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Original Communications.

SOME QUESTIONS SUGGESTED BY THE PRESENT EPIDEMIC OF DIPHTHERIA IN MONTREAL.*

BY GEO. E. ARMSTRONG, M.D.,
Professor of Physiology, Bishop's University, Montreal.

I have found the cases of diphtheria in the present epidemic to be generally divisible into two classes.

1. *Very mild*, the exudation confined to one or both tonsils, and recovery taking place in from two to five days.

2. *Very severe cases*, the membrane spreading rapidly over the tonsils, soft palate, pharynx, and frequently invading to a greater or less degree the nasal fossæ.

I make this division also to draw attention to the question of diagnosis. It does not require a medical man to diagnose the severe cases, but are the mild ones true diphtheria? Many of these mild cases one is greatly tempted to call diphtheritic sore throat, a most evasive and unscientific term which I have never allowed myself to use. I believe diphtheria to be a specific disease having a specific cause, and that when that specific cause attacks a wound or new membrane successfully it produces diphtheria and nothing else. If there is an attenuated form of the virus producing a hybrid form of the disease I have no knowledge of it. I will illustrate what I mean by citing one series of cases only.

A father comes to my office with sore throat. The soft palate and pharynx are red and injected, and on the left tonsil is a

* Read before the Medico-Chirurgical Society of Montreal, Nov. 25th, 1887.

small white patch no larger than a pea. Pain in swallowing. Temperature 101.5° , headache, and accelerated pulse. No enlargement of glands of neck. I tell the man he has a simple inflammation of throat, and that it is not diphtheria. Sent him home and to bed. The next day temperature normal, and the third day he is out attending to business. Seven days after the infant child of a boarder in this man's house takes sick. Another doctor is called, who sends the case to hospital as one of diphtheria. In three days the child is reported well and ready to be discharged, but this child is not brought back to the house where it took sick. In three days more my first patient's child is found to have unmistakable diphtheria, and in a few days dies. Now did this father have diphtheria, and did the children contract the disease from him, or was his a simple sore throat, and did the other cases develop quite independently? You will readily see the responsibility the answer to this question throws upon the medical attendant. This is only one of a large number of groups that I might mention.

I find this autumn that cases of tonsillitis, with a few white spots here and there over the surface of the tonsils, which I have hitherto regarded and treated as cases of follicular tonsillitis, if neglected and allowed to go about, soon have a very severe form of diphtheria, frequently ending fatally. Are these cases of diphtheria from the first, or is the diphtheritic poison now so prevalent engrafted on these inflamed tonsils as a bed specially prepared to receive it? If the former, then I must confess I cannot diagnose follicular tonsillitis in its first stages. These cases occur suddenly, without a previous history of indisposition, are not accompanied by enlarged cervical glands, and have a temperature during the first twenty-four hours of 100° to 102° or 103°F . Is it true, as stated by Jacobi, that a locally injected new membrane confined to one tonsil is either traumatic or diphtheritic?

And just here I wish to draw attention to a statement of Prof. Jacobi (Pepper's System of Medicine) that one attack of diphtheria predisposes to another, and the oftener one has it the more likely are they to have it. I was taught the opposite of this,—

that when a man or child was said to have had diphtheria five or six times or more, that probably his attacks of diphtheria were only inflammations of the tonsils with a white exudation. My experience has corroborated that teaching, and in only three or four instances during the last ten years have I been satisfied that I have seen the disease recur in the same person. I cannot accept Prof. Jacobi's teaching on this point, and would like to hear the experience of the members on this question.

I have had two cases of suppression of urine. One of these cases I saw only in consultation, and the urine had not been examined. In my own case, owing to a misunderstanding of the nurse, I was unable to get a sample. In this case the last urine passed was said to have been of normal color. In both cases the children presented symptoms of uræmic poisoning. In neither case was there any puffing of the feet, hands or eyelids. I should like to hear from those who have been fortunate enough to obtain post-mortems in these cases concerning the condition of the kidneys. Were there any evidences of acute nephritis as described in books or not? Was the suppression due to vasomotor paralysis and deficient blood-pressure? or to failure of the forces which keep the blood circulating? In both the cases I have mentioned death soon followed.

I have found the proportion of cases of laryngeal complication unusually small. I have seen during the past six weeks but two cases. One, a little girl of 8 years, had a slight sore throat, without any exudation in the pharynx or on the tonsils. I saw her twice; supposed it to be ordinary sore throat; she then appeared quite well. A week later I was called, and found laryngeal obstruction, which ended in seventy-two hours in the usual way. The second case, a child of 15 months, had well-marked pharyngeal diphtheria, and recovered. The house was thoroughly fumigated, and the child remained well and lively for a week, when suddenly laryngeal obstruction occurred, followed by death in thirty-six hours, fourteen hours after the insertion of a tube into the trachea. Has any member any experience with intubation of the larynx? Would prolonged enforced rest in bed have prevented the extension to the larynx in these cases?

I have had five cases of what I take to be purely nasal diphtheria. Four occurred in one family. In none of these cases was there any pharyngeal trouble at all. No membrane could be seen in the nose, but all these cases had for forty-eight hours a temperature of 102.5° to 104° , with an offensive purulent discharge from the anterior nares and frequent hemorrhages from the nose, recurring five or six times in the twenty-four hours, and moderate enlargement of the cervical glands. They are all recovering, and so far there have been no complications in any of them.

Another interesting group of cases which in my hands have invariably proved fatal, with one solitary exception. The group includes seven cases, and a description of one is a description of them all.

A child has pharyngeal and nasal diphtheria and recovers. The throat is clean, temperature and pulse normal. The mother at the next visit tells you the child has vomited ; you examine, and find temperature normal, but the pulse, which was yesterday 80, is 100 ; the next day 120 and weaker, and the heart gets weaker and faster in spite of absolute and enforced rest in the horizontal position and the use of cardiac tonics, until death takes place from cardiac failure.

Is the pathology of the failure of this heart muscle the same as in paralysis of the palate muscles and of the skeletal muscles? And only more disastrous in its results, because life must cease as soon as that muscle ceases to perform its functions. I take it that every one present is familiar with the literature of diphtheritic paralysis, and I hope some get more satisfaction from the discordant statements of various writers on that subject than I have been able to do.

Thus Buhl, Charcot and Vulpian are unanimous about an affection of the peripheric nerves and muscles. Oertel, Dejerine and Gaucher believe in a disease of the spinal cord. Leyden describes a gray degeneration of the muscular tissue, which he believes to be truly inflammatory. In Leyden's cases the muscular nuclei were increased, became atrophied, and underwent fatty degeneration, giving rise thereby to extravasa-

tions, softening, dilatation and debility of the heart, with general debility and collapse, and explained the occurrence of vomiting by supposing a reflex action on other branches of the vagus.

Is this cardiac failure due to change, inflammatory or degenerative, or is the one followed by the other? Is it due to changes in the spinal cord, sympathetic nerves, or cardiac ganglia? Or is it brought about by a myocarditis or a fatty degeneration of the heart-muscle? It seems to me that this question must be answered before prescribing one of our most powerful drugs, and one which has invariably been ordered by those I have met in consultation in these cases, viz., strychnia. This drug affects paralyzed muscles before healthy ones. It is a stimulant. It increases the vascular supply to the diseased parts. If the disease is inflammatory, is strychnia the proper remedy to use? If the disease is one of atrophy and degeneration, certainly it is. In the only case that recovered under my observation, strychnia was given early and in large doses, and it was continued in smaller doses for six weeks. I think it would be interesting to have from Dr. Johnson and others a description of the changes found in the cord, muscle, and peripheral and central nerves and their coats in cases dying from rapid cardiac failure. Are they cases of cardiac paralysis, or of myocarditis, or of fatty degeneration of the heart, or of myocarditis followed by fatty degeneration?

My last question is: How long children and adults exposed to the contagion should be quarantined?

One child in a family of several has diphtheria, and recovers or perhaps dies. If recovery, all nasal-pharyngeal discharges has ceased. In either case the house is disinfected, we will suppose thoroughly. I will assume, as in many cases is the case, that the well children remained all the time at home, and that the father also remained at home to assist in nursing the sick one. Now how soon after the disinfection should the children be allowed to return to school and the father to his office or shop, as the case may be. I have made it an invariable rule not to grant certificates for fifteen days after the disinfection. I do this on the ground that cases are on record of children having been exposed to the contagion of diphtheria and only developed

the symptoms of the disease two weeks later—in one case fourteen days and eight hours after the exposure,—and that they *may* give the disease to others during the period of incubation. I do not think it necessary to quarantine adults as long, because they are very much less likely to contract the disease, and therefore less likely to endanger others they may be brought in contact with.

Now, as this bears upon the subject of the spread of the disease, it is of the utmost importance that the truth should be known. There is a great difference of opinion in this matter among practitioners at present. The principals of the common schools find that some doctors give certificates immediately after the house has been disinfected. Others wait two or three or more days, and but few insist upon a period of two weeks elapsing. It is desirable, for many evident reasons, that it would be to the credit of the profession to have some limit set that would be safe, and of course not longer than really necessary.

Is diphtheria a local or constitutional disease at first? I have no experience with diphtheria attacking wounds. Authors are as evasive and indefinite on this as on so many other points. An author will assert that diphtheria is a constitutional disease and the throat affection a local manifestation of it, and then in the next sentence say that children from three to nine months of age are less liable to it, because the acid secretions of a child's mouth wash off or sterilize the contagion, and that children with nasal and post-nasal catarrh and enlarged tonsils are predisposed to it. Why? I infer because these new membranes, not protected by epithelium, are more easily attacked by the diphtheritic poison. If so, in these cases at least, the disease must at first be a local disease, and then, secondarily, invade the body generally. A healthy nose and throat should thus be protective. Are they?

THE PRESENT STATE OF CARDIAC THERAPEUTICS.*

BY JAMES STEWART, M.D.,

Professor of Pharmacology and Therapeutics, McGill University.

The subject of cardiac therapeutics is one of great importance—of much more importance than is generally conceded to it by the ordinary text-books. During the past year or two quite a revolution has come over our ways of looking into the future physical life of patients suffering from many of the forms of organic heart disease. In fact, as yet, these views to which I refer have not by any means become general. These changes of opinion are of such paramount importance to the well-being and happiness of those committed to our care, that it is the bounden duty of every practitioner to study them seriously. The changes to which I refer consist in the much more favorable prognosis that is admissable in the great majority of cases.

Last year, at the meeting of the British Medical Association at Brighton, Sir Andrew Clarke created what might almost be called a sensation by giving the life history of a very large number of cases of organic disease of the heart which he had the opportunity of observing for very many years. The point made by Sir Andrew was this: that patients with organic heart disease lived much longer than they were supposed to do, and that the great majority of them were not only able to live, but also to work—to live with comfort and work with vigor.

No doubt a number of observers had pointed out before that cases of organic disease of the heart do frequently present themselves where the lesion had been in existence during a long lifetime without the patient's knowledge that there was anything seriously wrong. There is an important therapeutic lesson to be gathered from the history of a case of a man with one or more seriously damaged heart valves, who has lead a long and active life, throughout which he has been unconscious of anything wrong. Such a case teaches us the clinical history of the course of the disease uninfluenced by treatment and uninfluenced by the men-

*The Address on Therapeutics at the Twentieth Annual Meeting of the Canadian Medical Association, Hamilton, Sept. 1, 1887.

tal worry necessarily present where there is a consciousness of the presence of a grave organic lesion.

In dealing with this subject, I will first refer to the means that should be employed when we have to do with an acute inflammatory process in the endocardium, and (2) the treatment of the consequences that result from any chronic condition or state that gives rise to secondary changes (mechanical) in the heart; or, in other words, the treatment of threatened or actual loss of compensation.

Given a case of acute endocardial inflammation of, say, the aortic valves, which leads to deformity and, consequently, to incompetency of these valves, what are we to do to limit the extent and, consequently, the hurtfulness of such a lesion? What, in other words, can be done to prevent the connective tissue formation assuming a great degree?

There is one great principle in the treatment of inflammatory affections which we must endeavor to carry out here, and that is

REST.

Rest to the inflamed valves. Complete rest is, of course, impossible, but relative rest is to some extent obtainable. By giving the valves less to do we in a measure limit the extent and degree of the inflammatory process going on in them. The lower the blood pressure is, the less work will the valves have to do. The treatment, then, consists, in those measures which lower or depress the blood pressure. The first important point to attend to is absolute rest in bed. It is not necessary to insist on the importance of this—it is self-evident. We, however, may have a high blood pressure in spite of bodily quiet. The amount of fluid taken in should be limited, for it is a well recognized physiological fact that a *dry diet* is the most efficient means of lowering blood pressure. This has been conclusively proved by Kussmaul and Tenner's experiments. Of drugs, we have a number that markedly lower the blood-pressure, prominent among which are chloral and the nitrites. The judicious use of chloral in cases of endocarditis is, according to Fothergill, a very efficient way of limiting the sclerotic process. In the

nature of things it is impossible to estimate the value of this treatment in any individual case. It can only be expected that at best we can limit the diseased process, and to what extent this is accomplished in any case it is impossible to tell. No doubt blood-letting is a powerful way of lowering the blood-pressure, but its action is very temporary, and therefore not nearly so efficient as a strict adherence to a dry diet. On physiological grounds I should judge that the employment of frequent blistering over the cardiac region is injurious. At best, the action of blisters on the inflammatory process is very doubtful, and we know that such strong irritation of the skin does, reflexly, tend to keep up a high blood-pressure. The trifling amount of serum drained from the tissues may be eliminated.

THE TREATMENT OF CARDIAC DISEASE DURING THE PERIOD OF COMPENSATION.

