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# KINGSTON MEDICAL QUARTERLY.

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VOL. II.

JANUARY, 1898.

NO. 2.

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## THE MEDICAL CURRICULUM.

WE presume that the Ontario Medical Council does not regard the curriculum which it has laid down for students desirous of obtaining a license to practise medicine in this Province as immutably fixed and unalterable, nor as perfect, and therefore beyond the possibility of improvement. That such is the case is amply demonstrated by the changes which within the past few years the Council has made in its requirements, and also by the new regulations which it proposes shall come into effect after the year 1899. Such being the case, we feel confident that any change which any member of the profession would suggest would be at least courteously considered, and, if deemed an improvement by the gentlemen who compose the Council, we have no doubt the suggestion would be welcomed and willingly acted upon. The amending the curriculum would not be regarded as an evidence that the curriculum as formerly prescribed was unsuitable. What was the best a few years ago may not be the best to-day. The times are ever changing. Practically new branches of medical knowledge have come into existence in the past few years. These ought of necessity to form part of every student's professional education. Within the past few years there has been developed a wide new field in medical research in Pathology, and more recently the study of Bacteriology has assumed a paramount importance in the study of the causation of disease and as a means of diagnosis. As the science of medicine develops and advances the curriculum must be amended to meet new requirements. As Lowell says:

"New times demand new measures and new men ;  
The world advances and in time outgrows  
The laws that in our fathers' days were best ;  
And doubtless, after us, some purer scheme  
Will be shaped out by wiser men than we,  
Made wiser by the steady growth of truth."

The Council has already recognized this mutability of the times and has modified its curriculum accordingly. The question we would seek to answer is: In the interests of medical education ought the curriculum to be now further amended? We think so.

In earlier days the physician was his own apothecary, and as such was required to be able to recognize the plants in which resided medicinal properties. Botany, therefore, was very properly included in the medical course of studies. The times have changed. Such knowledge is not now essential to a successful practitioner, and botany no longer appears as one of the necessary subjects of study. While no one will deny the value of the study of botany in itself, the Council, we think, wisely determined that the student could with greater advantage devote his time and energies to the study of more important subjects.

Is there any other subject laid down in the curriculum which could either be dropped out altogether, or to which less time ought to be devoted, in order that the student would be free to apply himself more energetically to other subjects of greater utility? If so, ought not the curriculum to be so amended? In looking over the course of studies prescribed by the Council, we find that the student is required to attend two full courses in Theoretical Chemistry and two courses of three months each in Practical Chemistry—in all, eighteen months must be devoted to the study of Chemistry. This same curriculum requires only twelve months to be devoted to the study of Physiology, the same to Materia Medica, and only three months to Sanitary Science. Are we, then, to conclude that Chemistry is so much more valuable as a means to prepare the student for his life-work than is Physiology, Materia Medica or Sanitary Science? We are free to admit that a fair knowledge of Chemistry is necessary to the proper study of Materia Medica, and that an acquaintance with the general laws of Chemistry will assist the practitioner in the

examination of the various excreta which is such a valuable aid to a correct diagnosis. We would not, therefore, have Chemistry excluded from the list of necessary studies, but we would in all sincerity question the advisability of requiring a student to devote eighteen months to the study of this particular subject, and only three months to the important subject of Sanitary Science. Surely the subjects of Ventilation, Drainage, Water Supply, Heating, Prophylaxis, etc., are deserving of as much time and study, and are of as much practical importance to the doctors and to the community, as is Chemistry, to which the Council requires the student to devote six times as much study. Do we propose to increase the course on Sanitary Science to eighteen months? By no means. We do feel, however, that the course on this important subject ought to be increased to at least six months, and that the student might not be unduly burdened, the time devoted to Chemistry ought to be reduced to at least twelve months—the same time as is now devoted to Physiology and Materia Medica—two subjects which, in our opinion, are of greater value to the physician than is Chemistry.

In the subject of Materia Medica we have long felt that there is much room for improvement. It is true that the Council has abolished the subject of Botany, but yet at the oral examinations in Materia Medica, as usually conducted, the student is expected to be able to "spot" roots, leaves and barks. Of what earthly use this ability to "spot" these specimens can possibly be we have always failed to comprehend. A doctor might practise medicine for fifty years and never have occasion to identify any of these time-honoured specimens. Why, then, burden the student's mind with useless rubbish when there are so many important subjects of which it is so essential that he should have a fairly accurate knowledge? While we would not advise that the time devoted to the study of Materia Medica should be shortened, we would most earnestly assert that in our opinion the student's attention should be directed to Dosage, the composition of pharmacopœial preparations, the physiological actions and therapeutic uses of drugs, the compounding of drugs and their incompatibilities, the art of prescribing and the methods of administration, and locally applying these preparations. These subjects

will fairly occupy the time of the student of *Materia Medica*, and are of practical benefit to him. Along these lines the teaching should be directed, but so long as the Council's examiners continue to insist on the student's being able to "spot," so long must the student devote his valuable time to this valueless exercise of his powers of memory. If "spotting" is to form a necessary part of the oral examination, by all means let the samples to be "spotted" be preparations of the drugs which are in use, and not the roots, leaves and barks which no doctor now ever sees, except in a class-room or examination hall.

One point more. As we have already said, the subjects of Pathology and Bacteriology have now assumed an importance which is second to that of no other subjects in the range of scientific medicine. What degree of importance does the Medical Council attach to them? Judging by their published requirements not much. In the list of subjects of study as found in their own announcement no mention is made of either so far at least as attendance upon these classes is concerned. It is true in the subjects set down for the intermediate examination we find General Pathology, Therapeutics and Bacteriology grouped together—*i.e.*, forming one subject of examination. On the other hand, as already stated, the student is required to devote eighteen months to the study of Chemistry, and Chemistry is considered by the Council of sufficient importance for a special subject of examination. While not seeking to belittle the importance and value of Chemistry as a part of medical education, we feel confident that few medical men can now be found who would for a moment doubt the vastly greater importance of Pathology and Bacteriology. In these departments the Colleges are setting the Council a good example. In all our medical schools Pathology and Bacteriology form an important part in the work necessary for a degree, special teachers being employed and laboratories fitted up for the practical study of these all-important branches of scientific medicine. We do not wish to imply that the Council totally ignores Pathology and Bacteriology. As subjects of study they do not appear in the first four years of the Council's curriculum; they do form a part of the intermediate examination, and they, or at least Pathology, are referred to in

the work required for the fifth year. In the Council's announcement we find the following:—"The fifth year shall be devoted to *clinical* work, six months of which may be spent with a registered practitioner in Ontario, and six months at one or more public hospitals, dispensaries or laboratories devoted to Physiological or Pathological research." It will be observed that according to these requirements it is not compulsory for a student to devote any portion of his fifth year to the study of Pathology, and the subject of Bacteriology is not even mentioned. The requirements for the final examination, as prescribed by the Council and held at the end of the fifth year, make no mention of either Pathology or Bacteriology further than the presentation of a certificate of having attended 25 demonstrations on Pathology. Compare the Council's requirements as to these two subjects and their requirements with in our opinion the vastly less important subject of Chemistry.

Chemistry—Eighteen months of study.

Pathology and Bacteriology—No time of study absolutely required, except as stated above.

Chemistry—A special examination.

Pathology and Bacteriology—Grouped with Therapeutics for examination purposes.

Surely in the interests of scientific medical education the Council can devise some plan whereby more importance will be attached to these two essentials of a modern medical education. Our suggestion is to cut off some of the time now devoted to less important subjects, such as Chemistry, and give the time to Pathology and Bacteriology. By this means the curriculum will be modernized and improved, and the student not unduly burdened.

These suggestions are not made in a spirit of fault-finding, but with the sole desire to call the attention of the members of the Council to what we consider as defects in the present curriculum, and in the hope that these defects may be remedied and the students thus be relieved of unnecessary work and enabled to devote their time to those subjects which are of primary importance.

