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THE HYGIENIC AND DIETETIC TREATMENT OF PULMONARY TUBERCULOSIS.

BY

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Hygiene and diet are at present the chief factors in the treatment of pulmonary tuberculosis. It was Brehmer of Görbersdorf, in Germany, who demonstated at the close of the fifties that pulmonary tuberculosis was curable. It was Trudeau, of Saranac Lake, who first adopted Brehmer's methods in this country, and placed the hygienic and dietetic treatment on a solid basis in America. Cured cases of pulmonary tuberculosis have now grown to such large numbers, that through them physicians and the laity regard the consumptive as a hopeful case, and not one predestined to death.

The treatment of phthisis is really nothing more than a heightened hygiene of the body and mind. The life processes must be maintained at the normal, or brought back into normal physiological condition if diseased, and it should be the aim of the physician to try and avoid the most insignificant set-back.

Phthisis even in the early stages is a severe disease, and should be treated throughout the whole course with the greatest care, and with the most unwearied patience. Both physician and patient should be undaunted by the relapses which so frequently occur.

The management of the mental condition of the patient is a cardinal factor in the treatment, and at the very outset the physician should try to establish a bond of sympathy between himself and the patient. The patient needs a strong support, and looks to the physician to supply this. He must abandon himself to the physician with complete confidence. The physician must gain this confidence by thorough physical examinations, and by the clearness and definiteness of his direc-

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tions. I hold it as proper to explain the nature of the disease to the patient. By a candid statement of the condition, the patient is made aware of the serious nature of the disease. He is thus in a position to guard against accidents. It is very unfortunate that the lung specialist should so often hear from the patient the bitter complaint against his physician: "If my physician had only told me what was the matter with me, I would have taken better care of myself."

After we have explained to our patient the nature of the disease, we must then give him definite instructions as to his plan of life. Nourishment is one of the first matters discussed. In our health resorts we do not need to go into detail with regard to the amount and nature of food, but refer our patient to a suitable sanitarium, or boarding house. I may be permitted, however, to go a little into detail as regards the dietary rules for the tuberculous patient. It is our aim by means of a heightened nutrition to cover the loss which has already occurred. A good state of nutrition improves the blood, the strength, and the resistance of the cells. In patients who have had slight fever for many weeks, I have frequently seen the fever to quickly subside by change of climate and mode of life. The mere change of food and air has stimulated nutrition, and produced beneficial results. Dietary rules for the consumptive must be detailed, clear, and exact. We must prescribe the exact time of eating, and as far as possible the quality and quantity of his food. It is a good thing for him to start the day with a glass of hot water on rising. This helps to loosen the expectoration, and it also cleanses the stomach. Breakfast, 8 to 9: fruit, cereal, one or two glasses of milk, (cocoa, tea, coffee), meat, bacon, bread and butter, toast, rolls, corn bread or such like articles of food. Some patients take one or two eggs after each meal.

11 o'clock lunch: one or two glasses of milk, or one to three raw eggs, or a glass of milk followed by one to three raw eggs, or eggs beaten up in a glass of milk (egg-nog), or beef juice, or beef tea, chicken broth, prepared barley. It is the custom of many physicians to order one or two teaspoonfuls of one of the prepared concentrated foods, such as somatose, tropon, iron tropon, Heyden's Nahrstoff, lactoglobin, etc. These are added to any of the above liquids.

Noon meal, say, 1 o'clock (it is often advisable for the patient to rest for one-quarter to one-half hour before the meal is taken). Soup, entree, fish, roast, venison, fowl, salad ,pudding, crackers and cheese, one to two glasses of milk. This is followed by one-half to one hour of rest, perhaps of sleep.

Afternoon lunch, 4 o'clock: same as 11 o'clock lunch.

Supper, 6 to 7 o'clock, preceded by one-quarter to one-half hour of rest: Meat, either hot or cold, and vegetables, bread and butter, one to two glasses of milk.

Nine o'clock luncheon: same as at 11 and 4 o'clock.

It is thus seen that the meals consist of three full meals a day such as we have in any of our homes. Meat can be eaten three times a day. The noon meal and supper differ but little. The rest before and after meals is of great value, especially to those patients who have a feeble digestion.

It is advisable to weigh the patient every week, or every two weeks, and preferably at the same time of day and with the same clothes.

The patient should have a fairly mixed diet in sufficient quantities. An exclusive meat and egg diet does not fulfil our purpose. If the fatty tissues are deficient, fats should be given in every form which the patient can stand, especially butter and cream, which are easily digested. So also fatty fish, such as eels, salmon, sardines, and sprats should often be given him. In order to supply the demand for fats, many dishes, and especially vegetables, should be prepared with a great deal of fat, especially if the patient does not like fat.

Vegetables are easily digested in the form of purees, and are particularly of value because they make the meat more palatable. All forms of salads and horse radish are advisable. There should be a plentiful supply of vegetables with the noon meal. Carbohydrates which increase the amount of fat are also very necessary. They should be given as puddings, pastry, pies, food baked in fat, cakes, honey, the various kinds of bread, brown-bread, whole wheat bread, graham bread, bread and honey. Vinegar, lemon juice, mustard, etc., just in sufficient quantities stimulate the appetite. It is very important to have variety, and it is also important that the patient should not know the bill of fare in advance.

Meals should be taken at the same time, in order that the stomach may get into the habit of taking in food. They should be three in number, with in addition two or three lunches. If the patient's appetite is not good, it is better for him not to eat between meals. A good healthy household fare should be the basis of the diet.

These rules apply chiefly to patients that have a good appetite and a strong digestion. We frequently meet patients that have no appetite, and who may also have disgust for food. Both these symptoms may occur at any time during the course of treatment. When they occur at the outset of treatment, it is usually found that the constant sojourn in the open air, complete rest, and the change of climate will cause

great improvement. The rest for one-half to one hour before and after meals is also a great help. When loss of appetite and disgust for food occur later on in the course of treatment, they are frequently due to the fact that the digestive system becomes clogged. This is often due to the large amounts of milk and eggs taken by the patient. A good plan is to cut out the milk and eggs for about a week, give the patient a dose of castor oil, or calomel, or some other cathartic, and give him a tonic. I have found the combination of nux vomica and bicarbonate of soda taken half hour before meals to be very suitable. The bowels should, of course, always be attended to. Should these means fail to improve the appetite, a change of surroundings, if only for a few weeks, often causes great improvement.

Occasionally the loss of appetite depends on lack of care of the mouth and teeth. Food loses its flavour when the tongue is coated, and carious teeth interfere with chewing. Mechanical cleansing of the tongue with a spatula, care of the teeth, and the regular use of mouth washes are means to combat these conditions. Wet compresses over the stomach, or local moderately cold douches, or massage local and general do good. In one case Cornet was successful by using a weak faradic current for one-half hour before meals.

Milk plays such a part in the treatment of tuberculosis that I wish to give it special attention. It combines all the nutritional elements (albumin, fat, carbohydrates, salt and water). To maintain the normal equilibrium of the body, a grown person on an exclusive milk diet would have to take five or six quarts a day. As a rule a glass of milk with each meal, and a glass midway between each meal is sufficient. This represents about a quart and a half. This amount is well borne. My feeling is against large quantities of milk, and I prefer to have the patient use moderate amounts, and to make use of other nutritious foods. Very large amounts of fluid are apt to cause atony of the stomach. Milk can be taken hot or cold. In winter, or with a tendency to chilliness it is better to give it hot. When there is a weak stomach milk is better borne if given in small amounts, a few swallows at a time, and in combination with brown bread, toast, white bread, zwieback, etc. If drunk rapidly an indigestible curd forms in the stomach. When ordering an almost exclusive milk diet, Brehmer used to advise about two and a half ounces every quarter of an hour; *i.e.*, three to four quarts a day. When a patient is over-hasty, he should take the milk by teaspoonfuls. When there is a distaste for milk, it can often be taken if small quantities of coffee, tea, or lime water are added, or a little salt, borax, or bicarbonate of soda (a pinch). When there is a tendency to diarrhœa, it is advisable to add lime water:

and if there is constipation, cream or seltzer water should be added. When a patient becomes tired of milk, it is advisable to discontine it for a week or longer, and to substitute for it, beef juice or some such substance, and then to recommence the milk. As mentioned above, it is also advisable to stop the milk entirely one day a week.

Almost all physicians recognize the value of forced feeding in tuberculosis, but great care should be taken that it is not overdone. Every stomach has its own limits, and if overworked, especially by two large quantities of liquids, may refuse food in every form. Forced feeding should therefore be employed up to the limits of the patient's capacity. When digestive disturbances occurs, a good dose of castor oil or calomel is useful, and the patient should be put on a light or fluid diet, or the stomach should be given absolute rest while nutrient enemata are employed for two or three days. A light diet should then be given for a few days longer, and then full diet.

One of the principal requirements in the treatment of pulmonary tuberculosis is the free use of pure air. Even in the country proper hygienic conditions are secured only by actual life in the open air. Unfortunately, many physicians still have vague ideas regarding the management of the air cure, and advise their patients to "Exercise a good deal." This advice frequently does a great deal of harm. Most patients when beginning treatment should take no exercise. My own feeling is that all patients beginning treatment should take no exercise. This period of rest will last for a different period of time for each patient, and no stated time can be mentioned. The patient, however, should spend the entire day in the open air. The tuberculosis patient gets benefit from the open air not only when it is sunny, dry, and when the wind is quiet, but just as much when it is damp, cloudy, and when there is wind and rain. There is no basis for the assumption that the patient should remain indoors in cloudy or wet weather. Care should be taken, especially in summer, that the patient should not be exposed to the direct rays of the sun. This often causes congestion of the head and lungs. The patient should therefore protect himself from the direct heat of the summer sun, and should keep in the shade. He should remain in the open air during snow and rain storms, or even in moderate fog. One thing, however, is essential; namely, that he should be under protection, and should not have wind or snow or rain blowing in on him. It is a matter of everyday experience that a patient protected from the wind and rain by a shield on the stormy side of his veranda, can stand intense cold. Heavy winds are a great source of danger and should always be avoided. They very quickly take warmth from the body, and thus do harm to a patient whose temperature is

in an unstable condition. Attacks of pleurisy or even pneumonia may follow exposure to wind.

Rapid changes of temperature and sudden falls should always be guarded against. This applies also to those falls in temperature which occur between four and six o'clock in the afternoon, especially in the spring of the year. At these hourse the patient should either go in the house if he feels cold, or should put on extra wraps. The mistake is often made by the patient of trying to guard against these sudden falls of temperature by clothing himself too heavily. Physicians occasionally see a patient with a thick woolen undershirt, a flannel shirt, a chest protector, a heavy sweater, a coat, then a fur coat over all. These patients try to keep from catching cold, and are the ones who are most subject to colds. This great warmth maintains a constant sweat and makes the skin oversensitive. I find that a thick woolen undershirt, an ordinary shirt or flannel shirt, waistcoat, coat and fur coat are all that are necessary. Occasionally, in very cold weather, a sweater is used. For walking, an ordinary cloth winter overcoat or pea-jacket is much more serviceable than the fur coat, as the latter is too heavy.

The various form of rubbings so much used in the continental sanatoria are not used in this country to the same extent. The patient, however, should be instructed how to cleanse himself. In private practice the patient has not the facilities for bathing and cleansing himself that the sanitarium affords. To patients who are not of a strong constitution, and who are practically afebrile, a good plan is to advise them to bathe the chest, arms and back with cold water every morning, and the legs at night. This should be followed with a rub with a coarse towel. The rub should be gently done, in order to avoid cough or hæmorrhage. Patients of a stronger constitution, and who at the same time have a good pulmonary condition, are permitted to take a full cold bath each morning. There is no need, however, to have the water colder than it is in summer. This is followed by a not too vigorous rub with a rough towel. A cleansing bath may be taken once a week at a temperature of 90° to 95° F. This is followed by a rub off with moderately cold water. In cases of hæmoptysis one should be very cautious with baths, or should discontinue them entirely and substitute cleansing of each part of the body in succession.

Cold sponging and cold baths tend to harden the body against variations of temperature, and tend to prevent the patient from catching cold. They should be used only under the advice of the physician.

Of equal importance with good food and fresh air is the matter of exercise and rest. If the patient is to spend the entire day in the open air, it is important for him to know how to fill in his time. At the

onset of treatment rest is very advisable. We often see cases to recover by merely leading an open air life, but the vast majority of cases that do not take systematic rest, fail to recover their health. When a patient comes under observation for the first time, I almost invariably advise him to take absolute rest for rather an indefinite time. If there is no fever, this period will last from one to several months; if there is fever it will last longer. Each case has to be considered separately. During this time the patient gradually becomes convinced that he has a serious disease, and that he has to treat it seriously in order to recover his health. At the same time the physician gains a control over the patient which is of great benefit to both.

In the management of our cases we should remember that every exertion costs the body albumin, climbing more than walking, walking more than sitting, and sitting more than lying down. The more quietly the patient lies the less substance does he consume. With fever cases rest is strongly indicated. To combat the loss of appetite which sometimes results from prolonged rest in bed, and also to keep the functions of the skin and muscles in good condition, massage of the extremities and abdomen may be employed, but not of the chest. It may be used for half an hour once or twice daily.

The rest cure requires certain special arrangements. Fever patients should be brought into the open air with the least possible cost of exertion. If possible the bed, with the patient in it, should be wheeled from the room out on to the balcony. Sometimes it is necessary to carry the patient out of doors, and he there spends the entire day. For patients with no fever or slight fever the Adirondack Reclining Chair is very comfortable. Chairs should be fitted with an apparatus which makes it possible to read and write without exertion.

Patients should be gradually accustomed to be continuously in the open air, and where it is possible may sleep out with advantage. When it is advisable to allow the patient to exercise, the amount of exercise should be definitely stated. He should begin with easy exercise, and should limit it to ten or fifteen minutes, at first only on level ground. This may be allowed every second day for a short period, say, for several weeks, then every day for several weeks, then twice a day. The old rule of Brehmer was—"The healthy man sits down because he is tired; the consumptive should sit down so as not to become tired." Patients should be told that all over-exertion is poison, and that their feelings should be guides at all times. Acceleration of the pulse, perspiration, palpitation, rise of temperature, feelings of weakness, discomfort and headache, are all signs that he has overstepped his limit of exercise. When the patient stands these little walks without harm, and when the

weight increases or holds itself at its height, one can allow an increase, but always under careful supervision. Mountain climbing should not be allowed.

LISTERISM—ANTISEPSIS AND ASEPSIS.

BY

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The personality and the work of Lord Lister are both singularly unique. His nobility of character, his remarkable modesty, and his exquisitely charming manner combine to make him a very lovable man. To appreciate to any considerable extent these traits in Lister one must have some acquaintance with him—to appreciate them fully, we are told, one must know him intimately. Fortunately, we in Canada know him fairly well, and we certainly love and respect him very highly.

From a professional as well as a humanitarian standpoint we have to consider his magnificent work in surgery. It is quite unnecessary, however, to go into details. What Lister has done for surgery, what he has done for humanity cannot be properly described in words; but the whole civilized world worships him as a hero, and a wonderful epoch maker.

We shall presume that Listerism includes the principles and practice of antiseptic and aseptic surgery. Several years ago Sir Frederick Treeves spoke as follows: "Lister created anew the ancient art of healing: he made a reality of the hope which had for all time been the surgeon's endeavour; he removed the impenetrable cloud which had stood for years between great principles and successful practice, and he rendered possible a treatment which had hitherto been but the vision of the dreamer. The nature of his discovery—like that of most movements—was splendid in its simplicity, and magnificent in its littleness. To the surgeon's craft it was the one thing needful. With it came the promise of a wonderful future; without it was the hopelessness of an impotent past."

We find that a certain amount of confusion has arisen in regard to the terms antisepsis and asepsis, and also in regard to antiseptic and aseptic methods. A writer on this side of the Atlantic, voicing the opinions of a certain number, says: "The theory and practice of what is known as antiseptic surgery are rapidly giving place to the more rational science and art of aseptic surgery." A writer in Great Britain,

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says,—"Antiseptic surgery was the forerunner of aseptic surgery. It was found that it was unnecessary to attempt the continual destruction of germs if there were no germs to destroy. Hence arose the present aseptic system."

Another writer in Great Britain (Sir Hector Cameron), says:—"Every treatment which is directed against sepsis, no matter what the means be which are employed, is surely antiseptic treatment." He also tells us that the word asepsis was devised by Lister to denote the condition of a wound from which sepsis is absent. In the early days of Lister's treatment some surgeons spoke of a wound as being "in an antiseptic condition"—and of an operation as being followed by a thoroughly "antiseptic result." It was to avoid such awkward phraseology that Lister suggested the adoption of the word aseptic, a word which he afterwards found had been used by Hippocrates. Sir Hector adds: "To speak of the aseptic treatment of wounds is clearly as confusing and inelegant as to speak of the antiseptic condition of wounds." (*British Med. Jl.*, April 6th, 1907.)

Many (I hope most) of us concur in Sir Hector's opinion that the word aseptic has been sadly misapplied, but we must recognize the fact that the terms antiseptic and aseptic are now applied to surgical methods in a somewhat definite way. The antiseptic treatment of wounds includes preliminary disinfection of skin, hands, instruments, etc., the use of antiseptic solutions during the operation, and subsequent antiseptic dressings. The aseptic treatment of wounds includes also preliminary disinfection of skin, hands, instruments, etc., but not the use of antiseptic substances during the operation, nor in the subsequent dressings.

