bacterium, toxin, etc.), (2) the immune body, and (3) the addiment, forcibly remind one, by the way, of Schmidt's theory of the formation of fibrin by the combined action of also three substances, viz., fibrinogen, fibrinoplastin, and fibrinferment. In the latter instance a solid body is formed, while in the former a solid substance is converted into a solution.

By the immune-body, then, the digesting ferment is gathered from the blood serum in which the percentage of digesting ferment is very small and transferred in relatively very large quantities to the erythrocytes, so that its concentration and therefore activity in these is very much greater than in normal blood. It is possible, nay probable, that in normal blood very few, perhaps only one single body, exists which has digesting properties, but that a great many different kinds of specific immune-bodies may accumulate in this fluid, as has been suggested by Gruber and others. According to Ehrlich, it will be premised that in different immune-bodies only that group of atoms differs (in chemical structure) by means of which the immune body has a specific affinity for the immunity-creating substance, but that all immune-bodies have one group of atoms in common by which they combine with the digesting substance—the addiment. From this standpoint the otherwise so obscure origin of the lysins is readily explained by Ehrlich's side-chain theory. According to Ehrlich's definition, the side-chains are the groups of atoms which are bearers of definite atomcomplexes that are capable of attaching to themselves certain groups of atoms and to enlarge thereby the molecule of protoplasm. As early as 1885 Ehrlich pointed out that these, by the side-chains of protoplasm assimilated atomcomplexes by their entrance into the living protoplasm, more readily undergo oxidation, and thus form the nutritive material *kat' exogen*. The study of immunity has widened this view considerably, and has taught that the different antibodies represent detached side chains, and that the process of immunization

consists in forcing the cells of respective organs to produce these side chains in excess in harmony with Weigert's "lesion-theory" (Schädigungstheorie). It is, according to Ehrlich, highly probable that the side-chains must have, according to their special function, different properties. If relatively simple bodies are to be assimilated by the side chains, the presence of a single combining group of atoms will probably suffice. Side chains with such constructed groups of atoms evidently attach to themselves the toxins. But it is entirely different where the assimilation of giant-molecules (*i. e.*, molecules of albumen) is concerned. In this case there is only a preliminary condition for cell nutrition established by the fixation of molecules. Such a "giant-molecule" is useless to the cell until it is divided into minute fragments by fermentative processes. This object is most readily attained when a cell stretches out its protoplasmic process as a bearer of a fermentative group of atoms to bring into closer contact its booty, the giant-molecule of albumen, which then may be digested and assimilated. An analogous practical mechanism where the protrusion of an organ, which catches the booty, possesses at the same time a digesting function, is found in the whole series of the higher digesting plants. The tentacles of the *Drosera*; for instance, which surround the caught object, secrete a fluid which has strongly digesting properties.

That a lysin-action does not take place with reference to toxins, but only in the presence of cell substance, whether it concern bacteria or blood cells, is explained, then, by the fact that the molecules of the latter have a much more complicated chemical structure than the molecules of toxins which represent only a cell secretion. According to Ehrlich, it is to be presumed, therefore, that for the "seizure" of cell substance and other bodies of a highly complicated chemical structure, side-chains of a particular kind exist which possess, besides the "catching" atom-complex, another group of atoms which by the fixation of suitable ferments is capable of creating a process of digestion. If one compels, by the process of immunization, the excessive production of side-chains, the entire side-chain with its two functioning groups of atoms is detached and enters the blood as an immune-body. By Ehrlich's ingenious side-chain theory the surprisingly practical mechanism of specific immunity is made clear and comprehensive, and the phenomenon, that by the entrance of a bacterium into higher living organisms a substance is produced by which the bacterium is destroyed by a process of solution (digestion), made amenable to scientific explanation by an hypothesis which most strikingly harmonizes with exact ex-

