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## Original Articles

### MEDICAL TESTIMONY IN COURTS OF LAW.*

BY HON. JUDGE MACDOUGALL, TORONTO, ONT.

Your worthy President, about ten days ago, had the temerity to enter the Court House, without a subpœna, came to my room and made a request to me that I would be good enough to say a few words to the Association when it assembled, upon the subject of medical testimony, or perhaps, more particularly, on an important branch of it—expert testimony. I pointed out to your President that my time was very much taken up at this particular period of the year, and that I feared very much I would not be able to consent, but like very many other persistent men he would not take "No" for an answer, and later in the week he saw me again and persuaded me to make the effort.

I was tempted also to refuse upon another ground, and that was, that I have some fairly strong views on the subject of medical testimony, and I did not know but that some of the matters I might care to discuss here would possibly not be as palatable to my audience as they might be to the laity or to lawyers. (Here, here.) But on reflection, as one of those concerned in the administration of justice, and as one who has much interest in improving all our methods, it struck me it would be a golden opportunity to frankly and candidly use the scalpel a little, if advisable, in dealing with this important subject.

Now, of course, there are one or two elementary questions which

* Delivered at Ontario Medical Association Meeting.

it is necessary, perhaps, to briefly glance at to place ourselves, as it were, in apposition with our subject.

In the first place, there are two kinds of evidence, that is, the evidence as to facts, which come under the observation of the witness, under the observation of a doctor just as much as under the observation of the laymen ; but evidence as to facts is not expert testimony. Then, there is evidence relating to the interpretation of facts founded on the knowledge possessed by the witness of the special subject, matter of interpretation, of inference, of conclusions based upon special knowledge, this is commonly called opinion evidence, or in other words, expert testimony.

A medical man, as an ordinary witness, may be asked as to the condition he found matters in when called as a witness, that would be the common question, but when he is asked, describing this condition : " Doctor, is that condition dangerous to life?" then he is called upon to express an opinion.

Now, evidence must be relevant, and there I quarrel occasionally with the doctors, because they sometimes travel out of the regular track—they go abroad. It must relate to the facts in controversy ; it must tend to prove or disprove, or explain them, and it must meet the requirements of the law both as to its form and to its authenticity.

As to its form, there are several forms in which such evidence may be given. It may be given in the shape of opinion ; it may be given in the shape of a statement, setting forth the taking of a dying declaration. The latter, however, has to follow the forms of law and, of course, to be sanctioned by an oath.

The question of the admissibility of testimony is for the judge, the question of the weight to be attached to the evidence is for the jury.

There is another sub-division of evidence, somewhat cognate. Evidence is either direct or indirect. Direct or positive evidence is not aided by any presumption or inference, while indirect evidence may be proof of collateral facts believed to have a connection with the principal fact to be proved. Or again, it may come into the region of expert testimony, that is an inference reasoned out from the knowledge and experience of the witness who details it—cause and effect—to show that the ultimate fact which is sought, either exists or does not exist.

Now, wise as non-professional people may be, they are not qualified in a great many cases to draw or make inferences, and that is why, on the ground rather of necessity than on any other legal ground, so-called opinion evidence is tolerated as part of the process of arriving at a conclusion. The ordinary conclusions have got usually to be arrived at from definite facts, but owing to the variety and multiple forms of our civilization, the importance of the arts and sciences, the mysteries which are investigated by

the medical profession, and in some of the arts and sciences such knowledge being limited to a small class, it has become necessary, in many investigations, in order to get at the root of the matter, to permit or allow, not evidence of the facts, but skilled persons to tell us what the proper inferences should be from the given facts, and in that way has grown up this system of calling experts in many cases to assist the court in arriving at a proper and just conclusion.

A very familiar instance will illustrate: Take a case (I think it is cited in one of your text-books on jurisprudence), suppose that a child is badly burnt, and in order to soothe its pain, soothe its agony, ten or twelve drops of opium are administered (I am not measuring the dose, as I don't know much about it), and the child dies. A common jury could not tell whether it died from the burns or from the drug. A doctor probably could. He could describe the nature and extent of the burns. They might be so superficial as to displace the idea that death had resulted from that cause, or they might be so serious that he could at once say, "Although it was a heavy dose of opium, the child received sufficient injury from the burns to cause death." But a common jury or a common judge could not find out that fact with equal certainty or perhaps arrive at a just conclusion, and that is where the medical man is called in to help the court and the jury.

Now, expert testimony (and here is one of the difficulties of the position, one of the causes of a great deal of harsh criticism), can only be met by expert testimony, or other opinions supporting or confuting the theory set up by the first line of experts, and then we have the melancholy spectacle, sometimes of three or four men of reputation, of good professional standing and presumed acquirements, going into the box before twelve very common men and a judge and scoffing lawyers, and combatting each other's opinions, (under oath bear in mind), before the jury. This is lamentable, because both views cannot be correct. If they are matters of opinion, there may be a difference of opinion, but in the great majority of cases there is a tendency to exaggerate on both sides to such an extent that it is palpable to even those who do not know much about it; hence a great deal of the criticism and harsh remarks about medical experts.

A physician, if he is called as an expert and his opinion is going to be worth anything in assisting any court in arriving at proper conclusions upon the facts testified to, should certainly hear the witnesses who detail those facts, in order that he can express a safe opinion. Facts which would escape the lawyer, which would escape the layman, are necessary to be brought out to give the medical man proper data to arrive at a just and proper conclusion, and therefore I say that no physician, except under very extraordinary circumstances, in my judgment should go into the witness

box and express an opinion upon facts which have transpired in a case without having heard the witnesses give their evidence of those facts. I have seen physicians who had heard nothing of the case perhaps until it was half tried, and the plaintiff and the defendant had been cross-examined; the statements of the witnesses had been taken in shorthand and the only material placed before the physician was this transcript of testimony put in his hands a few hours only before he was called. Such data are not reliable. I have heard a medical witness give expert testimony in such a case, with this insufficient preparation. The witnesses should be seen and heard. The higher courts, when reviewing the findings of a trial judge, even with the transcript before them, will generally decline to interfere with the trial judge's findings of fact, alleging that the latter saw the witnesses, observed their demeanor in the witness box, and was, therefore, in better position to determine the questions of fact, and though the finding is at variance with the apparent facts disclosed by the transcript, the court will generally refuse to disturb the verdict. It is extremely difficult to get a higher court to upset a verdict based upon a finding of fact, unless the finding is manifestly wrong or clearly irreconcilable with the sworn testimony.

Now, doctors sometimes have a hard time in the box, and why? In the first place, if one side is going to call a doctor, the opposite side must have one, too. Then the lawyers, who do not possess any too much knowledge on the questions that are to be debated, have got to be coached. You can understand that a man is very superficially prepared who merely scans a few medical books furnished by the doctor, and yet he is coached quite enough to bother a witness, and he puts, as a consequence, many questions which are very defective in their clearness, and difficult, if not impossible, to answer, and we find the medical witness becoming interested in the case to outwit counsel; this attitude shows advocacy, or a partisan spirit, whereas the proper aim of all testimony should be to deal with the facts in a fair, candid and impartial manner, and without any suggestion of an interested motive on the part of the witness.

Take a very common case, the case of an ordinary witness going into the box to meet evidence as to the occurrence of certain facts; if from the moment he is put in the box he shows a strong desire to put the facts most favorably for the side that calls him, such an attitude at once destroys his credit with the jury. His adjectives, his little exaggerations, his eagerness to anticipate the question, all indicate a bias and a desire to serve the interests of the man on whose behalf he is called. Juries quickly notice such indications, and a common witness who shows any desire to give his evidence with a view to helping the man who calls him as a witness, is at once discredited by the jury. A witness may be honest in his intention, but his eagerness to tell favorable facts, and to conceal

little matters which might modify them or affect their importance, show a bias. If the jury observe this, they say, "That man is a biased witness." His statements must be viewed with suspicion.

Now, doctors sometimes manifest the same spirit. They show too deep an interest in the side that calls them, in giving their testimony. We have all seen such cases. There are cases on record in the books in which judges have been compelled to tell the jury, "Well, gentlemen, you have heard the expert testimony given by learned gentlemen on both sides of this case. Their opinions appear to be irreconcilable; they differ so widely that I cannot assist you in saying which you should accept. You are not bound to give any weight to opinion evidence at all, unless it commends itself to your judgment. You had better discard it and use your common sense, and try and dispose of the case on the facts." It is an unfortunate position for a learned profession to merit sometimes such a direction.

Then we have those wondrous hypothetical questions, the unfortunate doctor is addressed: "Now, listen to me, doctor," (a long array of facts are narrated), ending with, "If this statement is correct, what would be the result?" The opposite counsel objects—discussion follows—and ends frequently with the weak suggestion, "Well, we will have the doctor's opinion anyway to see what it is worth." The poor man is tossed from pillar to post, he tries sometimes to hedge a little, and then the answer which comes aids no one, and only further mystifies the jury.

Then we have doctors who are perhaps a little eager in usurping the function of the jury. They will blurt out an answer which is no part of their function or duty to do. Take a will case, where the issue to be determined is that of testamentary capacity. The question whether a man possesses testamentary capacity or not is for the jury, not for the witness; the witness can properly describe actions and peculiarities, and can express his opinion whether such an action indicated an unbalanced mind, or mental disturbance, but he cannot properly express in the witness box the opinion that the person of whom the facts are stated lacked testamentary capacity. That, of course, as I said, is a question for the jury. Doctors may be asked whether pregnancy exists, the duration or stage at which the condition was. He may be asked the nature of disease, he may be questioned as to whether it was a chronic condition or the reverse, he may be asked the cause of death, and when death probably occurred, whether specified things would produce the injury, the nature and effect of medicines, mode of treatment, probability of recovery, whether the injuries are permanent or temporary. These are all matters for his judgment and opinion, and such opinions honestly and fairly expressed are of great assistance to the court and jury.

He is there, also, to explain medical terms, the use of surgical instruments.

Now, experts, as it has been said, are not in very great credit with jurymen, or even lawyers. I suppose specialists breed theories, and theories breed dogmas, and sometimes when a specialist is called he will endeavor to air his peculiar views, if there is the slightest opening afforded him in the case.

Lord Campbell says hardly any weight is to be placed on the testimony of what are called "scientific witnesses." Such witnesses come with a bias on their minds to support the cause they are embarked on.

Different doctors, of course, with apparently equal confidence, equal dogmatism, express contrary opinions upon the same condition of things. When such contradictions occur, is it a wonder that judges are sometimes constrained to make a few strong remarks on the subject, and is it surprising that they should tell the jury, "Gentlemen, I cannot help you out in this. I cannot determine which of these men is the more reputable or the more reliable. The confusion and conflict in their testimony and opinions is so great, perhaps, you had better pay no attention to either."

Is there any explanation of this condition of affairs apart from the fallibility of human nature, any root cause, if I may so express it? I think there is. I think it is largely due to the method in which expert witnesses are secured.

In the first place, the party calling the expert makes sure that his expert's views are favorable to his contention before he calls him. (Applause). I am almost tempted to tell a little story here. On one occasion in London, England, a solicitor was consulted with reference to a case of an alleged infringement of a patent. The solicitor, like the layman in medical matters, did not know much about mechanics (it was a mechanical patent), and he heard the man's story, and said: "That is a question for skilled or expert witnesses to determine, and you had better go about London, interview mechanical engineers and others, and see as to what their opinion is, and if you can get intelligent men to adopt your view, and agree with you that this invention is a novelty, and, therefore, not an infringement on the other man's patent, you will probably win your suit." Well, the trial came off. Seven or eight experts were called by the plaintiff—reputable, skilled men, and they all declared that the question was not worth discussing, any tyro in mechanics would see that the machine in dispute was a mere copy of the other, and was, therefore, clearly an infringement. The defence was called upon; four of five experts went into the box and stood a pretty good examination, but gave their reasons for concluding that the machine complained of was a novelty, but could be properly differentiated from the machine alleged to have been infringed upon. The weight of the testimony, however, was in favor of the plaintiff, so that there was a judgment for the plaintiff.