Professor Kocher, of Berne, may be cited as one who has been much misunderstood. He himself is partly responsible for such misunderstanding, because he uses the terms aseptic and antiseptic, according to his translator, in a vague and perplexing way. For instance, he speaks of aseptic wounds, aseptic methods of operation, and aseptic cases. He does not, however, as I understand him, disassociate aseptic from antiseptic methods. For instance, he always uses antiseptic ligatures, *i.e.*, ligatures carefully prepared first in ether, second in alcohol, and third in a 1-1000 solution of corrosive sublimate. He also uses "thin silk because it is more easily impregnated"; and he states definitely that "it is only antiseptically prepared silk which safeguards us against both primary and secondary infection." Professor Kocher has been chosen for special mention because of his deservedly distinguished position in the surgical world, and because we have been so frequently told that his

methods are purely aseptic according to the modern definition of the word as given above.*

Many English surgeons acknowledge that antiseptics are more or less irritating, and, therefore, should be used carefully and judiciously. They think that the aseptic methods require more attention to details than the antiseptic methods, and also that they are quite "incompatible with private practice" (Sir Hector Cameron). Cheyne and Burghard express a positive opinion that the aseptic methods can only be carried out by skilled and experienced bacteriologists in well equipped hospitals. They believe that it is almost impossible to carry out the methods in all their details in private practice. When great surgeons of England and other countries hold these views the surgeons who teach aseptic methods to medical students are assuming grave responsibilities. Lister aimed at simplicity in surgical practice, and taught methods which could be carried out in the "back woods" as well as in the best modern hospitals.

In the interest of suffering humanity one may ask: Would the general adoption of the modern aseptic methods instead of the antiseptic methods be an advance movement or a retrograde step? Would it be well to advise our graduating classes to use aseptic dressings, and avoid antiseptic dressings, in the treatment of compound fracture?

We probably all agree that the main feature in surgical treatment is absolute cleanliness. It happens, however, that if we have not learned certain "simple" lessons from Pasteur and Lister we do not understand what cleanliness means. When men are taught that nothing is required in their work except cleanliness a large proportion of them will soon become dirty in a surgical sense (and sometimes otherwise). May not a similar thing happen if we teach that aseptic methods are to be employed and antiseptic methods avoided?

It happens, fortunately, that at the present time both the antiseptic and aseptic methods are producing admirable results. Under such circumstances we are loath to offer adverse criticisms as to the work of those who are employing aseptic instead of antiseptic dressings to such a large extent. We may even admire the paraphrenalia, though we cannot always understand it in all the details. I was slightly perplexed on one occasion when I saw a baldheaded surgeon, properly arrayed in white robes, with a white cap on the top of his head, and his copious beard uncovered and waving gracefully over the field of oper-

* Since the preparation of this paper I have learned from Dr. Arthur Wright that Professor Kocher sometimes uses antiseptic substances in his dressings for aseptic wounds. One of his favourite methods is to cover the wound with iodoform gauze—place sterile gauze over this—and then seal with collodion.

ation. I presume that Mikulicz when alive would not have been quite satisfied in such a case.

This subject is very important from an obstetrical standpoint; and for that reason those who practise the art of obstetrics watch closely the methods of the surgeons and study carefully the results of their work. Many obstetricians recommend what they term aseptic midwifery, but they all, so far as I know, advise antiseptic methods when they deem them necessary to secure aseptic results.

For the sake of brevity I shall give my own opinions as to a few points in connexion with this large subject without discussing in detail the views of others. It seems fitting to recommend *antiseptic and aseptic midwifery*, especially if aseptic methods are to be considered by some "more rational" than antiseptic methods. Whether we call labour a physiological or a pathological process we know that we have wounds and bruises in the majority of cases.

To prevent confusion as to certain simple terms it will be considered that "sterile" means — free from all micro-organisms; "aseptic" means — free from septic micro-organisms.

Our field of operation is composed of:—1. Septic tract, comprising the vulva and all adjacent parts. The skin covering these parts is septic, and cannot be made aseptic; and, therefore, wounds of the fourchette and perinæum are septic, or soon become so. 2. Aseptic tract, comprising the vagina, and lower part of the cervical canal. We learn from bacteriological research and from clinical observation that the vagina of pregnancy, although it contains many organisms, is aseptic, *i.e.*, it contains no pathogenic germs. Even when streptococci are introduced from without they are soon destroyed by the vaginal secretions. This is true as to all cocci with the single exception of gonococci. As a consequence, when there are no gonococci present, wounds of the vagina and cervix are aseptic. 3. Sterile tract, the uterine cavity.

Let us consider what occurs in a normal labour left entirely to Nature. After uterine contractions have continued for some hours the parts are dilated. The membranes are ruptured, and a certain amount of sterile fluid is poured into and through the vagina, and some organisms are washed out. The head and body soon pass through the vagina, and delivery results. During their passage the mucous membrane of the vagina is stretched and made smooth, and more organisms are pushed out. Then follow more liquor amnii and blood, shortly after the placenta, then come blood and lochia for some days. We shall suppose there was a tear of the cervix, a tear of the vagina, and a tear of the perinæum, the tear in each case being a slight one. The woman made a good re-

covery, although, or perhaps, because no doctor or midwife had touched her. What became of the wounds? The edges of the cervical wound came together. The cervical mucous membrane on one side and the vaginal mucous membrane on the other side were covered with a certain amount of sterile fluid. No finger, no instrument, no stream of water separated the edges of the wound, or introduced septic germs. The wound healed rapidly, probably by first intention. The vaginal wound healed in a similar way. The flow of the fluids, which are sterile for sometime, continually in an outward direction, had kept these wounds aseptic. We can probably agree thus far, although we may disagree as to whether the vaginal canal has been made absolutely sterile in the meantime. Without discussing that point, which is not important at this juncture, we have to consider the perineal wound which has not fared as well as the others. The edges came together, but did not remain in good apposition. Some pathogenic germs soon entered from the septic skin, and an interesting conflict occurred. The sterile fluids at first washed the organisms away. After a time these fluids diminished and some of the septic organisms remained, but these were attacked by cells of the living healthy tissues, and held in check. In the meantime lymph has been thrown out, granulations were formed, and by the fourth day had filled the wound, and danger of absorption had passed. Young fibrous tissue was developed, considerable contraction took place, epithelium spread over the surface, and the wound was soon healed. Nature in this instance did magnificent work in her own inimitable way. He is a wise man and a good physician who does not interfere with Nature in such a case. Our great desire in the practice of obstetrics is to obtain a knowledge which will enable us to assist Nature in an intelligent way. Our aim is to avoid both extremes—the meddlesome and the careless methods.

As to antisepsis and asepsis we in Canada do not differ on certain important points. We think that the patient, her surroundings, the accoucheur and his assistants (if there be any) should be clean. As a matter of routine we generally use rubber gloves in the Burnside Lying-in Hospital. Our rule is that the attending accoucheurs may, and the internes must use them. In cases of sepsis the gloves should always be worn, both in the interest of the operator, and also in the interest of the patients he subsequently attends. Of course, the hands should be as clean as possible, with or without gloves. Our custom is to use antiseptic solutions during labour, especially as to our hands and vulvar dressings. Even those who practise aseptic surgery will not probably object to this in midwifery practice.

As before mentioned it is generally recognized that the vagina is an aseptic tract. On this account many obstetricians in various parts of the world use simple sterile gauze for plugging the vagina before labour. It happens, however, with such material that the tampon becomes foul in twelve hours, while with iodoform or some other form of antiseptic gauze the tampon may be left in one or two days (or more, in some cases) without becoming foul. It is generally conceded now that antipartal douching is unnecessary if not harmful.

There are two or three other matters of vast importance to which brief reference will be made. In doing so it will be more convenient for me to speak in the first person. In the first place I do not think that the vagina ever becomes, nor do I think that it can ever be made sterile by either the surgeon, the gynæcologist or the obstetrician. After labour, though a number of organisms may be flushed out and forced out by the passage of sterile discharges, child and placenta, some of these organisms remain. If lochial discharges are retained in the vagina for a few hours they always become foul through the action of these (let us call them) saprophytic germs. Then these organisms multiply with great rapidity, pass up into the uterus, and cause decomposition of the blood, bits of placenta, or membranes. We have then foul lochia and constitutional symptoms indicating sapræmia.

Local treatment together with the administration of calomel and saline cathartics will generally cure in such cases. Let the patient be anæsthetized. Introduce the gloved hand within the vagina and fingers within the uterus. Scrape gently the debris from the uterine wall, wash out the uterine cavity with a hot salt solution, pack the uterine cavity fairly tightly, and the vaginal vault somewhat loosely, with 5 per cent. iodoform gauze. This gauze may be left in the uterus for twenty to thirty hours, *i.e.*, it may be introduced one day and removed at almost any time the next day. In nearly all cases of pure sapræmia this treatment carried out within three, or, perhaps, four days after labour will produce satisfactory results. This is practically Dührssen's method as recommended something like fifteen years ago, and is simply one of the modifications of intrauterine treatment which have been carried out for about twenty-five years. These methods were so successful that they encouraged surgeons and obstetricians to employ very radical methods of intra-uterine treatment in cases of septicæmia with most disastrous results. Strong antiseptic solutions were injected into the uterine cavity, and caused more or less necrosis of the tissues. Curettes sharp and dull were used with most deadly effect. Fortunately, there has been a reaction during the last few years. With many who still believe

in intrauterine medication for septicæmia alcohol is considered safer than carbolic acid and other strong germicides. Many of us hold the opinion that no metallic curette should ever be introduced into the puerperal uterus. When I see in consultation a patient with serious symptoms after labour, and find that the attending physician had used a curette, I form the opinion that if the patient has sapræmia she may recover; if she has septicæmia she will die.

While one intrauterine douche may be of use, especially when one suspects sapræmia, the continuation of such douches when no offensive debris is washed out, *i.e.*, when the patient has septic infection, is always injurious. Even in cases of sapræmia one treatment, as described, is generally sufficient.

There is another class of cases which cause much anxiety. Take the following example: a healthy primapara had slight febrile symptoms commencing the second day after labour; some odour in lochia the third day. Dr. A., who had charge, ordered vaginal douches; some improvement on the fourth day; but the patient was not quite well for the three following days. Dr. B. saw the patient with Dr. A. on the seventh day. Pulse was 100°, temperature 100°, some malaise, lochia was slightly offensive. Local treatment was carried out as follows:—patient anæsthetized, rubber gloves used, hand in vagina, fingers in uterus gently scraped the walls; little debris slightly decomposed; weak antiseptic douche used; utero-vaginal iodoform gauze tamponade; plug removed the following day; patient grew worse after this treatment; had the ordinary symptoms of a somewhat acute septicæmia. Died in about sixteen days after this treatment, or twenty-three days after delivery. Post-mortem examination showed septicæmia.

Let us suppose that this was at first a mild septicæmia. We are told that streptococci are frequently found in cases which are clinically diagnosed as sapræmia. It seems probable that the presence of saprophytes attracts in some unexplained way streptococci, which are practically ubiquitous, and, perhaps, increase their virulence. In this instance there was probably a mild septicæmia. Nature was making a vigorous fight against the invading organisms and their toxins. She was throwing out a wall of cell infiltration which was acting both as a barrier against the organisms, and a filter of the toxins. This is something like the granulation tissue which we find in external wounds. Within this layer of tiny cells, or "reaction zone" we find a necrotic zone containing the attacking organisms.

In carrying out any local treatment we have to consider this reaction zone. If, by our manipulation we injure some of these tender cells we

open vessels which will at once allow the ingress of the attacking organisms. There seems but little doubt that even the smooth gloved finger tips frequently injure enough of these tender cells to practically destroy the barrier which keeps these little enemies out of the system. If it be granted that manipulation either with the finger tips or with a curette is dangerous, the question arises, What are we to do? We have found that antiseptic solutions which are strong enough to destroy virulent streptococci cannot be injected with safety into the uterine cavity.

Without further comment I desire to express my opinion (and I do so with much diffidence) that after the fourth day following labour, neither the finger nor the curette should be introduced into the uterine cavity. If there is an offensive discharge, not due to retention of lochia in the vagina, an intrauterine douche of warm salt solution may be used. If the return flow brings away some debris the douche may be repeated once or twice at intervals of some hours. If the return flow is clear the douche should not be repeated. In administering the douche, no hard nozzle should be used. The operation, even when performed with the greatest care, is probably not free from danger. Most of our modern surgeons do not consider it advisable to wash out a septic wound, but they all desire free drainage. It seems probable that many obstetricians do not pay sufficient attention to the drainage from the uterus and vagina. Much can be done to promote free drainage by raising the shoulders of the patient, and turning her slightly on her side, at regular intervals.

In considering the surgical aspects of obstetrical procedures we desire to acknowledge the great debt we owe to the surgeons; and our methods of treatment, as learned largely from them, may be briefly summarized as strict antisepsis for the external parts and strict asepsis for the internal parts. And let me say in conclusion, that for the measure of success which now attends our efforts on behalf of woman in her hour of need—to Lister be all the honour and all the glory!

ACCIDENTS IN THORACENTESIS.

BY

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The dangers feared by the early clinicians in tapping a thorax were those of letting air into the chest, of collapse of the lung, and of fatal syncope. They were also mindful of the occurrence of pulmonary œdema,

and several cases with such complications are reported. Exploratory puncture, so far as one can gather from the literature, was seldom, if ever undertaken. On the other hand, even as late as 1830-1845, physicians and surgeons on both sides of the ocean discussed tapping the chest, deferred the operation, and the patients died.

Even as late as 1843 the school of French physicians watched patients die with pleuritic effusion, believing in the law enunciated by Louis that "pleurisy is never the immediate cause of death." In that year Trousseau ventured on his own responsibility to operate, avoiding a consultation lest his plan of treatment should be set aside.

The accidents or untoward events which our forefathers feared in bygone days have been largely prevented by better means of diagnosis and by the use of safer instruments. A strong desire to make a more complete and definite diagnosis in obscure cases prompts a more frequent use of the needle, and it is apparently in many of those uncertain, or doubtful cases that the more serious accidents have taken place. Two of the cases reported in this paper illustrate the most serious complications possible, short of fatality. Their rarity alone would be a sufficient reason for placing them on record, while the gravity of the symptoms and the occasional fatal termination suggest the necessity of a wider knowledge of such a complication in an operation so simple and so frequently performed.

Case I. (5678). Male, aged 28 years; was admitted on the 9th February, 1901, for dyspnœa, cough and weakness of the back. His history, so far as it serves the purpose of illustrating this paper is thus briefly told. Early in December of 1900 he was injured in his back by a falling tree. There was no history pointing to chronic disease of his lungs. He suffered for some weeks with pain in his chest, on both sides. Dyspnœa gradually developed and became very severe. Only on going about would he have cough and severe choking fits.

When admitted there was a marked angular curvature of the spine involving the 10th, 11th and 12th dorsal and 1st lumbar vertebræ. The heart impulse was faintly felt in the 4th right interspace, and the left half of the thorax was dull throughout. The dyspnœa was so marked and the heart displaced to such a degree that the left pleura was aspirated on the 10th February, and twenty ounces of slightly turbid serum were taken away, giving the patient much relief. The dyspnœa returned with signs of increasing fluid, and on the 12th another aspiration was done, and on this occasion fifty ounces were easily withdrawn. After this operation cyanosis set in and cough was troublesome. About eight ounces of albuminous fluid like starch-water with a specific gravity of

1012 were expectorated. Under stimulation he recovered from this attack. The fluid did not subsequently accumulate to such an extent as to greatly embarrass him.

This case, however, ran an unfavourable course. Signs of spinal cord compression developed, dysphagia, and cough induced by swallowing. In May, during a fit of coughing, he spat up several ounces of pus, and as no pus had been found in the pleura we suspected an abscess in connexion with the bone disease in the vertebral column discharging through a bronchus or the trachea. The autopsy established this diagnosis—a prevertebral collection of pus communicated freely with the trachea through an opening in its posterior wall. Both lungs were implicated—the left collapsed to a considerable extent—bound down by pleural adhesions; on section rather beefy looking. The right presented a condition of chronic broncho-pneumonia though no tubercle was found.

In this patient one had favourable conditions for the complication of albuminous expectoration—a patient weakened by prolonged disease of the pleura and spinal column, cardiac displacement, and the withdrawal of a large amount of fluid. It seems highly probable that the prevertebral pus collection was chronic and present therefore to some extent at least when the patient was operated upon.

Case II. (9941).—Male, aged 46; was admitted complaining of cough, expectoration and headache. He had not been in his usual good health for several months and a few weeks before coming to the hospital he contracted a *bad cold*. This compelled him to take to bed. He was feverish and coughed considerably, expectorating some blood-tinged sputum. Signs were present in the right lower lobe and were such as led the physician in attendance to suspect fluid. An exploratory puncture was made, but no fluid was withdrawn. The findings on ordinary physical examination could be explained only by a pneumothorax. The fluoroscopic examination was equally positive.

The case progressed favourably, no bacilli were found in the sputum and no fluid was made out in the pleura—we made repeated examination for fluid, but it could not be demonstrated.