perimental investigation. By Ehrlich's explanation of the phenomena of hemolysis *the phenomenon of bacteriolysis is shown to be nothing more nor less than the reproduction of a function of normal cell life.* Of great interest is Ehrlich's ingenious comparison of the chemical process, by which the toxins of the body are made innocuous by a process of immunization, to that of bacteriolysis, and the analogy of the latter process to the process of digestion in animal and vegetable life. The results of Ehrlich's research with regard to the nature of immunity and the process of artificial immunization appear to be far-reaching indeed, and the scientific horizon concerning the nature of digestion may thereby be enlarged in a heretofore undreamed of measure by the new and important light which his investigations may throw upon the physiology of that important process.—(*Medical Review.*)

OBESITY, GOUT AND DIABETES.

Ebstein (*Deut. Med. Woch.*; *Brit. Med. Jour.*) discusses the relationship of these three conditions and their exact place in the classification of disease. In all a family predisposition exists. This heredity has been most often noted in children who most resemble their parent in external appearance. Often in families there exists through many generations a tendency to obesity, when the disease may appear quite early in life notwithstanding moderate living and sufficient exercise. It has been stated that the obese possess a much less power of tissue combustion than others, and that metabolism is diminished. Ebstein does not agree with the first view, but thinks that the second may be correct. Apparently there is a predisposition on the part of the cells in the obese to take up more fat than the cells of healthy individuals. The frequent co-existence of gout and obesity is strongly suggestive of a relationship between these affections.

Duckworth drew attention to the early occurrence of obesity in gouty families. On the other hand, lean individuals suffer from gout. If both obesity and gout exist in the same individual, obesity precedes gout. Obesity is widely distributed, whereas gout is more limited as regards the regions in which it prevails. In his own investigations Ebstein discovered inflammatory and necrotic foci in gout where urates crystallized out. These necrotic areas can be experimentally brought about in birds with their uric acid containing urine, if their ureters are tied, or if by means of poisons which produce necrosis in the renal parenchyma the excretion of uric acid is diminished.

In the ordinary attack of gout there is considerable de-

struction of nuclein ; uric acid is derived from this. If a stagnation occurs of the body fluids which are rich in uric acid, there is an attack of gout. Diabetes stands in relation to gout, and gout may accompany obesity. Indeed, all three diseases may follow each other. Diabetes more often than gout may develop in thin individuals, and then usually in its worst forms. Ebstein looks upon these diseases as due to some defect in the protoplasm of the body. It has been shown that diabetics exhale as much carbon dioxide as healthy individuals only when the carbo-hydrates in the diet are limited. Even if in diabetes there is a suppression of some function of the pancreas, this in itself would exercise a damaging influence upon the protoplasm.—*Medical Review*.

SENILE PRURITUS.

Professor Parisot, of Nancy, considering that auto-intoxication plays an essential *role* in the ætiology of generalised senile pruritus, has recourse to intestinal antiseptics in the treatment of this obstinate affection. After purging the patient he puts him on milk diet, and prescribes daily doses of half a drachm of benzo-naphthol. This treatment, of which the first favourable results are witnessed at the end of twenty-four hours, rapidly removes the violent and tenacious itching.—*The Medical Press*, Jany. 18, 1989.

SURGERY.

IN CHARGE OF

GEORGE FISK, M.D.

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IS A GREEN INTESTINE GANGRENOUS ?

Begoin (*Cbl. f. Chir.*, December 2) states that he found an eight-day incarcerated loop a "fine green Florentine bronze color" at the herniotomy. The loop was not reduced, and the patient died four hours later, when tests of the green portion proved that it was not gangrenous. The portion of the intestine was filled with water at a strong pressure, and only an apparently sound part split. He also states that the intestine can be colored green by bile alone, and that a light-green color does not necessarily imply any alteration in the intestinal wall. A yellow-green, dark, black or bottle-green are of worse significance, but at the same time they do not necessarily indicate a serious deterioration of the intestinal wall.—*Journal Am. Med. Ass'n*.