## TREPHINING FOR HEADACHE.

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**I**N FEBRUARY, 1896, we were consulted by a Mrs. ———, æt 42, for headache. She was of a neurotic temperament, and while as a rule enjoying good health, had been for years subject to attacks of migraine. When seen by us she had been suffering for about a week from one of these attacks. The usual duration had been 24 hours, but this paroxysm lasting so long had caused her to seek advice. The headache was subject to irregular exacerbations, and, in spite of the usual analgætics we prescribed, still continued, so that at the end of the second week she was as bad as ever. Recognizing that the trouble was more severe than an ordinary neuralgic attack, a thorough examination was made. The character of the ache as expressed by the patient was as though a tight band were being pressed around the head, differing thus from *clavus hystericus*—there was not the throbbing peculiar to active hyperæmia or the dilated vessels of anæmia. It resembled the headache of passive hyperæmia in that there was a sense of pressure, but there were no signs of that condition present, no apparent venous congestion, no valvular disease, no glands in neck pressing on jugulars. It was not the tearing, pricking headache of rheumatic cases, nor the pressure headache of the vertex of neurosthenic subjects, nor was it a headache due to specific causes or malarial influences. The liver was normal, there was no splenic enlargement, no elevation of temperature, no rigors, urinalysis revealed nothing abnormal, but the uterus was subinvoluted and there was a prolapsed and adherent ovary. We considered we had to deal with a reflex trouble of ovarian origin. This condition of headache remained comparatively unchanged for the next month. The ovarian trouble was treated by the usual method without producing much effect. The only relief she got was from the use of analgætics. We then requested Dr. J. C. Connell to examine the eyes, and he reported that there was double optic neuritis present, developing in the right eye, but pronounced in the left.

The headache about this time became more acute and localized, so that on percussion there was a spot probably the size of a 25c. piece, very tender and situated about the upper portion of the ascending parietal convolution of left side. About this time sensation was very much lessened in the left arm and, to a less degree, in the right. The left leg was very insensitive, the right normal. Motion was also affected, especially in the left leg. The dynamometer registered for left hand 35 deg. and for right 40. The pain in the head was only subdued by the use of morphia hypodermically. There was no vomiting, and, by the end of April, two months after the onset of the symptoms, the optic neuritis had increased. As the clinical symptoms did not correspond to the effects of pressure on the centres at the situation of the pain spoken of above, we were diffident about advising surgical interference. The optic neuritis indicated pressure, but the parietic symptoms were most pronounced on the left side, and the pain was greatest and the optic neuritis most developed on the same side of head.

It seemed probable that we had to deal with either a localized necrosis of the parietal bone of left side or with a cerebral tumor presenting as occasionally occurs anomalous symptoms. (Dercum.) The inability of drugs to relieve the distressing symptoms and the increase in the optic neuritis and paralytic condition decided us as to the absolute necessity of an exploratory incision, and, so in the absence of definite localizing features, it seemed advisable to trephine over the seat of most intense pain. On July 3, under chloroform narcosis (to lessen congestion in case it would be necessary to incise the cerebral tissue), and, with the usual antiseptic precautions, we made the customary horseshoe incision, base downwards, with one sweep of the knife, a tight bandage having been previously placed around the head to control hemorrhage.

A one and a quarter inch trephine was employed, and when it was thought to be nearly through gentle side to side movements were employed to raise the disc. The latter, however, seemed remarkably firm, and, repeated use of the goose-quill probe showed that the bone was not yet divided. The rotatory movement was cautiously resumed, every turn or two



being closely measured, and still the bone did not yield. The trephine was now deeper than the thickness of bone usually found at this point, and it was not until a depth of  $\frac{5}{8}$  of an inch had been reached that the disc was free. The trephine opening was about one and a half inches from median line over upper portion of ascending parietal convolution,—this being the spot of most acute pain complained of by the patient. On removing the bone there were no adhesions found, the dura mater seemed normal and no bulging. This structure was incised carefully  $\frac{1}{4}$  inch from bony margin and the pia mater exposed. There was no œdema of this tissue and no bulging of the cerebral structure. In the absence of any positive localizing symptoms and the fact of normal cerebral tissue presenting itself in the wound, we did not think we were warranted in interfering with the brain proper, as it seemed to us probable that the abnormal thickness of the bone might be sufficient to account for the trouble. The wound was closed without stitching the dura or replacing the button and united in the usual time. There was a marked numbness of the arm opposite to the trephine opening and a paretic condition of the leg on the same side, *i.e.*, opposite the wound, due, no doubt, to the pressure exerted by the effused serum in the scalp wound pressing upon the exposed centres. This gradually improved, however, and at the end of the week disappeared. About two weeks after the operation the original paretic condition began gradually to disappear, and at the end of two months the dynamometer showed in the right hand 70 deg., and in the left 65, a condition remaining to the present time. Dr. J. C. Connell reported that the optic neuritis has decreased in the left, and that the right disc was clear. The sensation is now normal; she has relief from the severe pain that made her life a burden, and to-day the eyes are as well as ever. The button of bone was apparently normal, it presented no hypertrophy—hence, our conclusion that the unusual thickness was a congenital condition.

Remarks: First, as to the case itself. It seems to us that if there had been a tumor present it would have, instead of the patient being as well as she is to-day, caused, if not death, at least such marked symptoms as to have clearly shown the effect of cerebral pressure, as nearly a year and a half has elapsed since

the operation. Nor could it have been a case of *clavus hystericus*—the optic neuritis showed it was more than mere nervous disturbance. Hence the only conclusion we can come to is, that it was a case of congenital thickened cranium, and that the climacteric period produced vasomotor disturbance of a chronic nature sufficient to increase the intracranial pressure.

Second: As to the bandage around head to lessen hemorrhage from the scalp it acted well in this case, but Starr, in his "Brain Surgery," pronounces the bandage a failure. There is need, however, of some means of controlling hemorrhage, as we found in a recent case of trephining in which much delay was incurred catching up the blood vessels in which we used no bandage. Weir suggests four needles at right angle, to one another surrounding the field of operation.

D. E. MUNDELL.

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### MICROSCOPY IN DIAGNOSIS.

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TO THE routine *prescriber for symptoms*, questions of diagnosis give little trouble, except in the matter of answering the inconvenient diagnostic questions of the patients' friends. However, no physician who is at all conscientious, but will have at least a provisional working diagnosis in every case upon which to base his therapeutics; and will endeavour as soon as possible to place this working diagnosis on a scientific basis, *i.e.*, make a scientific diagnosis of his case. For such a scientific diagnosis in many cases more will be needed than the simple clinical examination and the use of the ordinary or "rougher" chemical tests for the excreta. In very many cases it is essential to call in the aid of "finer" chemical tests, and particularly the aid of the microscope. In these days no physician's outfit should be considered complete unless it contains such an instrument, and no man should now consider himself fitted to enter upon the practice of medicine who has not a working knowledge at least, of this instrument. That scientific diagnosis is recognized as essential

we need but point for corroboration to the large number of text-books on chemical and microscopical diagnosis that have appeared lately, and to the springing up in all large centres of population, and even in smaller ones, of laboratories in which persons especially trained endeavor to meet this necessity. Physicians are realizing that a scientific diagnosis gives a rational basis for treatment; a treatment grounded upon a knowledge of the pathological factors at work.

I do not for a moment wish to decry ordinary clinical methods. They are absolutely essential, but surely no one is so skilled a diagnostician that he can dispense with such important accessory aids as can be given in many affections by an application of finer chemical and microscopical tests. This is now particularly true since we have learned that the vast majority of our diseases are micro-parasitic in nature and correct diagnosis often lies in the detection of the specific infective agent.