There may always be conjecture concerning the cause of this patient's thoracic condition. The view taken of the case when all the evidence available was weighed, was that the patient had broncho-pneumonia, or a severe bronchitis with atelectatic lung, and that in exploring the chest the lung was injured and air escaped into the pleura.

The absence of sudden onset, the fact that no fluid was found in the pleural cavity, the favourable course of the case, with adequate lung expansion, and the absence of tubercle bacilli in the sputum, when con-

sidered in the light of the fact that the characteristic signs developed shortly after a negative exploration, leave but little doubt as to the relation of the pneumo-thorax and the thoracentesis. The report, recently received, of the patient's good health after two years, favours the view, that at all events, pneumothorax in this instance was not likely due to the great cause—pulmonary tuberculosis.

There seems good reason to believe that pneumo-thorax occurs much more frequently than one is led to conclude from the number of cases reported upon. They escape observation and the air is rapidly absorbed.

Case III.—Male, aged 57, blacksmith and boilermaker; was admitted on the 26th of May, '05, ten days after the sudden onset of his illness, following exposure to cold. He was the subject of fever, weakness, cough and pain in the left side of the chest near the base of the lung. The physical signs observed over the painful area were dulness on percussion from the third rib downward, and into the axilla and well down over Traube's space. The breath sounds were distant and in the axilla a few moist rales were heard. Fluoroscopic examination revealed a cloudiness over the lower portion of the left lung-field, with no shadow over the right lung-field. The heart was not displaced.

On the 27th of May an exploratory puncture was made in the left axilla resulting in the withdrawal of but a few drops of frothy blood-stained fluid. It was thought that during the next few days the signs cleared up somewhat, but the temperature ran an intermittent course, and subsequently the dulness was, if anything, more pronounced. The patient had coughed throughout his illness and the muco-purulent expectoration was sometimes streaked with brown, resembling altered blood, and at other times it was distinctly blood-stained. No tubercle bacilli were found, although they were frequently looked for. Another exploratory puncture was made about three weeks after, *i.e.*, about the end of June, with the result that but a few drachms of clear fluid were withdrawn. On the 1st of July, the previous attempts having been rather unsatisfactory, and in the light of such positive evidences of fluid, it was again decided to use the needle, and again practically the same result followed. Another week went by without improvement. Pain was complained of over the left side of the abdomen, made worse while at stool. He vomited occasionally, and a small area of œdema was observed over the lower portion of the left thorax. We felt that yet another attempt to solve this rather difficult case should be made and, accordingly, on the 8th of July, for the fourth time, thoracentesis was done in the hope of finding pus or an abscess. An exploratory puncture was made in the 8th interspace in the posterior axillary line; the

patient lying on his right side with the head somewhat elevated. Immediately following the insertion of the needle the patient was seized with alarming dyspnœa and collapse, at the same time he spat up a considerable quantity of blood. His face became an ashen hue, the sphincter ani relaxed and bowel contents discharged; the extremities were cold and there was involuntary urination; the pulse very rapid (117) and weak. The right lung, hitherto quite clear, was filled with moist rales, while an ominous rattle was heard in the throat and trachea. Stimulants were promptly applied (heat, brandy, etc.), and the patient gradually returned to his former condition. Within four hours the right lung was again clear. No additional evidence was forthcoming concerning the state within the pleura. The conclusion arrived at was that exploratory puncture in this case would be abandoned! The course was not favourable. Although improvement followed and the lung cleared up to some extent, the patient remained in the ward until the 20th of August. When discharged there were still signs of considerable dulness at the left base. The diagnosis made was of delayed resolution of an acute lobar pneumonia, pleuritis with slight effusion, chronic nephritis.

Unfortunately we have not been able to follow this patient for a subsequent report.

The alarming symptoms following our fourth attempt to clear up the diagnosis were unattended with any albuminous sputum. There was no convulsive seizure, the signs and symptoms were those of severe shock.

Case IV.—Concerns a girl, aged 10½ years, who was admitted February 11th, '07. She had cough, pain in the right side, fever and vomiting, with general soreness. The past history showed that the patient had suffered two attacks of pneumonia—at the ages of six and eight years—that she took "*cold*" readily and that in November, 1906, she took a bad cold, and had not been well since, going to school for only two days throughout the winter. On the 9th of February the onset of the illness which brought her into the ward was marked by a *brief* chill and vomiting and the setting in of the symptoms already mentioned.

Signs of disease are discovered in the right lung occupying a position in the lower portion of the upper lobe and possibly in the apex of the middle lobe. The signs suggested infiltration—and yet with the history of lowered state of the patient's health for some time and her rather erratic temperature curve, it was thought that one might have to do with a localized interlobar empyema. A skiagram was accordingly taken, and established the fact only of a shadow, rather wedge-shaped, extending outward from the lower portion of the upper lobe and occupying a part of this in all probability. The temperature did not fall

typically, as in a lobar pneumonia, and remain down, but showed a mild febrile course after what may have been termed a crisis.

Exploratory thoracentesis was done on the morning of February 23rd. The first puncture with a medium sized exploratory needle was made in the post-axillary line between the fourth and fifth ribs, the needle directed upward toward the region affected as indicated by physical signs and skiagram. This was done under ethyl-chloride spray and seemed to be thoroughly well borne. It yielded a negative result. A few minutes later a second puncture was made in the anterior axillary line and between the same ribs the needle still directed upward. No fluid was found, and the needle was immediately withdrawn without any attempt to move it about in the pleura. No unusual anxiety or suffering was manifest during these two punctures. Immediately on withdrawing the needle from its position in the anterior axillary line, a peculiar respiratory sound was heard, the head was suddenly drawn forcefully back, the whole body became rigid, the teeth firmly closed, the sphincters of the bladder relaxed, the face became cyanosed, and the skin over the body and extremities was marked with areas of marble whiteness and dusky redness. The pulse could not be felt—the respiration was suspended. Early in the seizure a little blood came from the nose as the head was so strongly retracted and the mouth closed. The rigidity lasted about twenty minutes and relaxations set in with some clonic spasms. The mottling of the skin gradually gave way to a uniform pallor and duskiness, and unconsciousness continued for fully one hour. Promptly with the setting in of these most alarming symptoms the foot of the bed was elevated. Artificial respiration was begun, and strychnine given hypodermically. It was impossible to adopt tongue traction as the mouth could not be forced open without breaking the teeth. The patient recovered consciousness, recognized those about her, but she was excitable restless, crying and complaining of headache, especially after the attacks of vomiting which recurred at intervals during the first afternoon. The vomitus consisted of coffee ground matter with traces of bright blood and milk curds. At six o'clock she complained of being totally blind; her pupils were dilated and inactive. For a time everything went on favourably, the patient passed urine and fæces voluntarily during the early part of the night (23rd February), and she was quiet most of the time, sleeping at intervals. Shortly after midnight (12.40) convulsive seizures set in and recurred until 4 a.m. They began usually in the left arm, and sometimes in the left side of the face, spread to the left leg and then became general. They usually ended as they began, but the right side of

the face or the right arm was sometimes in spasm after the spasm in the muscles on the left had ceased. These seizures recurred at intervals varying from a few to twenty minutes, and their duration varied also from twenty seconds to two minutes. The time between the spasms lengthened with succeeding attacks, and, after the thirtieth convulsion was over at four a.m., she remained very quiet and apparently comatose until eleven a.m. (24th February). When she awoke about noon she was somewhat irrational, but this state gradually disappeared. It was noticed, however, that there was a definite paresis of the left arm and leg. She was very irritable and resented being disturbed in examinations and questioning, etc.

On the 25th she admitted that she saw but indistinctly. There were general signs of improvement on the 28th. She seemed again quite normal, eating and sleeping and taking an interest in the events in the ward. As to her visual power, for sometime there was considerable doubt for at times she said she could not distinguish between different colours, and again her evidence would be contradictory.

The pulmonary condition improved, the dulness cleared up, and she went out practically as well as ever with a diagnosis of lobar pneumonia. These two cases yielded alike negative results, so far as concerns the finding of fluid. There is no doubt that the lung was penetrated in each case, as blood came into the mouth in an astonishingly short time after the parietal puncture was made, and it is equally certain that in each case the needle penetrated a diseased lung. In the one case signs of collapse were prominent from the first, while in the other collapse followed immediately upon the spasmodic seizure. Fortunately, the cases terminated favourably, a contrast to the issue not infrequently recorded in such accidents.

Some have explained the fatalities by asphyxia—the blood in the bronchi accounting for the death; others again conclude that death follows loss of blood—the patient bleeding through the trachea into the mouth and stomach. In cases three and four we had signs of loss of blood, but not to such a degree as to account for the symptoms present, and one is forced to seek another explanation of the alarming sequel of thoracentesis. The observations of Brodie and Russel on reflex cardiac inhibition throw much light upon this subject. From their experiments on animals they conclude that, "of the branches of the vagus excitation of the central end of which causes reflex inhibition of the heart, the pulmonary fibres are those which produce the most marked reaction. . . . . .

"The connexion of the respiratory tract with the cardiac inhibition centre is very close. . . . . Excitation of the pulmonary nerves

also acts upon the respiratory and vaso-motor centres producing arrest of respiration and a fall in blood-pressure."

It would appear therefore reasonable to conclude that in these two cases, three and four, where we certainly punctured a diseased lung, we stimulated at the same time a pulmonary filament or branch of the vagus, and there followed reflexly, cardiac and respiratory inhibition with lowered blood pressure and marked vaso-motor disturbance, as shown by the mottling of the surface—the spastic and paretic areas over the skin. The lowered blood pressure inducing nutritional changes in the cells of the cerebral cortex, may account for the irritability, the recurrent convulsive seizures, the amaurosis and the hemiparesis.

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EPIDEMIC CEREBRO-SPINAL MENINGITIS.

BY

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The subject for discussion to-day in this section, Epidemic Cerebro-Spinal Meningitis, is one which, owing to the numerous outbreaks of the past few years, has awakened a very considerable interest.

Just at the time of our last regular meeting, that of Halifax, a moderate epidemic prevailed in certain districts of Nova Scotia, and members of this Association were enabled at that time to study some of the cases. We have, however, been remarkably free from the disease in Canada and, with the exception of occasional sporadic cases in Ontario which I have had an opportunity of studying bacteriologically, my personal experience has been slight, and, consequently, my contribution to the etiological side must be largely an abstract of the work of others. Fortunately, the task is a comparatively light one, since the past few years have witnessed outbreaks of considerable magnitude which have been carefully studied, notably the Boston epidemic, the great New York epidemic of 1904-05 with about 4,000 cases, and especially the epidemic of Upper Silesia, where there were over 3,000 cases

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with 2,000 deaths. Still more recent are the studies upon the Belfast and Glasgow outbreaks.

As a result of the investigation of these epidemics, we may consider that most of the etiological difficulties have been cleared up, although there are still important points upon which we still require enlightenment.

To Weichselbaum in 1887 we owe the first recognition of the organism which to-day we believe to be always responsible for epidemic meningitis, and to which he gave the name diplococcus intracellularis meningitidis, now called either diplococcus intracellularis or the meningococcus.

The fact that the diplococcus lanceolatus or pneumococcus is frequently responsible for cases of meningitis in children, sometimes in the absence of definite pulmonary involvement naturally leads to some confusion. It was only after the study of a number of typical epidemics that the clear cut distinctions were brought out and Weichselbaum's contention as to the independence of the two diplococci substantiated.

One of the most important contributions to this came from the work of Councilman, Mallory, and Wright in their study of the Boston epidemic.

To-day the position of the organism is well established and it can without difficulty be differentiated not only from the diplococcus of pneumonia, but also from certain Gram-negative cocci such as micrococcus catarrhalis, which occur in the nasopharynx and with which it is much more likely to be confused than with the pneumococcus.

The organism in smears appears as a typical diplococcus which perhaps resembles the gonococcus more than any other form; the diplococcoid arrangement is well marked both in smears from pus and in cultures, the pairs of individuals showing flattening of the opposing surfaces which is so characteristic of the gonococcus.

In smears from the fluid obtained by lumbar puncture during life or in the exudate from the meninges at autopsy, the organisms are commonly found within the leucocytes, but they are not necessarily always intracellular, this being simply an indication of the active phagocytosis which occurs in the exudate.

When stained by the Gram method, it loses the dye; it is a Gram negative organism. This may be considered one of the most important characters as it retains it throughout long continued growth upon artificial media, and it serves to differentiate it at once from the pneumococcus which is Gram positive. This Gram negative character was for a time considered by some to be uncertain, but the studies of the last

five years have conclusively shown that reports of Gram positive meningococci were due to the admixture of other forms.

This inability to retain the Gram stain is the more important on this account that when outbreaks occur at a distance from laboratories, the only characters upon which in early cases a diagnosis of the epidemic character can be made may be this one, combined with the morphology of the organism in the smears from lumbar puncture fluid since, on account of the slight vitality, it may die before the material reaches the laboratory. The importance of the early diagnosis of cases will be seen when we consider later on the epidemiology of the disease.

It would hardly be of interest to the Section for me to go into any minute details of the cultural characters although, as we will see, they are of the greatest importance, especially when it becomes necessary to study the flora of the nasopharynx of persons in contact with the patients. Suffice it to say that although the organisms may grow upon a variety of media, its best and most characteristic growth is obtained upon media such as ascitic fluid agar, which contain human serum constituents. Park, of the New York Department of Health, has shown that sheep serum agar is also an exceedingly good culture medium. Upon this it grows fairly luxuriantly, but it dies out quickly, and cultures must be transplanted at short intervals to maintain its life. Of practical interest are two points which have been made out in regard to the behaviour of the meningococcus in cultures. One, that it will die more quickly at room temperature or in the ice chest than in the incubator, the other than even in the incubator it dies rapidly if the surface of the medium is allowed to dry. In fact the rapidity with which it dies when dried is remarkable and these facts point most strongly, first, to what has probably long been recognized, the slight infectivity of fomites, and second, the great danger which must result from healthy individuals in the neighbourhood of the patient becoming the unwilling hosts of the organism. As we will see this last does occur and probably accounts for the peculiar character of the epidemics.

The only other cultural character of importance (aside from the appearance of the colonies which I will not describe) is the action upon sugars. It causes fermentation (acid formation) in maltose and dextrose, but not in the other sugars. This character separates it from several forms, notably organisms of the catarrhalis group, which may occur in the nasopharynx.

Finally, a by no means unimportant morphological character, is the rapidity with which degenerative forms occur in the cultures. These begin to appear in a very few hours and are more marked the older

the culture. Flexner has pointed out that this is due to autolytic changes occurring in the organism.

For ordinary laboratory animals the meningococcus is very slightly pathogenic. For small animals like mice or guinea pigs relatively large doses must be injected intraperitoneally to cause death. In rabbits and guinea pigs subdural or intraspinal injections have given negative results, unless massive doses were used.

In regard to apes, the evidence until recently was contradictory, but last year Flexner succeeded (by inoculation of apes in the spinal canal of the lumbar region) in producing the typical disease with what is of great interest definite infection of the nasopharynx. In Flexner's animals the infection spread up the cord to the medulla, about the base of the brain and along the olfactory nerves to the nasal mucosa. The pathological changes in the meninges and brain of these animals was in every detail comparable to the lesions found in man.

The pathological anatomy may be briefly referred to. In fully developed cases, the exudate is mainly over the vertex of the brain, especially in the arachnoid and its spaces. The Sylvian fissure is rarely invaded. In rapidly fatal cases the amount of exudate may be very small, but, according to Westenhoeffer, it can always be found about the chiasma and hypophysis. Miliary hæmorrhages and abscesses are usually found in the brain substance, so that the disease is typically an encephalo-meningitis. The other organs of the body may show nothing more than the cloudy swelling due to the toxæmia. Of very great importance, however, is the observation of Westenhoeffer, made during the Silesian epidemic and confirmed by others, that there is always present in the pharynx and nasopharynx definite evidences of infection. The mucosa is covered with a slimy exudate which, on removal, shows the markedly inflamed tissue beneath. The pharyngeal tonsils are swollen and inflamed and the neighbouring lymphatic glands frequently also show involvement. From these areas the organism has been isolated. Two cases are reported also in Kutscher's article in Kolli und Wasserman (Ergängungsband), in which previous to the appearance of the meningeal symptoms the meningococcus was isolated from the exudate of a tonsillar angina.

These observations, taken with Westenhoeffer's statement that in fulminant cases in which slight or no evidence of meningitis was obtained at autopsy, it was always found about the chiasma and hypophysis, seems to me to point very conclusively to the path of infection.

Westenhoeffer's studies seemed to show that it is the posterior nasopharynx and pharyngeal regions which formed the point of entrance

and not the cribriform plate as had previously been suggested. In 30 autopsies he only found infection of the ethmoid once.

The involvement of the pharyngeal lymphatic tissue would naturally tend to point to the lymphatic path as the method of spread to the meninges. Careful studies of the microscopic sections failed, however, to demonstrate this, and Westenhoeffer has finally come to the conclusion that the invasion was hæmatogenic. He cites in support of this three fulminant cases dying within twenty-four hours, in all of which he found minute inflammatory foci in the heart muscle. However, whether the infection reaches the brain by the lymph channel or the blood-vessels may, perhaps, be very well left for further study, especially when we remember that this very point is still unsettled in the case of several other infections which we have had much better opportunity of studying than epidemic meningitis.