When the defendant and his lawyer went out, the defendant commenced to scold the solicitor, and said: "I thought you told me you could win this case." "Yes," the solicitor answered, "but you didn't furnish me with the testimony." The client replied: "Why, I was all over London and saw about sixty experts, but these we called were the only fellows I could get who would say my machine was not an infringement." (Laughter.)

So, you see, gentlemen, the difficulty is in the system. The man who calls the expert first finds out in advance what the expert's opinion is, and if it is in his favor he will put him in the box. He pays him usually a liberal fee. If it is unfavorable he passes on to interview another doctor with more enlightened views.

Now, what is the mental attitude of a medical man, a stranger to the quarrel between the litigants, called upon by a man who apparently has a good cause? The visitor reports that he has found other medical witnesses who will support his contentions in the cause. Is there not a natural tendency or bias on the part of such a witness employed in such a way to hope that the man who employed him (I was going to say hires him) may win his case?

If that be the case, what is the tendency of such a system? In the first place I maintain (in agreement with several writers whom I have consulted) that such a method of employing your witness tends to corrupt the witness. Bear in mind I do not mean by that, in a strict sense, that a deliberate intent is formed in the mind of the witness to be dishonest, but he is employed by the litigant to do the best he can for him, and this knowledge has its weight with the witness so retained. If the medical witness starts his investigation into facts, it is very curious, but it is sad, he begins with the lively hope that the facts may support favorable inferences. Is it any wonder that he should seize with a good deal of eagerness upon facts which have such tendency, and look rather coldly and with a critical eye upon any facts which point the other way. In thinking it out he is apt to be much impressed with facts which tell in favor of the view of his client, and very critical as to facts which point the other way. Is it difficult to imagine that he should finally reach a conclusion in harmony with the spirit that has controlled the investigation, and, as another writer puts it, in consonance with his client's desire?

Now this sort of influence, I do not mean to say is open and palpable. It is an insidious influence. Can we suggest no method of getting rid of it?

That question is not a new one. It has been discussed in books by lawyers and eminent doctors, many of the latter being oppressed with the contumely which has been cast upon them as expert witnesses, and they have frequently expressed the opinion that a man has got to be mentally very honest who can resist the working out of a result induced by the method under which the evidence is obtained.

One class of cases I may point out to you where these results are perhaps more apparent than in some others. Take the case of the ordinary railway surgeon. We will say he is paid a good salary. Now, what are his interests? His interest, in the first place, excites the feeling, "I don't want to see my railway company saddled with a heavy bill of damages." He will have a sort of pardonable pride along this line. "I will have to go into this case pretty carefully, because I want to justify the railway company in selecting me as their medical adviser." Then his long experience may justify him in saying: "A large number of these claims are dishonest; the chances are this is one of the same kind. Perhaps there are a few honest claims, but when they are honest generally the claim for damages is excessive," and so the process goes on and he begins his examination into the facts; he works along the line thus indicated; he wishes to justify his retainer; he is impressed with the idea that the claim is exaggerated, if it is genuine; there are a good many claims which are fraudulent, and the question is how far, consciously or not, his mental attitude may influence his conclusions. He may be honest in his conclusions. The retainer, however, is too often paid and received in the literal sense of the term, as a sum paid to retain the knowledge, skill and reputation of the so-called expert witness in the sole interest of the party who pays the fee. It would hardly be natural to expect such a witness to lead the jury to correct and impartial conclusions between the contested issues. Would not his position rather tend to cause him to develop, fortify, defend and prove a theory, which, if accepted, would enable his employers to escape liability?

Gentlemen, I find my time is getting short. Take the ordinary course of a trial. An expert is called and gives an opinion and his reason. The counsel, superficially prepared, as I said before, by some smart lawyer or doctor, puts the witness through a cross examination. Is it to learn the truth? Far from it. It is to demonstrate that the opinions expressed are wrong, and the reasons unsound; or that the witness is ignorant or dishonest, and his opinions or conclusions, to use a mild term, ridiculous.

Then the expert on the other side is called. He expresses quite as strong contrary opinion, gives grave reasons for his opinion, and the opposing counsel gets up to question him, to endeavor to show that this witness is as dishonest as the other one. We will assume both the doctors are honest in expressing opposing views, but is it a dignified exhibition in the witness box? Is evidence given under such conditions a help either to the court or jury to a conclusion?

Now, what is the remedy? According to my view, the expert's true position should be that of an assistant or adviser to the Court. (Applause.) We have an illustration in another branch of law. If you ever attended any of the trials in the Admiralty Courts in

England, you would notice that in technical nautical matters the Court is assisted by two skilled nautical assessors, or advisers. The Court is not bound to adopt their opinion. When a question of seamanship comes up, whether the right maneuvre was made, the Court leans over to the stout old captain on his right (who is supposed to be one of the salt of the earth), and says: "Captain, was that a right move to make under those conditions?" "No, my Lord, that was injudicious." Then he turns to the old salt at his left, "What do you say?" "I think it was injudicious; I think it lead to the disaster." The judge thus learns from skilled men the force and effect of the particular maneuvre, and naturally is aided to a proper conclusion. Of course, we cannot put a doctor relatively in the same position. I am afraid the Court would suffer if they had a doctor sitting on each side (laughter), but we can perhaps devise an approximate condition, or establish a modified method for obtaining skilled advice and assistance from your profession.

My idea is this: I think the Court itself, the judge or possibly the State (though with the latter politics might interfere), should select the medical experts, if a dispute arose which called for the opinions of medical experts. A fund should be provided in some form. A fee could be allowed and taxed in the cause, against the unsuccessful parties, and out of this fund the Court could direct that a liberal fee be paid the doctors whose opinions were sought. The expert selected in such a manner could not be said to have any interest in the issue of the case, nor would his reward depend upon the nature and character of the evidence given by him.

So much has the Local Legislature been impressed in connection with the subject of expert testimony and its abuses, that a recent amendment of the Evidence Act has been made with the object of restricting the number of experts to be called, and three experts only are now allowed to be called by either party to a cause, except with the leave of the Court. If a party desirous of calling experts thinks that three will not be sufficient he has to apply to the Court for leave to call, say, five instead of three, but such application must be made before the other side tenders any evidence. He has to apply to the Court in advance and before the trial to be permitted to call more than three experts.

A learned gentleman, I think he was a little more free-spoken than I am, was asked whether there was as much perjury in the witness box as people believed was constantly occurring in courts of justice. He said: "My opinion of witnesses, is that a large proportion of them should be divided into three classes: liars, d——d liars and experts." (Laughter.)

I want to say one word on the matter of giving testimony, and I am done. Do try, gentlemen, in giving your evidence in courts of justice, to use plain language. If there is one thing more dis-

couraging to the mentality of the jury or judge than another it is what I call, "medical jargon." Don't exaggerate; if you are called by a plaintiff who is perhaps claiming damages for an injury, don't speak of his wound as being a "frightful" one; don't speak of bleeding as an "enormous" hemorrhage. Say the wound was two inches long; he lost five or six ounces of blood; it is much more satisfactory to everybody. Avoid these alarming adjectives. The best sample of a witness that ever comes to my Court is a child, twelve or fourteen years of age. They are simple, childish, not expecting traps, and you cannot shake them in their account of the main facts of the case, and usually carry conviction as to the truthfulness of their testimony.

Do not use mysterious terms and high-sounding language. There may arise a suspicion in the mind of the court that you are trying to cover up some weak spot in your own equipment, or if not that, you are afraid, if you would express your thoughts in popular language you might disturb some theory you are endeavoring to build up. Sacrifice elegance and even some consistency in the desire to be intelligible.

I wish you to consider this deliverance a mere talk. I have a few brief notes only. I came in the earnest hope that any few remarks I might make would explain to you how some of the impressions have arisen, which are so frequently ventilated when discussing the subject of expert testimony. It has been open to a great deal of criticism, some of it just and some of it unjust, but I think the root cause is largely a faulty method or system, and to devise a remedy I would like to see the medical profession join to procure legislation on the subject, so that a noble profession should not continue to be exposed to the rude gibes of the bar and public when called upon to give their testimony in our courts of justice. (Applause.)

A hearty vote of thanks to Judge McDougall for his address was moved by Dr. I. H. Cameron and seconded by Dr. Harrison, and carried unanimously.

## HYDROBROMIC ETHER.—NOTES UPON ITS USE AS AN ANESTHETIC IN ADENOIDS AND TONSIL OPERATIONS.

By Dr. D. J. Gibb Wishart, Toronto.
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Hydrobromic ether, or ethyl bromide, is a liquid prepared by distilling a mixture of alcohol, bromine and phosphorous. It is

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colorless, extremely volatile, with a strong, peculiar odor, and a warm, sweetish taste. The specific gravity is 1.419. It boils at 106° F. On keeping, it is liable to liberate free bromine.

The use of this drug as an anesthetic is not new in America, but so far as I am aware, is new in Ontario, and therefore, the following notes, prepared as a result of the administration of the drug to a series of patients (21) in the Hospital for Sick Children, since January last, may not be without interest. The drug used was that prepared by Merck, put up in one-ounce glass-stoppered bottles, and while the greatest care was exercised to prevent evaporation, it was seldom possible to obtain more than four anesthesias per ounce. Application was made with a closed inhaler, consisting of a metallic framework, the shape of a cylinder, with cross-sectioned fenestræ in the frame, through which a cotton bandage is woven backwards and forwards to expose as much inhaling surface as possible, one end being left open and the other encased in a rubber covering. Into this a fluid drachm of the ether was placed, and the mask quickly glued over the mouth and nose of the patient, every particle of air being rigidly excluded as far as possible, until complete anesthesia was produced. The administrator watched the cornea of the patient, while another attendant kept track of the pulse with a watch, announcing aloud each quarter of a second. The patient was seated in the upright position in an ordinary chair, the legs and arms being controlled by a nurse, or by a bandage. The mouth gag was inserted and opened, and every preparation made for rapid operation before anesthesia was commenced. During the pre-anesthetic stage in the majority of instances there was struggling, as a rule easily controlled, and lasting only several seconds. On an average anesthesia was complete in 62 seconds, or exclusive of three special cases, 49 seconds, and lasted about 53 seconds. In one or two instances the anesthesia seemed very incomplete, and yet the patient would not acknowledge having been aware of anything taking place, or of the sensation of pain In the majority of cases, the anesthesia was quite satisfactory. The normal color of the patient was maintained in every instance, and no blueness nor embarrassment of the respiration was perceived in any case. Several of the patients were allowed to walk out of the operating room, which they did without difficulty or assistance. The majority of the patients, however, were made to lie upon the stretcher, face downwards, a position that I always chose in these operations to prevent the swallowing of blood. The pulse was slowed in the majority of instances, and in a number became stronger, these results being the opposite to those found by H. C. Wood. The only after results were, a headache in two cases, and drowsiness in five others. Vomiting and nausea were entirely absent.