I will take up shortly a few of the applications of more exact methods of examination in every-day practice. To begin with that excretion which is the one most usually examined, the urine. Ordinarily we may be satisfied to test this for albumen, sugar, and perhaps urea, and we may apply a few tests to the sediment. Now we may have albumen present, and that, too, in large amount, without any kidney lesion; and again, absence of albumen from the urine does not always exclude a kidney lesion, unless it be absent after repeated tests. This last is particularly applicable in cases of chronic interstitial nephritis, a common and insidious disease. I would point out the necessity here, too, of taking more note of the amount of urine passed daily. A diabetic, for example, passes to-day three litres of urine, giving 6 per cent. sugar, yet two days ago the percentage of sugar was but 4 per cent. He may have passed, however, on that day 5 litres of urine. The same thing is true of percentage of urea, phosphates, sulphates, etc., as is true here. To get a correct idea of the amount of material actually excreted we must know the daily quantity of urine, as well as the amount of the various constituents contained in a sample.

The microscopical examination of urine is peculiarly productive of results. With the chemical tests, we can by this

means form a fairly accurate picture of the condition of the kidneys and lower urinary tract. We can separate readily, lesions below the secreting parenchyma of the kidney from those involving its substance, and further, we can separate out the several forms of chronic nephritis and differentiate such from the serum leakage, which occurs in general venous engorgement, and can separate as well the serum exudate of many febrile diseases from a true nephritis (into which, such febrile albuminurias often pass, however). With the microscope a careful examination of the lower layers of urine (in a urine glass) or better, after use of the centrifuge, will clear up the diagnosis of many a case of interstitial nephritis before ill-defined or unsuspected.

In tuberculosis of the genito-urinary tract we will find tubercle bacilli in the urine, and their presence may be taken as an absolutely diagnostic sign of tuberculosis of that tract. As a rule they are present in fairly large numbers. The use of the centrifuge is here of great benefit in detecting them when present in small numbers.

Next, perhaps, to the urine as a material which lends itself to diagnosis, is the sputum. This particularly applies to tuberculosis, but it is also of diagnostic import in pneumonia, influenza, and in true asthma. In the case of the first three diseases mentioned we have their respective bacteria, and in the last we have the presence of Curschmann's spirals and often of the Charcot-Leyden crystals.

In the case of tuberculosis anywhere the *sine qua non* of the disease is the tubercle bacillus. Every one is acquainted with the methods of detecting this bacterium in sputum, but in my experience it is the exception for the physician to make sputum examination an early diagnostic feature. For tubercle bacilli can be found in the sputum in all forms of active phthisis, and is found very early even in the acute miliary form. There will be no necessity here to point out how important an early correct diagnosis is in phthisis, in enabling one to form a prognosis and adopt a suitable treatment, climatic or otherwise. Besides the tubercle bacillus, in cases of phthisis in which we have any loss of lung substance, we will find elastic tissue in the sputum, and the amount of this is a fair measure of the activity of the "soft-

ening." What I have said with regard to the importance of examining the sputum in cases at all suspicious, applies also to the examination of the fæces, particularly in the primary tuberculosis of the intestines, seen usually in children. By a microscopic study of the fæces we can often determine the presence of the parasitic worms by the discovery of their ova. These are nearly always found in the fæces before the appearance of segments in the case of tape-worm.

An instance in which a correct diagnosis is imperatively called for is in many cases of vaginal discharges. One meets with cases which it is next to impossible to place in the infective (gonorrhœal) or non-infective list. No such difficulty is as a rule afforded in the urethral discharges of man. Now, if we submit a specimen of such discharge taken directly from a (previously cleansed) discharging surface, to a microscopic examination, we can usually settle the diagnosis, the gonococcus being the criterion.

Uterine curettings are not infrequently submitted to the microscope for diagnosis as to their nature, particularly as to whether cancerous or not. Now the microscopist will find it often next to impossible to decide, and that simply because he does not obtain any proper pieces. To determine malignancy in a fragment of curetting the fragment should pass through the mucous membrane to, and including a few of the muscle fibres beneath. All surgeons recognize that the only hope in cases of malignant growths lies in their early extirpation, and this is possible only by early diagnosis. It is essential in tumors everywhere that when submitted for microscopic examination a proper piece be furnished, just as in the case of the uterine curettings. To illustrate this necessity, I may say that on several occasions I have been sent surface scrapings from suspected epithelioma to diagnose malignancy, and in one case, at least, I fell into disrepute when I stated my incapability of formulating a diagnosis from cells which would be found in the epidermis anywhere.

A class of cases in which a correct diagnosis is very important is in cases of suspected diphtheria. It should be more widely known that a sore throat may be diphtheritic without the presence

of membrane formation, just as it is a well recognized fact that membranous formations in the throat are frequently non-diphtheritic. The diagnostic feature is the presence in true diphtheria of the Klebs-Lœffler bacillus. A physician with a good microscope can make the diagnosis himself, either by a direct examination of the membrane or a swab, or better, by inoculating culture material, incubating for 14-18 hours, and then examining the growth. Culture materials are now easily obtainable from most large medical appliance and drug firms. One of the best forms is that adopted by the Chicago Board of Health, and consists of a small tin box filled with sterile solid blood-serum. This is lightly inoculated by brushing it over with a swab from the suspected throat, and the patient's body can be used as an incubator in the absence of a thermostat. An early diagnosis is of importance here as regards the anti-toxic treatment, and not only in this specific treatment, but in leading to strict isolation and other precautions necessary to prevent the spread of the disease.

In the various affections of the stomach, more particularly the chronic disorders, valuable information can be obtained as to the condition of the stomach and the indications for treatment, by chemical tests. Microscopical examination here will only be of importance in cases where presence of blood is suspected, or in some cases for the detection of bacteria, crystals and such like.

I cannot go fully into the other conditions in which the microscope is an important accessory to diagnosis. One of the most important of these is the pathology of the blood. By a careful examination of the blood we can differentiate between the various forms of anæmia. We can readily separate chlorosis from pernicious and secondary anæmias and from leukæmia. As I have already written in the *QUARTERLY* on this subject I need say no more, except that by blood examination we can readily make a diagnosis of malaria, positive.

Another disease in which we find scientific methods important as a means of diagnosis is typhoid fever. Widal's serum-diagnosis has been so much in the medical journals of late that no further reference is required. This method is certainly one of great value as a means of diagnosis in typhoid.

With this summary of some of the more important conditions in which the microscope is of value in enabling an accurate diagnosis to be made, I would again insist upon the necessity in all cases, of accuracy in diagnosis and the further necessity to use where possible exact and scientific means to arrive at this diagnosis and upon which to ground treatment.

W. T. CONNELL.

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### POST PARTUM HEMORRHAGE.\*

**G**ENTLEMEN,—Post partum hemorrhage, the subject I have selected for a short discussion this evening, is one of very great importance, not only to ourselves as obstetricians, but more especially to those who entrust their lives in our hands, as upon our promptness and ability to combat this dangerous complication often depends the life of our patient. And who amongst us, having witnessed a fatal termination, or even one of a less severe type, in which by our successful efforts we have averted that termination, will deny that the impression left upon the mind is one which nothing but time will efface. The more severe forms, however, are happily somewhat rare, particularly so when we are fortunate enough to have the patient under our watchful care throughout the critical period of labor, yet, when we are brought face to face with this alarming condition, it requires the coolness and presence of mind of the veteran to act promptly and judiciously, else we will impart a feeling of distrust in the mind of our patient, when we should inspire her with a feeling of implicit confidence in our ability to carry her safely through. I can assure you there are few women who are not thoroughly alive to the dangers of "flooding," and no matter how mistrustful we are as to the ultimate results, we must be exceedingly cautious not to display it, as we require her thorough confidence, which will materially assist us in our efforts in her behalf. Then, I say, upon the coolness and promptness of action of the obstetrician depend largely the safety of the patient.

\*Read before the Kingston Medical and Surgical Society.