The most important fact is the apparently primary involvement of the nasopharynx. This fact has naturally turned attention to the condition of the nasopharynx in healthy persons who have been in contact with cases, and a large number of positive finds of the meningococcus are recorded in the literature.

Von Lingelsheim found it 24 times in 365 healthy persons in contact with patients.

Osterman under most favourable conditions (the material was taken by himself and cultures made immediately) found it 17 times in 24 persons in contact with cases. Some of these had a slight pharyngitis and in these the organism was present in almost pure culture. On the other hand he was unable to find it in a large number of persons who had not been in contact with cases. Kutscher in addition found it in a few cases in persons who had not been in contact. Goodwin and Von Sholly found the organism in 5 out of 45 persons who, within two weeks, had been in contact with cases. In the one which had been in contact with a case 14 days previously 30 per cent. of the colonies in the plates were meningococci. All these recent studies have been carefully controlled by cultures.

These facts seem to clear up very much the epidemiology of the disease. The organism is a strict human parasite; its very slight vitality in culture media renders it most unlikely that it spreads in any other way than from man to man.

The presence of the organism in the nasopharynx of non-meningeal cases, either with or without pharyngitis, explains many of the peculiar features of the epidemics, especially the gradual development of it, its long persistence in houses and localities and its tendency to flare up

again when apparently over. It explains also the sporadic cases and the small local epidemics, since it is quite possible that certain healthy individuals are bearers of the cocci meningococcus carriers as we have diphtheria carriers or typhoid carriers, and when favourable soil is met the disease breaks out.

All these facts point the way to prophylactic measures which may, when properly carried out, stamp out an epidemic before it reaches the enormous proportion which it obtained in New York and Silesia. At the same time there is the fact, that the disease is one of crowded tenements and unhealthy surroundings, and, as long as such are found in great cities, or amongst an ignorant peasantry, it will need all the ability of the sanitary authorities to prevent its spread. Bacteriologists however, have pointed the way here, as in the case of diphtheria, how the thing may be done. That is, the isolation, not only of those who are suffering from the disease, but of those also who are infected.

THE TREATMENT OF CEREBRO-SPINAL MENINGITIS.

BY

A. D. BLACKADER, B.A., M.D.,

Professor of Therapeutics, McGill University; Physician to the Montreal General Hospital.

From a study of the life history of the *diplococcus intracellularis* and from experimental inoculation of animals, especially, of monkeys, for much of which we are indebted to Dr. Simon Flexner of the Rockefeller Institute, New York, we learn that in the treatment of cerebro-spinal meningitis, we have to deal with an infection by an organism of very variable virulence, which, although readily antagonized and destroyed by the other tissues of the body, finds in the meninges of the cerebrum and spinal cord a favourable culture ground. In these tissues it develops extremely rapidly. From experiments in the monkey we learn that twelve hours from the time of inoculation an infection develops extending throughout the meninges of both brain and cerebrum, and giving rise to a most disastrous inflammatory reaction which may penetrate deeply into the tissues of the brain and block the various foramina of communication.

Although it appears to develop so very rapidly, the life history of the diplococcus in the tissues would appear to be a brief one. Against it the normal sera of the body possess distinct bactericidal powers. In the monkey experiments show that the actively bactericidal cells and secretions of the canal are capable of destroying in a few hours pro-

digious numbers of the diplococcus; and in this action they are greatly assisted by an enzyme developed by the coccus itself. Unfortunately, in the case of this infection the disastrous effects which follow it are not due to an intracellular toxin evolved during life, but to an endotoxin liberated after the death and disintegration of the cell body. Once, therefore, that a considerable development of the coccus has taken place, measures to prevent its further multiplication will not check the destructive effect of the endotoxins liberated from the dead disintegrating cells. Having to deal with such conditions the hope of the therapeutist must lie:

1. In prophylaxis.

2. In prompt measures at the very outset to check the development of the organism.

3. In placing the system under the best possible conditions to withstand the poisonous endotoxins liberated and to immunize their action.

As regards prophylaxis careful investigation during the recent epidemics, both in this country and in Europe, have emphasized the belief that under favourable circumstances the disease may be spread through immediate or mediate contact with the sick. The organism, undoubtedly, frequently exists in the nasal and pharyngeal secretions of the sick, and may exceptionally be found in the same secretions of those who have been in contact with them. It appears to be easily destroyed in these passages; the use of a disinfectant lotion is therefore indicated. The fact that it can be so communicated, however, shows the necessity for a careful maintenance of the best hygienic conditions in the treatment of those infected, and possibly for their isolation.

Up to the present all the therapeutic measures which have been tried to stay the course of the infection have proved of little avail. If we review the writings of the past decade, we find that with an increase of our knowledge of the conditions actually present, pessimism as to our therapeutic powers has become more pronounced, and treatment has become more expectant and symptomatic.

Since the publication, however, by Dr. Flexner of his report on experimental infection in monkeys, the hopes of the profession have been raised with the expectation that an efficient antitoxin may yet be discovered which may check at the outset the development of the infection, and thus prevent the disastrous after effects.

This hope is founded on the ascertained fact that the normal serum of blood possesses distinct bactericidal powers which can be increased considerably by development. Experiments with rabbits, goats, guinea-pigs, horses and, finally, monkeys, show that sera possessing consider-

ably increased bactericidal powers can be developed by prolonged immunization.

After detailing his careful experimental work, Flexner writes as follows: "By the employment of an homologous anti-diplococcus serum several monkeys were saved after a fatal dose of culture had been injected experimentally, but the results obtained were not sufficiently constant or striking to make this mode of treatment of serum cases very hopeful. Possibly, however, more active sera may yet be prepared with more effectual means for immunization: and it is probable that the bactericidal action of a serum may be favoured by the slower and more measured progression of the disease in man compared with the extremely rapid course and profound toxic symptoms which occur after inoculation in animals." Any anti-serum to be effectual must be employed at the very outset; and it must be borne in mind that increased power in a serum to destroy the diplococcus, is not necessarily associated with an increased power to resist the toxic effects of the intracellular poison liberated by the death and disintegration of cocci already developed.

It is interesting also in this connexion to note that while normal blood serum in laboratory experiments appears to have a very decided bactericidal power, and the exudate called out by inflammation has a still more definite action in this way, in many cases of infection in man this bactericidal action appears to be quite exhausted in the fluid obtained by lumbar puncture, as the number of diplococci in this fluid have been shown to increase on incubation outside the body. The possibility, therefore, is urged by Dr. Flexner, that the introduction of fresh normal serum into the canal may, in some cases, have a distinctly beneficial action by bringing quickly into contact with the diplococci a fluid with definite although mild destructive powers; a fluid also which, as shown by experiments, reduces very appreciably the toxic effects of definite doses.

In the absence, therefore, of any available immune serum, Dr. Flexner recommends that a small amount of normal human serum be injected into the canal after the withdrawal by lumbar puncture of as much of the infected fluid as can be obtained by drainage.

The great difficulty in the employment of any anti-serum for cerebro-spinal meningitis in man is the question of how promptly it can be employed to exert its action and check the development of the organism. Moreover, as all indications point to the pathological effects being due to endotoxins, it is very uncertain how far a sufficient quantity of antibody can be produced to neutralize an amount of endotoxin that will

distinctly lessen the disastrous action on the centres of life. On this aspect of the question Dr. Flexner is decidedly non-committtal and writes: "I am far from having any conviction that cerebro-spinal meningitis in man can be favourably influenced by injections of immune sera into the spinal canal or elsewhere in the body."

Dr. Von Eberts writes me that according to Sir Almroth Wright vaccine therapy has a distinct value in this affection. Observations carried out on the serum of patients suffering from the affection, show as a rule opsonic indices in the neighbourhood of normal. Bacterial inoculation leads in many cases to an induced phagocytic power yielding indices as high as 5. On the other hand, indices taken of the cerebro-spinal fluid from patients show invariably indices far below normal, and this fluid is found to be very lacking in bactericidal power and must be regarded as a stale deopsonized fluid.

This at once suggests the practice and explains the recognized value of frequent lumbar puncture, a procedure in which the stale fluid is withdrawn and replaced naturally by fresh serum. Lumbar puncture must be therefore considered in the light of an auto-inoculation.

Sir Almroth Wright asserts that by his bacterial inoculation the opsonic powers of the serum are heightened and, therefore, when it is mechanically induced to take the place of fluid withdrawn from the spinal canal, it must necessarily exert a greater lytic or bactericidal influence upon the active organisms at the focus of infection.

The weakness of this procedure, however, lies, in my opinion, in the fact that its action is slow and that even if the diplococci are destroyed by the opsonic fluid, the endotoxin still exerts its deleterious influence on the nervous tissues.

With reference to the general treatment of a case of meningitis, I may be permitted to very briefly remind you that rest to the irritated nerve centres is of the greatest importance. This fact was emphasized in one of Flexner's experiments in which a monkey that had struggled a great deal in the attempt to perform lumbar puncture was found after death to show a very unusual amount of congestion of the cerebral and spinal tissues which Dr. Flexner could only attribute to the over-exertion produced by the struggling. Clinically it has also been noted that in children in whom deafness occurs early, the disease generally runs a milder course. The greatest care must, therefore, be taken to secure absolute quiet and freedom from exciting noises for the patient. If this is impossible, the ears should be stuffed with cotton. Light should also be excluded from the eyes by means of a bandage, and all unnecessary disturbance of limbs should be avoided. Any symp-

toms inducing restlessness call imperatively for relief. Herein lies the value of the opium treatment so highly lauded by many of the older physicians; it secures rest and lessens irritation. Convulsions demand chloroform and morphine.

When the extremities or surface of the body are unduly cool, heat may be employed. It is in such cases that Aufrecht's warm baths are of special service, but the patient must be gently lifted in and out of the bath on blankets with as little disturbance as possible. Jerwin says, "that the indications for their use are subnormal temperature, small weak pulse, threatened collapse, headache and nervous irritability." The baths should have a temperature of from 100 to 104 degrees, and the patient should remain in them from 10 to 20 minutes. Their effect, in my experience, is distinctly beneficial, but careful watching of the effect produced by them is necessary. High temperature, on the other hand, calls for the application of ice bags to head and spine.

Any symptoms of pressure on the medullary or other cerebral centres such as headache, slow pulse, stupor, or vomiting urgently demand lumbar puncture, and this in many instances will be found to afford prompt relief. I have already referred to the therapeutic value attributed to this procedure. With careful aseptic precautions lumbar puncture is harmless and comparatively easy.

Adequate nourishment is imperative. A tactful nurse can accomplish much, but when stupor sets in forced feeding must be attempted by passing a catheter through the nose into the œsophagus.

Lastly, good ventilation must be maintained at all times in the sick chamber. The temperature of the room should not fall below 65 degrees F. It is noteworthy that with the onset of warm weather an epidemic generally ceases.

Throughout our treatment, while we dare not be optimistic, we have no right to be pessimistic. Cases which, for the time, appear hopeless may yet make a complete recovery. Although sometimes a mild onset may be followed by severe symptoms, a stormy invasion may not infrequently be succeeded by a rapid decline and uneventful convalescence. Chapin mentions a case in which the thermometer reached a temperature of 108.6 and yet made a complete recovery.

Appended are the statistics of the cases treated in the two large hospitals of this city during the past ten years, for the compilation of which I am indebted to Dr. Landry of the Royal Victoria, and Dr. Eggert of the Montreal General Hospitals.

There were admitted into the Montreal General Hospital 58 cases of cerebro-spinal fever, of which 37 terminated fatally; a mortality of 63 per cent.

There were admitted into the Royal Victoria Hospital 16 cases, of which 10 terminated fatally; also a mortality of 63 per cent.

Lumbar puncture was performed as a therapeutic measure in 30 cases—of these 17 died; a mortality of 56 per cent.

Age Mortality.

1 to 10 years	.....	25	cases,	with	14	deaths,	equals	56	p.c.	mortality.
10 to 20 "	.....	19	"		8	"	"	42	"	"
20 to 30 "	.....	19	"		16	"	"	82	"	"
30 to 40 "	.....	5	"		5	"	"	100	"	"
40 to 50 "	.....	3	"		2	"	"	66	"	"
50 to 60 "	.....	3	"		3	"	"	100	"	"

The lowest mortality was during the second decade of life. The greatest was during the first decade. More than 80 per cent of the cases occurred during the first three decades.

PRIMARY MELANOSIS OF THE PALATE: NASO-BUCCAL FISTULA OF RECENT SARCOMATOUS ORIGIN.

BY

J. N. ROY, M.D.,

Physician to the Hôtel-Dieu, of Montreal.

It is well-known that there exist strange freaks of nature which till now the most profound observers fail to explain. In medicine, numerous examples could be cited; among others, primary melanosis of the palate is, I think, worthy of note. The histologist could easily tell us what melanosis consists of, but he would find it very difficult indeed to explain how and why that melanosis became primarily localized in the palate. Normally, the mucous membrane of the human palate is of a pale rose colour, and whenever pigment appears it is symptomatic of a pathological process.

A glance at comparative anatomy shows that, in general, the palate of animals is whitish in colour, and the mucous membrane is undulated with numerous transverse furrows. However, the horse, the cow, the dog, the deer and the fox may normally have a dark palate. The maki, on the other hand, has always a pigmented palate.

The caprices of nature must puzzle the biologist and make him wonder what could be the physiological explanation of how a white palate and a dark palate could exist in the same race of animals.

If the physiology of animals is so capricious, it is not at all the same thing with human physiology. With man melanosis of the palate has

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always a serious signification; either it is a percursory symptom of future disease, or it is a complication of an already existing tumour, or else it begins with the new-growth.

Medical literature is very poor in notes on this subject; I have been able to find only two other similar cases reported; therefore, I have thought it might be of interest to record the present case, and I would draw special attention to the beginning of this condition which dates back twenty years, and to the naso-buccal fistula of recent sarcomatous origin.

In September, 1906, J. D., a blacksmith, 43 years of age, consulted me at the Hôtel-Dieu. He related that in 1896, he remarked on the median raphé of the vault of the palate a small round spot of a diameter of about three millimeters. This spot was not elevated and caused no trouble. A year before he had slightly injured his palate with the stem of a clay pipe. The hæmorrhage was trifling and the wound healed quickly, apparently leaving no traces. During the following twelve years, this spot increased in diameter to about six millimeters without, however, becoming prominent. The only symptom he noticed was slight roughness to the tongue on pressure. He consulted a doctor who prescribed gargles and applications of tincture of iodine. During the first twelve years the melanosis was painless, but after the applications of iodine pain appeared. Pigmentation extended gradually to the surrounding parts, and the mucous membrane became granular and irregular. Hard, dark masses with a hæmorrhagic tendency began to form. Four years later, all the space between the dental arch of the superior maxilla was filled with melanotic granulations. The feeling of local irritation succeeded the pain caused by the applications of iodine, which were discontinued for that reason. The irritation disappeared temporarily when the patient rubbed the mass with his tongue. The last four years, the lesion became deeper. Till then the whole palate was in a state of melanosis. Then slowly there came a depression more marked on the left side. We cannot trace at present any swelling antecedent to this depression. The palate then became rougher and furrows separated small masses which apparently were increasing in size. Early in September last, the patient, while attempting to suck, perceived the existence of a naso-buccal fistula. Neither hæmorrhage nor suppuration were noted.

On examination it was remarked that the melanosis invaded the whole hard palate. Granulations of a brown and black colour and of various sizes were scattered around. They were hard and showed no tendency to hæmorrhage. The left side was greatly depressed and, at

the union of the anterior two-thirds with the posterior third, the probe passed into the left nasal cavity. Pain was felt only if irritating food was taken, or if cold air passed quickly through the fistula. There was a slight discharge and slight necrotic odour. A mass of granulation tissue at the orifice of the fistula prevented liquids from entering the nasal cavity.

The voice was nasal. Taste was dulled; no dysphagia, but loss of pharyngeal reflexes. Gums and cheeks showed no melanosis.

The patient has always been a great smoker, he used to chew tobacco and took no care of his teeth, which are quite discoloured. The upper teeth are healthy, except the first left molar, which shows caries to the third degree. The third right molar has been extracted. The second left lower molar has also been extracted. The other teeth are quite healthy.

An anterior rhinoscopic examination shows a hypertrophic rhinitis on the left side. The septum is depressible and œdomatous, and a small cartilaginous spur prevents the perforation being seen. On the right side, the septum is in the same condition and there is hypertrophy of the inferior turbinals.

No history of epistaxis or nasal discharge.

Posterior rhinoscopy shows hypertrophy of the posterior ends of the lower and middle turbinals. The posterior end of the septum is tripled in diameter. A whitish infiltration appears to come from the middle part of the septum and gradually grows more marked as it extends backwards.

At this rhinological examination I have not found any melanosis.

The pharynx is slightly congested, the larynx normal.

Diaphanoscopic examination shows the right antrum to be transparent and the pupil luminous. On the left side the cheek is darkened and the pupil obscured. By means of Mahu's method, I examine the capacity of the left antrum, and find it holds two cubic centimeters of water which returns from the left nostril quite clear.

Cervical lymphatic glands on left side appear slightly hypertrophied.