When from any cause we have an obstruction to the outflow of blood from the heart, there is a damming up of the blood in the lesser circulation, which soon leads to changes in the vessels and in the heart itself. The changes in the vessels are obviated for the most part by the secondary compensatory changes in the heart. Compensation can never be perfect, still it is so perfect frequently that the patient is quite unconscious for many years of any circulatory disturbance or trouble whatever. We may say that practically we do meet with perfect compensation. As long as the heart is able to overcome the mechanical obstructions heaped up by disease, then so long will the patient remain well. In other words, while compensation is good all is well.

The treatment is now directed to the maintenance of this compensation. Sooner or later in many cases it shows signs of failing, the earliest indication being usually shortness of breath. What can we do to prevent compensation from failing, and when it threatens or has actually set in, what measures should we employ? The answers to these questions are all important.

Given a case of acute rheumatism, where there develops during its course an acute aortic valvulitis, with subsequent sufficient compensation to enable the patient to attend to the ordinary

duties of life, what advice are we to give? How should the patient live in order that he may keep up his cardiac compensation?

There are certain general therapeutic principles which it is important to bear in mind in all cases, no matter what the cause of the circulatory disturbance is. The first is the strengthening of the heart-muscle. It is important to remember that the heart is a muscle, and that its strength is increased by all those influences which increase other muscles. The usual advice given to patients affected with heart disease is to rest as much as possible so as to leave but as little work as possible for the heart to do. Recently Oertel of Munich has practised an entirely different method of dealing with these cases. His method of treating these cases is just now, in Germany, attracting very marked attention, and are very favorably received. Leyden, at the late meeting of the Society of Physicians, considered Oertel's treatment as a distinct advance, and as involving a distinct therapeutic principle. I will endeavor, briefly, to lay before you Oertel's method of keeping up compensation or of averting its loss when thus threatened. He maintains that exercise is the means we have of strengthening the heart muscle. He advises walking—at first on the level ground and afterwards hill climbing. He counsels his patients to take as much exercise as possible. The patient should walk until violent palpitation is brought on, and then he is required to stand still till it has abated, and until the shortness of breath is satisfied by voluntary, long, deep inspirations. He keeps not only patients with sufficient compensation, but those with insufficient compensation, at this exercise, and repeats it after longer or shorter intervals of time, according to necessity.

A second condition that he lays stress on is the keeping up of a good state of nutrition by a diet rich in albumen, so that the tissues during work may be replaced, and that sufficient material may be furnished for the formation of new tissue elements, especially for the muscular hypertrophy. The food, then, should be especially rich in nitrogenous elements—a meat diet in the main, the fat and carbohydrates being only allowed in limited quantities.

Oertel further strongly insists on the regulation of the amount of fluid. When there is excess of fluid, then we are apt to have blood stasis with all its consequences ; the veins become over-filled and the arteries less full. The deleterious influence of this stasis is especially noticeable in the heart itself from over-filling of the coronary veins, the heart-muscle in consequence directly suffering. If there is an excess of fluid in the body already, then it should be got rid of. The skin should be made to act freely, and one of the best means we have for this purpose is exercise. It is only when diaphoresis is not obtainable by exercise that we should resort to other measures, as hot-air baths, Turkish baths, and pilocarpine. The importance of regulating the body fluid is at once apparent when we remember that the venous system is always over-full ; no matter how perfect a compensation may be, it is never sufficient to maintain the normal relations between the arterial and venous systems. Oertel lays great stress on the importance of preventing fat formation, especially in cases after the restoration of a previous loss of compensation. Owing to the incomplete filling of the arteries and the over-fullness of the veins there is of necessity incomplete oxidation, which leads to the deposition of fat. This is especially marked in those who are prone to put on fat and those who partake freely of carbohydrates. The heart suffers directly as well as indirectly. Owing to the coronary arteries being insufficiently filled, and owing to the lack of oxygen, the heart fails to perform its work efficiently, and in consequence we have fatty degeneration of its fibres in addition to fatty deposition on its surface and fatty intermuscular infiltration. This further enfeebles its action. It follows, therefore, that we should constantly guard against all those influences which tend to bring about this enfeebling power. The combustion of fat already in the body must be promoted, and the supply of fat and carbohydrates in the food must be as small as possible.

Now the means best adapted to promote the combustion of fat are those which I have already alluded to for strengthening the heart-muscles and regulating the quantity of fluid in the body. In addition to ordinary exercise, Oertel recommends the under-

taking two or three times a year of mountain tours. This difficult exercise, with the increased sweating attending on it, the diminution of the fluid supply and the use of a more albuminous diet will soon reduce any fat which has accumulated. The increased vigor in consequence given to the heart and the removal of obstruction to its work will soon show itself in the restoration of compensation, and by careful living afterwards, according to the plan sketched, it is possible, so it is claimed, for a patient to maintain his original state (dating from the early compensation) for very many years.

Such, in brief, is the method proposed and successfully practised by Oertel in the management of the retention of compensation and its restoration when lost. I freely admit that I have given but a very imperfect outline of it. The subject is one of such importance that to do it full justice it would require a treatise. Great credit is due to Oertel for the elaborate, scientific, and very painstaking manner in which he has worked out this whole subject. In his work he gives the history of a case that he carefully treated and closely observed for nine years.

Many years ago, Stokes of Dublin recommended a somewhat similar treatment, but in spite of his great advocacy it fell into disuse, even if it was ever practised to any extent.

At the recent meeting of German physicians a paper was read by Franz with the title of "*Rest or Work in Heart Disease.*" From an extensive experience he has come to the conclusion that in chronic cases active but careful exercise is conducive to the strengthening and slowing of the heart's action. He pointed how damaging it is to the circulation to have a dilated heart beating quickly and incompletely. The stretched ventricle is never completely empty, so that finally it loses its elasticity, and owing to its almost constant working it soon degenerates. Now here, if we bring about a complete emptying, we give the ventricle rest and in consequence strength. Franz claims that this can be completely and efficiently effected by exercise—more completely and efficiently than by any other known means. We have, he says, in exercise a means more powerful and safer than digitalis. He further claims that the improvement is more

lasting than that effected by other means—that the work of the heart is lessened by the disappearance of the stasis in the venous system, and the nutrition of the heart is vastly improved through the deeper inspirations making the blood richer in oxygen. He advises that in cases where there is good compensation already, that in order to maintain it ordinary gymnastics are sufficient. He lays great stress, however, on the possibility, even probability of this being overdone, and he insists that every exertion should be followed by a period of rest. Where compensation is, however, lost, the greatest care must be exercised before beginning active exercise; the nature and the amount should be strictly laid down. Before beginning mountain climbing, baths, with a course of Swedish gymnastics, are advisable.

Franz believes that there is no danger whatever in patients with heart disease exercising so long as the palpitation induced by this work is quickly relieved by taking forced deep inspirations. The deep inspirations diminishes quickly the increased tension that is brought about in the pulmonary vessels.

Schott of Nauheim, who took part in the discussion which followed Franz's paper, contended that mountain climbing was only useful in a small number of cases, and that he had seen much harm follow its practise. He, however, strongly approves of exercise in a gentle way for the heart muscle. He therefore, although opposed to the extreme views of Oertel, is satisfied that much good can be effected in those cases with exercise when practised judiciously. Both he and Franz have seen a number of cases where mountain climbing has done irreparable damage to the already overtaxed heart when practised by the patients without first consulting a physician.

It will be seen that we have the evidence of several competent authorities that in exercise we have a ready and all-powerful means of effecting good when used properly, but an agent powerful for evil when injudiciously employed. Time alone will enable us, however, to determine to what extent we can rely on this method of obviating the effects of a damaged compensation. It is a subject of deep and far-reaching importance, and will require time, patience, and sound physiological knowledge to determine

when it should be recommended or whether it should be recommended at all or not.

It is no doubt more adapted for cases of commencing fatty heart and for cases of threatened heart failure from deformity of the chest or disease of the lungs. That it is applicable for cases of threatened heart failure, no matter what the cause may be, is contended for by its great promoter—Oertel. It will make us all think a little more in the future when we are face to face with the question. Exercise or Rest, which is it to be?

There is a time in cases of loss of compensation that exercise is no longer possible, and where we have to resort to medicinal agents. Of all these agents, none, on the whole, is comparable to digitalis. The usefulness of digitalis in cases of heart failure is great indeed. I would not occupy the time of this Association in entering into any details as to its mode of action and employment were not I firmly convinced that there is a very imperfect knowledge among many practitioners of how and when digitalis should be used. How universal is the practice to give this agent when a cardiac lesion is diagnosed without any reference to the nature and attending consequences of such a lesion. The great use of digitalis is in cases where there is commencing or even very advanced loss of compensation. When compensation fails we have stasis, as evidenced by breathlessness, quickened pulse, cedema of the ankles, diminished secretion of urine. The first marked effect of heart failure is diminution in the aortic pressure, as shown in the diminution in the amount of urine excreted.

The essential therapeutic action of digitalis consists in its power of raising the blood-pressure. The slowing of the pulse, upon which so much stress is laid, is, according to Schmiedeberg, a result of the high pressure. The results and symptoms of loss of compensation in cardiac disease are mainly, as I have said, due to deficiency of blood in the arterial vessels and to a too low a pressure in them. If the blood pressure be raised, the secretion of urine increases, the effused fluids are absorbed from the cavities and tissues of the body, and the respiratory distress disappears. So long as digitalis causes an increase in

the quantity of urine, so long is it safe to proceed with its administration. We know that digitalis has no influence in increasing the quantity of urine in health or in disease where the blood pressure is high. Its diuretic action is entirely dependent on its power of raising an abnormally low blood pressure. In order to bring about the diuretic effect of digitalis it is necessary to give it in full doses. The effect of small or even moderate doses is to increase the general pressure, including the pressure in the arterioles of the kidneys. While the pressure throughout is high, there is no diuretic action manifest. After a certain quantity has been administered, the increased pressure in the kidneys gives way, with the result of a rapid and often great increase in the quantity of urine. The increased diuresis may continue several days. If the drug is still continued, there is general fall in the blood pressure, and in consequence the diuretic action soon ceases. When the urine, after being increased in quantity by digitalis, considerably diminishes, then the drug should be at once withdrawn. This decrease is a warning which should never be neglected. If it is, the ventricular contractions becomes weaker and weaker, until finally we only hear a "toneless tic-tac." When this stage is reached, it requires but little more digitalis to bring about a stand-still of the heart in contraction. Up to the production of decrease in the quantity of urine, nothing but good is observable.

Now as to the quantity of digitalis necessary to bring about diuresis there is great variation. Different persons vary greatly as to their susceptibility to its action. Forty minims of the tincture four times daily for three days will in the great majority of cases bring about this diminution. Sometimes it is necessary to give as much as half an ounce daily in divided doses before the result is attained. Cases of dangerous heart failure should always be treated according to the method sketched. It is very unscientific to expect the best results from any other way. No doubt 10 or 15 minims of the tincture several times daily will to some extent relieve an overtaxed ventricle; even rest in bed without any medication will at times prolong life; but the best results are only obtainable when absolute rest in bed is combined with digitalis in full doses.

There is a large group of agents which belong to the digitalin group which have lately attracted a great deal of attention. There is Scillain, which is the active principle of squills ; Helleborein, which occurs in the various species of hellebore ; Oleandrin, found in conjunction with digitalin in the common oleander ; there is Apocynin, contained in Canadian hemp ; Adonidin, found in the spring adonis ; Convallamarin, in the lily of the valley ; and lastly, Strophantin. Now all these agents possess in common the property of slowing the heart and increasing the blood pressure. Squills has been used empirically for a long time as a diuretic and heart tonic. It enters into the composition of the still famous Baly pill, the other ingredients being digitalis and mercury. This is a remarkable combination, built entirely on empiricism long before the science of pharmacology was even dreamt of. We have here a combination containing two heart tonics, digitalis and squills, and a direct diuretic, mercury. It is only a very recent discovery that mercurials, especially calomel, have a direct diuretic action. It is a proof, if one were needed, how foolish it is to neglect the laborious acquired knowledge of our forefathers, call it empiricism if we like. Of the other agents mentioned, only strophantin and adonidin need be referred to ; the remainder we know little or nothing outside of the laboratory.

Strophantin, introduced by Professor Fraser of Edinburgh, has now been in use about two years, and although all the reports are not confirmatory of a very marked tonic action, still we have sufficient evidence to enable us to say that it is a very valuable addition to the list of cardiac tonics. It has been found well adapted for cases of cardiac failure depending on valvular disease. Pins of Vienna, who has given us a report of its action, claims a high place for it, even suggesting the probability of its displacing digitalis. He found the weak, rapid and irregular pulse of mitral disease become slow and powerful. It acted as a prompt diuretic, being quicker in its action than digitalis. It is worthy of a thorough test, but, as yet, we are not sufficiently acquainted with its mode of action to determine the exact place it will hold in cardiac therapeutics.

A few cases have been reported where adonidine has had a very marked action in toning up a failing heart, even when digitalis is alleged to have failed ; but in all the reports that I have examined, the digitalis was not administered with that freedom that is necessary in order to obtain its full effects. Still there is sufficient evidence to prove that in adonidine we have a very powerful cardiac tonic and vascular diuretic.

I will now conclude what I have to say by a few words on

CAFFEINE IN CARDIAC THERAPEUTICS.

This is a most valuable agent, and deserves a much more extended use than it has up to the present time received. In order, however, to obtain its full action, it is necessary to give it in much larger doses than is usually prescribed, 10 to 15 gr. in place of 2 or 3 gr. The best salt to prescribe is the natio-salicylate of caffeine. The sodium salicylate dissolves it in chemically equivalent quantities, so that the natio-salicylate of caffeine contains 50 per cent. of caffeine.