I will touch but lightly upon the etiology and symptoms of this grave affection, and hurry on to the all-important part, treatment. Hemorrhage, after the birth of the child, may arise from different causes. Among the predisposing are those acting through the nervous system or through the circulation. The muscular irritability may be impaired by general debility by wasting diseases, impoverished blood, due to suffering and muscular effort, from the external influences of heat and vitiated air, increased pressure in the venous or arterial trunks; the pressure in the veins may be increased by the patient getting up suddenly in bed, by coughing, sneezing, vomiting, &c., in which the abdominal muscles are called into play, and by any condition which will produce chronic congestion of the pelvic organs. Arterial tension as a cause of hemorrhage is said to be exceedingly rare. Among the exciting causes are laceration of the external sexual organs, vagina, or of the cervix, or the result of a ruptured or inverted uterus. But I will confine my remarks to that which occurs independently of any lesions or displacements. It may occur before or after delivery of the placenta. Of course in the former case the placenta must be partially or completely detached, but the cause with which we have most frequently to contend is *atony* or *uterine inertia*. The causes which lead up to this condition of the uterine muscles are many. It has been observed after rapid as well as after prolonged labor, great distention of the uterus, as from plural pregnancy or excess of the amniotic fluid, the prolonged use of anæsthetics, albuminuria, hemophilia, as also deficient muscular development. Veit refers, under *Atony of the Uterus*, to "paralysis of that portion of the uterus to which the placenta has been attached." In this condition there will be found, on external examination through the abdominal wall, a depression, while internally a corresponding projecting mass.

Penrose mentions as a cause the partial morbid adhesion of the placenta to the uterus. Here the uterus may be firmly contracted, but the adherent placenta in the cavity of the organ prevents the shrinkage in size, indispensable to the complete obliteration of the blood vessels, and hemorrhage is the inevitable result. This is the condition of affairs when we have to deal with fibroids in the uterine wall, likewise polypus in the cavity.



Again, *placenta prævia* may cause hemorrhage, due to the lack of contractile power, in the lower segment of the uterus, as compared with that possessed by the wall, at the normal site of the placenta, the closure of the blood vessels as a result being less prompt and complete. Varicose degeneration of a portion of the uterus has been observed in a case of local atony. Another author mentions a dangerous form of uterine atony, due to infection early in labor. This latter cause would possibly, in part at least, account for the strong assertion made by one author, that post partum hemorrhage was almost without exception the fault of the attendant.

*Symptoms.*—With the symptoms of post partum hemorrhage we are all more or less familiar. The feeble frequent pulse, pale and anxious face, shallow respirations, often difficult and perhaps gasping, frequently sighing or yawning, will be the first intimation that all is not right. (I have in my mind at the present time the following case:—Mrs. —, the wife of a medical man, her husband and another physician (both well up in the profession) were in attendance. Nothing unusual happened, being a case of ordinary labor. The labor concluded, and everything apparently all right, they retired to the next room to have some refreshments, when their attention was attracted to the patient by a heavy sigh. They, of course, hastened to her bedside, only to find that in spite of their best efforts she slipped from their grasp. I cite this case to illustrate the importance of that symptom.) The skin is cold and bathed in sweat. The distress may be so great that the patient will ask to be fanned or have a window opened, or complain of some disorder of sense, such as ringing in the ears, or obscurity of vision. There is great restlessness, and the loss of blood may be so great that syncope follows, and sometimes nervous manifestations or even convulsions close the scene.

The hemorrhage may be either external or internal, but usually mixed, that is, blood flows externally at the same time that it accumulates in the uterine cavity. The external hemorrhage reveals itself, while the internal may be readily recognized by placing the hand on the abdomen, when you will find the uterus greatly enlarged and relaxed, and possibly its boundaries not well

defined. The patient complains of vague pains and cramps in the stomach. Pains in the loins indicate the seat of the condition, and on making a vaginal examination we will often find the uterine orifice plugged by a portion of the placenta or blood clot, which prevents the exit of the blood.

Post partum hemorrhage has been divided into primary and secondary, but as to the boundary line between the two unfortunately authors differ, but I think the weight of opinion is to regard all hemorrhages during the first twenty-four hours as primary, that occurring later, secondary.

*Prognosis.*—As to the prognosis, the earlier the bleeding occurs and the greater the loss of blood, the graver it is; also, if the blood is thin and serum like, and free from clots, the fluid itself is at fault and the danger greater. Then, later, we have more or less danger from sepsis and the weakened condition of the patient, which must be considered.

*Treatment.*—I will now pass on to the treatment, and I might here affirm what a celebrated author has said, that “no one should attend an obstetrical case who has not a clearly defined programme to be put into immediate execution, should the dangerous complication arise,” for in no other disease is time of such paramount importance as when the widely opened blood-vessels are pouring forth the “vital fluid,” when seconds are as minutes and minutes hours, when either nature or the attendant must promptly interfere, else another soul will have joined the silent majority, and we have another failure to record.

Fortunately we can, by careful attention to details, reduce the fatal cases to a minimum. I think the statistics of hospital practice give one death in about 2000 or thereabouts. Certainly the death rate would be lower in hospitals, where everything is at hand for any emergency, and we have skilled assistance; quite different in private practice, where at times it is difficult to get even a supply of hot water, and where the assistants are oft-times quite useless. It is well, therefore, even in the simplest cases, to make provision against the possible occurrence of hemorrhage. I would, therefore, urge the necessity of examining your syringe to see that it is in perfect working order and ready for immediate use; also have your hypodermic and ergot, ether, brandy and other

remedies are at hand; likewise iodoform gauze, antiseptics, and a plentiful supply of hot and cold water. The indications for treatment are first to control the hemorrhage and excite uterine contractions, and, secondly, to treat the after condition. To accomplish the former we first lower the patient's head by removing the pillow and bolster and raise the foot of the bed. While this is being done by the nurse, or other assistant, the obstetrician must grasp the uterus and by pressure and friction endeavour to excite uterine contraction. The introduction of one hand into the uterus may be necessary to remove any retained placenta, membrane or coagula. Of course it is important to remember that before invading the uterus the genital tract must be thoroughly sterilized. This can be done with hot water, to which we have added carbolic acid, creolin, or other antiseptic, the hot water of itself being a valuable agent in controlling the hemorrhage by stimulating the uterus to contraction. The hand and forearm must also be disinfected. This precaution is especially necessary if there be a partially free placenta to detach, the hand by its contact with the uterine wall tending to induce contraction of the organ, and it is better to allow the hand and contents to be expelled by uterine contraction rather than withdrawn. In the meantime ergot may be used hypodermatically with the hope of stimulating the uterus to contract. If there be much exhaustion hypodermic injections of ether, ice to the abdomen, and the introduction of a lump of ice into the uterus has been recommended, but the intrauterine douche of hot water, at a temperature of 112-116 deg. is, in my opinion, preferable, and in a majority of cases will effectually check the hemorrhage. Vinegar, and in its absence turpentine or whiskey, is also recommended. A pocket handkerchief saturated with vinegar or a peeled lemon may be passed into the uterus. These agents coming in contact with the uterine walls stimulate them to contraction. Some use a solution of the perchloride of iron, but before using this the uterus must be empty of placenta, blood and clots, and compression kept up while using it. But the intrauterine application of stiptics is not generally recommended. I can very well remember the instructions I received when a student, that acetate of lead in dram doses was *the* remedy *par*

*excellence* in post partum hemorrhage. I need scarcely tell you that I have long since departed from that instruction, and I mention it as a relic of the earlier days, when the profession had more confidence in the empirical effect of drugs than at the present time. We have also bimanual compression, compression of the aorta, the abdominal bandage and compress, compressing the uterus against the pubic symphysis and the faradic current, and, as a last resort, the uterine tampon, using for that purpose long strips of non-absorbent iodoform gauze (prepared by impregnating it with gutta-percha), remove tampon in from twelve to twenty-four hours. When the hemorrhage is persistent and severe, the blood coming from degenerated vessels in the site of the placenta, it may be necessary to adopt Kock's method, viz., to invert the uterus as soon after the birth of the child as possible, and apply an elastic ligature about the cervix. After six hours remove the elastic band and replace uterus. Hemorrhage, due to lacerated wounds in the genital tract, is best controlled by suture or ligature, or by a gauze tampon.