The period of anesthesia with ethyl bromide is so short in

I AM INDEBTED TO DR. W. LOWRY, OF THE HOSPITAL FOR SICK CHILDREN, FOR THE FOLLOWING DETAILED REPORT OF THE CASES, AND FOR MUCH ASSISTANCE IN MAKING THE EXPERIMENT.

| Name. | Age. | Disease. | Amount. | Pre-Anesthetic Stage. | | Anesthetic Stage. | | Post-Anesthetic Stage. | After Results |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Time. | Phenomena. | Time. | Phenomena. | | |
| W. L., Male. | 4 | Tonsils. | Dram. ¾ | 60 Secs. | Struggling, pulse rapid and strong. | 20 Secs. | Struggling, weaker and rapid pulse, anesthesia very short, not sufficient used. | | |
| E. T., Female. | 4 | Adenoids. | 1 | 60 Secs. | Pulse strong and rapid. | 60 Secs. | Pulse full and strong, anesthesia good. | | |
| G. M., Male. | 4 | Tonsils, Adenoids. | 1 | 60 Secs. | Rapid and full pulse for twenty seconds, then became weaker. | 60 Secs. | Not profound, patient struggled at end of thirty seconds, operation took forty seconds, pulse quite weak. | Patient quite bright immediately afterwards. | |
| L., Female. | 8 | Tonsils, Adenoids. | 1 | 60 Secs. | Pulse rapid and strong, some struggling. | 60 Secs. | Patient very weak during anesthesia, struggled at end of fifty-five seconds, conscious at end of two minutes from start. | No ill-effects. | |
| H., Male. | 6 | Adenoids. | 1 | 60 Secs. | Struggling, face flushed, veins of neck prominent, pulse rapid and strong. | 45 Secs. | Pulse slower and weaker, difficult to feel. | No excitement. | |
| R. G., Female. | 10 | Tonsils, Adenoids. | 1 | 45 Secs. | Struggling, flushing of face, pulse full, rapid and strong. | 60 Secs. | Pulse slower and weak, but full. | No excitement, pulse good, patient could have walked in five minutes. | None. |
| M. K., Female. | 9 | Adenoids, Tonsils. | 1 | 45 Secs. | Struggling, flushing of face, pulse full and rapid. | 30 Secs. | Pulse slower but strong. | No excitement. | None. |
| M. C., Female. | 9 | Tonsils, Adenoids. | 1 | 45 Secs. | Rapid and full, then rapid and weaker, some struggling at first. | 12 Mins. | Slow and weak, color good, anesthesia fair. | Quite a lot of excitement. | |
| N. B., Female. | 13 | Tonsils, Adenoids. | 1 | 60 Secs. | Rapid and strong pulse, some struggling at first. | 60 Secs. | Slow and weak pulse, anesthesia good. | No excitement, patient dazed and drowsy for some time. | Headache for 1½ hours. |

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| A. G., Male. | 4 | Tonsils, Adenoids. | ½ then 1 | 3 Mins. | A lot of struggling, rapid full pulse, no anesthesia until extra dram was given. | 60 Secs. | Slow and weak pulse, good anesthesia. | Dazed and drowsy for some time. | Headache for 1½ hours. |
| E. N., Male. | 11 | Adenoids. | 1 | 50 Secs. | Rapid and full pulse, no struggling. | 70 Secs. | Slow and strong pulse, good anesthesia. | | |
| J. G , Female. | 7 | Adenoids. | 1 | 50 Secs. | Struggling at first, pulse rapid and full. | 40 Secs. | Slower and hard to feel on account of struggling. | Patient excited, restless and dazed. | |
| L. T., Female. | 4 | Adenoids. | 1 | 45 Secs. | Struggling at first, face flushed, then patient became very quiet. | 40 Secs. | Patient very quiet and lax, more so than any case yet, very satisfactory anesthesia. | Patient restless and tossed about for some time. | |
| A. B., Male. | 11 | Adenoids. | 1 | 50 Secs. | Pulse full, rapid; patient struggled quite a lot, face flushed and eyeballs prominent. | 30 Secs. | Pulse quite slow, regular and full. | Patient quite conscious in a couple of minutes, walked into another room in two minutes, was restless, tossed about, twitched his hand muscles for some time. | |
| W. B., Female. | 13 | Tonsils. | 1 | 30 Secs. | Pulse rapid and strong, quite a lot of struggling. | 60 Secs. | Pulse slower and weak, fair anesthesia. | | |
| T. W., Male. | 3 | Adenoids. | 1 | 30 Secs. | Rapid and full, no struggling. | 30 Secs. | Rapid and strong, anesthesia very short, struggled toward the end. | | |
| C. E., Male. | 10 | Tonsils, Adenoids. | 1 | 35 Secs. | Rapid and full, quite a lot of struggling. | 50 Secs. | Pulse full, strong and slow, anesthesia short but good for tonsils. | | |
| Do. | 10 | Do. | ½ | 30 Secs. | Rapid and strong, extra half dram given for adenoids. | 45 Secs. | Good anesthesia, pulse rather weaker. | Depressed and dazed for a short time. | |
| T. B., Male. | 10 | Ankylosis, elbow. | 1 | 2 Mins. | Pulse rapid and strong, quite a lot of struggling. | 60 Secs. | Pulse quite strong but slower, anesthesia quite satisfactory, muscles quite relaxed and no pain felt. | Some drowsiness afterwards. | |
| T. B., Male. | 10 | Ankylosis, elbow. | 1 | 2¼ Mins. | Struggling and noisy excitement, pulse full and strong, rapid. | 60 Secs. | Slow and weaker, very satisfactory, struggled a little, but did not feel pain. | | |

duration, at most about fifty seconds, that the operator requires to be ready and speedy, and the operation must proceed without a hitch. When adenoids only are to be removed this can be done with the curette or forceps, and afterwards the finger used to examine the vault, and all fragments taken away, easily within the time limit. If, however, the growths exist chiefly in, the neighborhood of the Eustachian tubes, it may prove difficult to remove them thoroughly within the time allowed. Again, when the enlarged tonsils are free of the pillars, or if attached are only single, but slight difficulty will be experienced. When all the tonsillar ring is enlarged, or when any peculiar features are presented, such as a submerged tonsil, the term of anesthesia is too short. and removal if attempted will prove unsatisfactory. It is better in such instances to divide the operation between two or more sittings, or to use one of the other forms of anesthesia.

The sitting posture of the patient allows of the head being held forward by the administrator during the operation, so that all the blood drips out of the mouth and nose, and the tendency to inspiration of blood, and laryngeal embarrassment, so annoying in anesthesias which require the prone position, is obviated and avoided.

Some years ago the writer used nitrous oxide alone, or combined with oxygen in these operations, but abandoned them shortly, chiefly on account of the cumbersome nature of the apparatus required. The use of nitrous oxide alone is objectionable to the writer for two reasons, first, the position of the patient, which must be as near prone as possible, and secondly, the terrifying nature of the color, and the embarrassment of respiration produced. The difficulty with regard to the color is obviated by the combination with oxygen, but the apparatus is rendered more cumbersome. Ethyl bromide is superior to these, therefore, because the normal color is retained, respiration is not interfered with, and the apparatus can be carried in one's pocket. The struggling so frequent in this series may be due to the fact that the patients were all children, the average age being seven and two-third years. In no case was it so extreme as to interfere with the operation.

It is hardly fair to put these cases on record without making reference to the experience of other operators, and especially to that of the writers upon anesthesia. C. P. Hewitt, in his last edition, devotes considerable attention to bromide of ethyl, chiefly depending for his statements upon the observations of Dr. J. F. Silk, in 130 cases where this anesthetic was used in dental practice. The effect produced is described as analgesic, rather than anesthetic, and when inhalation exceeded two minutes, the after-effects were liable to be troublesome. The average time required to produce anesthesia, was sixty-six seconds, and the average duration forty-six. The administration of the anesthetic was continued until snoring, breathing, or insensibility of the cornea was produced.

Several deaths that had occurred during, or immediately after administration were investigated by Dr. Silk, who says that in some of these[1] sudden and early heart failure occurred; in others[2] respiratory paralysis took place somewhat later in the administration; and in others again[3] gastro-intestinal symptoms were recorded. Hewitt does not look upon bromide of ethyl with favor, regarding it as less safe than nitrous-oxide, but advises further experiment where brief anesthsia is required.

H. C. Wood, of Philadelphia,[2] regards bromide ethyl as a cardiac depressant, the action upon the heart being similar to that of chloroform, and states that the pulse usually becomes increased in rate, and somewhat diminished in force.

Gleitsmann, of New York,[3] who has used the drug since 1894, prefers it for short operations, and only records one case of suspended respiration.

In the clinic of Lermoyez, in Paris, as reported by Sondern[4] the amount used for a child, is 5 to 10 grammes (one and a quarter, to two and a half drachms). Anesthesia is arrested when the pupils dilate, and the conjunctivæ begin to slowly suffuse, after which, if the anesthetic be continued, the muscles are found to contract. Anesthesia lasted about two minutes.

Malherbe[5] operates with the head hanging over the table, and gives the patient a few whiffs before putting on the full amount of the anesthetic. He has used the drug in 3,024 operations, and has obtained a fifteen to twenty-five minutes' anesthesia. Here, of course, the administrations have not been confined to the narrow field contemplated in this article.

Kempter[6] uses a crash towel in a cone shape, and a dose of from one to two and a half drachms. He states the mortality rate reported at the Surgical Congress in Berlin, from 1890 to 1897 was 1 in 5,228 cases.

47 Grosvenor St., Toronto.

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## CLINICAL NOTES ON A CASE OF MEMBRANOUS GLOSSITIS.

By A. Jerome Harrington, M.D., M.R.C.S. (Eng.).

A male infant, 23 months old, fine, healthy, and robust. Parents healthy, with good family history. This infant had an attack of measles on the 26th of March, 1902, which ran a typical course,

subsiding on the 31st. I say typical as to character and duration of rash, but the skin of the lower extremities presented a peculiar pinkish-red appearance, like one sees frequently in dyspeptic children. This disappeared early during the attack of measles.

I was called to see this child five days later for feverishness—that would be on April 5th, about 9.30 p.m. Found the child with a temperature of 103.2, pulse 140, respirations 36; skin hot and cheeks flushed. There had been no vomiting or diarrhea. They told me the child had fallen on the damper of the kitchen stove and struck his chin, where there was a discolored bruise about three-quarters of an inch in diameter on the left side, opposite the canine tooth. The child had complained little at the time and the parents had thought little of the accident. On examination of the mouth and throat, the latter was found perfectly normal, but on the left margin of the tongue, at a point corresponding with the junction of the posterior and middle third, there was a greyish patch about one-half inch in diameter. This I concluded was probably due to injury to tongue produced at the time of accident by the teeth. Suspecting the onset of one of the exanthemata, I ordered one minim doses of tinc. aconite every hour and ordered the tongue to be swabbed with a solution of soda bicarb. and carbolic acid. There was no odor at this time. I also left instructions to give the child citrate of magnesia early next morning. On the 6th the membrane had extended further forward and was much thicker, temperature 102, pulse 120, respirations 36, but the child appeared much better in himself, and took his nourishment freely and well, and had a good movement of bowels. On the 7th, at 10 a.m., the membrane had covered the whole left lateral half of the tongue, and posteriorly the membrane spread outward between the upper and lower teeth, and a part of it seemed loose, so I took and clipped it off for examination. They had sent for me on this occasion hurriedly, as they were alarmed at the amount of blood the child was losing, but I found that the actual hemorrhage was not great, but seemed more so on account of the quantity of muco-salivary secretion caused by the presence of this membrane on the tongue. The temperature was now 104.3, pulse 130, respirations 40. There were numerous punctate hemorrhages over the legs and arms, and several purpuric spots on the body, one over the left tragus and a larger one on the forehead, at the hair margin. There was little glandular enlargement. There was now some fetor. I ordered a spray of $H_2O_2$ 1-4 and 1-120th gr. strych. sulph. every four hours There was not as much fetor as one would expect in a case of this kind. The child appeared heavy, but easily raised. Bowels normal, and it took sufficient nourishment; general skin surfaces blanched. That evening Dr. Bingham saw the case in consultation with me, and we took a swab of the salivary secretion for bacteriological