Caffeine quickly raises the blood pressure by a direct action on the vaso-motor centre. It has also a direct diuretic action. This, I think, has been conclusively proved by the very recent researches of von Schröder of Strassburg. He has shown that it has a direct stimulating influence on the epithelium of the convoluted tubules, and probably also on the epithelium of the glomeruli. It is on this direct diuretic action that the advantages of caffeine depend. Digitalis only acts as a diuretic through increasing the blood pressure, and on this account it takes from three to four days before its action is manifest. Caffeine, on the other hand, will induce a diuresis within six hours. In cases of paresis of the cardiac muscle, time is all important ; before the action of digitalis can be induced precious time is lost. This is the great drawback to the use of digitalis—*i.e.*, time consumed before its action is manifest. Our present knowledge of caffeine may be summed up as follows : It is of marked use in the same class of cases as digitalis. It differs, however, from this drug in the following particulars. It is less powerful as a cardiac tonic, but is a more powerful and prompt diuretic, and for this

reason it gives relieve quicker from all the troublesome subjective symptoms of cardiac failure. By combining the power of digitalis with the rapidity of action of caffeine, we may obtain the advantages of both drugs, with little of the disadvantages of either.

There are many more therapeutic resources at our command besides those mentioned. Time will prevent me from referring to them. The wonderful powers of arsenic in painful conditions of the heart, the use of opium alone or with digitalis, the marked beneficial actions of the nitrites, etc., are all means at our command of relieving some of the most distressing states that afflict mankind. Much as we can do at present, there is every reason to hope that in the near future we will be able to do much more.

NOTES ON ANTIPYRIN AND ANTIFEBRIN.

BY ED. EVANS, M.D., SEAFORTH, ONT.

The following notes may prove of interest, as illustrating not only the anodyne powers of antipyrin and antifebrin in certain painful affections, but also their *curative* powers.

It is said that neuralgic affections attacking persons in the period of declining bodily vigor are often severe, lingering, and rebellious to treatment. The following cases occurring at this period yielded readily to one or other of the above drugs:—

CASE I.—J. E., farmer, aged 65; had worked hard in harvest field and felt exhausted; complained of pain in right hypochondrium and scanty micturition. Was seen by a doctor, who prescribed rest, a purge, and a mild diuretic mixture. Two days later I found him still suffering severely with pain, but in addition, almost total suppression of urine and frequent desire to micturate. He was drowsy, had headache and vomiting. Pulse 115; temperature 102.5°. Drew off one and a half ounces of urine, which was dark; great excess of urates; specific gravity 1.035; only a trace of albumen; no blood or tube casts. Gave him hot bath and pulv. Doveri gr. x and Pilocarp. gr. $\frac{1}{2}$ (bowels were very free), and poulticed the loins. Next day, headache gone, vomiting ceased, no frequency of micturition, pulse and

temperature normal ; urine passes in small quantity ; no albumen. In three days he was well again, except being very weak. The pain in side persisted, however, and was very severe. It was confined to the ninth and tenth intercostal spaces (tender points present). Blisters, hypodermics of morphia and atropia, and the use of arsenic failed to give more than temporary relief and he had to take opium constantly for a month to obtain sleep. I then tried Antipyrin gr. v twice daily (stopping all other treatment). He had immediate relief, and in ten days was entirely well.

CASE II.—T. M., aged 34, soldier, suffering from intercostal neuralgia (ninth interspace, right side). Pain very severe, intermittent, tender points, ten days' duration. A history of a similar attack fifteen years ago, after severe marching. No rheumatism ; no syphilis. A hypodermic (gr. viii) of antipyrin gave immediate relief. I prescribed antifebrin gr. vi twice a day, and liq. arsen. $\mathfrak{m}$ iii t.i.d. He suffered no pain since, and is now well.

CASE III.—Mrs. H., aged 48, dorso-lumbar neuralgia ; large, fat woman ; rheumatic history. Had ill-defined pains in back and hips for some time, when, after "catching cold," she was suddenly seized with severe pain in lumbar region, which confined her to bed. Pain much increased by stirring, and radiates over buttocks and into hypogastric region. Tender points in lumbar region, over centre of crista illi and in hypogastrium. A hypodermatic injection of gr. x of antipyrin stopped pain, and in ten minutes she could move freely (in bed) without pain. I left four powders of gr. v antipyrin, and she has not suffered from pain since then.

I have also used these drugs for the pains of locomotor ataxia (one dose of gr. x antipyrin stopped the gastric pain of ataxia now for three months), cervico-brachial neuralgia, painful affections of the fifth nerve, four cases migraine, dysmenorrhœa, gastralgia, intestinal colic, etc. In fact in almost all cases where formerly morphia was used to relieve pain.

So far I have found antipyrin fail in one case of migraine

and in a case of hysterical pain. It seems to possess the advantage over morphia of not deranging the digestion or producing other untoward effects. Smaller doses than those generally prescribed will, I think, be found equally effective, and then there is little danger of excessive sweating, vomiting or collapse. Antifebrin seems equally as effective as antipyrin to relieve pain. It is about four times as cheap, and the dose is smaller ; but it is not so soluble, and is not therefore so suitable for hypodermatic use.

SOME LABORATORY NOTES ON PAPOID DIGESTION.

BY R. F. RUTTAN, B.A., M.D.,
Lecturer on Chemistry, McGill University.

For some time it has been known that the stems, leaves and unripe fruit of a plant called *Carica papaya* contain a ferment capable of digesting proteids. This plant is found in the East and West Indies and in South America. The natives of many localities where this plant is indigenous make a practice of rolling their fresh meat in caraca leaves to make it tender and easier of digestion. From the juice of this plant Dr. Finkler of Bonn University has made an albuminous preparation containing the ferment, which is now attracting much attention under the name of Papoid.

Wurtz, however, was the first to isolate the ferment, to which he gave the name of *papaïn*, and ascribed to it certain definite and characteristic reactions.

About 90 per cent. of commercial papoid is soluble in water ; the residue consists chiefly of coagulated albumen. The solution contains globulin, but it is highly probable that the ferment is quite independent of this albuminoid, as the globulin may be precipitated, leaving in the solution a large part, if not all, of the ferment.

As papoid contains the ferment *papaïn* and also some albumen on which it may act, care must be taken to keep it dry. The unsatisfactory results obtained by some in its use are no doubt due to previous exposure of the sample to moisture. A solution

of papoid will always give the peptone reaction on standing a few hours.

The greatest differences of opinion have been expressed by different experimenters as to the conditions most favorable to the activity of papoid. Albrecht (*Schmidt's Jhrbush*, Bd. 190) states that papaïn digestion is hastened by the presence of hydrochloric acid. Würtz, on the other hand, shows that papaïn digestion is essentially a neutral one, which is most rapid and thorough at a temperature of about 40°. Rossbach has recorded a few experiments—at variance with most others—in which he claims that this ferment is not more active in a warm solution than in a cold one. As papaïn is a vegetable product, this seems highly probable, but the careful experiments of Dr. Sidney Martin fully prove that a moderate degree of heat increases the activity of this ferment just as it does that of any other. The fact remains, however, that papaïn has powerful digesting action at ordinary temperatures—50°–70°F.

Dr. Martin has published at some length a series of carefully made experiments on the nature and action of papaïn in the *Journal of Physiology*, Vols. V and VI, and the results of the following experiments, where they run parallel with his, closely correspond with the results obtained by this author.

In each of the following experiments the digestion mixture consisted of 1 gramme of pure dry fibrin in powder, which was boiled in 20 cc. of water and allowed to stand for 12 hours to soften. To this was added 10 cc. of a 1 per cent. solution of the ferment to be used and standard acid or alkali to required strength, making the whole mixture up to 50 cc. The digestions were carried on in an incubator kept at a constant temperature of 37–38°C., and at the end of a variable time the undissolved fibrin was filtered off on a small, tared filter, and after thorough washing was dried at 100° to constant weight. Thus the undigested fibrin could be weighed in the same condition as before it was submitted to the action of the ferment, and any experimental error caused by the presence of a variable quantity of moisture was eliminated. It is not easy to understand how relative digestion can be accurately determined by those who experi-

ment with proteids of such indefinite and variable composition as "hard-boiled egg," "fresh meat," and "freshly coagulated albumen"; yet many of the published results on papoid digestion have been based on experiments in which their substances were weighed before and after the action of the ferment.

EXPERIMENT I.—Digestion mixture consisted of 1 gramme fibrin, 10 cc. of a 1 per cent. solution of papoid or pepsin in a neutral medium; time 20 hours; temperature 37–38°C.

Experiment done in duplicate :

	<i>Undigested fibrin.</i>	<i>Per cent. digested.</i>
Papoid (a)	.187 grm.	81.3 per cent.
Papoid (b)	.13 "	87.0 "
Pepsin (a)	.903 "	9.7 "
Pepsin (b)	.883 "	11.7 "

EXPERIMENT II.—Conditions the same as in I, but in an acid medium of .3 per cent. hydrochloric acid; time 20 hours; temperature 37–38°C. :

	<i>Undigested fibrin.</i>	<i>Per cent. digested.</i>
Papoid (a)	.972 grm.	2.8 per cent.
Papoid (b)	.923 "	7.7 "
Pepsin (a)	.08 "	92.0 "
Pepsin (b)	.04 "	96.0 "

EXPERIMENT III.—Pepsin in .3 per cent. hydrochloric acid and papoid in a neutral medium; other conditions as before; time 15 hours :

	<i>Undigested fibrin.</i>	<i>Per cent. digested.</i>
Papoid (a)	.378 grm.	62.2 per cent.
Papoid (b)	.322 "	67.8 "
Pepsin (a)	.232 "	76.8 "
Pepsin (b)	.281 "	71.9 "

EXPERIMENT IV.—Papoid and pancreatin in 1 per cent. solution of sodium carbonate; other conditions as before; time 18 hours :

	<i>Undigested fibrin.</i>	<i>Per cent. digested.</i>
Papoid.....	.37 grm.	63 per cent.
Pancreatine.....	.02 "	98 "

EXPERIMENT V.—Papoid in .2 per cent. solution of sodium carbonate and pancreatin in a 1 per cent. solution; other conditions as in Experiment I; time 20 hours:

	<i>Undigested fibrin.</i>	<i>Per cent. digested.</i>
Papoid.....	.131 grm.	86.9 per cent.
Pancreatine.....	.122 "	87.8 "

EXPERIMENT VI.—In order to determine the conditions under which papoid is most active, its action on 1 grm. of fibrin in the presence of different quantities of alkali was estimated with the following result; time 18 hours:

	<i>Undigested fibrin.</i>	<i>Per cent. digested.</i>
Papoid + 1 per ct. Na_2CO_3 ..	.44 grm.	56 per cent.
+ 5 "	.28 "	72 "
+ 2 "	.12 "	88 "
in neutral solution..	.18 "	82 "
In 3 p.c. hydrochloric acid.	.96 "	4 "

EXPERIMENT VII.—The action of papoid in neutral solution on diphtheritic membrane compared with that of pepsin:

(a) Papoid digested completely .3 grm. of diphtheritic membrane in 20 hours.

Pepsin had only partially dissolved the same weight of membrane at the end of 36 hours.

(b) Papoid dissolved completely .5 grm. of membrane in 23-24 hours.

In these experiments a 5 per cent. solution of papoid or of pepsin was added to the undivided membrane, and the whole kept wet during the time specified. The membrane was reduced to a clear fluid jelly by papoid, but only partially attacked by the pepsin under the same conditions.

EXPERIMENT VIII.—Does acid destroy the proteolytic action of papoid as it does that of trypsin?

To ascertain this, .2 grm. of papoid was added to 1 gramme of fibrin in a .3 per cent. solution of hydrochloric acid in duplicate. Both mixtures were made up to 50 cc. and left in the incubator for three hours. At that time one mixture was estimated and the other made faintly alkaline with sodium carbonate and left in the incubator for 13 hours longer.

The acid mixture showed no digestion,—no reaction indicating peptones could be obtained.

At the end of 13 hours the other mixture gave a residue of .23 grm., showing that 77 per cent. had been digested.

The proteolytic ferment of papoid is therefore not destroyed by being kept in an acid medium for three hours at blood heat ; its action is only suspended.

The conclusions to be drawn from these experiments are obvious. Papoid evidently contains a powerful proteolytic ferment which resembles trypsin both in the conditions under which it is most active and in its mode of digestion. It corrodes the fibrin, dissolving each piece away from the surface to the centre, and does not gelatinize the whole mass like pepsin. Moreover, one can readily obtain leucin in the products of digestion. Tyrosin could not be obtained by the writer, but its presence was determined by Dr. Martin, who worked with larger digestion mixtures.

Papoid, as shown in Experiment II, is quite inactive in small quantities in an acid medium of .3 per cent. hydrochloric acid. A certain amount—3 to 7 per cent. of the fibrin—was dissolved by it, but no true digestion occurred, as peptones in any quantity were absent.

The results of Experiment VIII, however, show that although it is inactive in acid its functions are only suspended, the ferment is not killed. This is interesting, in view of the frequent use of papoid for treatment of dyspepsia. If the stomach be normally acid, its activity will probably be suspended entirely ; if, however, the acidity be very slight, papoid will probably act. Its greatest action, however, takes place in the small intestines, where the medium is alkaline or neutral. The ferment is most energetic in a faintly alkaline medium, about .2 per cent. of sodium carbonate.

Comparing its digestive power with that of pepsin and pancreatin, Experiment I shows that in a neutral medium its activity is far greater than pepsin, but it is inferior to it in an acid medium. Under the conditions that have been found to be most favorable to their respective functional activity, papoid is but little, if at all, inferior to either pepsin or pancreatin.

Papoid is especially useful for removal of diphtheritic membrane. The conditions present in the pharynx are just those which retard the action of pepsin and pancreatin, but do not influence papoid. The medium in which it is required to act is practically a neutral one and the temperature low, there is present, besides, a large excess of the products of digestion which does not affect papoid—indeed it is most energetic in a concentrated medium. Moreover, papoid has been shown clinically to lessen very greatly the disagreeable foetor of the disease. Painting on a 5 per cent. solution, freshly made, every two or three hours has been found to give the best results: the foetor disappears in a few hours and the membrane in from 12–18 hours becomes thin and glairy.