*Prophylaxis.*—For the prevention of post partum hemorrhage be careful not to deliver too quickly, but hasten a prolonged labour. Avoid the use of chloroform, particularly if there has been a history of previous hemorrhage. In these cases it is recommended by some writers to give a dose of ergot when the head is pressing on the perineum, and to be in no haste to deliver the body of the child. Carefully guard the uterus by external pressure during the period of delivery. If there is delay in expulsion of placenta, and we fear uterine inertia, the intra-uterine injections of warm antiseptic solutions will have the effect of inducing uterine contractions.

*Treatment of After Condition.*—Having succeeded in arresting the flow of blood, we must now resort to means to compensate for that loss, and for this purpose we have transfusion and auto-transfusion, also subcutaneous and intravenous infusion of sterilized solution of chloride of sodium, normal saline solution.

Transfusion, for different reasons, is scarcely ever employed. Auto-infusion, by bandaging the limbs, preferably with flannel bandages, thereby forcing the great mass of blood toward the heart and brain, should always be employed. The subcutaneous

infusion of saline solution has been found to answer all purposes equally well as the intravenous, hence the latter is not so frequently used; subcutaneous or interstitial injection, together with rectal injections of same fluid, will answer every purpose. The rectal injections must be voluminous, carried well up, and hence we must use a long tube and penetrate the sigmoid flexure, thereby commanding the absorptive powers of the descending transverse and ascending colon, and when so used they are of inestimable value. Intravenous injections of a 5 per cent. solution of ammonia, from 15 to 30 drops, injected into a superficial vein, has been employed successfully by Dr. Griswold in a number of cases, when the heart had apparently ceased beating. During convalescence keep patient in the recumbent position, give milk, eggs and animal broths for diet, administer these cautiously at first, and at short intervals, carefully testing the capacity of the stomach, to dispose of its contents and withholding everything on the first indication of nausea, when the pulse is extremely rapid. The subcutaneous injection of  $\frac{1}{80}$  of a grain of digitalin is said to act favorably, by causing contraction of the arterioles of the uterus. Opiates may also be administered when necessary, and in some cases alcoholic stimulants. Ergot or hydrastis may be given if there be a continuous blood discharge. The early administration of tonics, quinine, iron and strychnine, being among the best, will be beneficial in many cases.

R. H. ABBOTT.

## THE TREATMENT OF PNEUMONIA.

**P**ROBABLY there is no disease which meets the physician more frequently than that of pneumonia. It attacks all ages—childhood, adult life, and is the particular foe of old age. No season is exempt from its ravages, though met more frequently here during the winter months. The treatment of this affection should, therefore, be a matter of serious consideration. As the disease is decidedly cyclical in its course, we may look forward to a favorable result if the attack be one of moderate intensity, the subject healthy, and no complications arise. In such case little need be done, the crisis occurring without influence on the fifth or seventh day. But this happy result can be looked for in sthenic cases when the lung only is involved, a rare event indeed. Far oftener does it appear that the inflammation in the lung is but one manifestation of a disease with profound systemic intoxication and the involvement of other important organs from the very outset. Then we must have regard, not for the lung, but for the patient, “not for the pneumonia, but the pneumonic man.” We must then consider the age of the patient, his occupation, his family history, his environments, his personal peculiarities, and probably, most important of all, his habits of life. In every move we make we must have constantly before us each and all of these conditions.

In sthenic cases we are called upon to relieve the pain, the cough, to reduce the fever, and to support the patient through the crisis. Blood-letting of late years has fallen into disrepute in Europe. It had rarely been practised in this country, yet there is no doubt but that in strong plethoric persons it should exercise a beneficial result. Niemeyer lays down the following judicious rules as to bleeding :—I. When the pneumonia has attacked a hitherto healthy subject, is of recent occurrence, the temperature being higher than 105, and the pulse above 120. II. When collateral œdema in the portions of the lung unaffected by pneumonia is causing danger to life. III.

When there are symptoms of pressure on the brain, not head-delirium, but a state of stupor or transient paralysis. Cold in various forms is now quite generally used in Europe, and is gradually finding favor on this continent. It is applied to the affected side by means of coils, ice poultices, cloths wrung out of ice-cold water, &c. There is no doubt but it exercises a beneficial influence. In the German hospitals it is used altogether. I see no reason yet why we should discard the old-fashioned poultice. It may have its faults, but it has many virtues. It relieves the pain, is most soothing to the patient, and reduces temperature by assisting diaphoresis. The physician should never order a poultice without first satisfying himself that it can be properly made and applied with regularity.

In asthenic cases all our efforts should be directed to support the heart by means of stimulants and heart tonics. Strychnia is by far the best heart tonic. It may be given in doses of from one-twentieth to one-fiftieth of a grain every four or five hours. There seems to be no drug that will give such vigor and tone to the heart muscle as strychnia. It is best administered hyperdermically. In country practice, where this cannot be done, the liquor strychnia is the next best form.

Following strychnia come the alcohols. Good rye whiskey is the most acceptable. It may be administered every three hours, the amount to vary with the patient. Not only has alcohol a powerfully stimulating effect on the heart, but it assists diaphoresis by dilating the cutaneous capillaries. Nitro-glycerine is also highly lauded as a heart tonic in pneumonia. I have little experience of this drug in this disease.

Digitalis is, no doubt, a powerful heart tonic and stimulant. There is, however, a difference of opinion as to the wisdom of administering it in this disease. It is slow in acting and has a disturbing effect upon the stomach. It causes contraction of the arterial system, and by thus lessening the calibre of the vessels increases the obstruction to the heart.

Carbonate of ammonia was at one time looked upon as almost a specific in this disease. It no longer holds this place. The wisdom of administering it at all in pneumonia is now justly questioned. It is most irritable to the stomach, has

stimulating qualities far inferior to the drugs already mentioned, while its action upon the secretion of the lungs is quite doubtful.

If the local applications do not control the pain, a ten-grain Dover's powder may be administered, or better still, a hypodermic of morphia. Indeed, the hypodermic needle should be used in all cases if possible. Expectorants should not be used at all till after the crisis. They can do no possible good. By increasing the cough they aggravate the pain, increase the restlessness and the exhaustion of the patient. The cough also is best controlled by Dover's powder or morphia hypodermically. It should be looked to from the outset. One of the most troublesome symptoms of this disease is the delirium. It is almost a constant companion of pneumonia. Especially is this the case in those accustomed to the use of alcohol. It is best controlled by cold cloths to the head or an ice bag, which should be kept on quite constantly. Bromide has little influence in the severe cases of delirium. Morphia or opium should be given if necessary. None of the coal tar derivatives should be used in pneumonia. They exert a depressing influence on the heart and are far inferior to the opiates as sedatives. It is hardly necessary to mention that all treatment should be preceded by a brisk purgative. The diet should be light and nutritious—milk, beef tea, broth, &c. The patient should be kept as quiet as possible. The room should be kept at a temperature of 65 or 70 deg., and should be constantly well aired. The greatest care should be taken of the patient during the period of convalescence. The recumbent position must be maintained, the diet carefully guarded.

E. RYAN.



## X RAYS.

**I**N November, 1895, Professor Rontgen, of Wurzburg, discovered that some form of radiant energy emitted from a Crookes' tube he was using, affected a photographic plate in an enclosed box lying near by. He further discovered that these rays would pass through any of the tissues of the body, the bones much less readily than the muscular and other structures, and that glass and most metallic substances were fairly opaque. He demonstrated, too, that these rays appeared incapable of refraction, regular reflection or polarization, and also of deflection by a magnet; the latter feature distinguishing them from the already known "kathode" rays, and also from Lenard's rays. Not being certain of the character of the new rays he appropriately named them "X" rays.