SURGICAL TREATMENT OF ŒDEMA IN HEART DISEASE.

Borgherini (*Deutsches Archiv. fur Klin. Med.*, LXI., 5-6) relates a case of insufficiency of the semi-lunar valves, with resulting anasarca, which cardiac stimulants, purgatives and diuretics all failed to relieve. He therefore resorted to Traube's method of making incisions, using the strictest antiseptis. Of these incisions four were made in each limb; two of them beside the malleoli, and the others through the calves of the legs. The cuts were about one inch in length, and extended to the subcutaneous tissues. The limbs were afterwards dressed in antiseptic gauze, changed once a day. The œdema in these cases disappears in from twelve to eighteen days, and the heart is greatly relieved, for in cardiac dropsy we have a vicious circle; the cardiac insufficiency which causes the œdema is in turn aggravated by it.

In this case, before its surgical treatment, a fly blister had set up gangrenous erysipelas, with a certain amount of sepsis; hence, the result is the more remarkable.—*Med. R. of R., Jan.*, '99.

TOXICITY OF APPENDICITIS.

Dieulafoy (*Le Progrès Méd.*, November 12, 1898), in the course of a paper read before the Paris Academy of Medicine, speaks of appendicitis as "the great abdominal disease," and says that besides the danger of peritonitis we have to face the possibility of toxæmia. This complication, the existence of which is demonstrable by experiment, may be mild, severe or fatal. The ordinary mild form is revealed by albuminuria and icteric hue. This toxic icterus may or may not portend a severe attack. If the latter result, either the brain or medulla will be attacked, with the clinical picture of a typhoid state. This process of intoxication may be arrested by suppression of the poisonous focus; hence no one should die of appendicitis.—*Med. R. of R., Jan.*, '99.

(*The Lancet*, Nov. 19.)

TOTAL EXTIRPATION OF THE STOMACH.

BY DR. CARL SCHLATTER.

On Sept. 6, 1897, Dr. Schlatter performed the first operation of removing the entire stomach. The patient was a woman aged 55, suffering from carcinoma. The continuity of the digestive tract was maintained by uniting œsophagus

and intestine, and the operation was a complete success. The patient gained weight, and soon was able to take ordinary food. Physiologically no less than surgically the case is of the greatest importance, for it shows that digestion can be completely accomplished without the aid of the stomach. The following are some of her diet lists, January 17:—Milk, 33 fl. oz.; coffee without milk, 13 fl. oz.; 3 rolls; 3 eggs; soup, 3½ fl. oz.; fried sausage, 4 oz.; stewed apples, 7 oz.; whortleberries, 3 oz.; and claret, 7 fl. oz. February 5:—Milk, 11½ fl. oz.; 3 rolls; 3 eggs; soup, 4 fl. oz.; sweetbreads, 10½ oz.; cauliflower, 7 oz.; and claret, 7 fl. oz. March 4:—Milk, 10½ fl. oz.; coffee without milk, 7 fl. oz.; soup, 4 fl. oz.; roast veal, 4 oz.; carrots, 14 oz.; 4 rolls; and claret, 7 fl. oz.

Microscopical as well as chemical examination showed the *fæces* perfectly normal.

This case also proves with absolute certainty that the successive stages of the excretion of nitrogen in the urine after food are quite independent of gastric digestion, because removal of the stomach from the digestive tract does not cause the excretion curve to deviate in any way from those which are obtained under normal conditions.

A second case of this operation is published in the *Boston Med. and Surg. Jour.* by Dr. C. B. Brigham, of San Francisco, which was also successful, and which bears out Dr. Schlatter's conclusions.—*Med. and Surg. R. of R.*, Dec., '98.

(*Lancet*, November 5.)

THE TREATMENT OF ACUTE INTESTINAL OBSTRUCTION.

BY FREDERICK TREVES, F.R.C.S.