It would seem to be especially indicated in these forms of dyspepsia in which peptic digestion is greatly impaired and where the secretion of gastric juice is very weak.

Papoid, therefore, promises to be a powerful auxiliary in combatting those two great diseases—diphtheria and dyspepsia.

Correspondence.

THREE CASES OF SCARLET FEVER. (?)

To the Editors of THE CANADA MEDICAL & SURGICAL JOURNAL.

SIRS:—The report of the following cases may prove of sufficient interest for insertion in your JOURNAL. The notes were taken during my attendance:—

CASE I.—On Nov. 16th, 1887, I was called to see D.'s children. History as follows: On the 13th (Nov.) the youngest, 1½ years old, was taken ill with what the parents thought was a "cold." She was flushed and feverish, had a little cough, free mucous discharge from nostrils, and slight sore throat; loss of appetite, vomited once, bowels regular. Next day a very slightly marked rash was noticed on face, neck, front of body, arms and legs; this was observed to disappear at times, to return again; was not itchy. On 15th condition remained unchanged. When seen on 16th the little patient was said to be better, appetite was returning, was not so feverish, had less "cold," and rash

was less distinct. Temperature $100\frac{1}{2}^{\circ}$; pulse 116. A faint, dull red, slightly but distinctly papular eruption was seen on anterior parts of body; color disappears momentarily on pressure; intervening skin between red points normal in appearance. Tonsils and fauces are a little swollen and injected, no exudation; tongue heavily coated with white fur. There is free mucous discharge from both nostrils; conjunctivæ not injected; slight cough. Lungs normal. Administered a few Hyd. c. Cret. powders. Patient continued to improve, and in a few days was quite well again, the coryza being the last symptom to disappear.

CASE II.—On the night of the 14th (the day after the first was attacked) another little girl, aged 4 years, was attacked in precisely the same manner, but less severely. Next afternoon a very slight eruption appeared in her case. She was feverish, had a "cold" and slight sore throat, but no cough. On 16th, when seen, was said to be all right again. Temperature normal; pulse 96. A few points of the fading eruption were seen on the anterior surface of arms only, and corresponded exactly to those in the preceding case, but were less marked. There was slight congestion of fauces, tongue furred white, slight coryza, and poor appetite. Gave Hyd. c. Cret. and aperient; symptoms all disappeared during the day.

CASE III.—On the evening of the 15th, shortly after returning from school, a third little girl, aged 6 years, was seized with a distinct chill, followed by fever, headache, vomiting, epigastric pain, sore throat and cough; passed a restless night, with frequent vomiting. When seen on morning of 16th, patient is in bed; complains of severe frontal headache and sore throat, swallowing is painful and appetite is lost, vomits frequently with much retching, has pain and tenderness in epigastrium, bowels regular; slight cough, no thoracic pain, no sneezing or coryza; is restless, cheek flushed, no conjunctival injection, skin hot and dry; on face, forearms and upper part of chest a few fine, pale red points are seen, which readily disappear on pressure; intervening skin normal. Temperature $102\frac{1}{2}^{\circ}$; pulse 130; respirations 24. Tongue coated white, considerable injection of fauces

not very bright in color, tonsils swollen, with a little mucus collected on surface, which is easily detached. Glands beneath angles of jaws enlarged and tender. Heart and lungs normal. Gave Bismuth Trisnit. with minute doses of calomel and opium, and an aperient; Tr. Ferri Mur. and Pot. Chlor. to throat; diet of milk and lime water. 17th.—Patient was delirious and restless through the night; complains of severe frontal headache and pain in epigastrium; throat very sore, tonsils more swollen, glands beneath jaws more swollen, hard and very tender. Vomiting has ceased and bowels were freely moved. The eruption to-day is fairly well marked all over, is not scarlet in color; is punctate and slightly papular; all spots are about equal in size, as large as a small pin-head; intervening skin everywhere normal; temperature 104° ; pulse 140; respirations 26. Lungs normal. Urine contains no albumen or casts. 18th.—Is better, fairly good night; all symptoms relieved; eruption disappearing where first seen; temperature 102° , pulse 116; urine free from albumen. 19th.—Much better in all respects; temperature 100° , pulse 102; eruption fading all over to pale red; distinct firm, branny scales are seen where eruption first appeared. From this date convalescence was rapid and uninterrupted, and by the end of a week all appreciable desquamation had ceased.

These cases are of interest to me, chiefly in the matter of diagnosis. No source of infection could be ascertained; no other cases of scarlet fever have occurred before or since anywhere in the neighborhood, and their little sister 3 years of age in the same house escaped the disease, although she was with the others all through the attack. None of the children had any eruptive disease before. All recovered rapidly and perfectly without any complication. The absence of known source of infection, the mild and transient character of the disease as it manifested itself in the first two cases, and the peculiar character of the eruption in all, enabled me on the first day I saw them to make the diagnosis of—"?"—while the evidently infectious character of the disease, its course in the last case, and the desquamation which occurred, though but to a slight extent, in all, led me to look upon them as cases of scarlet fever; anoma-

lous cases to me, though, for I must admit that in my short experience I have never seen cases of scarlet fever in which the eruption presented the peculiar characters which existed in these three cases.

I shall be pleased to read any remarks anyone may offer concerning the above cases.

E. G. WOOD, M.D.

MITCHELL, Jan. 18. 1888.

Reviews and Notices of Books.

The Elements of Chemistry. A Text-book for Beginners.—By IRA REMSEN, Professor of Chemistry in the Johns-Hopkins University. Macmillan & Co., London and New York. 1887.

Says the writer of this book in his preface: "In the opinion of the author, a rational course in chemistry, whether for younger or older pupils, is something more than a statement of facts of more or less importance; a lot of experiments of more or less beauty; a lot of rules devised for the purpose of enabling the pupil to tell what things are made of. If the course does not to some extent help the pupil to think, it does not deserve to be called rational. Not only must the pupil perform experiments, but he must know why he performs them and what they teach." Would that every teacher of science believed this with all his heart and acted upon such a conviction. If so, the intellectual fabric resulting from college study would soon be of a higher quality.

From an intimate personal knowledge of Professor Remsen's methods of teaching and the character of his lectures, we have no hesitation in placing him in the very front rank of the teachers of science in America or in the world. He is an example of that rare combination of the clear, interesting and inspiring lecturer with the genuine educator. He makes sure that his pearls are not cast before swine. He ascertains that his pupils have really digested what is set before them before proceeding further, and if they have not, meditation and intellectual fasting (from new facts) are prescribed. The only proper person, as a rule, to

write a text-book is the man who is both an investigator and a successful teacher. The author of this book being both, it is not surprising that by common consent there is no series of works on chemistry in the English language comparable to those Prof. Remsen has given to students within the past few years, to which this, the most elementary one of the whole, is no exception. We have only words of praise for this valuable little work, and can on conviction recommend it to the medical student or any other who would learn chemistry according to the principles enumerated by its author in the extract quoted above.

A Course of Quantitative Analysis for Students.—
By W. N. HARTLEY, F.R.S., Professor of Chemistry and
of Applied Chemistry, Royal College of Science, Dublin.
Macmillan & Co., London and New York. 1887.

The methods of analysis detailed in this book are those the author has found useful and accurate, as tested in his own laboratory. They are not presented as wholly or in great part original, but as mostly selected from the larger books on this subject. However, the more extensive works, when put into the hands of the beginner, are apt to prove a hindrance as well as a help, so that such a book as Professor Hartley's seems to be called for. Methods by weighing and titration are both treated, and accompanied by examples illustrating the necessary calculations, a most excellent feature in a work intended for the beginner. The print is large and clear, and a few cuts have been introduced. The book is a good one.

Operative Surgery on the Cadaver.—By JASPER JEWETT
GARMANY, A.M., M.D., F.R.C.S. Montreal: Dawson
Brothers. 150 pp.

This little work on operative surgery is intended for the use of students. The first chapter describes specula, catheters, sounds, etc.; the second treats of paracentesis of the various cavities; whilst the third chapter describes the various sutures, knots, and method of drainage. It also tells how to hold a scalpel and to make incisions. The other eleven chapters treat

of the operations performed on various parts of the body. The book will prove very useful to students, but in our opinion is much too condensed. The descriptions of the newer operations, such as those on the brain, kidney, etc., are very sketchy, and, in fact, this is the fault of the whole book. It covers an enormous amount of ground, but the description of each operation is so short that although a surgeon who is well up in his subject could follow easily, a student would desire much more detail. The book is well up to the times, neatly printed, but almost entirely devoid of illustrations: two diagrams of the arterial supply of the body being the only attempt in this line. In a second edition we should advise more illustrations and fuller descriptions, especially of the more common operations. The book will prove a helpful companion to students who are taking a course in operative surgery on the cadaver.

Text-Book of Therapeutics and Materia Medica.

Intended for the Use of Students and Practitioners.—By ROBERT T. EDES, A.B., M.D., Late Professor of Materia Medica and Jackson Professor of Clinical Medicine in Harvard University. Philadelphia: Lea Brothers & Co.

Of the making of books in materia medica and therapeutics there is truly no end. Not a year passes but what several new works or new editions of old works are brought out. This is, in our opinion, far from being the evil that it is commonly supposed to be. It is, at any rate, a very promising state of matters for the future of pharmacology and therapeutics.

Dr. Edes' work is the latest addition to our therapeutical literature. We are pleased to see him describe drugs under the only rational system of classification—the physiological. This method presents such obvious advantages to both the student and practitioner that it is really surprising how any other system can be followed or advocated. The so-called natural system of Buchheim, although suitable for the pharmacological laboratory, is not applicable to therapeutics. The consideration of drugs alphabetically is so crude that it admits of no defence. Dr. Edes does not enter very fully into the pharmacology of the different

drugs. He contents himself for the most part with a simple statement of the leading actions. There is a lack of method, too, in the description of these actions.

The work on the whole is fairly satisfactory. It is, however, far from being the best work on Pharmacology and Therapeutics.

Society Proceedings.

MEDICO-CHIRURGICAL SOCIETY OF MONTREAL.

Stated Meeting, Nov. 11th, 1887.

WM. GALDNER, M.D., 1ST VICE-PRESIDENT, IN THE CHAIR.

Treatment of Ulcers after Thiersch's Method.—DR. BELL read a paper on the treatment of ulcers by Thiersch's method of skin transplantation. (*See January number, page 332.*)

Discussion.—DR. HINGSTON regarded the results obtained by Dr. Bell as highly satisfactory. He thought the greatest drawback to the method was the difficulty of obtaining these large pieces of skin sufficiently thin.

DR. RODDICK thought that this mode of treatment was an improvement on all others for certain kinds of ulcers. He did not think it was necessary to dissect out the ulcer; a fresh surface could be obtained by scraping. The first case shown was under his care in the hospital. He at one time held suspicions that it was a case of epithelioma; he intended, however, to have scraped out the ulcer and filled it up by skin-grafting.

DR. SHEPHERD referred to some cases he had seen treated in this way in New York three years ago. Surgeons have been known to use the whole thickness of the skin.

DR. CAMPBELL said that many old methods are often forgotten in the search after new ones. He regarded the old method of strapping ulcers, known as Boynton's method, as one of the best. This method and the treatment by blistering, though now largely supplanted by others, had formerly yielded him excellent results.

DR. BELL, in replying, stated that he did not claim this method to be the best for all classes of ulcers, but did believe that it was applicable to ulcers that could not be healed by other methods. He always carefully removed all the diseased tissue before apply-

ing the skin-grafts, but did not think dissecting out every ulcer was necessary. He had dissected out the ulcer in the first case because he feared that deeper tissues were involved. He had seen successful cases in Germany where the deeper tissues had to be removed and even pieces of bone chipped off before applying the new skin. The longest time taken by any of the ulcers to heal was thirty days; that was his first case. It was dressed on the fifth and thirteenth day; none of the other cases were dressed before the twenty-first day, when he invariably found the ulcer healed. This method possessed the great advantage of growing a good sound skin to the ulcer, and does not necessitate reducing the ulcer to a healthy condition before grafting.

Cystine Calculi.—DR. RODDICK exhibited several small cystine calculi passed per urethram. The patient is a delicate-looking man, 57 years of age; he gave a history of several attacks of renal colic, the first occurring three years since, followed by the passage of some fifty calculi varying in size from a pin's head to a pea. Lately the attacks have been less severe, and all have not been followed by passage of stones, but always gravel. Pain formerly equally severe over both kidneys, of late only over left. No hereditary history of stone of any kind.

Remarks.—Cystine calculi are exceedingly rare—less than one per cent. in European collections. Gross says he never met with a case. The disease is common in dogs. Nearly all cases previously reported show hereditary history. This form of calculus always forms in the kidney, and is usually multiple. They have the appearance of beeswax, and soft enough to be compressed, as in the specimens exhibited, where from lying in contact either in the kidney pelvis or the prostatic urethra have become faceted. The majority of the stones passed in this case are coated over with uric acid.

Discussion.—DR. RUTTAN, after showing a slide of crystals of cystine under the microscope, demonstrated some of its chemical reactions. He also stated that this variety of calculi is not always soft when passed, as by remaining in the bladder for any length of time they may become coated with uric acid or phosphates. Some of the calculi shown are coated with uric acid;

one calculus containing about 25 per cent. Owing to the peculiar constitution of cystine, it combines with and is soluble in either strong alkalies or acids, thus is easily distinguished from uric acid. The sulphur is readily detected either by boiling the powdered calculi in lead acetate and caustic potash or by fusing with potash and adding a drop of nitro-prussiate of soda; the purple color in the test is very marked. As no other calculus-forming substance contains sulphur, the detection of its presence in a calculus proves it to be cystine. Cystine was also found in marked quantity in the patient's urine.