A close examination of the eyes shows they are normal. The iris is of a clear grey colour without any abnormal pigmentation. Refraction is: Right eye 90° + 0.25 V=1; left eye, 90° + 0.25 V=1.

The patient has always resided in the country and has enjoyed excellent health. The only sicknesses he has had were pneumonia in 1888, and mild cystitis in 1894.

There is no history of tuberculosis or lues. He has made use of alcohol without abuse.

PRIMARY MELANOSIS OF THE PALATE.

Married for eleven years, he is the father of seven children. The two eldest died of convulsions in infancy. The others are in good health.

All his ancestors lived to a good old age.

There is no cancerous history.

His brothers and sisters are in excellent health.

On inspection of the skin, there are no pigmented spots. The skin is normal except for a slight subicteric shade.

The examination of the different organs shows nothing abnormal.

Urine analysis shows a density of 1022. There is no sugar, albumen, but a trace of urobilin.

Examination of the blood is of no special interest. There is nothing abnormal about its composition, and the number of red and white corpuscles varies but slightly from the normal. The presence of pigment in the blood was negative to a most minute examination.

Till now, the cause of this palatine perforation remained obscure.

Although it was impossible to trace lues in this patient, I prescribed large doses of mercury and iodide of potassium awaiting the microscopic report on a small granulation removed for examination. Menthol and boric acid salve, and a mouthwash of chlorate of potassium completed the medical treatment. Hygienic treatment consisted in forbidding all irritating food and ordering cleansing of the teeth.

In this case we did not think it necessary to search for the spirochæte pallida of Schaudinn, as it is generally admitted that this micro-organism is found only in primary and secondary lesions. As to the bacillus of rectilinear shape its presence is questioned in tertiary lesions.

My friends, Dr. St. Jacques, professor at Laval University, and Dr. Hingston, F.R.C.S. Ed., returned the following report upon the small piece removed:

"On microscopic examination, the section appeared to measure about "5 millimeters in diameter. The epithelial layer still remains, though "varying in thickness in some parts."

"The cells of the deeper layers are in general well divided from the "underlying parts; but in some places there appear to merge into the "submucous tissue.

"The submucous space is filled with cells of irregular shape, various "size and appearance. In some places they are very close to each other, "in others they are well separated. Some of the cells are round, "others very irregular. Mitosis not marked. The nuclei vary much "in size and shape. The intercellular spaces are filled with granular "substance, and here and there are seen free blood corpuscles. In one "place, there are mucous glands altered in shape but showing no signs

"of malignancy. Blood vessels are scarce, but blood is seen in spaces "without vessel-walls typical of sarcoma. The cells of this mass are "spread with no order whatever. Melanotic pigment is seen and is both "intra and extra-cellular."

"Diagnosis: Melanotic sarcoma resembling melanotic endothelioma."

Seen again in November last, the patient said he was in the same state. The lesion appeared to have become deeper, especially anteriorly. The vault of the palate was becoming denuded, and in places small necrotic masses of bone were seen. There remained very little sensitiveness on the left side. He was very anxious to hear the result of the microscopic examination, and, knowing that this condition was serious, he told me he would not consent to operative interference. He was given the necessary explanations, and the gravity of his state made clear. Operative measures were discussed together with the necessary mutilation, possible complications and probable recurrence. Having again refused the operation, he was given hygienic advice. A Resorcin gargle and Fowler's solution were prescribed.

He returned to the country where he now lives and came to see me in February and April. As yet there is no pain, but the lesion is rapidly increasing. The vault of the palate is becoming more denuded, and small sequestra become detached, thus increasing the size of the fistula. This atypical sarcoma so long indolent appears to be making up for lost time, and makes us foresee a fatal ending in the near future.

This case appears to be of interest from several points of view. First, should we put the beginning of this melanosis back twenty-one years, and look upon it as consecutive to injury received at that period? We know that all cutaneous regions strongly or chronically irritated can become pigmented whether the irritation be physical, mechanical or pathological. Could that law be applied to our case? It would be difficult to admit it, as the tissues of the human palate have not the property of producing melanotic pigment.

Should we call it a parasitic theory or attribute the cause of this melanosis to the melanin of the blood? Any hypothesis we could lay down would be most problematical for, we must admit, our knowledge on the etiology of this condition is extremely vague.

This neoplasm surely did not begin with the melanosis, as it is generally admitted that melanotic sarcoma has a very rapid growth. By the clinical history, we see that the pigmentation dates back twenty years, that the evolution was very slow, and that the symptoms were slight. Sixteen years after it had appeared, the mark was only six millimeters in diameter, and was on the level with mucous membrane

of the palate. Perhaps the irritating action of the iodine caused the increase of the growth of the tumour in the breadth and depth. Perhaps it was mere coincidence. The naso-buccal fistula appeared September last, and since then has rapidly progressed. From these facts, I am inclined to think that this primary melanosis was benign in nature, and that in late years a neoplasm appeared in this location and became infiltrated with pigment and gave to this lesion an invading destructive and openly malignant growth.

Dalbet affirms that all melanotic tumours arising elsewhere than in the eye and the skin are sacomatous. The microscopic examination of tissue removed a year or two ago would have been of great interest. Perhaps at that moment we would have found an endothelial tumour. Pathologists do not agree on the histological transformation of endothelioma and sarcoma. Monod and Arthand hold that sarcoma is an aggravated form of endothelioma. At present our tumour is certainly sarcomatous, although in places an arrangement of cells resembling endothelioma are found.

What is the prognosis? We know that of sarcoma the melanotic variety is one of the most serious. Moreover, when the growth invades the palatine vault and perforates it, the evolution is rapid and invariably has a fatal termination.

If operative measures had been attempted recurrence probably would have occurred on account of the growth of the lesions towards the nose and left antrum. We would also have had the risk of post-operative complications and considerable disfiguration.

In conclusion, I should like to remark how unusual this case is, presenting a primary melanosis of the palate without co-existing lesions of the eye or skin, a slow evolution of twenty years, and a recent rapid sarcomatous growth.

The next annual meeting of the British Columbia Interior Medical Association will be held in Rossland, in July. The officers of this society are:—President, Dr. E. C. Arthur, Nelson; Vice-President, Dr. Wm. A. Sutherland, Revelstoke; Secretary-Treasurer, Dr. S. Petersky, Sandon. Committee—Dr. J. H. King, Cranbrook; Dr. F. P. Patterson, Trail; Dr. S. Bonnell, Fernie; Dr. J. S. Burriss, Kamloops; Dr. B. deF. Boyce, Kelowna; Dr. Jas. E. Spankie, Greenwood.

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THE SUPPLY OF PURE MILK.

We know, personally, that there is a modern milkman in Montreal, whose name we shall be glad to give on application. He provides milk which is taken from the cows with much precaution, and we hope to encourage him and those who are willing to work according to like methods by spreading abroad his name and fame. By personal inspection, we have found at his stables cows groomed and cleaned like carriage horses, milked by an intelligent man, gowned in clean linen, with clean hands, who milks into a small-mouthed pail through a cloth strainer; the milk is then put at once into bottles, standing in ice, and is thereby cooled, and is kept at a low temperature and is delivered to patrons not more than twelve or fourteen hours old. The bottles are properly sterilized, and the milk is thus delivered in a proper state to the consumer. This milk costs 15 cents per quart, but it is

good, and there are many consumers in Montreal who are willing to pay this price for an article that is known to be good. The price is, as yet, too high for the average consumer, but the movement is in the right direction, and with a larger *clientèle*, the producer to whom we refer will be able to enlarge the supply which is put forth under these favourable circumstances.

We have had occasion to refer to this matter before, and to say that the only hope in a universally good milk supply is in the exclusion—yes, the crushing out—of the small, irresponsible dealer, and the encouraging of the dealer on a large scale who will take pains that the dairy puts out first class milk. In winter, bacteria cannot multiply in very great numbers in even a moderately bad milk, but in summer the start is everything; a milk, dirtily milked, and not properly cooled, kept for twelve or twenty-four hours will present at the end of that time an appalling number of bacteria, and will have an appallingly bad effect upon the babies to whom it is fed; therefore, it is necessary to demand clean cattle, clean stables, clean milkers, quickly-cooled milk, and sterilized cans, and any dealer who fails in any one particular ought to be forced out of the business. Here is no place for philanthropy: it is no question of "live and let live"; the dealer who cannot conform to these conditions must be forced out of business, because the physical welfare of the community is at stake. The only way in which this can be brought about is by the encouragement of the dealer in good milk to such an extent that he will be enabled, by the large amount of his production, to meet in price, and to beat in quality the petty retailer who supplies grocery stores, and small customers. It is true that it is the duty of our inspectors to prosecute any dealer who puts bad milk on the market; such a duty should be carried out without any idea of clemency, so that dealers incapable of supplying clean milk should be prevented from supplying milk at all to the people; this cannot be efficiently done for a long time; but in the meantime, the moneyed classes can obtain, though at a high price, a good quality of milk, and can thus compel the suppliers of second-rate milk to improve their methods; once this is done, we feel sure that the purveyors of milk are not essentially grasping men, but that they will be satisfied with a reasonable profit, and will extend their business, so that the average quality of their milk will be so much bettered that the blessings of a pure milk supply will be extended to thousands instead of to hundreds. If a dealer, who acts as the dealer of whom we speak, finds a largely increased market for his milk, we can reasonably expect that he can thereby increase the number of cattle that he keeps thus care-

fully, and can, in a corresponding degree, increase the output of first class milk, and, at the same time, the number of his customers.

This may appear a kind of left-handed way of going to work, but, in default of better, let us employ it; to the furtherance of that aim, we shall be glad to tell anyone who asks, of this dairy; we do not mention the name of the dairyman in print, lest there should be others who are doing as well, of whom we do not know, but we hope, by personal inspection, to be able, before long, to assure our readers who are first class dairymen, and, by omission, who are not.

A DENOMINATIONAL MEDICAL SCHOOL.

The daily press (*Toronto Telegram*. October 18, 1907) makes the statement that the report of the Board of Governors and the Senate of McMaster University, submitted to the Baptist Convention at Woodstock, Ont., recommended the project of establishing a medical faculty in that university. We do not think this wise. If McMaster University can equip and train better physicians than the strong, well-equipped University of Toronto there is reasonableness in their idea. We know they can not, because the University of Toronto has a strong hold on the clinical facilities of the city. If they propose to place the college in any other city, the possibility of excelling Toronto is at once impossible. It is true they may think of Montreal, but here the ground is already somewhat occupied. We feel sure they will not, and cannot train the medical students better than the non-sectarian university, and therefore they should not try a scheme so wasteful of money and energy. The report goes on to say that, "if each year we could bring under our influence a large number of students preparing for the medical profession, it evidently is our duty to undertake the obligations involved, provided this can be done without any possibility of such work becoming a charge on our present endowment." This appears to mean that McMaster University—not the Baptist denomination at large—will be glad to extend its boundaries, provided the bills are paid and no risk is incurred. Most colleges would be willing to take exactly the same ground on the same terms. Thus far it affects McMaster University; but as to a duty to the public and the country and as to how well that university is fitted to fulfil it, there is no word.

We have no animosity against the projectors of this particular scheme, but we feel strongly on the principle involved. The words "under our influence" and medical training should not be associated. A man may be a very good Baptist, but he is not necessarily one step farther towards being a good physician.

In this province we have a somewhat extended field for observation of sectarian education, even when that education is in the hands of a church that is financially very strong, and we are convinced that medical education should be entirely separated from clerical influence. The world has proved it, and those of the Baptist denomination, or any other denomination, who think otherwise, should re-examine the facts very carefully.

ADVANCE IN AUSTRALIA.

The Australian commission on proprietary medicines has made a report, the recommendations of which are thus summarized:

1. That the formulæ of all proprietary remedies shall be printed on the labels, the quantities of the ingredients as well as their names to be given.

2. That no advertisement or recommendation be permitted upon the package.

3. That all advertisements of proprietary remedies in any form whatever be prohibited.

4. That the transmission by post of any literature relating to proprietary remedies be prohibited.

5. That letters patent be granted as now for any approved and novel formulæ for the prevention, alleviation, or cure of human ailments. Provided that no patent be granted for any single drug or agent which is not compounded, and that every proprietary name which is applied to the patented combination be registered.

6. That the quality, nature, and properties of the composition shall be such as may, in the opinion of the Health Office, justify the claims of the inventor.

7. That in the cases of articles imported into Australia the same restrictions shall apply as in the country of origin.

8. That no anti-conceptional preparations of articles expressly for that purpose, be held for sale or sold.

9. That for the purpose of effective control a bureau of chemistry should be established with branches in the various ports of the Commonwealth.

The *New York Medical Journal*, August 14th, 1907, contains a paper by Sir James Grant, on "Electrolysis, and the Nervous System," the subject of which has been under his consideration since 1854 when a graduate at McGill University. Sir James states: "For many years I applied electricity in the ordinary way, frequently with beneficial re-

sults, without knowing exactly the why, or the wherefore. As the body is largely composed of water holding in solution salts of potash and soda, it becomes an excellent electrolyte. In no part of the human system are the irregularities of life more marked than in the alimentary canal, where the defences of the organism permit the ingress of bacterial toxins. In this tract the blood formation becomes interrupted. Under such circumstances a perfectly stable nervous system is a rarity. Here particularly electrolysis becomes an important factor, giving new activity by establishing beyond doubt an average neuro-psychic equilibrium." In the cases cited the writer affirms that new blood was actually added to the system, "by stimulating electrically and directly through the abdominal walls, the ganglia of the blood making centre, where the remarkable transformation of the various food products, is in operation." True, electricity as a factor for the treatment of disease, has been adopted for centuries, but we are safe in congratulating Sir James on its direct application to the blood making centre, with such remarkable results, as defined in the cases published in his paper.

Le Journal de Médicine et de Chirurgie appears in Vol. II, No. 16, under new circumstances. The original editorial board has been replaced by a new one whose object is: le groupement de unités médicales françaises du Dominion et des Etats-Unis." They confess to the high ambition that in time they will be entitled to style their publication *La Journal de Médicine et de Chirurgie de l'Amérique du Nord.* The administration of the journal is in charge of Dr. W. J. Dérome, Dr. F. Monod, and Dr. A. Marcil. The editorial board contains some of the best known names in Montreal. The first number under the new management appeared on September 28th. Apart from the announcement from which we have quoted the number contains nothing but a report of the last meeting of the Collège des Médicins et Chirurgiens de la Province de Québec. We think that something further is required to place "notre profession médicale française à la tête des professions libérales." The succeeding numbers are upon quite a different plan and contain many original articles, correspondence and reports. We note especially a most entertaining account by Dr. Adrien Loir upon the hygienic regulations of the Jewish law. Dr. Loir was formerly professor in the National School of Colonial Agriculture. For nine years he directed the Pasteur Institute in Tunis, and is now attached to Laval University.

Queen's Medical Quarterly, for October, published by the Medical Faculty of Queen's University, Kingston, deserves notice. It gives an admirable account of the work which is being done in Kingston with much matter of historical interest. It appears that the medical school had its origin in the fact that certain students of medicine, who had spent three sessions pursuing their studies in a city west of Kingston, were unable to obtain a degree in medicine unless they subscribed to certain religious tests which were obnoxious to them. This city "west of Kingston" is presumably Toronto, though we never before heard that great city assigned a geographical situation according to its relation to Kingston. So far as we know Toronto does not now exact religious tests, and Queen's Medical School must find another reason for existence than that which lies in theological protest. We agree unreservedly that the student "must study at the bedside of the sick," and that opportunity must be difficult of access in a city of 17,000 inhabitants.

Dr. R. W. Bell, inspector of the Provincial Board of Health, has gone to Oakville to make enquiries in regard to the outbreak of small-pox which occurred there. He reports that "the outbreak has been admirably handled, and is an example to many a much larger municipality. They have a series of isolation tents for patients on the lakeshore, with trained nurses and physicians in regular attendance. The houses from which patients have been taken have been disinfected and quarantined, and from twenty-five to thirty constables are constantly on duty, night and day, preserving the quarantine regulations."

A despatch to the Toronto *Globe*, dated Kingston, October 26th, informs us that "Dean Connell of Queen's Medical College has received applications for no less than six more house surgeons for hospitals in the States of Michigan and New York, and in Montreal. He has already placed the remainder of last spring's graduates and cannot send any more. There is a big demand for Queen's medical graduates by hospitals all over the continent."

The Ottawa *Citizen* of October 18th reports that "the number of typhoid cases in the city of Hull continues to increase instead of diminish and the situation is being regarded as serious. During the last few days numerous new cases have broken out with a rapidity which is causing alarm." The water supply is blamed for the out-

break, as the new in-take pipe which was to have been completed last spring is not yet ready.

The Toronto *World* announces that "Lady Meds." which appears from the context to mean female students of medicine have been "admitted to the privileges of the class society and have been duly installed by the gallant 'Varsity meds. as members in full standing."

Reviews and Notices of Books.

DISEASES OF THE GENITO-URINARY ORGANS AND THE KIDNEY. By ROBERT HOLMES GREENE, A.M., M.D., Professor of Genito-urinary Surgery of Fordham University, Genito-urinary Surgeon to City and French Hospital, New York; and HARLOW BROOKS, M.D., Assistant Professor of Pathological Anatomy, University and Bellevue Hospital Medical School, etc. W. B. Saunders Company.