In fatal acute intestinal obstruction the occlusion of the bowel is not the most serious event. In a really acute case death will occur within seven days. Obstruction of the bowel *per se* is not acutely serious. The intestine may be blocked even for three weeks without alarming symptoms. In acute intestinal obstruction there are three stages. In the first the symptoms are intense abdominal pain, collapse and vomiting, which are due not to blocking of the bowel, but to a sudden impression on abdominal nerves. They have little or no diagnostic character, and attend all sudden and intensely painful impressions on visceral nerves, and are collectively described as "peritonism." They are symptoms common to a series of intra-abdominal accidents—passage of gall stone, torsion of ovarian tumor, perforation of gastric ulcer, rupture of pericæcal abscess.

In the second stage the symptoms attain more individuality, and depend upon mechanical obstruction of the bowel. The pain is largely due to disordered and futile peristalsis; the absolute constipation and vomiting to blocking of intestine. The character of the vomit shows the introduction of another factor—decomposition of intestinal contents. The odour, for want of a standard of offensiveness, may be called stercoraceous. Fæcal vomiting—the ejection of fæces—Mr. Treves has not seen in acute obstruction. Finally, there is increasing abdominal distension, largely due to inability of the contents to escape, but in great part to vascular changes in the intestine. The most severe case of meteorism of the small intestine that he ever saw was due to thrombosis of the superior mesenteric vein.

In the third stage the symptoms have little to do with obstruction as such; they are due to septicæmia. It is this which makes operation futile. For example, a middle-aged man had a strangulating band, which was divided forty-eight hours after the onset. A more favourable course could hardly have been conceived, yet the patient died with septic symptoms, and the necropsy showed no breach in the bowel and no peritonitis.

Treatment demands two things—(1) early operation, (2) evacuation of the bowel. The real danger lies in the poisonous material above the obstruction. In all acute cases in recent years, Mr. Treves has brought the most prominent coil to the parietal incision, and evacuated it by a small glass tube. He closed the small artificial anus some weeks later. This practice had reduced his mortality one-half.—*Med. and Surg. R. of R., Dec., '98.*

American Jour. of Med. Sciences, Nov., p. 503.

RESECTION OF THE GASSERIAN GANGLION.

BY PROF. W. W. KEEN., M.D., LL.D.

Dr. Keen has done 11 operations for removal of the Gasserian ganglion, of which 10 were secondary, multiple peripheral operations having been previously performed. In one case the removal of the ganglion was the fourteenth operation on the patient. All the cases were operated upon by the Hartley-Krause method; 3 were fatal, 1 from infection, 2 from shock.

The mortality of the operation in 108 cases collected by Tiffany was 22 per cent., but Dr. Keen does not doubt that modern antiseptic methods will reduce it. But it is a formidable operation, which even now he approaches with hesitation.

What are the results as to cure? There have been only 4 cases in which the pain has returned; 2 were his own cases, and were his first two operations, and must, he thinks, have been imperfectly done. It can be concluded from over 100 resections that pain will not return in over 1 or 2 per cent. with any severity, like the original, and not in any degree in more than 4 or 5 per cent. The uncertainty of total resection having been done in some of these cases probably makes the percentage too high. If the sensory root of the ganglion be diseased, excision will not be an absolute preventive. There appear to be only two cases in which the sensory root was examined. In one (Krause's), the root was diseased, and pain returned on the opposite side. In the other (Dr. Keen's), though the ganglion showed intense lesions and the disease had existed for five years, the sensory root was intact.

To what extent should the ganglion be removed? Tiffany says that the motor root ought to be saved. In some cases, although Dr. Keen made no attempt to save the motor root, the muscles of mastication were not wholly paralysed, and when they were the patient could readily masticate with those on the other side. But it is anatomically impossible to preserve the motor root. The whole ganglion should be removed. Effects on the eye can be obviated.