Although the announcement of Rontgen's discovery stirred into activity a host of physicists, who have diligently wrestled with the new problems for upwards of two years, it is remarkable how little of real value has been added to our knowledge.

As might be expected, there is considerable diversity of opinion regarding the character of the ray. The purpose of this paper, however, is to deal with the practical application of the phenomena, rather than the phenomena themselves, and mere mention of a few of the theories must suffice.

Many English physicists, perhaps the majority, hold that Rontgen rays are very short, rapid, transverse vibrations in ether. Rontgen, himself, at the time of his discovery, believed them to consist of longitudinal vibrations.

Precht, of Heidelberg, has quite recently advanced the theory that we have to deal with an exceedingly complex radiation, that some of the waves are transverse, some longitudinal, and a portion not wave-motion at all.

The problem is yet unsolved; it concerns, however, the physicist more than the physician.

Having then formed something like an approximate idea of what these rays are, we may ask ourselves what is necessary for the generation of them? A Crookes' vacuum tube and an electric current of very high potential. How can such a current be obtained? From (a) an induction coil, (b) high frequency apparatus, or (c) a static machine.



FIG. 1.—INDUCTION COIL AND TUBE ARRANGED TO PHOTOGRAPH A HAND.

So far, the induction coil has been found the most satisfactory means of generating the current, and will alone be considered here.

The amount of electrical energy necessary to light up an ordinary 16 candle-power incandescent lamp is quite sufficient for X ray work when employed with suitable apparatus. In the ordinary electric light circuit the voltage is low, varying from 50 to 120 volts, and the current or amperes high. For the proper excitation of a Crookes' tube we must have very high potential, many thousand volts, but a very low current—a mere fraction of one ampere being all that is necessary.

How, then, can the electric light circuit be utilized in the production of X rays? The best apparatus for transforming electric energy of low voltage and high amperes (*e.g.*, the electric light current) into a current of very high voltage and low amperes is an induction coil.

A word regarding the choice and care of an induction coil. Personal experience is essential, but a few practical suggestions may not be out of place here.

Nothing less than a 6 inch-spark coil should be selected by the physician, an 8 inch is to be preferred.

Many experiments can, however, be performed with smaller coils. A coil giving a 2-inch spark is quite capable of photographing a hand, a forearm or the metatarsal bones in about two minutes.

One objection to the smaller coils, and one that must be considered, is the fact that many of them are apparently made to *sell*, their insulation is insufficient, and when subjected to the rather severe strain demanded of them in X ray work, the insulation breaks down and your coil—the most expensive part of your entire outfit—is useless. For the same reason never buy a coil made before the days of X ray experiments.

The insulation of the larger and more expensive coils is better. These for the most part are made by experienced workmen, and are thoroughly tested before leaving the manufacturer's hands. It is better never to work any coil at its full sparking capacity for prolonged periods. If absolutely necessary to do so, the operator should occasionally "rest" the coil, especially if its temperature approaches 120 F.—the melting point of the insulating medium. It will be apparent, then, that the coil should not be kept, much less operated, in too warm a room.

A Ruhmkorff coil, with storage battery, is used in the hospital, and we believe this combination best adapted to the needs of the physician.

The manufacturers of storage batteries supply with each battery all necessary information regarding voltage, current, &c.

It is, of course, possible to operate a Ruhmkorff coil direct from the electric light circuit without batteries of any kind. In this case the quantity and potential of the current to the coil are

regulated in one of three ways, either by (a) rheostat, (b) a bank of lamps, or (c) a motor-dynamo.

We prefer the storage battery. It is not perfect, but it is more economical, requires less attention, and gives a current of even potential.

In localities where an electric light circuit is not available it will be necessary to substitute a primary battery, of which, perhaps, the Edison-Lalande is the best on account of its large ampere output.

The Leclanche cell, so much used in galvanism, is scarcely suitable for X ray work.

Crookes' Tube. The name "Crookes" conveys to our mind the degree of vacuum of a highly exhausted glass tube, and has no reference to the size or shape of the tube. The degree of

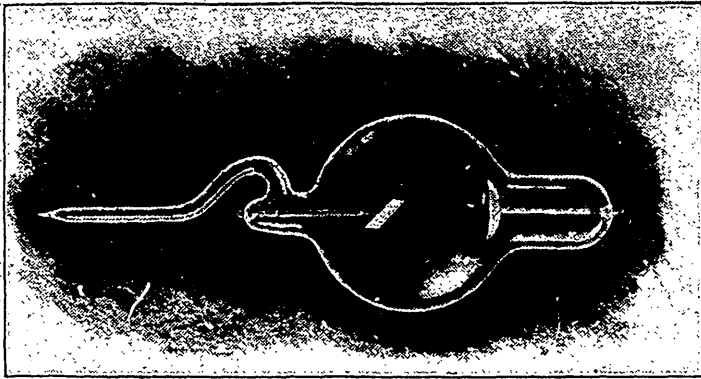


FIG. 2.—FOCUS TUBE.

exhaustion most favorable for the production of phosphorescence is about one-millionth of an atmosphere (an atmosphere being equal to a pressure of 15 lbs. to the square inch). As a matter of fact the vacuum of the focus tube as it leaves the manufacturer's hands is much lower than this, and very properly so, because the vacuum increases as the tube is used, and sooner or later becomes so high that the electric discharge refuses to pass. This gradual hyper-exhaustion, however, can be partially controlled in two ways: (a) Gently heating the tube with a spirit lamp or Bunsen burner lowers the vacuum; (b) sending a *very*

*small current* the reverse way through the tube also lowers the vacuum. The latter experiment is not without danger to the tube. Heating is preferable.

To Herbert Jackson is due the credit of devising the best form of focus tube. (Fig. 2.) It is a modification of the Crookes' tube. The ordinary anode is replaced by a small square of platinum, arranged at an approximate angle of 40 deg. with the axis of the tube, and on a level with the small saucer-shaped cathode of aluminum. By this radiating plate of platinum the rays are directed towards the lower part of the tube, which explains the position of hand and photographic plate in Fig. 1. Though many so-called improvements have been made in this tube, it practically holds the field at the present time.

We will suppose the tube has been connected with the secondary terminals of a Ruhmkorff coil and the current turned on. The first thing to attract our attention is the beautiful fluorescence of the glass of that part of the tube, against which the rays have been directed by the platinum anode. Were it not for this radiating plate of platinum, the fluorescence would be most brilliant at a point opposite the cathode electrode.

The color of the fluorescence varies from an apple-green to a canary-yellow, according to the kind of glass used in the manufacture of the tube. It must be remembered, however, that the X rays themselves are invisible. The fluorescence is due to the bombardment, by the electric discharge, of the molecules of residual air against the wall of the tube. The interior of the tube is perfectly clear. How, then, can we ascertain whether X rays are being generated or not? By the effect on a sensitized photographic plate or the fluorescence of certain crystalline salts used in the manufacture of a fluoroscope. The fluoroscope and some of its uses will be discussed in another paper.

JAS. THIRD.

## HYSTERICAL PHENOMENA AS AN EARLY SYMPTOM OF CEREBRO-SPINAL FEVER.\*

HUME declared, "Belief is nothing but a more vivid, lively, forcible, firm, steady conception of an object than imagination alone is even able to attain."

Certain phenomena, in several cases of cerebro-spinal fever, have been so emphatically brought under my attention, that I believe them to be of more importance, than usually considered.

On August 4th, 1894, Miss B—, aged 15 years, called at my office to consult me regarding an extensive ecchymosis surrounding one eye, for which condition there was no history of injury. I did not discover any constitutional disturbance, and prescribed some local treatment. The following day I received word she was better.

On the 6th I was called to see her and found the other palpebral region in a similar condition. There was no fever nor particular disturbance of the circulation or respiration, but there was a marked change in her nervous system.

Her condition resembled slight intoxication from alcohol. Very ordinary things seemed to be amusing to her, and she essayed funny replies to my questions. Her facial expression was comical, which the darkened palpebral regions rendered clownish.