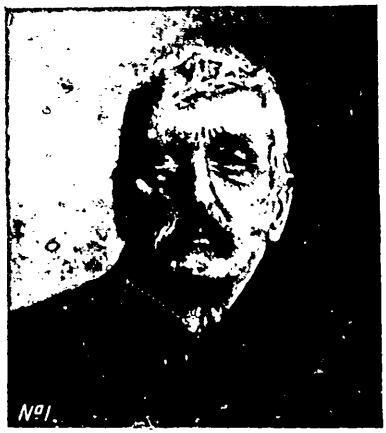
examination. There were two large, dark, foul evacuations during the night. Next morning, 8th April, the whole cast of the tongue exfoliated and was kept for examination. I then swabbed the whole of the tongue with pure carbolic acid, after having painted it it with sol. of adrenalin chloride and scraped it with dull curette. After the exfoliation and before the curettement there still remained a membranous covering over the tongue which resembled the part in color and thickness that I had recognized on my first visit. There was now some implication of the alveolar mucous membrane and the buccal mucous membrane also, but it was superficial and may have been caused by the carbolic acid used that morning; there was little odor. There was at no time the offensive odor usually present in these oral cases. The child's system was now thoroughly saturated with sepsis and he died about four o'clock the next morning. There was no post-mortem examination. The urine examination was negative. This case had none of the clinical symptoms of diphtheria and the Klebs-Lœffler bacillus was not found in bacteriological examination. It was clearly a case of septic infection, but there are many peculiar phases in it, and on that account I thought it might prove interesting as well as instructive, as there does not appear, as far as I have been able to find out, any definite literature, either clinical or pathological, on a case of this nature. I would be very much interested in learning if there are any cases of a similar kind reported, and where.

## A CASE OF FACIAL PARALYSIS DUE TO CHRONIC SUPPURATION OF THE MIDDLE EAR.

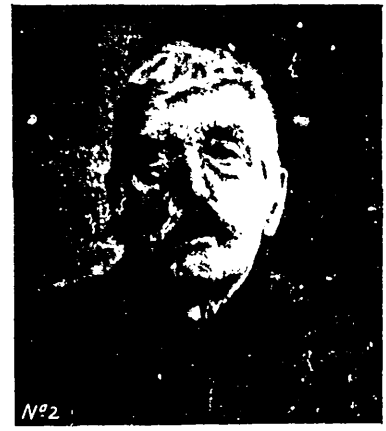
By Perry G. Goldsmith, M.D., C.M., Belleville, Ont.
Fellow British Laryngological Rhinological and Otological Association, Late Registrar, Central London Throat and Ear Hospital.

Mr. H., age sixty, farmer. Family and personal history unimportant. For fifty years, the patient has had a continuous discharge from the right ear. No special cause could be given, but from what I can learn from his relatives, the ear trouble followed scarlet fever. For some years there has been occasionally a slight stoppage of the discharge, which was associated with various degrees of pain, either in the corresponding mastoid, or the same parietal region, which disappeared on the re-appearance of the discharge. For the last few years patient has not been in good health, in fact unable to do any work. A week before I saw him, the discharge lessened and the pain rapidly came on. Various domestic remedies were used, but of no material benefit. The

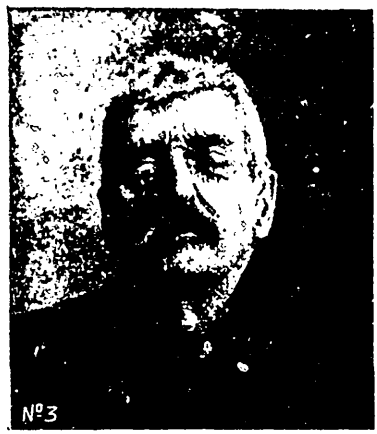
object being, to use his own words, "to get it to run again, which would stop all the pain." In a couple of days, however, three days before I first saw him, he wakened in the morning, after suffering severely during the greater part of the night, and found he had not



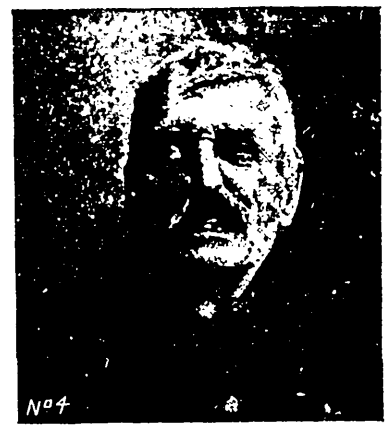

FACE AT REST.




ATTEMPTING TO WHIST




SHUTTING BOTH EYES.




SHOWING HIS TEETH.

the proper use of his face. His friends noticed it drawn to one side, which was made much more noticeable on speaking, etc. On examination, I found almost complete paralysis of the right side of the face. The ear contained a small amount of foul pus, the membrani tympanum was gone and the tympanum contained a few

small granulations, while the upper and posterior wall of the auditory canal next the drum head, presented a number of granulations, and was noticed to sag downwards considerably, into the lumen of the canal.

There was marked mastoid tenderness elicited only on deep pressure over the antrum. No swelling or prominence was present externally. Severe pain, mostly at night, was the chief complaint. Temperature 102.3, pulse 60. Chills, followed by very copious sweating, had been present for three days.

I advised immediately, a radical mastoid operation, not only to clear out the antrum aditus and attic, and whatever else was found, but hoped to relieve some pressure on the facial nerve, and thereby relieve the paralysis. Nothing in the way of operation mentioned would be allowed, so ear drops of cupri. sulph. and alcohol, and acid salicyl. and alcohol were used, and dry heat applied to the side of the head. The bowels were freely opened and morphia given to relieve the pain. The next few days the pain was very severe, necessitating larger and frequent doses of morphia. On the fifth day after I saw him, the discharge reappeared in the ear, and the pain rapidly became much less. The facial paralysis remains to-day, and is seen in the accompanying cuts, which were taken before the re-appearance of the discharge. He is now comparatively comfortable, though when eating, food cannot be dislodged while in the right cheek, owing to the buccinator muscle being useless, nor is he able to close the right eye.

The suppurative process still continues in the mastoid antrum and tympanum, the only curative measures, viz., radical operation on the mastoid antrum and attic, being refused. Electricity and strychnia have been faithfully used, in the hope of restoring some use of the facial muscle, but no benefit has resulted. The accompanying cuts illustrate very well the facial paralysis.

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### DIAGNOSIS OF CARCINOMA OF THE LARGE INTESTINE.

Friedr. Cramer (*Munchener medicinische Wochenschrift*), considers the essential points in the diagnosis of carcinoma of the large intestine. Attacks of intestinal colic occurring at longer or shorter intervals are often the first symptoms of this condition, and when present in supposedly healthy persons, especially those who have passed middle life, they should excite suspicion and lead to a thorough examination for the presence of carcinoma of the large intestine. Of course all cases of this disease are not accompanied by attacks of colic, and such attacks may be produced by other causes, notably the excessive use of tobacco; but their occurrence should always excite grave suspicion as above noted. Rigidity of the intestine upon palpation is one of the most characteristic

symptoms of intestinal obstruction. Its presence, of course, does not mean that the obstruction is due to carcinoma. It does, however, signify that the obstruction is of a chronic character, and is one of the most valuable signs in the chain of evidence which is necessary to establish the diagnosis of carcinoma of the large intestine. The location of the rigidity does not correspond with the location of the obstruction, and hence is not available for determining the exact situation of the tumor. So-called stenotic murmurs are of great value in the diagnosis of intestinal stenosis, and it may safely be said that most authors do not attach to them a sufficient importance. These murmurs are to be accurately differentiated from the gurgling sounds frequently heard in various intestinal conditions. The sound most closely resembles that produced by water when it is poured upon the ground at some height from a pitcher. They may be distinctly heard at a distance of several feet from the patient. Persistent tenesmus is very characteristic of carcinoma of the large intestine, and its degree of persistence and intensity throws much light upon the location of the tumor. The lower the tumor is located, the greater is the persistence and intensity of this symptom. The characteristic hemorrhages present in this disease are those in which a small amount of fresh or newly-clotted blood is passed at frequent intervals for a considerable period. Great diagnostic importance attaches to this symptom when careful rectal examination with the speculum has failed to show the presence of hemorrhoids or any inflammatory rectal condition. Under such conditions the presence of pus in the discharges is also of significance. Such pus should always be submitted to microscopical examination, in order to ascertain if broken-down fragments of carcinomatous tissue are present. Much importance has been attached by some authors to the presence of so-called stenotic feces in the diagnosis of carcinoma of the large intestine. The form of the feces is dependent upon the condition of the lower rectum and the sphincter ani, only in those cases in which the carcinoma is located low enough to cause an irritation of these structures are stenotic feces present in this disease. Their value, therefore, as a diagnostic sign is entirely limited to this class of cases.—*Med. Record.*

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# DOMINION MEDICAL MONTHLY

AND ONTARIO MEDICAL JOURNAL

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## THE AVERAGE OF LIFE AND STATISTICS.

We are wont to pride ourselves that one of the greatest advances of this remarkable century is the increased security offered to every infant born of growing up to adult life and to adults of reaching mature or old age. The results have been accomplished largely by the widespread knowledge of preventative medicine and a general appreciation of the value of hygienic laws, together with the general increase of wealth. This latter has made possible an extraordinary improvement in the feeding, housing and clothing of the great mass of the people.

When one considers the immense saving of human life which must have been brought about by the practical abolition of the contagious fevers alone, and the vastly better hygienic conditions under which we live, one would naturally expect that the results would be evident in statistics showing the average life of the population. Even when the counteracting influences of what is spoken of as the high-tension of modern life is considered the increase is much less than one would expect. Statistics, in spite of the commonly expressed opinion relative to their value, must always be correct, provided they are based upon the proper facts. In this connection we cannot but believe that the value of pub-

lished statistics relative to longevity is greatly impaired by the fact that in a very considerable portion of deaths registered the age given is incorrect. The tendency is always to understate it. Two causes, the influence of both of which will be readily admitted by anyone in a position to form an opinion, operate in bringing this about. One is the widespread custom among the poorer class of people of obtaining insurance policies upon their lives, the premiums for which are paid weekly. The amount of such insurance is never large and the companies offering it do not appear to make any great effort to investigate the correctness of the age given by the applicant. In many cases five, ten, and even more years, is taken from the true age by the applicant at the time of insuring, and when death comes the certificate must necessarily correspond with the age given in the policy. Another is the increased difficulty experienced by men of middle age, or older, in obtaining employment. Every trade has a fixed wage scale, and naturally employers, if compelled to pay a stated wage, pick out young men as being, physically, most likely to perform the best work. Men finding themselves, by advancing years, regarded as less useful, naturally try to remove this handicap. The face is clean shaved, the hair dyed and the age concealed, and in deceiving the world they come in time to deceive themselves and believe themselves to be younger than they really are. Who can blame them ? Nor what can be more pitiful than conditions which compel such hypocrisy ?

It would, perhaps, be indelicate to refer to the known aversion of the gentler sex, to admit their age, or to the influence of this upon average stated age at death. We are, however, of the opinion that the causes above cited have a marked influence in lowering the general average of human life as shown in published statistics.

## THE KING'S ILLNESS.

The most widely discussed illness of modern times has terminated in the restoration of health to the patient, and in the renown of his medical attendants. Nothing could have been more tragic than the circumstances under which His Majesty,

the King, was stricken down; nor could anything be more gratifying to the happiness of his people, to the welfare of the nation, nor to the glory of our profession than the success which has crowned the efforts to save.