More space than usual in American books of this nature has been allotted to methods of examination—methodical examination of the patient, examination of the urine, endoscopy, cystoscopy and ureteral catheterization are all discussed. In addition, such subjects as the embryology and physiology of the kidney receives attention as well as the ordinarily treated anatomy, while the process of compensation of kidney lesions and the effect of kidney disease on blood pressure receive more than their usual modicum of space. For these innovations we have nothing but praise, nevertheless, we wish we could have had more of it. We are warned in the preface that it is impossible to make a book of this size complete, but we wish the authors had endeavoured to fill out these subjects as none can recognize better than themselves how lacking is American genito-urinary literature, as it appears in text-books, of a careful scientific basis of fact.

That part of the book which chiefly appeals to us is devoted to the kidney. Tubercular disease is stated to be frequently cured. Edebohl's operation of decortication is discussed and we are recommended not to use it. Hypernephromata are shortly set forth. Lavage of the kidney pelvis in pyelitis is said to be easily carried out, but no personal experience as to results comes to our aid. While granting the difficulties in the way of those who would untangle the snarl which the various prostalectomics have wound about themselves, yet some broad view seems lacking in the present instance. Young and Freyer are evidently purposely left unmentioned. Fuller and McGill, also among many others,

Bryson and Fenwick are those emulated. A mortality of 5 per cent. in selected cases is the authors' idea of the seriousness of this operation.

Cystoscopy and ureteral catheterization is better treated here than in any other American text-book which has come under our observation. The illustrations are clear, but at times are too evidently the result of the pencil rather than the reproduction of facts, nevertheless they are extremely useful. The chapter on deformities of the penis and circumcision is good. One curious mistake occurs in stating that the micrococcus catarrhalis, a common inhabitant of the urethra can be distinguished from the gonococcus in that it is not decolorized by Gram's.

On the whole we can thoroughly recommend the book. It is well written, well printed, well illustrated, and well bound. If we must pick out the greatest fault, it is that the authors have not brought us into closer contact with the facts of their experience which allow them to draw certain of their conclusions. R. P. C.

CLINICAL ANATOMY. By DANIEL N. EISENDRATH, A.B., M.D., Adjunct Professor of Surgery in University of Illinois, Attending Surgeon Cook County Hospital, Chicago. 535 pages, and many illustrations. Cloth, $5.00. W. B. Saunders Company, Philadelphia. Second Edition, thoroughly revised.

The author affirms that the primary object of this book is to serve a better daily practical application of anatomy in the operating room and in the clinic, than can be obtained from ordinary descriptive anatomy, and whatever assistance is afforded us in this respect is commendable. The value of surface anatomy is beyond question, and in this volume special effort has been made in many original illustrations to elaborate this important feature of the physician's and surgeon's work. Indeed, there is unusual wealth of regional illustration, made on dark background rendering it specially clear for the study of viscera, vessels, and nerves, in their various relations. In such an arrangement the descriptions are necessarily condensed and education is attained by the objective predominating the descriptive. The paper is excellent and the type large and clear, making the volume a desirable one for all engaged in active practice. G. T. R.

DIAGNOSIS OF DISEASES OF CHILDREN. By LEGRAND KERR, M.D., Professor of Diseases of Children at the Brooklyn Post-graduate Medical School. 8vo., 542 pages. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, $5.00. Canadian Agents: J. A. Carveth & Co., Toronto.

This is a large book dealing only with the clinical diagnosis of children's diseases; etiology and pathology are not considered as fully

or as often as they might, even in a work of this kind. The arrangement of the matter is good, as is also the discussion of the significance of important symptoms. But the description of individual diseases, and groups of diseases, with their differential diagnosis, leave something to be desired. We notice this particularly in the sections on acute pulmonary diseases. The term empyema apparently does not occur in the book, and even as "purulent pleuritis" this important affection does not receive the consideration it deserves. We look in vain for any mention of von Jaksch's anæmia, Vincent's angina, Harrison's groove, the palpation of the pylorus, often such a striking sign, in congenital stenosis. In short, the work is not as scientific and thorough as one might desire in a book of its scope, size, and weight, and the index is not as full as it ought to be, nor are the illustrations always well chosen. There are excellent chapters on the laryngeal stenoses and organic nervous affections. In spite of defects the book may generally be relied upon to give practical assistance to the perplexed practitioner, especially as regards the disorders of infancy.

THE ROENTGEN RAYS IN MEDICAL WORK. By DAVID WALSH, M.D., Senior Physician to the Western Hospital, London, and H. LEWIS JONES, M.D., F.R.C.P., Medical Officer in charge of the Electrical Department, St. Bartholomew's Hospital. London: Baillière, Tindall and Cox. Canadian Agents: J. A. Carveth & Co., Toronto. Fourth Edition. 427 pages. Price, $4.50.

The new edition of this excellent manual brings up to date the consideration of the Roentgen rays in their all-important relations to medical science and practice. Almost a third of the book is taken up with a thorough description and cuts of the various forms of apparatus. The practical application of the rays, not only in surgery but also to internal medicine, comes in for full treatment, especially in relation to thoracic conditions. The chapter on therapeutics, while conservative, is not so satisfactory. The illustrations are numerous, and are admirably clear.

Medical News.

The quarterly meeting of the Cape Breton Medical Society was held in North Sydney on October 7th. There was an attendance of twenty-two members, and Dr. R. C. McLeod presided. Papers were read by Drs. Kendall, Eagan, and MacLean, and a dinner was given in the evening to the visiting physicians.

The Ontario College of Physicians and Surgeons has made arrangements for the purchase of a property in Toronto, on University Avenue, near the site of the new City Hospital. The intention is next year to start work on a fine new building with an examination hall to accommodate 300 candidates.

Dr. Robert Barnes, formerly of London, Ontario, has been appointed travelling inspector for the Dominion Government under the Meat Inspection Act.

The city of Halifax has made provisions for the medical inspection of its schools. Drs. Cunningham and Woodbury were appointed inspectors.

Plans are being discussed for the building of a general hospital in Calgary to cost a hundred and forty thousand dollars.

Dr. Bettridge died at Strathroy on October 15th. He was a graduate of Toronto University and of Trinity College. Dr. Bettridge was born in England, in 1828.

Dr. Humphrey Buchan, assistant medical superintendent to the London Insane Asylum, died on October 18th.

Dr. J. A. Stevenson of Ridgetown, Ontario, died on September 29th, 1907.

Retrospect of Current Literature.

SURGERY.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

Lt.-Col. P. J. Freyer, M.A., M.D., M.Ch., Surgeon to King Edward VII's Hospital, and to St. Peter's Hospital, London. "Prostatektomie wegen Hypertrophia prostatae. Statistik über 432 eigene operierte Fälle. (Total Enucleation of the Prostate for Radical cure of Enlargement of that Organ; with Statistics of 432 cases of this operation)." *Zeitschrift für Urologie, Bd. I, Hft.* 10.

This article which, outside of the 107 additional cases, contains little that has not been repeatedly stated in English by its author, nevertheless,

presents Freyer's contention concisely and clearly. The author states that to understand his views it is necessary to remember that the prostate is not a single organ, but in reality a double organ. In many animals it remains separated throughout life; in man it becomes fused about the 4th fœtal mouth. Each fœtal organ thus at a later date becomes a lateral lobe, and each is surrounded by a dense capsula propria which is limited to that lobe and dipping down along the commissure effectively separates the two lobes. These lobes thus lie quite outside the urethra and ejaculatory ducts. The middle lobe is to be regarded as an outgrowth from one or other lateral lobe. In addition to the capsula propria the recto-vesical fold of the pelvic fascia supplies an additional capsule which surrounds the whole organ and in this capsule lies the prostatic plexus of veins. Surgeons and text-books confuse these two capsules; in Freyer's operation only the first capsule is removed, the second remains and serves as a protection to the urethra, ejaculatory ducts, and against infiltration of urine. Nearly all hypertrophies are to be regarded as adenomata.

The operative procedure is as follows: After a suprapubic cystotomy, with one finger in the bladder and the other in the rectum, the surgeon locates the most prominent part of the prostate and scratches through the mucosa. Then little by little works his finger into the space between the capsules and loosens the lobe. It is possible to remove each lobe separately, thus leaving the urethra practically intact, but, as a rule, he removes the whole organ in one mass and cuts through the prostatic urethra just posterior to the verumontanum, thus preserving the mouths of the ejaculatory ducts which we are assured are generally left intact.

Lavage for hæmorrhage: A large drainage tube, large absorbent dressings changed every four or six hours, and irrigation of the bladder twice daily for ten days are some of the more important points in after treatment.

Freyer performed his first operation in December, 1900, made his first publication in March, 1901, and since then has operated upon 432 cases with a mortality of 29, or 7 per cent., most of which were due to causes apart from the operation. The largest prostate was 14½ oz., the smallest ½ oz.

The results have been uniformly satisfactory. There has been no case of retention, of stricture or of fistula subsequent to this operation in his hands, which is an extraordinary statement.

R. P. C.

GEORGE E. BREWER, M.D. "The Etiology of certain cases of Left-sided Intra-abdominal Suppuration—Acute Diverticulitis." *Amer. Jour. Med. Sciences*, October, 1907.

Intestinal diverticula are divided into two classes, the congenital and the acquired. The former, represented by Meckel's diverticulum, is single; has a rectangular implantation into the free border of the terminal portion of the ileum, generally in the neighbourhood of the ileo-cæcal valve; it is made up of all the coats of the intestine; it is generally more than 2 cm. in length; and has a terminal filament which may be free or attached to the abdominal wall, the mesentery, or another part of the intestine. The acquired diverticula are, as a rule, multiple; small, thin-walled, round or ovoid in shape, they may be found in any part of the intestinal canal, but are more frequent in the left colon and rectum, and are in reality hernial protrusions of the mucous membrane through the separated fibres of the muscular coat; and are situated most frequently along the mesenteric border of the bowel. Congenital diverticula have been known since the early part of the eighteenth century to be the not infrequent cause of strangulation of the bowel, and, during the last fifty years to be the occasional cause of peritonitis from perforation. During the past half century pathologists have reported specimens showing inflammation, necrosis, perforation, with or without fœcal concretions, of these false diverticula of the left colon, and have clearly demonstrated the relationship between these lesions and a general or localized peritonitis. These communications, however, have, for the most part, been buried in the transactions of pathological societies or have appeared in periodicals not largely read by clinicians. These circumstances and the rarity of the condition will easily account for the fact that the disease is not described in our clinical text-books, nor generally recognized by the profession. The disease occurs most frequently in middle adult life. The onset and cause of the attack resemble appendicitis so closely that the writer seriously considered the possibility of transposition of the viscera, the symptoms being limtied to the left lower quadrant. Perforation may give us a localized suppuration or a diffuse peritonitis, and the treatment is that of incision, drainage, and closure of the perforation when possible. Six cases are reported, in four of which the connexion between a perforated false diverticulum and the condition at operation, though not demonstrated, was highly probable, while in the last two such connexion was positively shown to exist. Over-distension of the rectum and sigmoids resulting from constipation would appear to be a factor in the formation of the false diverticula, while the usual finding of a fœcal concretion would suggest the prob-

ability of its being the exciting cause of the perforation. The writer believes this disease to be of more frequent occurrence than the literature upon it would suggest, and regards it as a possibility the profession must consider when examining an intra-abdominal condition.

W.L. B.

MEDICINE

UNDER THE CHARGE OF F. G. FINLEY, H. A. LAFLEUR AND W. F. HAMILTON.

VARIOUS AUTHORS. "Exophthalmic Goitre." *Jour. of the Am. Med. Assoc.*, Vol. 49, Nos. 14 and 15.

At the joint session of the various sections of the American Medical Association, held at Atlantic City, June, 1907, five very instructive papers on the physiology, pathology, diagnosis, surgical and medical treatment of Exophthalmic Goitre were read. These papers have recently appeared in the *Journal of the Amer. Med. Assoc.* (Nos. 14 and 15, Vol. 49). S. P. Beebe of New York spoke upon the physiology of the thyroid gland, and while admitting that our knowledge of the thyroid function is largely emperical he shares in the belief that the thyroid is a true gland and should be included in the list of vital viscera. Complete removal of the thyroid and parathyroid glands causes in most mammals a more or less sudden death preceded by general tetanic symptoms. Further innumerable observers, including the author, have in the last ten years shown that the thyroid and parathyroid glands differ from one another histologically and functionally; thus, removal of the former is followed by a cachexia, and of the latter by a rapidly developing tetany and death in a few hours or few days. Further, while the parathyroid globulin when introduced into a tetanized animal has failed to relieve the symptoms, the thyroid globulin-iodin group seems to be the particularly active proteid. Thyroid feeding stimulates the nitrogenous metabolism. Reid Hunt has shown experimentally the detoxicating action of the thyroid. Blum believes there arises in the course of metabolism a toxic globulin which is detoxicated by the chemical addition of iodin in the thyroid, and further, exophthalmic goitre is caused by the escape into the circulation of large quantities of a partially iodized proteid; whereas Roos has shown that when glands from animals fed with large quantities of potassium iodide are tested physiologically they show an activity proportional to their iodine content.

Normally the thyroid gland contains three proteids—relatively little nucleoproteid, much globulin, and a smaller amount of albumin; the parathyroids, on the other hand, contain a large amount of nucleoproteid,

a very small proportion of globulin and still smaller amounts of albumin. Since the discovery of Baumann of the thyroglobulin and its organic iodine group, Oswald has found in simple colloid and parenchymatous goitre a relatively large amount of globulin poor in iodine, from which he bases his theory of the origin of the disease—namely, a flooding of the system with a globulin poor in iodine. This latter is after all in favour of the hypersecretion theory commonly accepted to-day.

As yet we have no satisfactory explanation of the mechanism of the hypersection theory; the tachycardia is assigned by Gley to inhibition of the vagus and stimulation of the accelerator nerves by the gland extracts, though recently it has been shown that the central nervous system may be in no way concerned with tachycardia.

Shaffer has made an interesting contribution to metabolism in this disease by demonstrating that the kreatinin excretion in the urine is below normal and more especially in the more toxic forms of the disease; further, with the low kreatinin excretion there is an increased kreatin excretion. As to the origin of the hyperactivity of the gland, nervous shock and compensatory hypertrophy during toxæmia are the two explanations. The former has some clinical and the latter some histological support.

"The Pathology of Exophthalmic Goitre" was presented by MacCallum, of Baltimore, who has devoted much time to the study of this subject. He first points out that none of the changes generally found have the character of primary changes, but "seem in each instance to be the response or reaction to some fundamental or primary disturbance of which as yet we have no very clear notion." In this disease the thyroid presents a similar picture to the changes described by Halsted and Marine in both the post-operative and spontaneous compensatory hypertrophy of the thyroid gland in dogs, though in neither of the latter were the symptoms of exophthalmic goitre observed. From a study of the material from sixty, more or less, typical cases, he describes the gland as usually slightly enlarged, but sometimes normal or even decreased in size; it presents a very congested appearance; the tissues are hard and more rigid than elastic; there is a grayish opacity, while the cut surface is dry and granular. Microscopically, there are strands of fibrous tissue separating the gland into lobular masses; the alveoli are irregular in size and form, full of colloid and lined with low cubical epithelium, which becomes columnar in the small as well as in the large alveoli and encroaches upon the lumen. Mitosis is frequent. He believes that the "colloid cells of Langendorff are the results of degeneratives processes," and the "Schmelzepithel" of Hürthle is the effect of

mechanical dislodgement and disarrangement of the cells. In several cases, with especially severe symptoms, there were areas in which the epithelium was so enormously swollen as to practically obliterate the lumen of the alveolus. He recognizes three clinico-pathological groups: (1) severe cases in which the alveoli are normal in size, full of colloid and with elevation and folding of the epithelium; (2) with quite as intense symptoms, but large alveoli full of colloid and a most complicated folding of the epithelium; (3) milder cases in which the alveoli are large and full of colloid, but in which the alveolar epithelium is almost flat except in certain foci or in portions of the alveolar walls where it becomes cylindrical and thrown up into folds.

Further, there is increase in the lymphoid tissue in the thyroid gland itself as well as that of the pharynx, tonsils, tongue and the lymphatic and hæmolymph glands of the body generally, but more especially of the neck. The thymus too is enlarged and presents the same appearance as in the infant with the same process of phagocytosis. He could find no change in the parathyroids, sympathetic and central nervous system or in the hypophysis cerebri. He concludes by stating that while the theory of hypertrophy and functional overactivity of the thyroid is the only plausible explanation of the disease, yet it is the only example of spontaneous hypertrophy and overactivity of an organ which is detrimental to the rest of the body. Hence it has been suggested that some infection may be the primary cause, resulting in a non-suppurative thyroiditis after which the remainder becomes hypertrophied and its activities perverted.

L. F. Barker, under "The Diagnosis of Exophthalmic Goitre," discusses seriatim the clinical tetrad-struma, tachycardia, tremor and exophthalmos in addition to the various accessory ocular signs, psychic manifestations, etc. He emphasizes the ease with which the classical picture can be recognized in contrast to the "formes frustes" where some difficulty may be encountered. There is every stage in the "goiter heart," from the mild to the more severe form. The latter is of thyreotoxic origin in contrast to cardiac conditions of purely mechanical origin. He regards Wunderlich's "struma chloroticum" as a "thyreotoxic pseudochlorosis." Further, he states, "Hyperthyreosis" may have a very varied etiology—"toxic, infectious, reflex, obscure, metabolic, or still other in nature." In discussing the surgical treatment, he considers the only contraindications in uncomplicated cases are a feeble heart with very high pulse rate and marked mental excitation.