I was inclined to consider her hysterical, but the symptoms were such that I saw her again that evening, when I found a slight rise in temperature. The next morning there was slight stiffness of the neck, the hysterical symptoms continued; there was anorexia and some vomiting. She was confined to her bed for several days; all symptoms improved so that by the 12th inst. the temperature being normal and appetite returning, I ceased to see her. Six days later I was called and found the temperature 104 deg. F. and rather marked stiffness of the neck. There

\* Being an Extract from a Paper read before the Quinte Medical Association by G. C. T. WARD,

was also a return of the hysterical symptoms. She became rapidly worse during the day. Opisthotonos became marked and fever high, followed by convulsions, coma and death next morning.

On May 15th, 1897, I was called in consultation to see a young woman, Miss C., a domestic, in a comatose state. The temperature was 104 deg. F. There was severe opisthotonos and retraction of the epigastrium. I learned that about one week before she had what her mistress called a hysterical spell; also she had some kind of a fainting spell on the street. Her physician states that when called on the morning of the 14th it was thought it might be hysteria. The temperature continued rising, attaining 108 deg. Bed sores rapidly developed. She died on the morning of the 17th.

On March 25th, 1897, Miss C., aged 12 years, was brought to my office by her mother, who said the girl acted queerly and a little silly, and that she complained of pain in her head, neck and back. Temperature was 100 deg. F. Her manner was suggestive of hysteria.

When I expressed an opinion to her mother that she possibly might have meningitis, she (the mother) informed me that her sister had meningitis two years ago, and she acted so much like her sister that she was alarmed. The sister had recovered. I ordered the patient to bed. The hysterical symptoms disappeared in two days, and she seemed quite well in ten days. The highest temperature I found was 101 deg. Purpuric spots developed during the week. The drugs used were sodium salicylate, potassium iodide and morphia.

T. W., age 3½, on June 13th, 1897. For several days the temperature varied from 100 deg. to 102½. Pain on bringing the head forward. Appeared to be amused at ordinary and familiar objects. This symptom was so marked that the mother spoke of it without my suggestion. It was as if her mental conception was unnatural. When she was not disturbed she was apathetic. I discovered none of the ordinary causes of fever in children. She recovered in about one week. Though I gave a guarded prognosis you will correctly suppose from those symptoms I did not say anything of my fears of meningitis to the parents.

The first thing I wish to call attention to, is the manifestation of hysterical symptoms and the importance of recognizing it as a possible symptom of cerebro-spinal fever.

Dr. Radcliffe quotes Dr. S. Gorden as saying he has known several cases in which the earlier symptoms of cerebro-spinal meningitis in young and excitable people have been mistaken for hysteria.

Dr. William Pepper says: "Mild cases of cerebro-spinal fever have been mistaken for hysteria, but the muscular rigidity and fever should prevent mistakes."

In the first case the symptoms resembled hysteria so closely that a physician of forty years' experience, whom I had in consultation, expressed his doubts with the words: "Well, if it is hysteria, she'll recover; if it is meningitis, she'll die."

In the second case the available history of the earlier symptoms is not so complete, but that there were hysterical symptoms is quite evident.

In the second place, I would call attention to the danger of not recognizing mild sporadic cases of cerebro-spinal fever. Pepper says: "The disease is so often sporadic that I fear the term, 'epidemic cerebro-spinal fever,' has, not rarely, led to a failure to recognize the nature of isolated cases, and with regard to mild cases, "the diagnosis may be difficult except during epidemics of the disease."

In the last case mentioned there are reasonable grounds for doubting if it were cerebro-spinal fever, but I mention it as a type of what we often see in children. We exclude everything else, but are inclined to wait for opisthotonos before we are sure enough to pronounce the trouble cerebro-spinal fever. If recovery takes place before such symptoms develop, we are apt to think our fears were groundless after all.

I have purposely avoided any effort at an essay on cerebro-spinal fever, but have endeavored to lay particular stress upon the possibility of hysteria as an early symptom, and upon the fact that we are liable not to recognize sporadic cases unless they reach a severe, I might say fatal, stage.

An interesting circumstance connected with these cases is that the first two young women mentioned were members of



families who were near neighbors and had much inter-communication. At the same time they both were only occasional residents at these homes, which you know has to do with the question of susceptibility. In the third case a sister had been attended by a reputable physician for what he called meningitis. In 1891 I attended a fatal case of meningitis in a child whose home was the second farm from the one on which case No. 3 resides. I considered it to be tubercular from the gradual onset and protracted course. With subsequent developments I have doubts of its having been tubercular, particularly as there is no history of tuberculosis in the family. To quote Pepper again, he says: "There is abundant proof of the existence of a specific poison, which may attach to certain houses or localities so as to render them infectious." We are naturally led to consider the possibility of there being such specific poison about these places.

As a sequel to these cases I venture upon your patience a short sketch of another case.

On Sept. 14th, 1897, I was called in to see Miss J. A., about 20 years of age. The people in whose house I found her stated that she had been unconscious for several hours. They also stated she was a domestic employed in the same house that case No. 2 had died. That was all the history. I found her with considerable muscular rigidity, particularly of the neck. She was anæmic, temperature normal, pulse about 85. Thumbs were turned in, toes strongly flexed, pupils dilated but responsive. Cold water freely poured over her head and face restored her to consciousness. She persisted in being rather ill. She had heard of the illness and death of her predecessor, and to the best of her ability had simulated that case except the last act. As she was homeless we sent her to the Kingston Hospital. It is unnecessary to state this was a case of ordinary hysteria, only of interest on account of having occurred in same residence as case No. 2.

G. C. T. WARD.

## THE DIAGNOSIS OF INCIPIENT PULMONARY TUBERCULOSIS.

TO make a positive diagnosis of pulmonary tuberculosis in the first or incipient stage is always a difficult problem. At the same time an early diagnosis of this dread disease is of the utmost importance to the attending physician, and especially to the patient. It is in the early stage that we may with some degree of hope look for benefit from treatment—medicinal, hygienic and climatic. The life of the patient, or at least the duration of his life, may depend upon our early diagnosis of his condition. The data upon which such a diagnosis can be made must, therefore, be most carefully sought for and most judiciously considered. Unfortunately, it is at this stage of the disease in which we find so little upon which to found a positive diagnosis.

In a case of suspected tubercular lung disease we must take into consideration the patient's family history, his personal history, the history of his present trouble and his present condition. As heredity plays such a prominent part in the predisposition to tuberculosis, a careful enquiry must be made as to the cause of death of any immediate relatives. Tuberculosis having occurred in one or more members of the patient's family will at once put us on the alert by arousing the suspicion of the same trouble in the case under consideration. The absence, however, of any family history of tuberculosis does not preclude the possibility of this disease. Any one, no matter how good his family history, may be attacked by this insidious affection. The points in his personal history to be enquired into most carefully are what diseases of the respiratory passages, of the lymphatic glands, of the bones, has he suffered from previously, and has he been exposed to the infection of tuberculosis. These diseases of the respiratory passages may have been simply predisposing causes, or they may have been actually tubercular in their character. Diseases of the lymph-glands and of the bones and joints are often, as we now know,

tubercular in their nature, and may have been the local focus from which the general tubercular condition, including that of the lungs, has been established. A patient who has no tubercular taint in his family history, and who has never previously suffered from a respiratory, lymph-gland or bone disease may, if exposed to the infection of tuberculosis, contract the disease himself. In illustration of this point I would briefly cite a case which came under my care last spring. J. R., æt. 24, a school-teacher by profession, no suspicion of tuberculosis on either side of the family, father and mother, brothers and sisters, all in good health. He came to me with the usual history—pain in side, cough, expectoration, emaciation, lassitude. Physical examination revealed a well-marked cavity in right apex. Tubercle bacilli were found in sputum. A year previously he had roomed with a young man (since dead) who was then suffering from pulmonary tuberculosis. I have no doubt that this was a case of pulmonary tuberculosis contracted from his room-mate.\* Every physician of experience can, no doubt, recall similar cases; and such cases force upon us the necessity of isolating so far as possible all patients suffering from tuberculosis.