DR. REED referred to a fine specimen belonging to Dr. Fenwick, which had been removed by lithotomy. It was soft like wax while in the bladder. The appearance of the hexagonal crystals under the microscope resembles iodoform, and care must be taken not to confound the one with the other when this drug has been used in injections.

Case of Periosteal Sarcoma of Femur.—DR. RODDICK gave the following history: The patient was a young man, a civil engineer by profession, 24 years of age, thin and anæmic. Distant family history of tubercle, but none of cancer or tumor of any kind. No history of syphilis. He was quite well up to July last, when he sustained slight injury to left knee, aggravated later by kneeling in canoe for several days paddling. The case looked at first like simple or rheumatic synovitis, and it was treated as such by blistering, etc. When he came under observation here the effusion was very great, causing severe pain from tension; skin thickened and slightly oedematous, not like the smooth, glistening or white appearance of ordinary or strumous synovitis. Aspiration showed thin, bloody serum containing blood-clots and debris of tissue. Suspected sarcoma and made exploratory incision.

Remarks.—Had patient's condition warranted, would have preferred amputation at hip, as I believe periosteal sarcoma more liable to recur owing to continuity of periosteum. Would be less afraid of recurrence in central or myeloid sarcoma. Patient was doing well at time of report, one week after operation.

Discussion.—DR. HINGSTON said he could agree with Dr.

Roddick in the unsatisfactory nature of an amputation in the continuity of the bone in periosteal sarcoma. He had formerly operated leaving a portion of the bone, but found he had almost invariably to operate again later to remove the rest of the bone. In his opinion, operation in the continuity of the bone is always unsatisfactory, while removal of the entire bone has given him the best of results.

DR. SHEPHERD said that in his experience the disease generally reappeared in either form of operation: not in the stump, as a rule, but in some of the internal organs.

DR. BELL could recall many cases during his experience in the General Hospital, where the limb had been amputated in the continuity of the bone. In all these cases the disease had recurred in some of the internal organs. Cancer, in his opinion, does not spread by the periosteum, but through the lymphatic system.

Resection of the Intestine.—DR. JAS. BELL showed a specimen from the following case:—B. D., aged 17, was admitted to hospital on the evening of the 8th of November suffering from a strangulated inguinal hernia. The boy was a plumber by occupation, and had never had a hernia until Sunday the 6th of November, two days prior to admission, when he complained of pain in the upper zone of the abdomen and noticed the swelling in the right scrotum. He took a dose of black draught, which produced in the night one small motion. Vomiting set in the following morning and continued until his admission to hospital. The patient was anæsthetized, and moderate taxis having failed, herniotomy was performed. The sac was opened and found to contain about ten inches of small intestine very firmly strangulated in the whole length of the canal, which was enlarged and the bowel drawn out and examined. It was very black, but glistening, and distended with air, and was consequently returned. The obstruction symptoms, however, remained unrelieved, and tympanitic distension of the abdomen developed gradually. The pulse and temperature, as well as the general symptoms, indicated peritonitis. Thirty-six hours after the herniotomy it was decided to open the abdomen and endeavor to relieve the obstruc-

tion. The abdomen was opened in the middle line. There was general peritonitis, and the intestines were hyperdistended with gas. The obstruction was found to be due to the collapsed and kinked condition of the portion of gut which had descended in the hernial sac. It was the lower portion of the ileum, and was quite gangrenous, lines of demarcation forming at the points where it had been constricted at the internal ring. The gangrenous bowel was excised with a triangular portion of mesentery, the operator cutting through the healthy bowel about half an inch beyond the forming line of demarcation at either end, the lower section being about three inches from the cæcal valve. The distended intestines were punctured by hollow aspirating needles to evacuate the gas before they could be returned. After excision, the ends of the bowel were carefully united by silk sutures, the first six or eight being carried through the whole thickness of the wall of the gut at opposite points to secure accurate coaptation, and then a continuous Lembert suture. The abdomen was washed out with warm water, a drainage tube left in the lower end of the wound, and a gauze dressing applied. The operation occupied one hour and a half, and the patient, who only partially rallied, died two hours after its completion.

Discussion.—DR. SHEPHERD said that he regarded the so-called lustre as a very deceptive characteristic of healthy intestine. The bowels of subjects in the dissecting-room show a well-marked lustre.

DR. RODDICK thought that the operation of the future would be to open the abdomen at once and thus obtain a good view of the affected intestine. This is the great difficulty of the ordinary method of operation. He had seen many worse cases than Dr. Bell's recover.

DR. HINGSTON said his rule in strangulated hernia is to operate at once. He had been often astonished to see how quickly cases would recover where the hernial mass was quite black when returned to the abdomen. Removal of a piece of intestine is always a very serious operation. He makes a practice to return the bowel in every case.

Specimen of Tubercular Cystitis.—DR. JOHNSTON exhibited

the bladder and kidneys of a tuberculous case occurring in the practice of Dr. Roddick. An unhealed fistula was shown opening into the urethra in front of the prostate; upon the walls of the fistula and about the base of bladder were a few tubercles; the rest of the bladder was free from tubercles. The right ureter showed numerous patches of tubercular ulceration, and in right kidney two of the calices presented extensive caseous softening; left kidney and ureter free from tubercle; acute miliary tubercular peritonitis and pleuritis; miliary tuberculosis and amyloid of liver, spleen and kidneys, commencing tubercular meningitis.

Dr. Johnston stated that he had examined a specimen of the patient's urine, sent him about a week before the death, and could find no bacilli. It had surprised him when on making the autopsy such extensive caseous softening of the pelvis of the right kidney was seen, as this usually yields enormous numbers of tubercle bacilli. Examination of the caseous masses in the kidney, however, in about twenty specimens he found no bacilli. A small number of bacilli were found in the ulcers in right ureter and in the walls of the fistula, and this should have shown the true nature of the case had a larger quantity of urine been examined.

DR. BELL had the case under observation some time, and about a year since, suspecting either stone or tumor of the bladder, performed median lithotomy, but failed to find any foreign body. The perineal opening never closed, and it was to receive some relief for this that he was admitted to hospital under Dr. Roddick's care.

DR. RODDICK stated that he attempted to close the perineal opening by a plastic operation, but this failed. The immediate cause of death was tubercular meningitis. He had a case at present in hospital where he had long suspected tubercular disease of the kidney, his suspicions being at length confirmed by the discovery of bacilli.

DR. SHEPHERD said that Dr. Guion of Paris states that tuberculous affections of the trigone of the bladder or of the prostate is always characterized by symptoms closely resembling those

of calculus, such as pain at the end of the penis and frequent micturition, the pain increased by movement, etc.

DR. JOHNSTON stated that in this case the oldest disease was near the prostatic portion of the bladder, and that there were caseous masses in each epididymus.

Saccharine.—DR. REED made a few remarks on this remarkable substance, and passed around a specimen. It is obtained from TOLUENE, a coal-tar derivative. The intense sweetness of the compound, two hundred and fifty times that of cane sugar, and its inertness, have made it useful in preparing anti-diabetic diets, and it is now being used with success. It is a white powder, sparingly soluble in water; half a grain is sufficient for sweetening a cup of tea or coffee. Even at its present price of seventy-five cents per ounce, it competes with sugar.

Stated Meeting, November 25th, 1887.

DR. GUERIN, 2ND VICE-PRESIDENT, IN THE CHAIR.

New Members.—Drs. H. Perry and Lorne Campbell were elected members.

Multiple Onychia.—DR. JAMES STEWART exhibited for Dr. R. J. B. Howard a case of multiple onychia occurring in a young man aged 18.

Some Questions suggested by the present Epidemic of Diphtheria in Montreal.—DR. ARMSTRONG then read a paper on this subject, which will be found among our original communications, page 385.

Discussion.—DR. PROUDFOOT could thoroughly concur in what Dr. Armstrong had said with regard to the difficulty sometimes experienced in diagnosing a case of diphtheria from "follicular tonsillitis." He had seen cases where the tonsil was inflamed and there was no membrane to be seen, but which subsequently developed a severe form of diphtheria. He thought, however, that where the glands of the neck were simultaneously inflamed, we might be pretty sure that the case was one of diphtheria. With regard to the recurrence of the disease in the same person, he was of the opinion that a patient who had true

diphtheria was seldom again attacked by the disease; he had never seen more than two or three cases of the kind.

DR. MILLS thought that one of the most interesting and important questions in connection with diphtheria was the causation of the cardiac weakness and the lesions peculiar to the heart. Experimental examination of numerous animals had now made it clear that the vagus was all important to the nutritive processes of the heart. There were many clinical and pathological facts which supported the same view for man. It seemed doubtful if the poison of diphtheria injured the heart solely or chiefly by affecting the muscular tissue directly through the blood. Did the virus act directly on the nerve terminals or on the active centres of the cardiac nerves or other centres of distribution (sympathetic ganglia in case of accelerators)? Fatty degeneration of the cardiac tissue follows section of the vagi. May not the degenerations in diphtheria have also a nervous origin? It is important to determine this, as behind it lies the question in this and many other cases of cardiac disease of therapeutic treatment through the nerves of the heart or their centres. Dr. Mills thought the present time, when diphtheria was so prevalent, afforded a good opportunity to raise the question as to what action the Society should take in regard to some expression of opinion on the general sanitary condition of the city, with a view of calling more directly the attention of citizens to the subject, and if possible of rousing the civic authorities to take such steps as were called for by the gravity of the sanitary situation for some years past. It seemed to him that it was the privilege and duty of a society, representing the English part of the profession at least, to enlighten and warn the public in regard to matters of such vital importance, and on which the Society was supposed to be specially competent to form opinions. Their warnings might not always be needed, but they tended to form and strengthen enlightened public opinion; and, at all events, the question was not one of practical result, but one of the duties of the more informed towards the less informed, and in not a few cases the infantile and helpless members of the community.

DR. GEO. ROSS said: The only difficulty in dealing with the

paper, which was of much interest at the present time, was the extensive ground covered by it; indeed any one or two of the important points raised would be sufficient to occupy the attention of the Society for an entire evening. The question of the accurate diagnosis of diphtheria was even yet a vexed and undecided one. Some eminent observers, notably a somewhat recent writer in New York, go so far as to say that there are more cases of diphtheria walking about than are to be found in bed; thus assuming that practically all those sore throats which most of us call exudative or follicular tonsillitis are really of a specific and infectious nature. He cannot agree to this. An immense amount of clinical evidence might be adduced against the supposition. It is true that occasionally a genuine diphtheritic exudation is seen occupying the crypts of the tonsils and showing as small and circumscribed yellow patches upon the faces of these two organs, but this occurrence is very rare in his experience. A recent case in hospital practice exemplified the condition, where the duration and the fact of its occurring in a family where three other members were simultaneously suffering from rather severe diphtheria conclusively demonstrated its specific character. As regards nasal diphtheria, this form is generally and with much justice looked upon with alarm, the situation affected being thought to add considerably to the risk of septic infection of the system. In cases of moderate severity, when the nasal passages are secondarily involved, this would certainly appear to be the case, but in at any rate some of the cases of primary nasal diphtheria, the course of the disease is remarkably subacute and of mild form, and without any danger to life. This fact is sometimes lost sight of by practitioners, and children thus affected are supposed to be suffering from common coryza, often with disastrous results in the family. During the epidemic prevalence of diphtheria, in all cases of apparent catarrhal fever the nasal fossæ should be carefully examined for membrane. It is seldom that this cannot be readily seen, if present. With reference to Dr. Armstrong's question as to the causation of urinary suppression, he was of opinion that in some cases this was the result of organic changes in the kidneys, other pheno-

mena being quite secondary to this ; whereas in a second class of cases, the primary effect was upon the nervous mechanism of the heart, disturbing its regularity and lowering the force of its contractions, the partial or complete suppression following from diminution of blood-pressure. As intubation of the larynx was a novel procedure here, Dr. R. would like to mention his experience of three cases (further details would be furnished by Dr. Major, who operated). No. 1 was first seen on the eighth day of illness—a boy 5 years of age was cyanotic, intensely distressed, and rapidly asphyxiating. Tube in larynx gave instant relief. He died ten days later from gradual heart failure, but air entered lungs freely. No. 2, girl of 5—too small a tube introduced was soon coughed out, followed by expulsion of complete cast of larynx and upper trachea ; immediate relief and complete recovery. No. 3, girl of $\frac{1}{2}$ years, admitted to hospital after some days illness ; very extensive, thick and foul membrane in fauces ; very weak ; soon had nephritis, and showed a marked septic state ; a fatal prognosis given ; but intense laryngeal dyspnoea came on ; to relieve this, larynx was intubated, with immediate and complete relief to breathing for twelve hours before death. It remained, of course, for further experience to enable us to compare this procedure with the operation of tracheotomy. Dr. Ross said he was trying the local application of " papoid " in diphtheria. It was applied by means of a brush in five per cent. solution every half hour. In hospital he had treated 26 cases, many of them severe, and some of them very severe. Of these, 13 were discharged well ; 12 remained under treatment, but he thought, without doubt, would all recover ; one only died. He was certainly favorably impressed with the action of the drug, but could not say more than this until extended observations had corrected or confirmed first impressions.

DR. CAMERON remarked that in his practice ear and nasal complications have been very common during the present epidemic. In some cases a chronic nasal discharge, more or less irritating in nature, persists for a considerable time. He raised the question, whether such nasal discharges were infectious, whether there was any way of determining when they ceased to

be infectious, and whether it was right to give a clean bill of health to a patient with chronic nasal discharge after diphtheria. He was inclined to consider these nasal discharges as always more or less dangerous. He then called attention to the lax and unsatisfactory manner in which the health officials deal with the infectious cases, which they now compel medical men to report to them. It is hard to say just where the fault lies, yet it is painfully evident that under present arrangements the reporting of infectious cases results in very little good. The public have a right to expect preventive measures, and are not satisfied with so-called disinfection of premises and the compilation of statistics and reports. It seems as if aldermanic patronage lay at the root of the soil. Satisfactory administration of our health department can never be secured while health officials are blocked and thwarted in the fulfilment of their duty and made to feel that their tenure of office depends upon their pliability.