Resection should not be performed primarily, but after peripheral operations, as the ganglion appears to be the last to suffer in disease of the fifth nerve. In a case of primary resection the effects on the ganglion after eighteen years of suffering were very slight. But the peripheral operation should be done early. Most operations are done from two to twenty years after the onset. If, after three or four months' treatment, drugs have only relieved, the peripheral operation should be done in the hope of arresting the disease in its course towards the ganglion.

Pathological report on seven ganglia removed, by Dr. Spiller.—In the more advanced cases of neuralgia there were found much swollen medullary sheaths, swollen axis cylinders, atrophied fibres, empty nerve sheaths, nerve bundles with the nerve elements replaced by connective tissue, atrophied ganglion cells, and sclerosed vessels.—*Med. and Surg. R. of R., Dec., '98.*

THE ETIOLOGY AND SURGICAL TREATMENT OF VARICOSE VEINS IN THE LEG.

Kraemer (*Munch. Med. Wochenschrift*, Sept. 20 and 27, 1898) gives an account of modern views on this subject. The first part of his paper is devoted to the etiology of varices.

(1) Mechanical causes, such as pregnancy, do not produce varices, but only œdema or slight dilatation, which does not constitute a varicose condition. (2) The formation of varices is due to a pathological condition of the internal saphena, which is probably congenital. (3) The general predisposition is mostly hereditary, and its presence can be recognized by the figure, such persons having long legs and being tall. (4) The congenital local predisposition consists in there being a deficient number, or a total absence, of valves in the saphena vein. (5) Such a defective vein may perhaps resist dilatation for some time through a thickening of its intima (compensatory endophlebitis). (6) When this deformity is present, varices follow naturally, there being in such a case no valves between the right heart and the periphery. The part of the paper relating to treatment is of more general interest. There are practically three operations now practiced. (1) Trendelenburg's, which consists in dividing the internal saphena vein between two ligatures above the junction of any large collateral branch. This at once does away with the hydrostatic pressure. Excellent results are obtained as regards the usefulness of the limb, though the varices do not actually disappear, since the vein below the ligature is still permeable. This operation is indicated in not too severe cases, where the smaller veins only of the leg are varicose, and all the more the older the patient. (2) This consists in a combination of the above procedure with excision of isolated varicose nodules, and often gives better results than a simple Trendelenburg. (3) When the whole saphena from above downwards is varicose, the only rational cure is total excision of the whole vein. This is known as Madelung's operation. The chief incision reaches from a hand's breadth below Poupart's ligament to the ankle, and there are other incisions over the larger tributary veins. Any ulcers are at the same time swaped or excised. This operation is especially indicated in young persons.

Dangers—Five writers have reported cases of thrombosis, and four cases of embolism, one of which was fatal (embolism of the lung)—all after Trendelenburg's operation. Not much has been written about Madelung's operation, and no fatal case has been reported. It must be borne in mind that the same dangers (embolism and thrombosis) beset every kind of operation on veins, and also that they are very liable to occur in varicose veins without any operation.—*Med. and Surg. R. of R., Dec., 98.*

OBSTETRICS.

IN CHARGE OF

H. L. REDDY, M.D., L. R. C. P., London,

Professor of Obstetrics, University of Bishop's College; Physician Accoucheur Women's Hospital; Physician to the Western Hospital.

A NEW DEVICE FOR THE ARREST OF POST PARTUM HÆMORRHAGE.

Arnott proposes a new treatment for atonic uterine hæmorrhage, though deaths from post partum flooding are not so common as formerly, now that the manual expression of the placenta has been limited to suitable cases. Duhrssen's statement that in Prussia alone there is probably one death a day from this cause shows the need of a reliable method of treatment.

Duhrssen's tamponade is valuable, but is not without danger.

Arnott's treatment consists in seizing the flaccid lips of the os with one or two bullet forceps, and forcibly but slowly drawing the uterus downwards as far as possible. This is repeated three or four times, until all hæmorrhage has ceased and the uterus is firmly contracted.