A case of pulmonary tuberculosis may present a clinical history of considerable variations. The case may have commenced as an apparently ordinary bronchitis or lobular pneumonia, from which the patient did not make a good recovery—from which, as he will tell you, he never got well. This initial bronchitis is then said to have been the cause of the tubercular trouble, the disease having "run into" tuberculosis. These affections are never the cause of tuberculosis. Tuberculosis is a specific disease due to the admission into the human organism of a specific germ. All that an ordinary bronchitis or pneumonia can do in the way of causation is to prepare the organism for the lodgement, growth, and propagation of the specific germ. They may, therefore, be said to be predisposing but not exciting or direct causes of tuberculosis. Of course, it is not to be forgotten that these affections may have themselves been of a tubercular nature. The onset of pulmonary tuberculosis may have been sudden and severe, characterized by symptoms closely simulating those of

\* Since writing the above, have heard of this patient's death.

typhoid fever. As we so frequently find patients with pulmonary tuberculosis who previously had suffered from an attack of what was diagnosed as typhoid fever and from which he had never made a good recovery, we naturally ask ourselves was not a mistake made in the diagnosis of the primary disease, was it not in reality tuberculosis from the first. Of course, one can readily understand that a disease such as typhoid fever which has such a devitalizing effect upon the organism may act as a pre-disposing cause of tuberculosis. In such a condition the bacilli will the more readily obtain a foot-hold and the tissues be less able to resist their encroachment. A careful watch being kept for the characteristic symptoms of typhoid, should, however, in these cases prevent an error in diagnosis.

Again, pulmonary tuberculosis may come on insidiously. The patient will have no history of any previous illness. The symptoms of which he will probably complain are as follows: 1. Pain in the chest. 2. Cough. 3. Expectoration. 4. Fever. 5. Emaciation. 6. Neuralgic pains. 7. Dyspnoea.

1. Pain over the seat of the diseased portion of the lung, probably due to an accompanying pleurisy, is often but not always present. A sharp shooting pain in the back between the scapulae is often present and by some regarded as of diagnostic significance.

2. Cough is usually found from the beginning. At first it is dry, hacking and irritable. Afterwards it is accompanied by expectoration; by itself it has not much diagnostic import.

3. The expectoration is at first muco-purulent. Blood in the expectoration is always significant. It may appear only as streaks or in large amount. It is bright red in colour, and is always the result of cough.

Elastic fibres found in the sputum are very suggestive of tuberculosis. These, it is true, are found in gangrene and abscess of the lung, but in these conditions we find other evidences upon which to base our diagnosis. The absence of elastic fibres does not exclude tuberculosis, but their presence, except as above stated, makes that diagnosis fairly certain.

Bacillus tuberculosis, if found, makes the diagnosis positive; if not found in the incipient stage the diagnosis is only in doubt for

a time. They will appear later. Repeated examinations, therefore, ought to be made.

4. Fever. Patients may complain of being feverish. This should be verified by the thermometer—the temperature being taken frequently. Towards evening there will likely be found a slight exacerbation, 99 deg.—101 deg. F. This is not a constant symptom.

5. Emaciation may be present even in the incipient stage. If present it is not marked, but ought to be considered in making a diagnosis.

6. Neuralgic pains are usually a later manifestation of the disease. When present they are found in the arms and legs, and perhaps a general hyperæsthesia of the skin and deeper parts may be present.

7. Dyspnoea is rarely complained of, as the respiration is more rapid and the emaciation of the body makes the demand for oxygen less imperative.

8. Night-sweats, if present, would rouse our suspicion of tubercular lesions, but they are rare in the incipient stage.

So far the only diagnostic guide of much significance is the character of the sputum. While any of the above symptoms by itself would not justify us in diagnosing tuberculosis, taken in connection they prepare us for a physical examination by which we may hope to verify or refute the suspicion which they have aroused.

#### PHYSICAL EXAMINATION.

1. Inspection. The patient is probably anæmic. Flattening over one apex may be noticeable. This sign may be absent. Respiratory movements are hurried.

2. Palpitation reveals but little. Vocal fremitus may be slightly increased over the affected area, and possibly the affected side may expand less than the unaffected one. It should always be remembered that vocal fremitus is normally somewhat more distinct over the upper portion of the right lung than over the left, on account of the position of the right bronchus.

3. Percussion may not give us any assistance. Normally the percussion note is duller over the right side than over the left owing to the muscles on the right side being thicker. This ap-

plies to right-handed patients especially. If we find dullness upon that side on which there is impaired respiratory movement and increased vocal fremitus, we have to do with a condition of consolidation. This occurring at either apex is highly suggestive of tuberculosis.

4. Auscultation gives more direct evidence than any of the other methods of physical examination. The respiratory movements will be found to be increased in frequency, and the expiration relatively increased. The vesicular murmur may be diminished owing to the loss of expansile power in the vesicles, or it may be harsher or what is called "puerile." If at the same time we are able to detect dry ronchi or moist râles we are still more justified in diagnosing tuberculosis. The act of inspiration is often interrupted. This, in my opinion, is perhaps the most important of the physical signs.

To sum up, the symptoms of which the patient complains, and the physical signs which we are able to detect, taken individually will not justify a diagnosis of tuberculosis. Where, however, we find a continuous and irritable cough, a general failure of health, the evidences of a catarrhal condition at one apex, we may fairly infer that tuberculosis is present.

A positive diagnosis should never be made without careful and repeated examinations of the sputum. Blood, elastic fibres and bacilli are the constituents to be looked for. Blood is suspicious, elastic fibres are almost confirmatory, and bacilli are proof positive.

JOHN HERALD.

## A MUCH LAMENTED DEATH.

AT HALF past eleven on the evening of December 11th, there passed to rest Dr. David Cunningham, one of the best known of the younger medical men in Kingston. The fact that he was in poor health was generally known, because about two months ago he went to Denver, Colorado, in search of a more favourable climate, but the suddenness of his end came as a terrible shock to his many friends in this community.

Deceased had scarcely reached thirty years of age. He was born in Kingston, on Arch Street, and was educated in the Public schools, the Collegiate institute, and at Queen's University. He entered the Collegiate as winner of a scholarship given to public school pupils for general proficiency at the entrance examination, and during the whole of his course in preparation for the University, which he entered in 1883, he was distinguished for his quickness, his alertness, his bright spirits, and his consequent popularity with both pupils and teachers. Even in those early days his leaning towards scientific studies was apparent, because he acted as assistant meteorological observer for some two or three years, and, as long as he lived, took a keen interest in weather phenomena. His arts and medical courses at the college covered the years from 1883 to 1889, and he graduated so honourably as B.A. in 1887, and as M.D.C.M. in 1890. Even these honours did not satisfy his ambitious spirit, for in 1891 he devoted himself to post-graduate work in zoology, and obtained first-class honours in the spring in this department. The following session he acted as assistant to the Rev. Prof. Fowler, lecturing on junior animal biology. Next session he was appointed lecturer on physiology, as assistant to Dr. Knight. This part he filled to the great satisfaction of the students and college staff for four years, when he was again promoted in 1896 to the position of assistant professor of practice of medicine to Dr. Fife Fowler, and lecturer on jurisprudence. Nor were university honours the only ones he won. Immediately after the death of Dr. Saunders he was appointed surgeon to the Kingston Field Battery, and about the same time he was added to the staff of the General Hospital. In all positions he made friends and kept them. He was an honoured member of several benevolent organizations, notably, the Foresters, the Oddfellows and the Select Knights. Generous, affectionate, a warm and true friend, a devoted brother, a filial son, a sympathetic and skilful physician, he has gone, and leaves a void in his home and among friends and patients which in many cases can never be filled.

A. P. K.