Sir Frederick Treves will always be held in grateful remembrance by the British people. His honor is great, yet not greater should it be than will come to that wonderful old man—the only one of his profession ever thought worthy of a peerage—who counselled and advised him, whose work had taught the way and made the operation possible, and whom the world will yet regard as the greatest contributor to the welfare of his race.

## Editorial Notes

### THE CANADIAN MEDICAL ASSOCIATION.

The Canadian Medical Association will meet this year in Montreal, on September 16th, 17th and 18th. This time of the year has been selected by the Local Executive Committee in order that all may avail themselves of the meeting, and it is expected that an unusually large number of members will be present.

To those who contemplate attending the meeting, the following facts will be of interest:

### ARRANGEMENTS FOR TRANSPORTATION.

The following arrangements will be in effect for the meeting of the Canadian Medical Association and the Canadian Dental Association at Montreal, September 16th to 18th, 1902: In order to take advantage of these arrangements it will be necessary for members to obtain from agent at starting-point a Standard Convention Certificate showing purchase of one-way first-class ticket to Montreal, between September 12th and 18th (both dates inclusive), which certificate will be honored on or before September 22nd, 1902, in Montreal, by ticket agent of the line on which they arrive, for ticket back to their original starting-point when certificate is endorsed by the Secretary to the effect that delegate has been in attendance at the Convention, on following basis:

From points south and west of Montreal: If 300 or more attend, holding Standard Convention Certificates, they will be given tickets for return free to the original starting-point, *via* same route as used to Montreal. If less than 300 (and more than 50) delegates are in attendance, holding above mentioned certificates,

they will be given tickets for return to the original starting-point, *via* same route as used to Montreal, at one-third of the one-way first-class fare.

From points west of Fort William : Should special concessions relative to time limit be granted, particulars will be announced later. If 50 or more delegates are in attendance, holding certificates, delegates from Toronto or Kingston, travelling to Montreal *via* Richelieu & Ontario Navigation Co., may return *via* Grand Trunk or Canadian Pacific on payment of $5.00 to Toronto or $3.25 to Kingston. Delegates from Toronto or Kingston travelling to Montreal *via* Grand Trunk or Canadian Pacific, may return *via* Richelieu & Ontario Navigation Co. on payment of one-half the fare paid on going journey.

From points east of Montreal : If 10 or more delegates are in attendance, holding Standard Convention Certificates, delegates east of Montreal will be given tickets, free, for return.

Any further particulars may be obtained from the General Secretary, Dr. Geo. Elliott, 129 John St., Toronto, or from the Chairman of the Transportation Committee, Dr. J. Alex. Hutchison, 70 Mackay St., Montreal.

## Local Arrangements.

The meetings will be held in the various rooms of the Medical Faculty of McGill University.

## Programme.

There will, this year, be two sections of the Association, one mainly medical, the other mainly surgical. The Address in Medicine will be given by Dr. Wm. Osler, of Johns Hopkins University, Baltimore ; that in surgery by Dr. John Stewart, of Halifax.

In addition to this, on one or two days of the meeting clinics will be held in the hospitals at such times as will not interfere with the general programme of the meeting and will yet enable all those who care so to do, to see or to exhibit living cases or specimens which may be of interest to the members.

## Pathological Museum.

The Museum will this year be one of the features of the meeting, and circulars have been issued by the Secretary of the Museum Committee, Dr. M. E. Abbott, announcing the intentions of the Committee. Any contributions in the way of specimens will be gratefully received by the Secretary, and every care will be taken of specimens lent, and as soon as the meeting is over they will be repacked and reshipped to the owners by a responsible person. Specimens for the exhibition should arrive not later than Septem-

ber 6th. The Committee is desirous more particularly of obtaining series of specimens illustrating diseased conditions of the liver, gall bladder and pancreas. To all those who may not have received circulars containing details of the Pathological Exhibit the same may be had on application to Dr. M. E. Abbott, McGill Medical College, Montreal.

The Museum of Commercial Exhibits which is under the special charge of Dr. J. W. Stirling, 255 Mount Street, Montreal, will be found in the most suitable part of the Medical Buildings, the space allotted therefor occupying one of the main halls of the building. Many applications have been received from various manufacturers and instrument dealers, so that a large and interesting exhibit is expected.

## Local Committees.

Executive Committee: President, Dr. F. J. Shepherd; Vice-President, Dr. J. Alex. Hutchison; Local Secretary, Dr. C. F. Martin; Local Treasurer, Dr. J. G. McCarthy; Council, Drs. James Stewart, F. G. Findlay and J. M. Elder.

Reception Committee: Sir Wm. Hingston, M.D., Chairman; Drs. E. P. Lachappelle, F. W. Campbell, Robt. Craik, T. G. Roddick, D. C. MacCallum, R. F. Ruttan, Hon. Jos. Guerin, M.D., James Perrigo, J. P. Rottot, A. R. Marsolais, James Stewart, T. J. W. Burgess, A. Brodeur, J. E. Dube.

Entertainment Committee: Dr. H. S. Birkett, Chairman; Drs. James Bell, C. W. Wilson, K. Cameron, J. Stirling, W. G. Stewart, J. A. LeSage, W. H. Drummond, H. B. Yates, W. W. Chipman, A. Lapthorn-Smith, L. DeL. Harwood.

Programme Committee: Dr. J. G. Adami, Chairman; Drs. F. G. Finley, A. DeMartigny, C. N. Valin, J. M. Elder, A. T. Bazin, J. E. Dube.

Transportation Committee: Dr. J. Alex. Hutchison, Chairman; Dr. G. E. Armstrong.

Finance Committee: Dr. H. L. Reddy, Chairman; Drs. James Perrigo, W. A. Molson, D. J. Evans, F. R. England, S. Boucher, J. G. McCarthy, Wm. Gardner, W. F. Hamilton, L. J. V. Cleroux, G. Gordon Campbell.

Pathological Museum Committee: Dr. Andrew Macphail, Chairman; Dr. Maude E. Abbott, Secretary; Drs. A. G. Nicholls, Wesley Mills, J. B. McConnell, A. Mercier, J. A. Springle, E. P. Benoit, A. Bernier, Rene Herbert, A. D. Blackader.

Exhibition Committee: Dr. J. W. Stirling, Chairman; Drs. Ridley McKenzie, C. A. Peters, A. W. Haldimand.

## Papers.

Some of the papers already promised are as follows:

Dr. W. Corlett, Cleveland, "Lantern Demonstrations on Exanthemata."

Dr. J. O. Orr, "Artificial Astigmatism."

Dr. C. A. Wood, Chicago, "Empyema of Frontal Simus."

Dr. P. G. Goldsmith, Belleville, "Management of Cases of Nasal Obstruction."

Dr. J. F. MacDonald, Hopewell, N.S., "Tuberculosis."

Dr. A. R. Robinson, New York, "X-Ray in Cancer."

Dr. D. A. Shirres, Montreal, "Degeneration of Spinal Cord Associated with Anemia or Other Forms of Malnutrition."

Dr. James Stewart, Montreal, "On Some Points in Cerebral Localization, Illustrated by a Series of Morbid Specimens and Some Living Cases."

Dr. A. Primrose, Toronto, "Case of Filariasis in Man, Cured by Operation."

Papers also have been promised by Drs. Armstrong, Ingersoll Olmstead, D. C. Meyers, G. S. Ryerson, F. A. L. Lockhart, and many others.

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### M'GILL MEDICAL FACULTY MOURNS THE LATE DR. JOHNSTON.

The Medical Faculty of McGill has adopted the following resolution with reference to the late Dr. Wyatt Johnston:

"The members of the Faculty of Medicine of McGill University wish, by this resolution, to put upon record their recognition of the great loss they have sustained by the untimely death of their brilliant colleague, Professor Wyatt Johnston. Throughout the twenty-one years during which he was associated with this faculty, as student, demonstrator, lecturer and professor, his work was always characterized by a rare degree of conscientious exactness and originality. An earnest student, a thorough and successful investigator and ever an advocate of advanced scientific methods of medical education, his loss to the faculty will, indeed, be a great one. To his exertions this faculty owes the practical character of the teaching in the various departments of state medicine with which he was connected, and also the introduction of advanced and post-graduate courses leading to the diplomas of public health and legal medicine. His high status among scientific men as a trustworthy investigator, especially in the fields of bacteriology and preventive medicine, has added not a little to the reputation of this university as a centre for research. His reputation as a reliable and scientific medical jurist and expert was not confined to this city or this country, and his services to the courts of justice have done much to demonstrate to the professions of law and medicine the value of this branch of medical education. His colleagues in the Faculty of Medicine feel that in his untimely death each has lost a bright and cheering companion and friend whose earnestness of purpose and enthusiasm in his work was a stimulus to all

who came in contact with him—one who was a high type of intellectual honesty combined with singular simplicity and modesty regarding his own capacity and the importance of his valuable original work. The Faculty further resolves to transmit a copy of this resolution to Mrs. Wyatt Johnston, and to his mother, Mrs. J. B. Johnston, to convey to them the expression of their deep, heartfelt sympathy in the great loss which they have suffered."—*Montreal Star.*

## News Items

DR. OSLER is at Murray Bay.

WINNIPEG is again free of smallpox.

DR. ROBERTS has returned to Toronto from South Africa.

DR. R. G. BRETT, of Banff, recently underwent an operation for appendicitis.

DR. JOHN MACCRAE, Johns Hopkins University, is summering at Guelph, Ont.

DR. BRUCE RIORDON, Toronto, is spending his holidays with Mr. Fitzhugh, in Connecticut.

DR. D. J. GIBB WISHART will spend the month of August on his island at the Madawaska Club, Go-Home Bay.

DR. W. B. GEIKIE, Toronto, is spending his holidays at Berkeley Beach, Prince Edward Island.

THE New Brunswick Medical Society held its twenty-second annual meeting at St. John on the 15th and 16th of July.

WE regret to have to announce the unfortunate accidental death of Dr. Horsey, M.P., of Owen Sound, on the 22nd of July.

DR. WM. BRITTON, Toronto, Dr. Britton, East Toronto, and Dr. Britton, Brantford, are spending their holidays at Clevelands, Muskoka.

THE British Columbia Medical Association will meet at Vancouver on the 29th and 30th of August. Dr. J. M. Pearson, Vancouver, is the secretary.

DR. JAMES MARTIN, of the last year's house staff of the Toronto General Hospital, will enter into partnership with Dr. George W. Brown, of Port Arthur.

DR. R. ERNEST MCCONNELL, of Montreal, who is in South Africa, has been appointed senior physician in charge of the burgher camp at Volksrust in the Transvaal.

DR. DEAN, formerly of the house staff of Toronto General Hospital and lately of Fort William and Port Arthur, has gone for a two years' course in the hospitals of the Old Land.

DR. MCNAUGHTON, assistant physician at the Mimico Asylum, has been transferred to London to succeed Dr. Wilson, who goes to Hamilton. Dr. St. Charles, of the Hamilton Asylum, has been transferred to Mimico.

DR. P. H. BRYCE recently met Dr. Lachapelle, of the Quebec Board of Health, in conference at Ottawa in regard to checking the smallpox outbreak. In Ontario there are now some fifteen centres of contagion, with not more than two or three cases in each.

THE Nova Scotia Medical Society held its thirty-fourth annual meeting at New Glasgow on the 2nd and 3rd of July. The following officers were elected: President, Dr. J. J. Cameron, Antigonishe; First Vice-President, Dr. W. G. Putnam, Yarmouth; Second Vice-President, Dr. M. Chisholme, Halifax; Secretary-Treasurer, Huntley MacDonald, Antigonishe.