This mechanical device acts, *firstly*, by rendering the uterus anæmic; this has long been known to operating gynæcologists. Winter, Hegar and others have proved that pan-hysterectomy of even the gravid uterus for cancer can be performed without danger from hæmorrhage if this precaution is taken. *Secondly*, it not only arrests bleeding at once, but stimulates the uterus to contract, and prevents its further relaxation, partly by the irritation of the automatic ganglia in the middle layer of the uterus, and by stretching the uterine nerves in the broad ligaments, partly because anæmia of the uterus is one of the strongest stimuli to contraction.

The great advantages of the method are its certainty, simplicity and with the most elementary precautions—avoidance of sepsis.

THE PROPHYLAXIS OF PUERPERAL FEVER.

Starzewski investigated the action of Marmoreks anti-streptococcus serum in preventing rises of temperature during the puerperum, in Prof. Cyzewicz's clinic in Lemberg—288 women received consecutive numbers on admission.

Those with odd numbers received no injection ; the first 56 of the even numbers were given an injection of 5 grammes, and the rest (88) 10 grammes of serum directly after being delivered. They were all under observation for 12 days, and every rise of temperature above $99^{\circ} 5$ F. was noted. The following results were obtained : The temperature was raised in 17.36 per cent. of those who received no injections, in 7.14 per cent. of those who received 5 grammes, in 5.68 per cent. in those who received 10 grammes of serum. It was also observed that jaundice was less frequent in the children of those women who had had injections.

CHILD WEIGHING 17 LBS. 12 OZ.

Mrs. W., aet. 31, Irish Protestant, weighing 155 lbs., height, 5 ft. 8 in., 7 para, was confined in the Women's Hospital, March 7, 1899, of a female child weighing (naked) 17 lbs. 12 oz. Labor commenced at 10 p.m., March 6. Pains very slight, and very little progress until 10 35 p.m. March 7, when labor pains came on very severely, and labor was completed at 11.10 p.m. The delivery was without any unusual difficulty. The placenta, which weighed $4\frac{1}{4}$ lbs., was easily and quickly delivered without any manual interference. The pelvis was of normal type. Perineum un-torn. Patient left hospital with baby on 15th day perfectly recovered.—*H. L. Reddy, M.D., L.R.C.P., London, Phys. Ac. W. H.*

CRANIOTOMY, CÆSAREAN SECTION AND THE PATIENT.

Stepkowsky publishes a case in reference to these operations and their relation to the patient's safety, and also her natural desire for children. A woman, aged 25, in good general health, had been delivered three times by craniotomy. The pelvis seemed rachitic, but there was no evidence of active rickets. The pelvic measurements allowed of craniotomy at term, and Stepkowsky determined on the induction of premature labour at the end of the eighth month ; but the patient insisted that she would only submit to that operation which gave the best chance of saving the child. On that account he decided upon Cæsarean section after the membranes had ruptured. He performed the typical operation, cutting in the median line of the anterior uterine wall. He has had such good results following that incision that he

has no intention of adopting the transverse incision through the fundus, which seems to offer no special advantage. Both mother and child recovered.—*British Medical Journal*.

REMOVAL OF INFLAMED APPENDIX DURING PREGNANCY.

Toupet and Le Filliatre report a successful operation upon a primipara, aged 23, in the fifth month of pregnancy. An acute attack of appendicitis had occurred on February 22, 1898, repeated a month later. In spite of rest, ice, etc., the temperature kept rising and the pulse was 120; the patient's general condition was also very bad. On April 1st the operation was performed. An incision 4 inches long was made along the outer border of the right rectus, the middle corresponding to MacBurney's spot. The anterior aspect of the cæcum, dull and vascular, came in sight; a small parietal adhesion was broken down. The right ovary and tube were, fortunately, quite normal. Le Filliatre declares that the big gravid uterus pushed forwards the intestine, and so greatly facilitated the operation. The vermiform appendix lay high up, above the level of MacBurney's spot; it was turgid and congested. There were a few soft adhesions but no abscess. The base of the appendix and its mesentery were tied together with catgut and divided. The exposed mucosa was scraped, and disinfected with the thermo-cautery and strong carbolic solution. The stump was then invaginated by two purse-string sutures. The abdominal incision was closed in two layers, the peritoneum and muscles by catgut, the integument by silkworm gut. On the third day abortion threatened; laudanum and a subcutaneous injection of morphine were given. There was slight jaundice and headache next day; this complication subsided after appropriate treatment. At the end of a month the patient was in good health, and remained well till she was delivered, by forceps, of a living child over 5 lbs. in weight. The abdominal cicatrix was not affected by the increase in size of the uterus for four months after operation, nor by parturition. It remains quite strong, and there is no sign of a hernial protrusion.—*British Medical Journal*.