DR. MAJOR strongly pronounced against the idea that lapse of time granted immunity from contagion in diphtheria. In the case of persons in attendance on diphtheria, no specified time would be sufficient to destroy the germs. In so far as danger to others was concerned, such persons were as likely to convey the disease in three weeks after exposure as in three days. In proper disinfection alone could we look for safety. In persons afflicted with the disease, after all traces had disappeared, he considered a few days ought to be allowed to elapse, during which daily disinfection should be practised before allowing of contact with others. The question of the influence exerted by an unhealthy condition of the nose or throat in favoring the development of diphtheria is an important one. There can be but little doubt that a chronic state of hyperæmia such as is so commonly met with will increase the liability to diphtheria. In the case of a little girl, a patient of Dr. A. A. Browne, I excised a large tonsil; within a year afterwards this child contracted diphtheria. The duration of the illness was three weeks, and although the opposite tonsil and the surroundings of the ablated one were covered with membrane, the cicatricial surface re-

mained free throughout the period of three weeks, during which membrane was present in quantity. The same observation was made recently in a case of syphilitic cicatrization of pharynx, wherein the cicatricial tissue was wholly free from exudation. In the case of a child whose pharynx had been injured by swallowing lye, the same absence of membrane on cicatricial tissue was remarked. All this goes to show that membrane is favored by an excessive circulation and *vice versa*. In reply to Dr. J. C. Cameron's question, Dr. Major stated that in nasal diphtheria care should be taken that all discharge from the nose has ceased before a clean bill of health was granted. As Dr. George Ross had referred to "intubation of the larynx," and associated Dr. Major's name therewith, he would make a few remarks with reference to a few of his more recent cases. He wished it understood that tubage had been resorted to by him in cases where all possibility of saving life was out of the question, and had been undertaken merely as a means of allaying the suffering produced by strangulation.

D. T. L., aged 5 years, was seen in consultation with Dr. Browne on June 8th, at 5 A.M. The breathing was most difficult and suffocation was impending. An O'Dwyer's tube was introduced with instantaneous relief. The tube was removed on June 11th, at 9 P.M., when the breathing seemed quite satisfactory; at midnight of same day, however, it was necessary again to return it, as dyspnoea with marked retraction supervened. The tube was permanently withdrawn at 3 P.M. on June 17th. On laryngoscopic examination, a slight abrasion of left ventricular band was noticed.

The foregoing case was one of inflammatory croup, and developed as alarming symptoms of suffocation as I have ever seen.

T. J. aged 3 years, also a case of catarrhal croup, was seen with Dr. Browne 2 A.M. Saturday, Oct. 29th. The patient was in a very critical condition, and it was with difficulty that the tube was introduced in time to prevent a fatal issue. On introduction, however, the breathing was immediately relieved, and continued good until the morning of Wednesday, Nov. 2nd. On Thursday, Nov. 3rd, at noon, I removed the tube and found it

filled up with some material which, on examination by Dr. Wyatt Johnston and Dr. Ruttan, proved to be starch granules, caseine, epithelial scales, etc. The breathing improved at once, and continued in a satisfactory condition.

J. C., aged 5 years, was a case of diphtheria with laryngeal extension. On examination of the larynx with laryngoscope, membrane was found there in quantity. The difficulty in breathing was very great, when Dr. Geo. Ross requested intubation. The tube was introduced at noon on Tuesday, Nov. 1st. It was removed at 3 P.M. on Sunday, Nov. 6th, but as dyspnoea became urgent it was reintroduced at 8 P.M. of same day. The child's breathing continued good until Thursday, Nov. 10th, when death resulted from sepsis.

On Sunday, Nov. 6th, Dr. George Ross desired that a child aged 6 years, suffering from diphtheria in the contagious wards of the Montreal General Hospital, should be intubated. As I was at the time possessed of but one set of O'Dwyer's instruments and tubes, I had not a tube suitable for the child's age, as it was already in use in the former case. On examining the larynx with the laryngoscope, I made sure that a smaller tube might be used with safety, as it would not pass into the trachea, although it probably would not be retained. The breathing was very much oppressed, and membrane was seen extending some way into the trachea. On intubating, the tube after a few minutes was coughed up, and with it a cast of the larynx and trachea. The breathing now became good, and recovery was rapid. This was only a fortunate accident attending the manipulation of tubing.

W. A., aged 18 months, was suffering from catarrhal croup, and was in a bad way on Monday, Nov. 14th, when Dr. R. P. Howard requested intubation. The tube was introduced at 3 P.M. and removed on Friday, Nov. 18th, at 1 P.M., when the necessity for a tube no longer existed. A good recovery resulted.

J. Q., aged 3 years, a patient of Dr. Guerin, was tubed Thursday, Nov. 17th, at 6 P.M. Pulmonary collapse was observed and the tube removed on Sunday, Nov. 20th, at 6 P.M. The case terminated fatally the same night. The child was suffering

from catarrhal croup; on examination of larynx no membrane could be seen. The collapse probably antedated the tubage.

Hospital case, girl of 11½ years, suffering from a very malignant type of diphtheria with excessive septic poisoning. The breathing was so very distressing that Dr. Geo. Ross requested intubation for its relief. The case was of an utterly hopeless nature. The tube was introduced at 9 P.M. Friday, Nov. 18th, and afforded instantaneous and marked relief. The child was enabled to lie down and sleep quietly, dying the following morning at 6 P.M. of sepsis.

Hospital case: J. C., aged 4 years, suffering from laryngeal diphtheria, was tubed at 4 A.M. Friday, Nov. 25th, and died at noon the day following. Probable cause of death extension of membrane into bronchi.

Intubation may be practised with one of two objects in view, viz., to save life or merely to relieve dyspnoea (when the saving of life is hopeless). From statistics showing the life-saving power of tubage as compared with tracheotomy, the comparison is certainly in favor of intubation. The measure of relief tubage affords in laryngeal stenosis from whatever cause, the readiness with which friends give consent, and the rapidity with which a tube can be inserted, are all points strongly in favor of intubation. There are a number of conditions that should be well considered in tubing, and as one's experience extends the recognition of possible accidents increases. In tubing, if breathing is not satisfactorily restored within a few seconds, withdraw the tube, reintroduce it, and again withdraw it if necessary, reintroducing it; if the breathing is still imperfect, contemplate tracheotomy. The fear of forcing membrane down before the tube is one often urged, but is one of the accidents least likely to happen. Tubage does not interdict subsequent tracheotomy, and tubage is proportionately valuable, as it is performed early. Many cases of pulmonary collapse no doubt antedate the operation, and experience probably will prove that pulmonary collapse is one of the conditions most to be feared as likely to be attributed to the operation and not to the state for the relief of which the intubation was undertaken.

DR. REED suggested that the knee-jerk be sought for in all cases, as involvement of the nervous system has been known to occur even when the throat trouble has been slight as to pass unheeded. According to Formad, bacteriology is insufficient to distinguish simple follicular tonsillitis from fatal cases, the same microbe having been found in both.

DR. McCONNELL stated that although the health department were not entitled to much credit for the part they have taken towards staying the present epidemic, yet, in view of the multiplicity of views held in regard to the etiology of the disease and its management, some allowance might be made for failure in making specific efforts towards its arrest if some of the ordinary sanitary requirements of the city were not so sadly neglected. He believed it to be a parasitic disease (Zoeffer's bacillus, probably), and hence amenable to all means which are known to destroy them or prevent their development. If this view was more generally adopted, our management and treatment of these cases would have a more definite aim and be applied more intelligently. He thought it unfortunate that Jacobi, in a standard modern work like Pepper's, should not countenance this origin for diphtheria, as it explains satisfactorily the chief feature of the disease. From his observations he believed it to be at first a local disease; the growth in the mucous or abraded surface (resembling perfectly culture tube-growths of bacillus, etc.) precedes constitutional symptoms, and the latter disappear when the surfaces are free from the membrane. This was well seen in a child of 3 years now under treatment for the fourth attack; he had recovered from the third but four or five days. Pharynx clear and no fever, when he used a piece of gum that a sister suffering from the disease had been masticating; in five or six hours after a fresh patch appeared on the tonsil, and there was a return of pyrexia. Each of the other members of this family had had the disease twice, showing a family predisposition. He treated his cases with germicides, using acid sulphurous, boric acid, tinct. ferri mur. and quinine internally, and corrosive chloride with atomizer and the air of the room saturated with vapor from boiling water, on which was kept constantly a quantity of equal

parts of carbolic acid and turpentine. If pathogenic bacilli were the cause, to prevent their development the remedy should be brought into contact with the rapidly-growing patch almost constantly, hence atomizer and internal mixture (whose action is chiefly local) should be alternated every fifteen minutes or half hour. This had given most satisfactory results. A case of laryngeal diphtheria had recovered under the use of Tr. Ferr. Perchl. internally and the antiseptic inhalations already mentioned.

DR. ARMSTRONG, in reply, said : I think it is generally agreed that a healthy nasal and pharyngeal mucous membrane is protective against the poison of diphtheria. Unfortunately, in our climate perfectly healthy noses and throats are not too commonly met with. The great objection to the idea of Prof. Hughlings-Jackson mentioned by Prof. Mills is that ant. pol. myelitis is essentially an incurable disease and the paralysis of diphtheria nearly always gets well. I am glad Dr. Ross still finds reason to hold the views he has expressed in regard to diagnosis. The cause I purposely avoided in my paper. It is a large subject. The plumbing of Montreal is bad—very bad, and the Board of Health deserve the same qualifying adjectives. They are nearly useless. I am willing to do all in my power to improve things, but under the present regime at the City Hall I am afraid that all our efforts intelligently put forth would avail little or nothing.

Selections.

Odium Anti-Medicum.—It is a great misfortune for the public that Lord Grimthorpe is not compelled to write for his living under a vigilant and responsible editor. In that case his exuberant vitality might be turned to good account, and his zeal would not be allowed to run away with his discretion. Lord Grimthorpe has been passionately excited by a very commonplace lawsuit decided by Mr. Justice Manisty at the end of the Michaelmas sittings. In that action Mr. Kenneth Millican obtained an injunction against the Governors of the Queen's Jubilee Hospital, Gloucester Square, to restrain them from dismissing him as one of the medical staff. The ground of Mr.

Millican's dismissal was that he had connected himself with the Margaret Street Infirmary, where treatment by homœopathy is practised, if the patients desire it. But Mr. Justice Manisty's decision, against which an appeal has been entered, was based rather on certain irregularities in the mode of Mr. Millican's attempted removal, which in the opinion of the Court were unfair to him, than on the reasons given by his employers for their conduct. It would indeed be obviously beyond the province of a legal tribunal to decide between homœopathy and allopathy; nor would a judge's view of the matter be worth more than anybody else's. So far as we can understand Mr. Millican's rather confused letters in the *Times*, he does not practise homœopathy himself, but only maintains that homœopathic practitioners do not get fair play, whatever that may mean. These simple facts, of no particular interest except to the parties concerned, might have seemed rather unpromising material for a fiery controversy, at least to ordinary men. But Lord Grimthorpe is not an ordinary man. He is, as Mr. Matthew Arnold says of Shelley, though in a different sense, "inflammable," and the fire is apt to kindle before he has mused sufficiently. Lord Grimthorpe's rage against the medical profession is probably not inspired by any particular dislike of doctors. The fact is that he hates all professions, except the legal one, and "bangs them most severely," whether they consist of clergymen, doctors, architects, or clock-makers. If Lord Grimthorpe ever suffers from the physical ills to which flesh is heir, he may, for aught we know, take his blue pill, or his pink medicine, with Christian resignation. But doctors in the lump he holds to be bad. He denies their right to say that they will not act with homœopaths—he threatens them with an indictment for criminal conspiracy—he would apparently be glad to see the gaols full of orthodox physicians and surgeons. How much law Lord Grimthorpe knows is, we believe, a question open to considerable doubt. His career at the Parliamentary Bar did not require much legal learning, and a Vicar-General may, we presume, confine himself to the principles of ecclesiastical jurisprudence. He certainly seems to have missed the point of Mr. Justice Manisty's judgment.

Lord Grimthorpe, however, with all his swagger, sometimes meets antagonists who are more than a match for him. Such, if we are not mistaken, was Sir John Hawkshaw in the witness-box. Such certainly is "R.B.C." in the columns of the *Times*. As Dryden said of Elkanah Settle, Lord Grimthorpe's prose is boisterous, and his style incorrigibly lewd. "R.B.C." writes with composure, and differs from Lord Grimthorpe in sometimes pausing to take breath. Moreover, he keeps his temper, and therefore does not lose his head. Lord Grimthorpe altogether fails to show, indeed he has made no serious effort to show, why doctors should co-operate professionally with men whom they believe to be dangerous imposters. They may be wrong, of course. But they are bound to act upon their own convictions, and not to trifle with their patients' lives by sanctioning what they regard as a fraud. One instance cited by "R.B.C." will explain the medical standpoint as well as a thousand. "Belladonna," he says, "was adopted (by the homœopathists) as the cure for scarlet fever, because it was said to produce a red rash upon the skin. Belladonna was also recommended by Hahnemann as a cure for hydrophobia, because it produces a dryness of the mouth, which leads the patient to make efforts to relieve himself from the annoyance of viscid saliva. But there is no real resemblance between the belladonna rash and the rash of scarlet fever, nor between the viscid saliva produced by belladonna and the condition produced by hydrophobia. Nor, after the lapse of eighty years, has there been any instance of a cure of either disease by the reputed remedy." This is putting the matter plainly, and it ought to be decisive. Either the whole of medical science rests upon nothing, or homœopathy is utter nonsense. In these circumstances it is ridiculous to expect that allopathists will consort with homœopathists. An honest and competent man cannot work with a person whom he believes to be either a fool or a knave. No one objects to the practice of homœopathy by those who put faith in it, and any one may resort to them if he thinks fit. But even Lord Grimthorpe can hardly suppose that it is in the power of the Law Courts, or even of Parliament, to make men of scientific training consort

with ignorant quacks. It would not be tolerance, but scandalous indifference to truth and to human life, if doctors were to follow Lord Grimthorpe's advice and treat homœopathy as an open question. Lord Grimthorpe says that homœopathy has never been formally condemned by the medical profession as a whole. We doubt whether the Society of Architects have met together and solemnly affirmed that the law of gravitation is sound. If Lord Grimthorpe thinks that any drug which will produce certain symptoms in a healthy person will cure the same symptoms in a diseased person, and that a cough or a rash is always due to the same cause, he is entitled to his opinion. But he cannot make a doctor share it, or force him to pretend to respect those who do.—*Saturday Review*.