R. B. Preble, of Chicago, in his contribution on "The Medical Treatment," gives a very unbiased presentation of the various available thera-

peutic measures. He considers those first directed against the neurosis (diet, climate, hydrotherapy), and secondly, those to counteract the thyroid perversion (electricity, X-Rays, and various drugs). He considers the drugs, prepared from various glands as all useless, except the thyroid preparations, which are "positively harmful." As for the antitoxic or cytotoxic sera more is to be expected; there are two groups of these: (1) those from thyroidectomized animals, (2) those from animals treated with normal or pathological glands. The most recent of these is a serum by Rogers and Beebe containing nucleoproteid and thyroglobulin from normal and pathological glands. The author is more sanguine for the success of these cytotoxic remedies than for the other medical measures.

"The Surgical Treatment" was very ably discussed by Albert Kocher, the son of the celebrated Berne surgeon. His paper is based upon 315 operations in 254 cases of the disease. The mortality for the entire series was only 3.5 per cent., while in the last 90 cases not a single fatality occurred. This improvement is due not only to improvement in the technic but also to the care exercised in deciding the extent to which a given case will stand operative measures. Extensive operations were exceptional in the last 100 cases. The surgeon before operating must consider first is he dealing with a compensatory hypertrophy of the heart, usually accompanied by increased systolic blood pressure, or is it a cardiac dilatation as indicated by a low pressure and irregularity of the pulse; in the latter case extreme care is necessary. Secondly, he must determine the degree of intoxication at the time of operation as evidenced by insomnia, nervousness, fatigue, weakness, diarrhœa, vomiting and marked tachycardia with an irregular pulse and a very vascular thyroid. Such symptoms contraindicate an extensive operation.

Further, von Steiger has shown the presence of an increase in the number of lymphocytes and a decrease in the polynuclear forms—the total number of leucocytes being normal or subnormal. The lymphocytes are sometimes absolutely increased but more often merely relatively. "This increase is proportional to the degree of the disease, and if there is no increase of the lymphocytes the case is an especially serious one." This lymphocytosis is interesting in connexion with the tendency to lymphatic hyperplasia noted by the pathologists.

The post-operative aggravation of the symptoms (due mostly to hæmorrhage and the absorption of the toxic blood) has disappeared by observing the most careful avoidance of any bleeding, by the ligation of every small vessel and by the avoidance of injury to the portion of the gland to be left. When the immediate effect of the operation is

ever there is a striking improvement in many of the cases; thus, 83 per cent. of all the cases from Kocher's clinic were cured; 73 per cent. of primary cases were healed; 92 per cent. of cases complicating simple goiter, and 100 per cent. of vascular goiters. The time for recovery varied greatly, especially for the cardiac and ocular symptoms. As to the method, Kocher recommends repeated operations with the patient under close observation and with the aid of medical treatment. Distinct vascular symptoms should at once indicate surgical measures. In long-standing cases the organic changes present in the heart and the fear of hypothyroidism necessitate great care.

Professor Halsted, of Baltimore, in the discussion following the symposium, spoke of his surprisingly good results in 90 cases treated surgically (mortality 2.2 per cent.). C. H. Mayo, of Rochester, Minn., reported 176 cases of hyperthyroidism operated on with a mortality of 5.7 per cent.

C. P. H.

PATHOLOGY.

UNDER THE CHARGE OF J. G. ADAMI.

E. H. Hensteen. "Spontaneous Rupture of the Aorta." *Norsk. Mag. for Laegevidenskaben*, 1907, p. 506.

Much doubt has been thrown on the possibility of Spontaneous Rupture of the Arteries in a healthy subject. Cases occasionally occur in which, by the release of the supporting framework about the artery, an aneurysm has developed. These are particularly noted after gun shot wounds, and, occasionally, consequent to an infective process in the neighbouring tissue. That it is possible, however, to bring about a dilatation of the vessels, and even rupture by the high arterial tension in a healthy vessel appears most unusual. One cannot but believe that there must be in these cases a great disproportion between the expelling power of the heart and the strength of the vessel wall, and such a condition cannot be considered as normal.

The author reports a case of a well built and healthy workman of 23, who took up his military service as a recruit. For some days before, he had taken alcohol in excess, and then marched ten miles in four hours. He complained of severe pains in the chest while under way, but examination gave negative findings, and he was again sent to work. During his work, he suddenly fell over and died. At autopsy the left heart was somewhat hypertrophied, but was, otherwise, normal, save for a small calcified plaque below the aortic cusps. One inch above the aortic ring was a rectangular rupture in the posterior part of

the aortic wall. The horizontal limb measured 1¾ inches, and the vertical one, one inch. The horizontal limb alone perforated all the coats of the vessel, while the vertical one passed only as deep as the media. The rent was sharp, as if cut by a knife, and 500 cc. of blood had escaped into the pericardium. Microscopical examination of the aorta, at the site of lesion, showed no pathological change, and arteriosclerosis was not present in any part of the vessel. The author is inclined to believe that the main damage was done a day or two previous to death.

That the smaller vessels, mainly the capillaries, do rupture by excessive heart action is not infrequently seen in cases of death from violence when numerous petechial hæmorrhages are found on the various surfaces of the body, but it is most unusual that the strong arteries should break without previous disease in them.

GEORGE G. PACKE, M.A., M.B. "The Etiology and Morbid Anatomy of Cancer of the Stomach." *Medical Chronicle*, 1907, XLV, p. 213.

The author has compiled his report from the post mortem records of St. George's Hospital, London. These reports cover a period of ten years (1890-1900), but the author does not state the number of autopsies represented in all.

Of the internal organs, the stomach is most frequently affected with cancer, and, next, in order of frequency, is the œsophagus, while his reports show that the uterus is only ninth in frequency.

It is generally accepted that cancer of the various organs is increasing in frequency, and the author finds that the ratios of increase of primary cancer of the stomach are out of proportion to the ratios of increase of primary cancer elsewhere. This increase in the proportion of primary cancers is partly ascribed to improved methods of diagnosis, but cannot be entirely explained on that ground. Males are most frequently affected, being in the proportion of 1.85 to 1 of females. The age incidence was from sixteen to eighty years, with an average of 49.3 years. The average for male cases was about 51 years.

The author finds that a previous family history of cancer lends little assistance as an etiological factor, for, in 119 cases, there were only eight cases with a family history of cancer, none of which were of the stomach. He points out that the occurrence of syphilis and cancer is unusual, four only of his 228 cases gave this combination. He finds that occupation does not play any part in the etiology of the disease. There is, however, a relation between gastric ulcer and cancer of the

stomach. Three of his cases showed definitely the origin of the cancer at a healing peptic ulcer. A relationship, however, is not to be made out between gastritis and cancer, although in eight cases a history of excess alcohol was present.

The situation of the malignant growth was far the most frequently at the pylorus (55.7 per cent.). General involvement of the stomach was next in frequency, with 10 per cent., and the cardia was involved in 8.7 per cent. of the cases.

The author distinguishes three types of pyloric cancer; the first of which is limited to the pylorus; the second spreads diffusely from the pylorus; and the third extends from the pylorus into the duodenum. The histological characters of the growth are of two kinds; the cylindrical celled and the spheroidal celled cancers, the latter being most frequently met with. The histological growth, however, has no relation to the incidence of metasases or to ulceration. The œsophagus is found to be the chief seat of primary growth in secondary cancer of the stomach; the pancreas follows next in order of frequency.

E. D. TELFORD. "A Case of Acute Dilatation of the Stomach." *Medical Chronicle*, 1907, xlvi, p. 227.

Acute dilatation of the stomach is a rare disease, difficult of diagnosis. The case reported by the author is incomplete in that the clinical history is wanting. The disease occurred in a boy of sixteen years, who was taken ill with severe pains in the upper abdomen. These improved after about twenty-four hours, but returned again on the third day, with profuse vomiting. This continued for some hours, when he suddenly collapsed and died. Death thus occurred within three days of the onset, and thirty-five hours after the first vomiting. The stomach was found to be enormously distended, containing six pints of fluid. This distension also occupied the first and second parts of the duodenum, while the third portion of the duodenum was collapsed. The pylorus was so distended that it was almost imperceptible. The author was unable to satisfy himself that the crossing of the superior mesenteric vessels had constricted the bowel. It was only possible to affirm that the distension ceased at the point at which the vessels crossed. The case appears to have been a typical one of acute dilatation of the stomach; but, like many of the other reported cases, the exciting cause was difficult to determine. The boy had been in good health, and had not suffered from any debilatating illness which, in some cases, is given to account for the sagging of the small intestines, with the stretching of the mesentery over the duodenum. The enormous amount of fluid,

which was secreted into the stomach in this case, is interesting in illustrating the active function of the stomach. The only interesting point that the author was able to obtain in the previous history was the occurrence of six attacks similar in character to the fatal one.

C. Loewenstein. "Protozoan Like Bodies in the Organs of Children." *Cnt. f. Allge. Path.*, 1907, xviii, p. 513.

Ribbert and others have described in the organs of syphilitic children peculiar protozooan-like bodies. These bodies are large, varying from 20 to 30 microns in diameter. They are coarsely granulated, and contain a number of vacuoles. The nucleus is large, and a distinct nucleolus can be made out.

The author has examined the parotids of thirty children, varying in age from two days to two years, and has found these bodies in four cases. The bodies appear within the alveoli, particularly in the secreting ducts. He has also found them in scrapings from the buccal mucosa and in the secretion from Stenson's duct. The author was not able to associate these bodies with any lesions present in the subject. He considers them to be protozoa, of the nature of coccidia.

GYNÆCOLOGY.

UNDER THE CHARGE OF WILLIAM GARDNER.

In 1906 gynæcology proved itself neither a barren nor a vintage year. Of a purely scientific kind but few additions have been made, and these merely of detail and along the older lines of research; while from the practical side, either operative or therapeutic, has come no great procedure, or no signal specific. There are evidences everywhere of greater accuracy, perfection of technique, more judicial selection and nicer care. But there are only these, and the actual advance has not been great.

The *annual returns* of the year I have divided into two classes:—I. Returns purely Scientific; II. Returns Practical, Operative and Therapeutic.

(I.)—*Returns purely Scientific*—(*a*) *Anatomy;* (*b*) *Pathology.*

(*a*) Anatomy. Labhardt, in the *Archiv. für Gynäkologie*, has communicated a lengthy article on "The Relation of the Nerves in the Uterus,"—his work being carried out at the University of Basel.

In 75 pages Labhardt attempts to answer the following questions:—

(1) How do the nerve fibres run in the uterine tissue.

(2) How do the fibres end in the myometrium, and how in the mucous membrane.

(3) Are there ganglion cells in the substance of the uterus.

This research was carried out on rabbits and the human uterus, and the stains employed were only the special Golgi and Methylene Blue. The value of the paper is dependent chiefly on a systematic review of the previous literature of the subject, and his classification of the antecedent "cloud of witnesses" in the matter of the uterine nerve supply. The sum total of our present-day knowledge of the innervation of the uterus may be summarized as follows:—

The uterus is supplied by nerve fibres of both sympathetic and cerebro-spinal origin. The sympathetic fibres belong to the lower derivations of the solar ganglia, as contained in the aortic, renal and hypogastric plexuses, with auxiliary fibres from the lumbar and sacral sympathetic ganglia. The fibres are supplied to the uterus chiefly from the hypogastric and renal plexuses, and they course along the walls of the blood-vessels. A few fibres enter the uterus directly, but the greater number run first to the cervical ganglia. These ganglia lie one on either side between the layers of the broad ligament close to the cervix uteri and midway in its length. A second pair of ganglia is found one on either side near the uterine insertion of the ovarian ligament. These latter are regarded as not true ganglia, but rather a mere plexus of nerve fibres, the meeting-place of the ovarian and uterine branches.

The cerebro-spinal nerves arise from the anterior primary divisions of the second, third and fourth sacral nerves, chiefly the third; before reaching the uterus they enter and communicate with the sympathetic fibres in the cervical ganglia. Thus the main nerve of distribution to the uterus, both cerebro-spinal and sympathetic, is through these ganglia. Beyond the ganglia the two kinds of nerve-fibres travel together, in company with the blood-vessels; they are most abundant in the middle muscular layer of the uterine wall; they run for the most part horizontally,and many of their terminals reach the mucosa.

Those conclusions, Labhardt remarks, are in general accepted, and they afford a foundation from which to prosecute further research. His own investigations follow, and are here shortly summarized.

"There is a rich nervous system in the human uterus. The thicker nerve trunks run within the middle muscular layer, and give off branches here which have an inter-fasicular position, and from which intra-fasicular terminals spring. The thicker trunks contain numerous colourless and medullated fibres. How the nerves finally end in the

muscle, how deeply they extend into the mucosa, and where and how they terminate therein, I have not been able to determine either in rabbits or the human specimen. Ganglion cells within the uterus—intrinsic ganglion cells—I have not found, and the view that there is an intramural ganglion system is without foundation."

Construction of the uterus follows: (*a*) direct irritation of the uterine musculature; (*b*) irritation of the cervical ganglia, direct or reflex.

Fellner of Franzensbad, in a paper published in the Zentralblatt—"The Influence of the Uterine Nerves upon the Atony of the Non-puerperal Uterus," considers that he is able to demonstrate the nerves which produce this atony. He contends that the innervation of the two parts of the uterus—cervix and corpus—is distinct; and that there is an antagonistic action between the two. He describes a nerve, the *nervous erigens* a branch of the sacral plexus, which is the motor nerve for the longitudinal muscle fibres of the corpus, and the circular fibres of the cervix; it is also the inhibitory nerve for the circular muscle fibres of the corpus and the longitudinal fibres of the cervix. This nervous erigens is the vaso-dilator of the vessels of the uterus, and communicates only with the ganglia in the fundus uteri, *i.e.*, the ganglia at the uterine end of the ovarian ligament.

The *hypogastric nerve*, a pair like the first, springs from the ganglion mesentericum posterior and ends in the hypogastric plexus; it possesses fibres which functionate conversely to the nervous erigens, *i.e.*, they are motor nerves for the circular muscular fibres of the corpus and the longitudinal muscle fibres of the cervix; and are inhibatory nerves to the longitudinal muscles of the corpus and the circular fibres of the cervix. These hypogastric nerves communicate with the cervical ganglia and are the vaso-constrictor nerves of the vessels of the uterus.

In any severe or prolonged irritation to the cervical canal, for example, dilatation by steel dilators or by a sponge tent, the cervical ganglia become fatigued and paralyzed. This paralysis is communicated to the hypogastric nerves and through them to the circular muscle fibres of the corpus. Hence the uterus becomes more spherical with its walls thickened in the vertical diameters (the longitudinal fibres are not paralyzed), while the cornua hang like loose bags. The vessels of the uterus become enlarged and engorged. These phenomena are the result of prolonged irritation of the cervical ganglia. But now with curetting of the uterus, or as a result of disease, if the fundal ganglia also become paralyzed, then have we complete atony of the uterus. The uterus becomes simply a large justo-major uterus, with walls uniformly relaxed

and thin. Fellner conducted his experiments on animals. He has not made his special nerves or their origins very clear. He gives, however, the best explanation of post-operative atony of the uterus, with which all gynæcologists are familiar.

Aschoff, in the *Zeitschrift f. Geb. u. Gyn.*, contributes a paper upon the "Anatomy of the Lower Uterine" Segment and throws light upon this much-disputed area. He maintains that the macroscopic designation of the cervix uteri does not correspond to the microscopic.

Macroscopically, the cervix extends from the external os to the narrowest part of the uterine cavity, *i.e.*, to about the middle of the corpus of the virgin uterus—a spot marked by a slight constriction externally, by the line of attachment of the peritoneum, and by the presence of the circular vein. This upper limit Aschoff suggests to designate as "Orificium Internum Anatomicum."

Microscopically, the cervix uteri extends only to the upper limit of the true cervical mucosa, a level some distance below the first. At this point the junction of the cervical and corporeal mucosa, Aschoff puts the internal orifice of the cervix—"Orificium Internum Histologicum."

Between the histological, or internal orifice of the cervix, and the anatomical, or internal orifice of the uterus, is the isthmus uteri. This isthmus in pregnancy becomes the lower uterine segment. The upper limit of this segment, viz., the internal orifice of the uterus, indicates the level of the retraction ring.

(*b*) Pathology.—In the pathological returns of the year perhaps the first place falls to the subject of chronic metritis—"Fibrosis Uteri," so-called.

This is a condition where the uterus becomes usually symmetrically enlarged, with its muscular walls uniformly thickened; where it becomes firmer in consistence; where the urgent symptom is severe, and persistent hæmorrhage which a curetting of the mucosa oftentimes merely aggravates.

During the year several papers have appeared and our knowledge of the subject has been considerably increased. The chief virtue of these papers lies in the fact that their authors, or most of them, have been content to describe faithfully the clinical and pathological findings in their respective cases—to record facts. Elaborate and more or less imaginative classifications have so died a natural death. That all true progress is towards simplicity has been here well exemplified.