THE Maritime Medical Association held its twelfth annual meeting at Charlottetown, P.E.I., on the 9th and 10th of July. Amongst others from a distance who were present and contributed papers were Dr. W. B. Geikie, Toronto; H. D. Hamilton, Montreal, and Dr. Stoddart, of Pueblo, Colorado. Officers elected: President, Dr. Murray McLaren; Vice-President for P.E.I., Dr. P. C. Murphy, Tignish; Vice-President for Nova Scotia, Dr. G. M. Campbell, Halifax; for New Brunswick, Dr. R. L. Botsford, Moncton; Secretary, Dr. T. D. Walker, St. John; Treasurer, Dr. C. A. McPhail, Summerside, P.E.I.

## Selected Abstracts

### GONORRHEAL PERITONITIS.

The so-called idiopathic peritonitis is a thing of the past, and few surgeons believe in a primary form of this disease. A plastic peritonitis may be due to an aseptic cause and remain limited ; but if we accept the views of Grawitz, Klemmerer and others concerning the pathology of peritonitis we class all forms together as septic or infectious. Some observers, however, maintain that there may be a simple peritonitis without infection, due to traumatism or chemic irritation ; and this seems to be supported, sometimes, by surgical experience, which shows that, although cultures throughout the course and at the end of an operation show an absence of infection, yet for the first two or three days after the operation the patient may exhibit many of the symptoms of peritonitis. But as time advances and investigation is more thoroughly made, etiologic factors which were formerly obscure become plainly evident. The role of the vermiform appendix, which is termed by Price an "anatomic cesspool" and "deadly little assassin," with no respect to sex or person, in the production of peritonitis has long since been well defined. Puerperal infection, perforation by gastric or intestinal ulcers, or the migration of micro-organisms through a damaged wall of the bowel, are all conditions which have been fully recognized as causative factors in the production of general peritonitis. The *Streptococcus pyogenes* is the most virulent of the ordinary micro-organisms, and its introduction or escape into the peritoneal cavity is one of the most dangerous accidents. Until recently the possibility of the gonococcus possessing the power of exciting active inflammation of serous membranes was questioned. Every gynecologist was familiar with the extensive injury produced by this germ in the genital organs of the female, but it is only recently that the etiologic role of the gonococcus as a cause of general peritonitis has been conclusively demonstrated. According to Cushing it is to Wertheim that the credit is due for first demonstrating that the gonococci can live upon the human peritoneum.

In a valuable contribution upon this subject by Hunner and Harris (Bulletin of Johns Hopkins Hospital, June, 1902), a series of six cases is reported ; the observations in the wards of Johns Hopkins Hospital embrace a series of nine cases of general peritonitis due to gonococcus, and the authors conclude that surgical measures in gonorrheal peritonitis are of doubtful therapeutic value. They emphasize the question of differential diagnosis and believe that when reasonable doubt as to causation is present, operation should be performed. The practitioner who does not see many cases of general peritonitis should not treat any suspected

case of peritonitis on the expectant plan without sharing the responsibility with one who does a great deal of abdominal work and is thoroughly competent to make a diagnosis. Every surgeon should be so familiar with the complex symptoms of appendicitis as to make a reasonably certain diagnosis of general peritonitis arising from that source. The picture of a general peritonitis arising from a gonorrheal infection is even more characteristic in its preliminary phases. A history of blennorrhea of recent date or long standing, with the discovery of gonococci in the cervical, vaginal, urethral or glandular secretions, should make the surgeon very suspicious. If with this onset there is a history of pelvic pain and tenderness, and a mass can be made out in one or preferably in both ovarian regions, the diagnosis becomes probable. If a general peritonitis accompanies the above conditions and has occurred immediately after the manipulation of pus tubes or during the menstrual period, or in the puerperium, the diagnosis is almost a matter of certainty. The symptoms of an acute gonorrheal peritonitis—abdominal distention, tenderness and rigidity, vomiting, elevation of temperature and frequency of pulse—are similar to those of other forms of general peritonitis, but the clinical course of the disease is quite characteristic. After a very acute onset and unusually stormy period of from one to three days, the symptoms suddenly abate and the patient makes a rapid recovery, usually preserving as a legacy an intraperitoneal exudate, pelvic adhesions or pus tubes. It is generally believed that this disease is particularly fatal to children. The writers think this is due, not entirely to the susceptibility to infectious diseases characteristic of childhood, but in a larger degree to the fact that children fail to receive the treatment accorded to adults. In the treatment of a case of general peritonitis due to the gonococcus, they recommend absolute rest in bed, hot turpentine stupes, alternating every half hour with hot water stupes, mild catharsis, liquid diet, cold sponges for the high temperature, and stimulative treatment according to the severity of the symptoms.—*American Medicine.*

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### THE UNILATERAL OCCURRENCE OF KERNIG'S SIGN AS A SYMPTOM OF FOCAL BRAIN DISEASE.

Joseph Sailer (*American Journal of the Medical Sciences*) reports two cases in which Kernig's sign was present only on one side, and appeared to bear some reference to a cerebral lesion on the other side of the brain.

Kernig first called attention to this sign in 1883. He described it as a flexion contracture of the legs (and occasionally in the arms) when the thigh is flexed to a right angle upon the trunk. Under these circumstances any attempt to flex the thigh meets with severe resistance as a result of contraction of the hamstring

muscles, and it is impossible to extend the leg beyond an angle of 135°, or even in extreme cases beyond a right angle.

The sign is not produced by mechanical irritation of the sciatic nerve, and may occur in certain other conditions, although in all the cases observed by Kernig there was reason to believe that irritation of the membranes existed. The attention of the American profession was directed to this subject by a paper by Herrick (*American Medical Journal*). He found it present in seventeen out of nineteen cases of meningitis, and only twice in 100 other cases. He failed to observe it in cerebral hemorrhage, brain tumor, and other intracranial conditions. Herrick called attention to the fact that the sign is more often absent in tuberculous than in any other form of meningitis. The nature of the mechanism by which Kernig's sign is produced is still obscure. Kernig did not attempt an explanation. Henoch spoke of it as a reflex manifestation. Chauffard explains it as an exaggeration of normal phenomena, due to a hypertonicity of the muscles.

Sailer reports two cases in which the sign was unilateral and appeared to be a symptom of focal encephalitis. The common feature of the cases was a spastic paresis of one side of the body. In both cases this spasticity did not produce any retraction of the hamstring muscles, but gave rise to all the characteristic phenomena of Kernig's sign. The most reasonable explanation of Kernig's sign, according to the author, is to ascribe it to an irritative lesion of the pyramidal tract that diminishes, but does not destroy its functional activity.

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### SOME PHASES OF INFLAMMATION OF THE APPENDIX.

Frederick Treves (*The British Medical Journal*) states that the greater proportion of cases of appendicitis recover spontaneously, and it is probable that the general mortality of the disease—if examples of all grades be included—is not above 5 per cent. Operations carried out during an acute attack are attended with a risk of life which is considerable, and which is probably expressed by a mortality of over 20 per cent. Certain hospital records and collections of cases appear to place the death-rate even higher than this. It must be remembered that relapses may occur after operation carried out during the acute stage. The removal of the appendix during the quiescent period is attended with a very trivial risk, which may be expressed by a mortality of 1 in 500. The writer thinks that our knowledge of the pathology of the disease and its general mortality will not sanction the practice of opening the abdomen in every case of appendicitis as soon as the diagnosis is established. Immediate operation is demanded, at the earliest possible moment, in all ultra-acute cases. These include those very hopeless examples which present from the onset the phenomena

of intense infection, and in which it is evident that a very large dose of poison has suddenly been introduced into the system. Death may occur in thirty-six or forty-eight hours. There are also included cases in which the symptoms are as acute as those attending perforation of ulcer of the stomach. The writer does not believe that these ultra-acute cases are difficult of recognition. Immediate operation is demanded in every instance in which there is reasonable suspicion that suppuration has taken place. In cases outside of those above named, the question of operation may be kept in abeyance for the first few days after the attack, and may usually be left open for decision until the fifth day or after. The great majority of cases of appendicitis recover spontaneously without either an operation or the formation of an abscess; the ultra-acute cases are actually rare, and relatively to the whole mass of examples of all degree suppuration may be said to be uncommon. There are certain cases of adults in which the attack would appear to be led up to by gross deviations from normal food-taking. For example, those individuals who have no teeth, those who "bolt" their food, those who overeat, those who constantly eat indigestible food, and those who neglect their bowels. If these errors be corrected there may be no repetition of the attack. Removal of the appendix is to be recommended in chronic appendicitis, in those cases in which there are no actual attacks, but in which there is abiding discomfort in the right iliac fossa with exacerbations of uneasiness. The removal of the appendix is not a panacea for all ills, nor even for all those manifold pains which seize upon the lower segment of the abdomen.—*Medical Record.*

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### PERITONITIS.

Dr. H. G. Wetherell in the *Journal of the American Medical Association* for May 24th, 1902, condemns two drugs which are frequently prescribed in peritonitis. First, he endorses absolutely all that Ochsner says about the harmful effect of salts in this disease, and believes that the habit of starting the treatment of these conditions with salts will be the hardest lesson the physician will have to unlearn, for that plan is part and parcel of the fixed routine of 95 physicians in every 100. It will be even more difficult to impress the laity with the importance of leaving off the salts. Second, opium, as frequently ordered, is also to be condemned. It does arrest peristalsis to be sure, but unfortunately it does much more, and in those respects its effects are so injurious that the sum of its action is far from good. The point is, however, that if lavage and absolute fastings are maintained, both the salts and opium are quite unnecessary, as the intestinal and stomach contents are removed, and the peristalsis arrested by a far simpler

and far safer proceeding. This does not preclude the moderate use of morphine and codeine hypodermically for the relief of pain, anxiety and restlessness in the early stages of the disease and its treatment; but if the lavage, fasting and avoidance of cathartics is strictly maintained the necessity for anodynes is soon past.—*Cleveland Medical Journal.*

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### VENEREAL DISEASE IN CHINA.

According to Rosanoff (*Russky Vratch*, N. 13, 1902), who resides in Mkao, Manchuria, the opinion that syphilis was brought to that part of China by Russians is not correct; prostitution and syphilis and the other genito-urinary diseases are just as much developed in China as they are in Europe. Furthermore, he states that Chinese physicians have a special medicine for gonorrhea and a different one for the treatment of syphilis. A Russian soldier, whom Rosanoff treated for sub-acute gonorrhea and epididymitis, asked his permission to consult a Chinese physician. The latter examined him and then gave some brownish-yellow mixture, of which he ordered him to take about ½ ounce at night for three consecutive nights, and one dose in a week. After each dose the patient had a feeling of general excitement; the pulse was rapid and tense; the urine contained albumin. A week after the last dose the induration of the epididymis was gone, and the result of the examination for gonococci was negative. Rosanoff and his assistant, both healthy, then tried the medicine; it produced the same feeling of excitement; albumin appeared in the urine, and the pulse became tense and rapid. He has also seen, though he did not follow them so carefully, cases in which the pills that Chinese physicians give for the treatment of syphilis were effective. He promises to send some of the medicine to Russia for analysis.—*Med. News.*

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### TUBERCULOSIS OF THE PROSTATE.

L. R. G. Crandon (*The Boston Medical and Surgical Journal*) says that the diagnosis of tuberculosis in the prostate, since the disease may be primary here, is of great importance. A gleet or catarrhal prostatitis persists; there is pain in the prostate or neck of the bladder, there may be a drop of blood at the beginning of micturition instead at the end, as in stone. There is increased frequency of micturition, and perhaps burning. The urine is slightly turbid, but in it are no renal elements as in pyelonephritis. The prostate, examined by rectum or bimanually, is found to be soft, slightly enlarged and tender, especially far back and including the area of the trigonum. One or both vesicles may show enlargement, but this is probably secondary. To rule out stone finally the

sound should be used, but with the greatest gentleness. Malignant disease must be borne in mind. Tuberculosis elsewhere in the body, old or recent, helps in the decision, and the bacilli may sometimes be found in the prostatic milkings, or the secretion may cause tuberculosis when injected into a guinea-pig.—*Medical Record.*

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### A FURTHER CONTRIBUTION TO THE STUDY OF SUMMER DIARRHEA.