Feeding Phthisis.—Physicians of the present day, regarding phthisis as a fever, are taking the hint from Graves' celebrated maxim, and feeding it. Not that it has waited for the present day, or even decade, to demonstrate the value, or rather the imperative necessity, of a supporting treatment of the disease whose prominent clinical feature is so aptly expressed in many languages—consumption, schwindsucht, *phthisis*. Not that the principal features of our hygienic and dietetic regulations may not be found in the writings of the older authors, and how far back we hardly venture to fix the limit; but that the subordination of medication and the desire for medication to alimentation and concomitant measures, is distinctly modern as a generally adopted practice.

However much others may have contributed to this result, and however independently the practice has been elaborated, no one can consider the subject of alimentation in phthisis without rendering at least a passing tribute to the value of Debove's method of forced feeding. His striking results emphasized the lessons of experience, encouraged us to disregard loss of appetite, or even complete anorexia, proved that powers of digestion and assimilation did not decrease *pari passu*, and indeed were not to be arbitrarily limited by any other method than actual experiment; and his systematic use of meat powders gave us a hint

as to the best method of preparation of food, the merit of which is no less that American chemists have since much improved upon it.

Our resort to the tube of Debove may be limited to cases in which physical or psychical disability prevents supralimentation by less distressing methods. The word is used advisedly. Often as the writer has performed *gavage*, and he flatters himself not with any great degree of awkwardness, it has in almost every instance proved a source of distress to patient and physician ; though it must be interpolated that the refined disgust of the omnipresent carping friend, relative, nurse or other busybody, has always far exceeded that of the sufferer.

However, in most instances, by judicious persuasion, explanation or insistence, it will be possible to induce patients to take a sufficiency of aliment in the ordinary way.

It is again to Debove that we must give credit for having demonstrated what is meant by *sufficiency* of aliment, namely, the extreme limit of assimilability. We have not only to provide for current needs, to repair daily excess of combustion, but to make up as far as possible for previous unrepaired waste.

We have thus to determine in each case, and to prescribe with the same precision as in the case of drugs, the quantity and quality of food, and the times of feeding. As the results of experience, general rules will gradually formulate themselves in the mind of the practitioner ; and confirmation or modification will result from the progress of physiological chemistry. The opinion most widely prevailing at the present time assigns the first rank as an aliment in phthisis to flesh, and more especially to beef. The results obtained by certain individuals, who devote themselves to the treatment of disease by an exclusive diet of beef prepared in a certain and most excellent manner, conjoined with lavatory potations of hot water to prepare the digestive canal for the reception and disposition of the aliment, cannot be ignored ; whatever we may think of the theories or methods of the practitioners in question. Without confining themselves to beef, scientific physicians are justified in giving it the first rank.

It should be taken at least twice daily, three times if possible. It may be eaten raw, as it comes from the butcher, or it may be chopped finely, seasoned to taste, and made into little cakes, which are eaten raw or slightly browned on the grid-iron. It may be taken in the form of rare beefsteak broiled in its own fat, or as very rare roast beef. Other methods of cooking are to be prohibited. The meat is to be as juicy as possible, and fibrous portions are to be removed.

Very often one can be satisfied with the use of butcher's meat, raw or cooked as above. Sometimes, however, whether from partial failure of digestive powers or other condition necessitating reduction in bulk without loss of nutritive material, or suggesting conservation of the energy that would be expended in digestion, it becomes necessary to resort to special methods of preparation. The meat powders prepared by various pharmacists, more especially for forced feeding, here render valuable aid. By cutting boiled beef into fine pieces, drying by means of a water bath, and grinding in a coffee mill with the teeth set closely, an excellent meat powder may be made in the kitchen. (*Dujardin-Beaumetz*.)

The preparation from which the writer has seen the greatest benefit, and which he is most frequently in the habit of prescribing, is beef peptonoids. Whether from improvement in the process of manufacture, rendering it more palatable, or from decrease in the fastidiousness of patients, there has not recently been the same difficulty in getting patients to persevere in the use of it that was experienced in former years. The methods of administration may be varied almost indefinitely. It may be added to soups and broths, to milk punch, egg-nog, etc., taken in warm or cold water, or made into a paste with milk or water and spread upon bread. Beginning with a teaspoonful three or four times a day, the amount is to be increased as soon as the preferable method of administration is determined upon, to a tablespoonful or more. It is preferably given among the supplementary articles of diet, between meals.

Next to beef in the dietary, the writer would place milk, sufficient care being exercised to obtain a good, pure article and

to keep it properly. The "half Alderney" milk is usually better than either the pure Jersey milk or that from ordinary cattle.

The manner of drinking milk is not unimportant. Ice-cold, gulped hastily, the chances are all in favor of its promptly coagulating and failing to digest, perhaps to be vomited, perhaps to cause considerable discomfort in various ways. While with some patients it is best taken cold and with some quite hot—a matter for which experience seems to be the only guide—in the majority of instances it should be slightly warmed (say to 100°) and sipped slowly, so as to thoroughly incorporate it with saliva. Ten minutes may well be given to a tumblerful of milk, and in this way the fancied "disagreement" of which many persons complain may be avoided. If necessary, lime-water may be added or peptonized milk employed. When these expedients fail koumyss may be tried, and failure here may indicate the necessity of greater attention to the condition of the gastro-intestinal mucous membrane: not necessarily medication, however. Potations of hot water (flavored, if necessary, "ærated," acidulated or "mineralized" in some cases), from half a pint to a pint, one hour before meals, or *lavage* with simple alkaline solutions may answer. When disinfection of the alimentary canal seems indicated, creosote, iodoform and the sulphur compounds are among the preferable agents.

From one to two quarts of milk daily, in divided doses, should be given, if possible; partly with meals, partly between meals; as a vehicle often for beef peptonoids, etc., and sometimes for alcohol.

Alcohol, despite all that is said, forcibly and truly, against its indiscriminate employment, is in reality a food in phthisis. We may or we may not be able to follow the molecular changes and cellular reactions from the moment of its introduction to that of its elimination; but whether or not physiological chemistry has said its last word upon this subject, that intelligent empiricism upon which clinicians must continue to depend has demonstrated the value of alcohol in wasting diseases, and more especially in those associated with elevation of temperature. It need not be given in excessive doses. A tablespoonful of good brandy or

good whiskey, night and morning, in the form of milk punch—or, better, cream punch—with a glass of good Burgundy wine at dinner, will ordinarily suffice; though much larger quantities may be given at times with much advantage. The elder Flint records instances in which a pint of whiskey daily was taken for a long time with apparently very good effect. The writer knows of similar cases. It is only fair to add that cod-liver oil was also used freely in all these cases.

Sometimes malt liquors may seem to be preferable; and, if decidedly more agreeable, the patient's taste may be considered; a good wine of cōca, used intermittently, is often useful. For prudential reasons, alcohol may be disguised as an extract of malt—and here the power of the diastase of the malt in aiding digestion is often of service—or it may be made into a prescription, as in the formula of Jaccoud, of glycerine, mint-water and rum. The combination of alcohol with milk, malt, cod-liver oil or glycerine is, theoretically, preferable to (Fothergill) and in experience more advantageous than its separate ingestion.

Returning to the consideration of meats, the value of an occasional variation of our beef diet must be recognized—in the way of a digression, however, rather than of a total or lasting departure. Mutton—preferably broiled chops—poultry and game, carefully cooked, and whenever possible rather underdone, may be employed from time to time. The “dark meat” is preferable to the “white meat” in the case of poultry. Sweetbreads are often tempting to a failing appetite, and may assist digestion. While the skill of the cook may well be called upon to supplement the knowledge of the physician, yet elaborate dishes of all kinds, high seasoning of all kinds, and, in plain English, messes of all kinds—even among our humble patients, the “Irish stew”—are to be rigorously interdicted. Even soups should be as simple as possible. Eggs, when palatable, despite fears of “biliousness,” form a useful addition to the dietary. A raw egg may be sucked from the shell, and will thus often relieve an irritable condition of the pharynx. It may be beaten up with milk, or milk and whiskey. If the egg be cooked, it may be poached or soft boiled. Omelette, scrambled eggs and fried eggs are, as a

rule, to be avoided. Hard-boiled eggs are sometimes well digested, but in most instances are not. Fish, when relished, may form one of the auxiliary articles of diet. As to variety, the taste of the patient may be consulted. As to preparation, frying should be strictly prohibited. Broiling, boiling and baking are permissible. Of shell fish, when the patient desires it, and there is no other objection, oysters and clams may be permitted. All others should be prohibited. Many phthisical patients, however, are unable to take even an oyster without considerable discomfort.

The green vegetables—lettuce, celery, spinach, water-cress, etc.—are to be freely partaken of. The leguminous group, especially green peas, made into soup, boiled with milk or otherwise prepared, are of benefit. Starchy and farinaceous foods are, as a rule, to be avoided, though they need not in all cases be absolutely interdicted. They must, in any event, be subordinated to nitrogenous aliments, and the quantity taken be minimized. The especially indigestible and fermentible articles, such as potatoes and turnips, are best avoided altogether. Even the amount of bread consumed should be limited, and, if possible, that made from the whole wheat, or the gluten bread, or one of the similar preparations manufactured for diabetics, employed. Pastry and sweets are not to be thought of, save to be rejected.

While the diet is thus to be largely nitrogenous, a sufficient proportion of carbo-hydrates must enter into it. Fats and oils, preferably from the animal kingdom, will supply this. Cream has already been mentioned. Butter should be freely used. "Butter and bread" is to replace "bread and butter" in the consumptive's diet-list. Oil-dressings of salads, etc., are useful in the same connections. Cod-liver oil may be given, though it is doubtful whether the large quantities sometimes ordered are assimilated. A tablespoonful three times a day probably represents the extreme limit, and half that quantity may often suffice. In many cases, the patient will do just as well without any. When the pure oil can be taken, either floated on whiskey or in any other way preferred by the patient, it is best given in that form. Emulsions extemporized by the physician are in general better than the proprietary ones. Ether, say Hoffman's anodyne,

may be introduced into the emulsion, or given separately immediately following the dose of oil, and will not only assist in its solution, but stimulate the pancreatic secretion, which prepares it for absorption. The combination of pancreatic preparations with cod-liver oil is rational; that with pepsin is based upon ratiocination or experience that the writer cannot follow.

When sufficient fatty matters cannot be taken in any of the ways indicated, oleaginous inunctions may be resorted to. If the oil used for anointing has an unpleasant odor, one of the essential oils, such as oil of gaultheria, or oil of bergamot, may be employed to disguise it. Inunctions with lanolin may be doubly utilized as a means of introducing iodoform or other desired medicinal agents.

The frequency of meals is a point of much importance in the alimentation of phthisical patients. — Rarely more than three hours, never more than four hours, except during sleep, should be allowed to elapse without the taking of food. The American custom of three set meals daily need not be altered, but in the intervals between meals, and just before going to bed, some of the lighter aliments, milk, soup or broth, milk-punch or egg-nog, etc., should be taken and as already stated with the addition, if possible, of beef peptonoids. When the peptonoids powder is not palatable or not available for any reason, the liquid peptonoids may be substituted, and in some cases, being entirely predigested, is preferable. In addition to the glass of punch, or of plain milk or cream, taken at bed-time, a glass of milk or cream, with or without alcohol, or a glass of wine or spirits, sometimes advantageously reinforced by half an ounce of liquid peptonoids, should be at hand to be taken in case of waking during the night or early morning. Liquid peptonoids with coca is a good preparation for this purpose; for coca, like strong coffee under similar circumstances, facilitates the return of sleep. When a sufficient quantity of food is not taken in the six times suggested, the frequency may be increased. While our object is distinctly "gramming," it is not well to so overburden the digestive apparatus as to give rise to positive discomfort.

The duty of the physician who feeds his cases of phthisis is

not finished when he has prescribed the diet, even in all its details ; or when, in case of failure by natural methods, he has resorted to *gavage*, inunction or rectal feeding. He must prepare the stomach and intestines to welcome the nutritive materials furnished, and to prepare them for absorption. He must endeavor to remove obstacles to proper elaboration and assimilation, and to stimulate and assist these functions ; not forgetting the respiration, which, in Arbuthnot's expressive phrase, "is the second digestion," or the circulation which is to cause the oxygen-carrying corpuscles and the nutrient lymph to penetrate into all the tissues. He must further watch, and if necessary assist, the processes of elimination, so that broken down, useless and sometimes toxic materials may be speedily removed to make way for that which will better and more vigorously assist in tissue-building and force-production.

This subject, including as it does the consideration of general and special hygiene, as well as mechanical, chemical and medicinal aids to digestion, respiration, circulation and excretion, simple and complex, must be indicated ; but it cannot be properly studied in a paper which has already overrun its limits.