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Editorial.

UNIVERSITY OF BISHOP'S COLLEGE, MEDICAL FACULTY.

The Twenty-eighth Annual Convention of the Medical and Dental Faculty of Bishop's University was held on the 11th of April in the Synod hall. Shortly after 3 p.m. Chancellor Heneker, supported by the Acting Principal, Rev. Dr. Allnatt, the Right Rev. the Lord Bishop of Quebec, Vice-President, and the Dean and members of the Medical and Dental Faculties, marched in procession into the room and ascended the platform. The audience at this time filled every portion of the hall, and soon after became almost too large for its capacity. As usual the large proportion were ladies arrayed in their spring costumes, and the effect was very beautiful.

The Chancellor, having declared the Convocation opened, proceeded to speak of the general condition of the University and school. He first announced that it was pleasing to know that the Rev. Dr. Adams, Principal, who, last fall, had been suddenly prostrated by severe illness, was slowly recovering, and that there was every reason to hope that by the fall he would be able to resume his duties. He then feelingly alluded to the great loss which the University had

sustained by the death of the late Robert Hamilton—its life long friend—who had left it a handsome bequest. After thoughtful consideration, it had been decided that the handsome donation which Mr. Hamilton had left should be, with such additional sums as could be obtained, placed in a fund to be called "The Hamilton Restoration Fund." That, in view of the continuous demand for increased accommodation, due to increase in the number of students, this fund would be used to obtain the required accommodation, and, at the same time, improve the general appearance of the College Buildings. In this way they would be made more imposing, and more worthy of the rapid advance which the University had made during the last few years. The Chancellor also spoke of the school, and of the fact that the number of boys in attendance far exceeded anything in its history. In fact, everything looked bright for the University, and he predicted that in the general advance which it was making, its Medical Faculty would keep itself in the front rank.

The Dean, Dr. F. W. Campbell, then gave the result of the session's work. One hundred medical and dental students had registered for the session, and, on the whole, it might be considered as satisfactory. The following gentlemen had successfully passed all the requirements, and would be presented for the degrees of C.M., M.D., viz. :

E. L. Sutherland, T. Laurin, T. H. Jackson, Montreal
B. J. A. Robinson, Jamaica ; J. E. Tanguay, Providence
R.I. ; C. A. MacDougall, Chambly.

The following gentlemen had passed all the subjects of the Primary Examination leading to the degrees of C.M., M.D., viz. :

J. A. Gillespie, G. H. Tutill, Montreal ; H. B. Henriques, Jamaica ; E. A. N. Tomkins, Coaticooke.

The following is the prize list :

"Wood" Gold Medal and "Nelson" Gold Medal to Mr. E. L. Sutherland ; "David" Silver Medal to Mr. J. N. Gillespie.

"Chancellor's" Prize to Mr. J. B. A. Robinson.

Senior Dissector's Prize to Mr. E. G. Mason.

Junior Dissector's Prize to Mr. B. A. Planche.

“Histology” Prize to Mr. J. B. Morrison.

The gentlemen named above were then separately presented by the Dean and had the degree of C. M., M.D.; conferred upon them. The prize winners were then called up separately and received their prizes.