During the summer of last year (C. G. Kerley in *New York Medical Journal*) 127 cases of diarrhea were treated at the out-patient service of the Babies' Hospital. Only 7 were over three years of age. Of 97 followed to the end of the illness 11 died, the disease having lasted from two days to two months. Work among this class of patients shows that summer diarrhea may be prevented in a large degree by good milk properly given; a large mortality is to be prevented by discarding all forms of milk after the first symptom of gastro-intestinal derangement, and until the stools approximate the normal. This may mean a non-milk diet for from forty-eight hours to several weeks. Cereal waters and gruels are the best substitute for milk; beef-juice or broths may be added to vary the diet. Alcohol should not be given, because it irritates stomach and kidneys. White of egg mixture has also been discarded. Dextrinized gruels are of value; dextrinization permits of greater concentration of the nourishment. Boiled water is given at any time. Calomel is given in non-urgent cases with vomiting, castor oil in acute septic cases with stomach involvement. Bismuth subnitrate in ten-grain doses is valuable, and is continued until the child is ready for milk, and then in diminished doses until full feeding is possible. Opium is indicated for pain, tenesmus and frequent stools. Irrigation of the colon must not be overdone; once in twelve hours is sufficient. The cases which are benefited by the washing are those with a moderate number of green, mucous stools with or without blood.—*Archives of Pediatrics.*

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### BUTTERMILK AS INFANT FOOD.

Salge and Heubner (*Therapie der Gegenwart*) report that after extensive tests their experience has confirmed the assertions of the Dutch physicians in regard to the way in which healthy and sick infants thrive on buttermilk. It must be less than twenty-five hours old, made from sour cream, mixed with sugar and flour, and brought to a boil three times. It represents 714 calories to the liter. The stools are very fine, but scanty. Salge found it especially beneficial as the first food after dyspepsia and acute intestinal disturbances, in atrophy, and for supplementing nursing.—*Maryland Medical Journal.*

## Special Selections

# INFLAMMATION OF THE VERMIFORM APPENDIX.

By Sir Frederick Treves, K.C.V.O., C.B., F.R.C.S., England,
Surgeon to H.M. the King; Consulting Surgeon to the London Hospital.

The subject is the not perfectly novel one of appendicitis, the reason being that there are certain points in connection with this trouble which I think are still open to discussion. I should imagine that there has scarcely been anything more remarkable in the way of medicine at the close of the nineteenth century than the sudden appearance of the disease now known as appendicitis. If we remember that this is proportionally the very commonest acute malady met with in the abdomen, excepting, possibly, the complications of hernia, it is really astounding that twenty years ago this affection was absolutely unknown. It was not until the year 1886 that the very name itself had any existence. It was, as a matter of fact, by Fritz, in 1866, that the name was first used, and it is particularly curious that he used it in a sense totally apart from the sense in which it is used at the present day. One knows that the academical-minded have a great objection to this uncouth term "appendicitis"; it lacks precision, but it has found its place in the clumsy nomenclature of medicine, and has been accepted by the public with an extraordinary amount of generosity. Of course, I need not say that under no circumstances is appendicitis to be regarded as a new disease. It is probable that even the cave man with his rudimentary methods of eating suffered occasionally from appendicitis. The disease is not new, but newly discovered; it has been hidden for centuries under a lot of vague clinical facts and medical verbiage. In old records we hear about appendicitis as gastric catarrh, gastric seizure, cramp of the bowels, iliac phlegmon, and many other terms. Moreover, a large number of examples of peritonitis were, no doubt, examples of appendicitis. In 1887 a certain elaborate treatise on peritonitis included no less than twenty-six entirely different forms of that particular affection. There are a few earlier reports of the trouble, and in those earlier reports the appendix was blamed as being the cause of the disturbance. But all these earlier reports were like the voice of men crying in the wilderness; no sort of heed was paid to them, although there were two authors who accused appendicitis of being the cause of what was then known as iliac phlegmon.

*Delivered before the West London Medico-Chirurgical Society at the Town Hall, Hammersmith, on June 20th, 1902.

The point that should be first insisted upon in connection with this malady is this: it is a pure peritonitis. There is no consideration about it which is apart from peritonitis. Until the peritoneum is involved there is no malady. An acute attack of appendicitis is an attack of peritonitis. It is very desirable, therefore, that in speaking of this affection we speak of a definite form of peritonitis, and the features and complications and possibilities of the malady and the treatment, to a certain extent, are simply those of peritonitis. No progress will be made, I think, until a proper estimate of this malady is realized, and all terms about the twisting and turning of the appendix are thrown aside. Then it will be understood that the trouble is nothing but a form of peritonitis. That leads me to say one word about the disease originally in the appendix. Fritz used the term to describe a malady that had no symptoms; he described it to indicate those changes in the appendix which preceded the implication of the peritoneum, and which clinically may have no kind of existence. In connection with that point I should like to emphasize these three solitary facts. The first is this: that quite extensive changes may take place in the appendix without the production of a single solitary symptom. The appendix may be almost obliterated without the production of a single symptom of appendicitis, its mucous membrane can be entirely destroyed, and it can become stenosed or shrunken without the production of a single symptom. I am reminded of a case in which I was doing the ordinary operation of ovariotomy, and I came across an appendix showing the grossest changes. In this case neither the patient nor the medical attendant had any suspicion of trouble in the appendix, for this woman never had any symptoms of appendicitis. The second fact is this: An attack of appendicitis, as we know it, may be preceded by a number of minor disturbances or minor seizures for which we have no name, but which may be included under the title "appendicular colic." But this term is actually wrong. Colic, I imagine, means pain in the intestinal tube, due to disorderly muscular action, and there is no muscle in the appendix capable of producing the phenomenon of colic. A patient gets an attack of pain in the abdomen with a feeling of nausea, and this lasts for, perhaps, two or three hours, and then the whole thing is gone, but these troubles do not come under the head of appendicitis, and probably do not concern the actual peritoneum. Thirdly, we must take a little more heed of a condition that should be called chronic appendicitis, as seen in patients who have an abiding trouble in the right iliac fossa, but never an attack of appendicitis. These attacks of chronic appendicitis are common enough. Some men and women are never free from some sense of discomfort in the abdomen—a gnawing pain, a burning pain, a griping pain, a feeling that there is something coming away there, a desire to support the back. People often walk across the room

with the body bent and the hand pressed on the abdomen. These symptoms come under the proper heading of chronic appendicitis, and should be more fully recognized than they are now. To these three remarks I should like to add another as to the ridiculous classification of appendicitis. Every monograph on the subject begins with a ridiculous list of forms of appendicitis—the gastric form, and so on; and if you discuss a case with a medical man he often says: "Do you think this is catarrhal or suppurative, or what is it?" This same elaborate classification has a place in the history of all maladies. There was a time, for instance, when there were about fifteen or twenty different forms of pleurisy, and these all came down to one thing. How many forms of synovitis were there twenty years ago? How many forms are there now? Inflammation of the appendix, catarrh of the appendix—what does it lead to? Ulceration, stricture, perforation, gangrene. There is nothing to be gained by this ridiculous classification. Appendicitis is an inflammatory trouble due to certain micro-organisms, and it begins as a catarrh, excepting cases of actual torsion. I do not propose to say anything in detail as to the causes, or reputed causes, of this malady. We know it is most common in young people, 80 per cent. of the cases coming under the age of 30 years, and, curiously enough, 73 per cent. occurring in males.

I should like to draw attention to certain factors in the cause of appendicitis which I think have a good deal to do with the treatment of the disease. The first factor is the extraordinary effect of a tropical or sub-tropical climate. I have often said that, although my practice is in London, a large proportion—I will not say the majority—of my patients come from tropical countries, not necessarily hot countries, but countries in which intestinal trouble is inevitable, such as India, the Straits Settlements, China, South Africa, and other places akin to them. It is obvious how these cases are so frequent; persons with a disturbed appendix go to a country in which intestinal troubles are common, and being more liable to the disease they contract it. I think, therefore, that no person should be allowed to go to a tropical country if he is a suspected subject of trouble in the appendix. It is very noteworthy how persons who have had a little suspicion of this malady in themselves will come to an acute termination of it after having gone to reside in a tropical or sub-tropical climate. Another curious point is the frequent coincidence in the female subject of an attack of appendicitis with the menstrual period. It cannot be an accident, because in one particular case that I had the attack occurred on the fourth or fifth day, and never varied from that. One might say that out of nine or ten attacks in females, perhaps as many as four or five will be associated with the menstrual period. Of course, that is explained by the circumstance that the two

organs concerned are closely allied, and that they certainly can mutually disturb one another. I have actually seen a cystic ovary in a child, aged 10 years, and attached to that cystic ovary a diseased appendix; I was unable to arrive at the conclusion that the appendix was the cause of the cystic condition of the ovary. Anyhow, these two organs are close together, and I need not remind you of the fact, which has been well demonstrated, that they have the same lymphatic arrangement. The association of these two maladies is very common, and I think it should be a matter of routine in every case in which the appendix is removed in the female subject that the right ovary should be inspected, because the cases in which this organ has been so diseased as to need removal are very striking. One must remember that fact in the causation of appendicitis, because we cannot get away from the fact that an abiding ovarian disturbance may induce trouble in the neighboring organ or *vice versa.*

The last point in this connection is the one that, I am sure, will be at once agreed to by everybody in this room, and it is this: If there is one solitary factor in the production of appendicitis which is overwhelming, it is a loaded cecum. I really think it is a little exaggeration, but not a gross one to say, that if loading or overloading of the cecum could be avoided there would be exceedingly little appendicitis. That is so almost uniform a feature of this trouble that one need hardly go into the history of some of the cases. You know what these histories are—a child with teeth overlapping, a man with no masticating teeth to eat meat, the commercial traveller who has his meals all over the country, and eats and drinks and smokes too much, and a man who habitually bolts his food. Nothing plays, I think, so important a part in the prophylatic treatment of appendicitis as the recognition of the fact that if the cecum can be kept free from indigestible food and undigested food the risk of attack is very much minimized.