Yet one word more must be added, even at the risk of occupying too much space. Experience has demonstrated the utter futility of all measures designed to destroy the bacillus tuberculosis. A moment's reflection must convince us that even could we destroy every bacillus in the lungs, we would gain nothing ; for the patient has only to open his mouth, to be invaded by a new host. So that whether we follow the opinion of the majority and assign to this microbe supreme ætiological importance, or whether we are content to remain in a minority which can at least boast among its numbers the most cultured and philosophical mind among medical men of the century, the experience of every physician and of every patient is in accord upon the all-important point that the secret of treatment is not microbicide, but NUTRITION.—*Dr. Solis-Cohen in The Dietetic Gazette, January, 1888.*

CANADA

Medical and Surgical Journal.

MONTREAL, FEBRUARY, 1888.

THE KNEE-JERK AND HOW IT IS MODIFIED.

Dr. Warren P. Lombard has published in the first number of the *American Journal of Psychology* a series of most interesting experiments on the above subject. This investigation was in part the continuation of a previous one undertaken to determine whether the knee-phenomenon is a reflex or the result of a direct mechanical stimulation of the muscle—an exaltation of the normal tone as it were.

In 1883 Ernst Jendrassik reported the observation that if the hands were clinched just before the ligamentum patellæ was struck, the resulting knee-jerk was greater than when the subject was quiet.

This discovery was carefully tested by Dr. S. Weir Mitchell and Dr. Morris J. Lewis, and they were further able to show that the knee-jerk was subject to most extensive variations even in health, and that it was probable that the variations were associated with and dependent on alterations in the activity of the nerve centres.

It is of interest to note that Dr. Lombard has in every particular confirmed by experiment the conclusions of Mitchell and Lewis as the result of observation. There is a great lesson in this. The experimenter must not despise the observer, nor the observer the experimenter; in fact, the two use methods differing only in degree, not radically—the so-called experimenter simply using more apparatus under more exact, though not always more natural, conditions. Why should not clinical observers more than at present contribute to the establishment of the laws of the normal organism on a broader and surer basis;

the more so as experiment in the peculiarly physiological sense is not usually possible on the human subject. The general conclusion from these investigations is that *the knee jerk is an extremely delicate indicator of the condition of the central nervous system.*

Dr. Lombard subjected himself for weeks to a routine, recording his knee-jerk under precise conditions several times a day, noting the temperature, barometric pressure, etc., so that many thousands of observations were accumulated.

The condition of the central nervous system is thus shown to be influenced by the time of the day, the taking of a meal, fatigue either physical or mental, the slightest movement, sensations of sound, light, etc., all kinds of mental excitement, holding the breath, temperature, barometric pressure, &c. In a word, it will be seen that these researches reinforce the views often referred to in this JOURNAL of the constant instability associated with our conception of life.

The knee-jerk even indicated the character of the dreams in sleep, showing a rise if they were of an exciting kind—a new light upon the condition of the central nervous system under such circumstances. We can now all the better understand how it is that after a long period of active dreaming, especially such as rouses emotions, there is subsequent exhaustion as though we had been deprived of a portion of our rest, as indeed is the case.

The influence even of the kind of music was evident, as will be clear from the following record: The average of the knee-jerk for a series of experiments just concluded was 32 millimetres. A band of music then passed playing, when the heights of the jerk were noted as 60, 71, 74, 70, 60, 55; another band immediately followed playing "My Maryland," when the knee-jerk rose to 62, 76, 76, 74, 71, 66, 59, 64, 59; this was succeeded by a drum corps, with the following results: 48, 55, 51, 55, 53, 49, 52; after the music had faded away in the distance, and only the ordinary sounds of the street, etc., remained, the numbers were 40, 45, 37, 30, 39, 53, 37, 29.

A great many thoughts are suggested by such results as these. No doubt we should thus be able to establish tests of

our expenditure of nervous energy from thought and emotion similar to those of Mosso, founded on the use of the plethysmograph as a measure of vascular changes. It is plain that though the knee-jerk may be of special value in nervous diseases, it is to a certain degree an index of the general condition of the nervous centres, and so of all those variations from the *norme* constituting disease. The main scientific lesson, however, is, as we think, the reinforcement these results give to that conception of life which represents it as associated with or dependent on incessant change; on ceaseless adaptation to an ever-changing environment.

HÆMATOMATA OF THE CEREBRAL DURA MATER.

Dr. Wiglesworth, in the current number of the *Journal of Mental Science*, advances strong arguments in proof of the non-inflammatory origin of these subdural hemorrhages which at present are designated under the term "Chronic Internal Hemorrhagic Pachymeningitis." He looks upon the fibrous membrane as the product of the organization of the effused blood and not the result of inflammatory action in the dura. These effusions occur in the aged, and very frequently in the insane. They are apt to occur when from any cause there is atrophy of the cerebral convolutions, and Wiglesworth looks upon the hemorrhage as an attempt to fill the vacuum created by the atrophy of the convolutions.

THE AMERICAN PHYSIOLOGICAL SOCIETY.

December 30th was an auspicious day in the history of Physiology in America, inasmuch as it marked the formation of the first society on this continent for the promotion of physiological science.

The movement was organized by three of the leading physiologists, and a proposed constitution previously prepared was submitted to those interested when they met in New York at the new and magnificent physiological laboratory of the College of Physicians and Surgeons. The membership is to be limited to those who have themselves made and published at least one investigation in physiological science, or who have promoted and

encouraged original research in this department. It will be thus ensured that only those shall have a connection with the association who have shown both fitness and zeal.

It is proposed to hold a triennial meeting at Washington, when the leading medical specialists will be brought together to advance the common cause of medical science and the interests of each specialty.

The Physiological Society is, however, also to meet annually during the Christmas vacation for the purpose of transacting routine business and electing officers, as well as for the reading and discussion of papers.

The executive control of the Society is vested in a committee of five, consisting of a president, secretary-treasurer, and three others, all to be elected annually.

After the constitution had been adopted and the new laboratory of the College of Physicians and Surgeons, with its valuable apparatus, inspected, in response to the kind invitation of Dr. J. G. Curtis, director of the laboratory, the members of the infant society wended their way to the residence of this gentleman to partake of lunch. It was noticeable that of the entire party only one wore a fur cap, though the day was bitterly cold. It is needless to inform the readers of this JOURNAL that the owner of the said cap was the representative from Canada (Montreal), who, in consequence of the snow-storm of the day before, which delayed the train, came near being an absent member. He had, however, the happiness of being one of that little band of twenty, all known to each other by name and reputation, but meeting many of them for the first time, who constitute the original founders of a society which it is confidently believed will prove a source of great benefit to medical science, as it is sure to be of inspiration and encouragement to its members. The Society has been founded on a good, broad basis; and may it ever remain free from every species of narrowness, including that clique-forming tendency from which even scientific institutions are not always wholly free. It was regretted that the veteran Dalton was unable to attend owing to illness. The presidency of the Society was pressed upon Dr. Weir Mitchell, but he could not be induced to accept. No man in

America, perhaps, better deserves such an honor. His career has been unique. As a young man, a working physiologist, now one of the best known names in American medical science, but still a physiologist—even an investigating physiologist. With the enthusiasm of youth and the ripeness of years, he uses physiology to interpret medicine and medicine to light the obscure paths of physiology. Such an one is a sort of fulfilled prophesy of the manner of man the physician of the future will be—at least so we hope. Among the pure working physiologists of the day none had better claims to the place than Dr. Bowditch, and to him it has fallen to be the first president. Dr. H. N. Martin is to discharge the duties of secretary-treasurer.

Several questions arise in my mind. But twenty specialists to respond to the call for organization now, how many such members will form the body physiological after the lapse of twenty years? What will be the condition of physiological science then? What its influence on general science and on medicine in the interval? What the resultant of that influence after two decades have passed when some, at least, of the original founders shall in all probability have left the scene? Twenty years hence! Watchman, what of the night?

T.W.M.

NOTES AND COMMENTS.

There is at present under observation at the Philadelphia Hospital an interesting case which illustrates, I think, the protracted course of gastric ulcer. A man aged 40, admitted Jan. 3rd, had been suddenly seized with hæmatemesis on the 1st, and brought up a large quantity—two quarts, he said—of blood; a second attack occurred on the 2nd, and a third on the day of admission. Blood was also passed in the stools. He was extremely blanched, very short of breath, and could not sit up on account of the dizziness and weakness. He was given ice, liquid food in very small quantities at a time, and bismuth. The blood count was below one million red corpuscles per cubic millimetre; on the second day in hospital the number sank to 770,000 per cubic millimetre. The hæmoglobin was about 20 per cent. The history was remarkable. He had the first hemorrhage in 1870

and was in the Pennsylvania Hospital for several months. He then returned to France, and had, within ten years, six or eight attacks, varying in severity. Returning to this country, he had, in 1883, a prolonged and serious attack in which he nearly died. He lay for three months in hospital, and was five or six months before he recovered strength. On all these occasions he passed blood in the stools. He gives a history of irregular gastric distress in the intervals, but has weeks and months of freedom. Since leaving the hospital in 1883 he has been in the habit of using the stomach tube every two or three weeks when the sense of distress becomes aggravated. He has had at times attacks of intense gastralgia, so common in chronic ulcer of stomach and duodenum. The stomach is not dilated, nor is there any local induration to be felt, though, naturally, the examination has not yet been exhaustive. He is doing well, though on the 11th he had a hemorrhage from the bowels which brought down the red corpuscles from 1,179,000 to 816,400 per c.m.

I know of no condition other than ulcer which conforms to such a history. As is recognized by all the authorities, the time limit of ulcer may be extended to ten, twenty, or even thirty years, and many cases of the chronic hemorrhagic form have been reported very similar to the one under consideration. Whether in the stomach or duodenum cannot be definitely determined. The criteria for the diagnosis of duodenal ulcer are notoriously uncertain. One of the most satisfactory, viz., melæna without hæmatemesis, is present, but this may occur when the ulcer is within the ring.

Case XXXIX of my series of heart cases in connection with past attacks of chorea (*Amer. Jour. Med. Sciences*, Oct. 1887) died a few weeks ago, and by the kindness of Dr. Hewish I was enabled to see the autopsy. The lad, aged 13, had had chorea badly in '81, again in '82, and a third attack in '84. No articular rheumatism,—of this both father and mother, who are exceedingly intelligent people, are positive. A half-brother has had rheumatism; no other member of the family. Scarlet fever when three years old, not badly; no severe illness of any kind except the chorea. The heart was large; mitral orifice ex-

tremely narrowed—a button-hole slit—great hypertrophy of right ventricle; beginning stenosis of tricuspid orifice. This case illustrates some of the difficulties in the pathology of chorea. Was the heart lesion the outcome of an endocarditis accompanying the original attack in 1881? Is there a choreic endocarditis apart altogether from a rheumatic taint? Or shall we say that the very fact of an endocarditis is sufficient to prove the rheumatic nature of the case. My study of 110 patients more than two years subsequent to the attacks pointed to the conclusion that the cardiac affection in chorea was usually independent of rheumatism, and this case might fairly be claimed as an illustration of an organic and fatal heart lesion associated with chorea. But there is just this doubt. Is it possible within six years—1881 was the date of the first attack—to have such an extreme grade of stenosis induced in the mitral and a secondary sclerotic thickening of the tricuspid? I scarcely think so, though I have no data to go upon in forming an opinion as to the length of time required to narrow the mitral orifice to shirt button-hole size. It is probable that the primary attack of endocarditis, which initiated the morbid changes in the valves, antedated the chorea, and may have had its origin in a trifling, overlooked rheumatic attack (such as is not uncommon in children), in a tonsillitis, in the attack of scarlet fever, or in whooping-cough. These latter affections may, I think, be blamed for a certain proportion of the cases of mitral disease in which the most careful scrutiny fails to detect rheumatic history.

Dr. Weir Mitchell's volumes of *Essays*, entitled *Doctor and Patient*, while meant for women, may be studied with profit by readers of all classes, lay and medical. Probably no man living has had a wider experience with nervous women, to which large audience these lay sermons are addressed. The four last *Essays*, *Pain and its Consequences*, *The Moral Management of Sick or Invalid Children*, *Nervousness and its Influence on Character*, and *Out-door and Camp-Life for Women*, are well adapted to fulfil their purpose, as they deal "helpfully with some of the questions which a weak or nervous woman, or one who has been there, would wish to have answered." A charmingly-written

Essay on *Convalescence* describes the delightful sensations, mental and bodily, attendant upon recovery from serious illness. In remarks upon the value of novels during this period, Dr. Mitchell takes occasion to discuss the Doctor in fiction, and concludes that, with the exception of Lydgate in George Eliot's *Middlemarch*, he is wholly unsatisfactory.

We may gather from these Essays the secret of Dr. Mitchell's great success—a naturally keen intellect, strong professional instincts of the best kind, a profound knowledge of human nature, particularly of the frailer portion of it, and living faith in the value of dietetic and hygienic measures in the treatment of the sick.

—WILLIAM OSLER.

Medical Items.

—Dr. Arthur Farre, the celebrated obstetrician, is dead.

—Dr. J. H. Darey (McGill, '85) is practising in Cresco, Iowa.

—Professor Kussmaul, after a long and brilliant career, has retired from the directorship of the Klinik for Internal Medicine in the University of Strassburg. He is to be succeeded by Prof. Naunyn of Königsberg.

ADVANCED PHARMACY.—John Wyeth & Brother have recently introduced compressed tablets of the newer antiseptics and antipyretics. Physicians can now order antipyrine or antifebrine in tablet form, each tablet containing five grains. From some experience, we can confidently recommend these tablets as not only a highly convenient and pleasant way of administering these agents, but also as being in every respect a perfectly reliable method.