Dr. Kerr, Dean of the Dental Department, then presented the following gentlemen, who, having fulfilled all requirements, had the degree of D.D.S. conferred upon them:—J. K. Cleary, F. L. Wilkinson, J. G. Henry, Montreal; W. G. McCabe, Windsor Mills; J. A. Butler, Inverness, Q.

Prize for Practical Technique to Mr. Joseph Reid Ross, Montreal.

Mr. Sutherland then gave the Valedictory on behalf of the Medical Graduating Class, which was responded to by Dr. Robert Wilson on behalf of the Medical Faculty.

Dr. Henry gave a Valedictory on behalf of the Dental Graduates, and Dr. Kerr replied on behalf of the Dental Faculty.

Dr. F. W. Campbell, Dean of the Faculty of Medicine, then addressed the audience. He in brief spoke of the past history of their Faculty, which he freely admitted had not yet reached the number of students which he felt it had the right to have had. Many causes were at work. It had had from the first, and it still continued, most bitter opposition, which he thought it was time should cease. Then a very large number of its graduates had settled and were most successful in the Western States. From their far Western homes they could not send us students. From Jamaica, years ago, the Faculty got their first student, and they have continued to come in slowly increasing numbers every year. In fact, Bishop's College is as well known in that Island as is Edinburgh and Glasgow medical schools, and he felt justified, from the success which its graduates from there had obtained, in saying that it stood quite as high. Another obstacle it had to meet was the establishment within a few years of at least two Colleges in the West in small centres. While he freely admitted that in didactic teaching the gentlemen connected with these schools were doubtless eminently qualified, yet

didactic teaching was to-day but a small factor in teaching medicine, to what it was a few years ago. It has been and is yearly becoming more so, replaced by clinical or beside teaching, and for this work these new schools could not begin to compare with those establishments in great centres like Montreal and Toronto. In our own city, with its magnificent Hospitals—the great shipping and manufacturing interests—supplying the accidents, was the place above all others to which students should come. Toronto, he freely admitted, came next, and he could understand a student going there, but it had always been a mystery to him why anyone should seek medical education where the clinical teaching—especially that of a surgical character—was of the most meagre kind. In spite, however, of its somewhat slow progress, it had had steady progress, each session marking an advance, both in the number of students and in the character of the work done. It had kept up to the times in every way, in equipment and in procuring men specially qualified in special department, and to-day could give as good, and he thought in two or three subjects, a better medical education, than any other in Canada. The Faculty had commenced to feel that it was beginning to get a little crippled for want of space in its building. It felt that it would not be long before this feeling would get more pronounced, and had decided that a new and more commodious building must be erected for its work. The matter had been freely discussed, and within a few weeks a building committee had been formed. That Committee was yet in its infancy, but within the next two or three months it would be increased by the addition of names of many persons of power in the community. It was of course impossible to speak definitely, but he felt he had a right to speak hopefully of the work this Committee was about to undertake. Subscriptions had been promised, and he thought it would be possible to have the building under way in a little over a year. He might be too sanguine, but he hoped not. The ball was about to be set rolling, and he was sanguine of a successful result.

His Lordship Bishop Dunn, of Quebec, also addressed

the Convocation. Owing to circumstances over which he had no control, this was the first Medical Convocation of the University which he had been able to attend, and he was so pleased at what he had seen and heard, that he sincerely hoped he might have the privilege of being present often. He spoke of the great and noble work of the profession of Medicine and of the excellent work their Faculty of Medicine was doing. He alluded to having in pastoral visits in his diocese, met a medical graduate of Bishop's College, who had been of immense assistance to him, undertaking with a will and determination the financial duties which formed part of his duty, while on his visit, thus relieving him greatly. It would in his opinion be a scheme worthy of consideration, to give in the medical school to the clergy going into distant and sparsely settled districts, an outline of medicine—something similar to "first aid to the injured." After alluding to the interesting time all had had, His Lordship sat down.

The Chancellor then declared the Convocation closed.