The names of these observers in their alphabetical order are:—Addinsell, Anspach, Donald, Gardner and Goodall, Macdonald, Shaw, and Wittek.

Of these papers the ones by Gardner and Goodall, and by Fletcher Shaw are easily the best.

Gardner and Goodall's paper was read before the British Medical Association in Toronto, last August, and appears in the Association's Journal of the following November; while Shaw's thesis is to be found in the *Empire Journal* of February of this year.

And first, it is necessary to remember that though the terms chronic metritis and endometritis are here used, the histological picture in most of the cases is not that of an inflammatory process—there is little round-celled infiltration. Rather is the condition a hyperplasia and a hypertrophy, an increase in the number and in the size of the several cell constituents of the parts. Chronic metritis so comes to mean not a chronic inflammation of the mesometrium or muscular wall of the uterus, but an increase in the number and in the size of the connective tissue and muscle-cells of this wall, the relative proportion between these two issues being in many cases not disturbed.

Gardner and Goodall begin their paper with a clear and succinct review of the literature of the subject from 1860. Nine cases of the condition are then recorded, wherein are carefully detailed the clinical histories and pathological findings. The question of etiology is then discussed.

These authors divide the cases of so-called chronic metritis, "Fibrosis Uteri," into two groups:—

(1) Those where the changes are parietal in the uterine wall, these changes being a hyperplasia and a hypertrophy of the cell-elements of this wall with a tendency to the preponderance therein of fibrous tissue, and the occurrence of a hyalin degeneration.

(2) Where the changes are localized to the vessel walls, the arteries and veins—the Arterio-Sclerotic type. Here the primary changes are in the vessel walls; they are of the usual arterio-sclerotic type, and the changes in the uterine wall are solely secondary and nutritional. In this variety the preponderance of fibrous tissue is much more marked.

The chief value of this paper lies in its discernment and differentiation of these two pathological types. Not an easy undertaking when one remembers the chaos of the previously existing classifications.

Shaw's paper, "The Pathology of Chronic Metritis," is also a valuable one. He gives us the result of a painstaking research wherein he examined 38 uteri extirpated for chronic metritis, and 23 normal uteri from women of different ages. These last were used as control specimens.

Shaw takes up first the changes in the blood-vessels in the 38 cases of chronic metritis, comparing the vessels in these cases with those in the normal uteri. His results he tabulates as follows:—

Vessels not altered—15 cases.

Vessels slightly enlarged, walls not thickened—2 cases.

Vessels decreased in number—6 cases.

Vessels increased in number—4 cases.

Few vessels with thickened media—6 cases.

Few vessels with hyalin or colloid degeneration—4 cases.

Combination of the last two—1 case.

Of these 38 cases, 15 were forty years old or upwards, and the eldest was fifty-four.

Shaw accordingly refuses to accept the arterio-sclerotic type of metritis. He affirms that these arterio-sclerotic changes are often found in a similar degree in so-called normal uteri, and that these changes do not account for the uterine hæmorrhages.

Shaw next considers the question of the change in the relative amounts of connective tissue and muscular tissue in the uterine wall. As he says, it is usually conceived that there is in chronic metritis a great proportional increase in the fibrous tissue. His method of estimating the relative amounts of these tissues is as follows.

The "slide" representing the whole thickness of the uterine wall was put on a mechanical stage, and consecutive fields estimated one after another. This was done two or three times, and with an interval of some months between the estimations. He states that in all his cases the uterine wall was greatly thickened, the average thickness being 18.1 mm. The normal thickness of the wall is 8.7 mm. The increased thickness was due to hypertrophy and hyperplasia in both the muscular and connective tissue elements, and there was no relative diminution in the amount of muscular tissue.

It has been shown by Meier that the proportion of connective tissue to muscular tissue in the normal uterine wall is 46.5 per cent. Shaw, in his normal uteri, found the proportion 39.4 per cent. In his cases of chronic metritis the proportion of fibrous tissue was 40.4 per cent. It is clear from this, he says, that a difference of 1 per cent. in the proportion of connective tissue in the normal uteri and those of chronic metritis, would not account for the great increase of 10 m. in the thickness of the uterine wall.

We can sum up the advance made in our knowledge of the condition of "Fibrosis Uteri" by saying that the most common type is not a *fibrosis* but proportional hypertrophy and hyperplasia of the cell ele-

ments of the uterine wall. The *fibrosis* is exceptional and is found most marked in those cases where a primary change is in the falls of the vessel—an arterio sclerosis.

A lipoma of the uterus has been described by A. G. Ellis of Philadelphia—the twelfth case recorded in all literature. The lipoma was found post mortem in a woman of sixty, lying interstitially in the wall of the fundus, sub-spherical in shape, and measuring 8 by 6.5 cm. in diameter. It consisted of true fat cells with small interlacing bundles of fibrous tissue.

The point of interest is as to its origin, for the normal uterus contains no adipose tissue. These tumours probably arise from embryonal fat cells, lipoblasts which have been carried into the substance of the uterine wall along with the growth of the blood vessels. Meier states that he has seen fat cells extending from the parametrium into the substance of the uterus along the course of the blood vessels.

Uterine Appendages.—One of the best papers of the year is that of Adolf Glockner in the *Arch. f. Gyn.*—"The End-Results of Ovariotomy." He has collected 500 cases where proliferating tumours (not retention cysts) of the ovary have been removed, and his object is to show the end-results, especially in the matter of recurrence, or growth of a second tumour. Not the least important part of the paper is his classification of ovarian tumours. It is an anatomical classification modelled after Pfannenstiel, is simple and useful, and is as follows:—

1. Connective Tissue Tumours—fibroma, sarcoma.

II. Epithelial Tumours—(*a*) The simple serous cystoma; (*b*) the glandular cystoma, commonly the adenoma; cyst-adenoma pseudo-mucinosum; (*c*) the papillary cystoma; (*d*) the carcinoma.

III. Teratoid Tumours.—(*a*) dermoid; (*b*) teratoma; the paro-varian.

In his estimation of end-results, Glockner followed his 500 cases for ten years. The following are his results:—

Fibrosa of the ovary, 9 cases; 8 remained free from recurrence.

Sarcoma of the ovary, 15 cases. Both ovaries removed. Recurrence in 8 cases, in 7 within one year, in 1 between the fifth and sixth year.

Simple serous cystoma, 29 cases. Opposite ovary not removed. 99.6 per cent. remained free from recurrence.

Glandular cystoma, 285 cases; 94 per cent. free from recurrence.

When a synchronous extirpation of the second ovary was performed, only .9 per cent. recurred. When the second ovary was left 4.6 per cent. showed recurrence.

Papillary cystoma, 19 cases. Both ovaries removed. Recurrence 61 per cent. Free from recurrence, 36.1 per cent. Questionable, 2.89

per cent. Of the recurrences 54 per cent. occurred in the first year, and 22 per cent. in the second.

Teratoid Tumours.—(*a*) The dermoid: recurrence in 4.2 per cent. in two cases, both in the seventh year after operation, and both where the same ovary was left.

(*b*) Teratoma, 2 cases: 1 remained free and 1 recurred in a few weeks—metastases.

(*c*) Parovarian cysts, 39 cases: recurrence in 1 case on the opposite side five years and nine months after the first operation.

The author then says that, judging from the above, it can be stated that fibroma of the ovary, serous cyst adenoma, and dermoid cystoma are benign tumours; in these cases the second ovary should not be removed, unless the patient is at the climacteric, for the risk of further growth is very small. The glandular cystoma clinically must be considered innocent, and yet it is never above suspicion. Ten cases showed recurrence. It is difficult in a large tumour to recognize small cancerous areas. In all cases of doubt, remove the second ovary. He calls attention to the pseudo-papillary cystoma, and says that the prognosis here is as good as in the ordinary variety of cyst adenoma.

In papillary cystomata the prognosis is not so good. They are apt to recur, and are frequently bi-lateral, even though the growth in one ovary be extremely small. It is wise to remove the second ovary in all these cases.

Carcinoma of the Ovary.—Remove both ovaries, even if one appear healthy, cutting as widely as possible. The removal of the uterus improves the prognosis.

II.—*Practical Returns of the Year.*

Cancer of the Uterus.—While the etiology of cancer has been extensively discussed, nothing new or definite has emerged. In its operative treatment the swing of the pendulum has rather been a little backward from the extremely radical excursion of a year ago. Kundrat, Baisch and Schauta have studied the pathological findings in the pelvic lymphatics in cases of cancer of the uterus. Schauta shows that the involvement of the individual groups of glands bears no constant relation to other groups, *i.e.*, there is no order of sequence in this involvement. Distal glands are often infected with the cancer cells before the proximal, and even though infected, the glands may show no palpable increase in size. Schauta claims that in only 13.3 per cent. of the specimens that he dissected, would there have been any hope in attempting glandular extirpation. The reasonable operative rule seems to be to extirpate as widely as possible, consonant with a fair degree of risk, *i.e.*, remove as much or the parametrium as possible, dissecting

out the ureters and pushing well forward the whole bladder, in this way a wide cuff of healthy vaginal mucosa below the disease being easily and safely procurable. This operation gives a mortality of about 6 per cent. in selected cases. All lymphatic infection beyond this area cannot be estimated, and a wide extirpation of the glands doubles the mortality even in the hands of the best surgeons. The consensus of opinion seems to be that this doubled mortality is too high a price to pay for the chance case.

In America interest has been keenly awakened upon this subject. Last October Wertheim read his paper before the Chicago Society. He described his operations for the removal of the cancerous uterus and claims that after five years 60 per cent. of his cases have remained free from recurrence. Dührssen of Berlin communicated to the same Society a paper, in which he advocates the vaginal rather than the abdominal route in operating upon all cases of cancerous uteri, and he claims to have been the first to have used the perineal incision, known generally as Suchardt's. He does not give any exact statistics.

Speaking generally, removal of the cancerous uterus by the abdominal route has gained immensely in favour during the past year.

The past year has seen the first organized attempt throughout the civilized world to educate both the profession and the laity in the matter of the earlier recognition of cancer of the uterus. It seems that in England and Wales alone, four thousand women die of cancer each year, and not less than 95 per cent. of all cases of cancer seek medical aid when all prospect of permanent relief is out of the question. The urgent need is always the *earlier diagnosis of the disease*. The education of physicians, nurses, midwives, and even of the public itself, in the early and frequently characteristic signs and symptoms. And in this connexion it is well to remember Craig's analyses of the earliest signs and symptoms in 78 cases. In 45 cases leucorrhœa was the first sign; in 21 cases hæmorrhage was the first sign; and in 12 cases pain was the first symptom.

This movement has been carried on both in Europe and America. In England Lewers suggests the issue of a leaflet to the general public so that every woman of adult age should know something of the early signs and symptoms of cancer. In Germany Winter of Königsberg, and Dührssen have written much, while in Austria, the Austrian Cancer Committee has prepared and distributed to all practitioners a pamphlet. "Principiis Oosta," wherein is insisted upon the importance of the early examination of all such cases.

In America, Haggard, Maier, Craig, Simpson and Sampson have all devoted much time to this subject. Simpson makes the statement

that out of every twenty-eight women who pass the age of thirty, one will be the victim of cancer of the uterus.

The After-Treatment of Abdominal Operations.—There has been a growing tendency to keep these operative cases in the recumbent posture a much shorter time than the traditional and usually prescribed three weeks. The claim made is that the twenty-one days rest in bed is needlessly long, that the risk of a ventral hernia is in no wise increased, as from the very first where the abdominal incision is carefully closed by stage suturing, its original strength is at once secured.

The two extremists in this movement of so-called "heretical after-treatment" are Boldt and Ries. The former gives his experience of 384 cases, and the latter of 500 cases, where the patient, after an abdominal operation, was got out of bed as early as the second or third day. These two authorities claim no untoward result, while they maintain that the following advantages are secured for the patient, viz., less nausea and vomiting; less abdominal distension; more spontaneous action of the bowel; less liability to bronchial and pulmonary troubles and circulatory disturbances; better assimilation of food and less weakening of the general condition.

The general feeling throughout America is toward a middle course, keeping the patient recumbent for from ten to twelve days. Movement of the patient earlier than this is generally regarded to be fraught with danger of thrombosis and embolism.

The following is a list of the more important publications issued throughout the year:—

Martin of Greifswald—Diseases of Women.

Rudolph—Bier's Stasis and Therapy in Gynæcology.

Amann—Diseases of the Pelvic Connective Tissue

Döderlein—Operative Gynæcology.

Giles—Gynæcological Diagnosis.

Ashton—Diseases of Women, second edition.

Webster—Gynæcology.

During the year the deaths among us include those of:—

Gusserow, Adolf, Ludwig, Sigismund, 1836—1905; late Professor of Gynæcology in Berlin.

Bell, Robert, Hamilton, 1871—1906; Obstetric Tutor and Registrar in St. Thoma's Hospital, London.

Henrotin, Fernand, 1847—1906; Professor of Gynæcology in the Chicago Policlinic.

Cameron, John D., 1869—1907; Lecturer in Gynæcology, McGill University, Assistant Gynæcologist to the Montreal General Hospital.

W. W. C.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

The first regular meeting of the Session 1907-08 was held Friday evening, October 4th, 1907, Dr. Wesley Mills, President, occupied the Chair.

The retiring President, Dr. F. G. Finley, gave a *résume* of the work of the last session.

PRIMARY COLLOID CARCINOMA OF THE VERIFORM APPENDIX.

E. HAMILTON WHITE, M.D.—In the absence of Dr. White, Dr. C. B. Keenan read this case report.

THE END RESULTS OF CARCINOMA OF THE BREAST.

G. E. ARMSTRONG, M.D., read the paper of the evening dealing with operations on the breast for cancer from 1891 to 1907.

F. J. SHEPHERD, M.D., said that in 50 cases, mostly private, operated on between 1894 and 1904, he had been able to trace 31. Of these 15 are still alive, 16 are dead; one died of tuberculosis without recurrence after eight years; one died after five years of some other disease, the rest died in three years and under of recurrence. Dr. Shepherd had one death from acute mania following this operation. Of the living cases one is alive after ten years; one after nine; one after seven; two after six years; and three four years after operation; the rest are still alive without recurrence three years after operation. He had one case alive twenty years after operation. Dr. Ransohoff, of Cincinnati, reports a case of recurrence twenty-nine years after operation, and Dr. Shepherd reported a case of recurrence in the cervical glands eleven years after operation. One is never sure when the disease is cured; the three year limit has long been abandoned, except by the makers of statistics. Dr. Shepherd has had many recurrences after four years, especially in those cases where the original tumour was situated on the inner zone of the breast and where the secondary disease or so-called recurrence is in the retrosternal glands. In these cases it is not uncommon for the patients to live five or six years. The extent of the operation was next spoken of. Dr. Halstead, of Baltimore, did most extensive operations and yet his statistics are no better than others, in fact, in the reports of the operations by all the surgeons of the Massachusetts General Hospital of Boston, some most conservative, the results are better than those of Halstead's. Many years ago Dr. Shepherd used to, as a routine method, remove the supraclavicular glands, but long ago gave it up, for if these glands are infiltrated, those in front of the trachea and down the mediastinum are also affected. The operation performed by the speaker included the removal of the pectoralis major muscle and axillary glands and lymphatics and as much skin as is

deemed necessary. In very few of his cases has there been any local recurrence. As to the examination of the patient Dr. Shepherd always stands behind her pressing the tumour against the chest wall and thus getting a better idea of the extent and consistency of the tumour. Many cases which have been looked upon as malignant have turned out to be cysts hyperdistended and devoid of fluctuation. The speaker's routine practice was to aspirate every tumour and it was astonishing how many proved to be cystic. He had never seen any bad results from this procedure. It was also a rule of his to advise removal of every solid tumour in women over thirty-five.

THE POSITION OF THE OSTEOPATH.

The communication from Dr. Bristow, explaining the new law regulating the practice of medicine, shows us how a sect, whose entire fabric is based upon erroneous premises, may gain prominence and be recognized by the Legislature of the State as a body of earnest, conscientious practitioners, who are to be entrusted with the care and treatment of disease. The fact that the practice of medicine is not an exact science, has aided them in their contentions; no cult, however, based upon such false theories as those of osteopathy should be classified under the laws of the State with the other schools of medicine. The dividing fence between the regular school, the eclectic school and the school of homœopathy have in recent years been generally demolished, and the so-called practitioners of homœopathy and eclecticism have, almost without exception, adopted the therapeutic agencies of the older school of medicine in addition to their own.

Although the present bill recognizes a school of osteopathy—and such recognition we hold to be unfortunate—still it is the lesser of two evils. It makes it necessary for the individual to devote just as much time and study to obtain a license to practice osteopathy as it would to obtain a license to practice medicine. An osteopath then receives the degree of D.O., after having studied three or four years in a recognized school of osteopathy, and at the end of that time cannot prescribe for a patient, nor can he use drugs in any form; he can simply practice osteopathy. In other words, it destroys one of the principal advantages of osteopathy, namely: the ability to practice medicine or a branch of medicine without devoting a sufficient number of years to mastering the essentials of the science.

It is believed that this bill will do away with all the objectionable features of osteopathy, and it certainly will help greatly to control the practice of other forms of quackery in the State of New York.—*Long Island Medical Journal.*