With regard to clinical matters it would be a gross waste of time of this society if I were to deal in any way with the clinical phenomena of this common trouble. But in this connection I want to deal with one solitary point—with the so-called Burney's point. Tenderness at this magic spot has become a sort of talisman; it is an inspired sign, it is a sort of religious stigmna, it is the touchstone of the disease. The hand of the experienced man is put on the spot and there is tenderness and the patient has got appendicitis. I need not remind you where this spot is, but let me say what is said of it. It is said to be always present in every case of appendicitis, it is said to be not present in other troubles met with in the abdomen. It is said to indicate the seat of the disease, it is said by some to indicate the position of the diseased appendix. It is said by

others who are more cautious—by McBurney to wit—that it actually indicates the precise space of the appendix. Well, now, that is the most modest account that could be given of the possibilities of McBurney's point. Beyond that there is a great deal more, but that is keeping soberly within the limit of fact. The construction that I would venture to put upon it is this. There is a certain tenderness in the right iliac fossa in appendicitis and McBurney's spot corresponds roughly to the centre of the right iliac fossa and therefore it is reasonably the place where tenderness is exhibited. Next it is a symptom quite common in other maladies, most notably in colitis. In the next place I should say that it is a feature exceedingly common in perfectly healthy individuals in a quite normal state. Last of all, it does not indicate the situation of the disease and it does not indicate, which McBurney insists that it does, the situation of the base of the appendix. Any man operating and cutting through the situation at this point will know perfectly well that there may be tenderness there and the base of the appendix does not correspond to that spot. Feeling that it was a matter that needed investigation I asked Dr. A. Keith if he would carry on investigations on certain lines that I indicated and I am deeply indebted to him for the admirable manner in which these investigations were carried out. What struck me was this. So many persons are tender at certain points in the right iliac fossa and very often acutely tender. But there is no such point on the left side and there must be something, therefore, anatomically different there. What is it ? The ureter or what ? This is how the facts come out. Sections were made along the spino-umbilical line; that line measures in the normal male adult six inches and it crosses the rectus muscle at the anatomical point known as Munro's point, and it roughly corresponds there to McBurney's point. Well, now, the ureter has nothing to do with Munro's point because it does not cross the line there. Exactly the same condition exists on the left side, so that nothing is to be learnt from that. The next thing is this. The structure that exactly comes beneath that point is the ileo-cecal valve. The tender thing that can be discovered in the body of a healthy person at that exact spot is the ileo-cecal valve. As you know, all orifices are peculiarly well supplied with nerve fibres and are peculiarly sensitive, such as the sphincter of the anus, the orifice of the pylorus, and other sphincter-like openings. That that is the cause of the tenderness in that particular spot admits of no dispute. The base of the appendix, you will be surprised to hear, is one inch below McBurney's point, as discovered in 50 bodies prepared by formalin. Dr. Keith was good enough to

examine the bodies of 27 living medical students with this result: In 11 the point of tenderness was exactly on the point; in nine it was a little above the point, and in four it was a little below the point. Those data pretty nearly correspond pro rata with the condition found in 50 hardened bodies by formalin. Moreover, in only three out of 27 students was there any particularly tender spot in the right iliac fossa; in none was there any tenderness discovered on the left side of the body. That, I think, should render definite the circumstances about McBurney's point and the part it plays in this trouble. Any medical man present who has examined in detail cases of colitis will well know the extraordinary tenderness there is often discovered and maintained at McBurney's point.

I want at this stage to say one word about phantom appendix —an appendix described as vertical, of the size of your little finger, and sometimes lying obliquely. That appendix is a phantom and it is a curious phantom. The vertical appendix is due to constriction of the uppermost fibres of the rectus muscle that can be often excited by stimulating the nerve as it enters the muscle. I need not remind you that the appendix, the cecum, the peritoneum surrounding them and the muscles of the abdomen which cover them and the skin which covers these muscles are all supplied by one nerve, in the main the eleventh dorsal. Even when the patient is under anesthesia a little hard pressure in that spot where the nerve enters the rectus muscle will bring out this vertical appendix.

In order not to take up too much of your time I think I might finish what I have to say by dealing with what, after all, is the most interesting part of my subject—the operative treatment of this trouble. It is most remarkable that this subject, which one would think is simple enough, is perfectly bewildering by divergent opinions coming from men whose authority one cannot repudiate and must recognize, and added to this is the difficulty that we are still entirely lacking in reliable statistics. What is the general death-rate from appendicitis ? Of course, hospital cases are cases of certain gravity, and in those cases the death-rate is estimated at something like 15 per cent. But take ten medical men who have practised in a large town for, say, twenty years, and therefore must have had to deal with a great many cases of appendicitis. What number have they lost in that period ? They would be shocked at the suggestion that they had lost 15 per cent. It is impossible, therefore, to get quite at the figure. But records have been obtained casually from practitioners and also from the German army in time of peace. It is curious that in both these instances the figure comes out at 5 per

cent. I know that this figure is open to dispute, but still I do not think that at of 100 cases of appendicitis I have lost more than five in the course of my private practice. I think, therefore, that 5 per cent. may be accepted as the general rate of mortality in appendicitis. When one goes further into the question of operative treatment of appendicitis the whole crux is, What is to be done during an acute attack? There are certain men whose opinions must be listened to who assert that you must operate in every case of appendicitis as soon as the diagnosis is made. I know that that is not perhaps quite the common position taken up by surgeons in this country, but, as you know, it is almost universal—at least, in America. An operation, they say, should be carried out as soon as the diagnosis is made—not on the second, third, fourth, or fifth day. There are others who operate only on compulsion; they say, "No, the majority of the patients get well," and they only operate in exceedingly acute cases in which pus is evident, or in cases that are really spun out and going to such a length that they feel there must be some condition within the iliac fossa which can only be reached by operation. Those are the two sides of it.

Speaking from no other than the very uncertain basis of one's own experience I would take the opportunity of submitting these isolated points to your consideration, believing that they form the basis upon which something like a sound opinion can be arrived at. First of all there are advocates of what may be called indiscriminate operation. They use terms of this sort—"You must operate; the appendix is ruptured; there is perforation; there is acute peritonitis; there is gangrene." And mark—and this is the point that I want to draw attention to—these expressions are used exactly in the same sense as you use such expressions as "There is perforation of the bowel; there is a perforating ulcer in the stomach; there is gangrene or hernia of the intestine." And so they say an operation must be carried out even before a reasonable diagnosis has been made, as soon as an attack is suspected. What I very seriously object to is this: that the two things are put in the same category. It is an absolutely false analogy and distinctly misleading. Is it for one moment reasonable to put perforation of the appendix in the same category with perforation of the stomach? It is monstrous. Not only can a perforation of a fair size occur in the appendix, but a fair degree of gangrene may be met with without causing serious symptoms. I have found a concretion lying outside the appendix one month after an attack, when all the symptoms have subsided, and without a single drop of pus. That must have been due to rupture of the appendix or perfora-

tion of the appendix or, if you like, gangrene of the appendix. Is it very reasonable, therefore, to use those terms in the same sense as you use the term rupture of the bowel, gangrene of the ileum, or perforation of the stomach? The analogy is absolutely unjustifiable. The second fact that I do not think can be pressed too strongly is this. The very great majority of all cases of appendicitis get well spontaneously. I am speaking of a whole series of cases which come under the care of a medical man in general practice, and I think that it may be said that we are not very far from the truth when we say that the death-rate from appendicitis is 5 per cent. The third fact, which I think should be emphasized as strongly as the last one, is this: operation during an acute attack of appendicitis is attended with great risk to life. What that risk is we again have great difficulty in expressing in figures, because they are not easy to get hold of. But we must take things as they are, and I have been at infinite pains to go through records by hundreds and the death-rate in cases of operation—I do not say what operation—during an acute attack comes out at about 20 per cent. Some of the hospital records come out higher than that. The fourth point is a little by the way. Relapses may occur after an operation carried out during an acute attack, and that is a thing which must not be quite pooh-poohed. The last thing which I should like to impress upon your memories in very large letters, so to speak, is that the removal of the appendix during the quiescent period is attended with infinitely small risk.

If these facts are admitted—perhaps you may say they are not accurate, or they are distorted, but I do not think they can be very much out of what is actually the fact,—if these facts are accepted, then I think the line of treatment is not difficult to establish and may be pretty clearly defined. Acting upon what one believes to be the best information that the records at present provide in the various directions that I have indicated I think one comes to some such conclusion as this: all that we know of the pathology of inflammation of the appendix is positively opposite to the teaching that operation should be carried out the moment the diagnosis is made. I think that that cannot be put too strongly. We know a good deal about the pathology of this trouble and I think that what we do know will not support the dictum that as soon as the diagnosis is made operation should be carried out. The second point is this. An immediate operation should be carried out in all the ultra-acute cases. It is often said that you cannot diagnose them. I would venture to controvert that statement. I believe all these cases are easily recognized, although there are two perfectly distinct types of these

ultra-acute cases. There are some in which the local manifestations are not very striking and where the overwhelming symptom is that the patient has introduced into his system a gigantic dose of poison, with a temperature of 104 or 105 degrees F., with the pain not very striking. Those are cases of septicemia of the most intense character and the patient dies, perhaps, within 36 or 48 hours. In such cases the operation will probably do no good, but it can do no possible harm and it should be as a matter of positive routine carried out. The second class of acute cases also cannot be mistaken. It is exactly parallel to perforation of the stomach, and I do not think anyone can have any difficulty in recognizing the acute peritonism. The ultra-acute cases cannot be operated upon too soon. The third proposition, which I hope also will meet with your approval, is this: an immediate operation should be carried out as soon as there is any suspicion of pus. I suppose that will be universally accepted. I do not want a demonstration of pus, but a reasonable suspicion of it.

If these three propositions are accepted that takes us a long way. What, then, with regard to the residue of these cases which represents the great mass of cases of appendicitis? I have excluded all the ultra-acute cases and I have excluded those cases in which there is pus, and I think that in the cases that remain it is seldom imperative that an operation should be discussed until about the fifth day. I think that you will agree with me that in a case of appendicitis, if the temperature comes down and is getting towards normal about the fifth day your anxiety is becoming comparatively slight. And because the temperature keeps up after that day the case is not necessarily doomed, though very probably it will have to be dealt with. Having excluded the cases that I have mentioned I think that the phenomena associated with this malady will bear out that somewhat moderate suggestion in the matter of practice that the surgeon should hold his hand until some such time as the fifth day has been reached, when the requirements of the case will have been made quite manifest. Another matter that I will trouble you with is with regard to operative treatment carried out during the quiescent period. It so happened that in a paper which I read before the Royal Medical and Chirurgical Society in 1887 I ventured to suggest that appendicitis when relapsing should be treated by removal of the appendix during the quiescent period. Looking back on the discussion which followed that paper it is curious to note how very feebly it was received and how the method advocated therein was scarcely accepted at all as a reasonable method of treatment. In that particular

discussion one physician of considerable experience said that in the whole of his life he had never seen a case of typhlitis that could possbly have called for surgical interference of any sort. So that the reception of that paper was one which, I must confess, condemned me very much. Still, I do not think one has any reason to complain of the infrequency with which the operation is carried out at the present day. I have since that particular date removed the appendix during the quiescent period over 1,000 times, and out of that number I have lost two patients. I could, without being very Jesuitical, exclude one of those cases because it was not primarily a case of appendicitis but where there was a mass in the right iliac fossa and where, as a result, the appendix was concerned. But I will acknowledge the two deaths.

The next point that I want to ask you to consider is this, and it is a difficult matter in practice: When should this operation be carried out ? A patient comes to you and says, " I have had one attack," and you might almost tell him that the operation is so trifling that he should have the suspected organ removed. But the whole question is summed up in this: What is the probability of relapse ? It is a curious thing that the percentage of relapses has greatly gone up. At one time there were said to be very few relapses—from 20 to 30 per cent. I am quite certain that it is safe to say n wadays that the great majority will relapse. Therefore, I think it could be put down, as a line to guide one in directing this matter, that it is desirable to remove the appendix after the first definite attack. The line of argument is this. In the majority of cases there will be a relapse and the patient must feel that the weight of figures is against him. Secondly, the risk of the operation is really almost infinitesimal and will in time become quite trivial. There is just this little sort of comment to be made on a bold assertion of that kind. If there has been an abscess in the first attack then I think an operation may be put out of court altogether because that abscess will in certainly 95 per cent. of the cases obliterate the organ and render it harmless.

Well, then, I have been frequently asked this question: What has been your experience of cases that do not relapse ? Going back, as I can now, over some years, and having seen some thousands of cases of appendicitis, I have seen a great many patients who have had only one attack and having known their career for a number of years—I do not want to quote them as exceptions to any rule, but to put them forth as cases in which perhaps that rule may be subjected to consideration and perhaps relaxed—my experience has been this. I have seen children in whom an attack of appendicitis has distinctly followed the

lodgment of some mass in the cecum. In one such case the child ate a lot of nuts and had appendicitis with cramp and hardness over the organ. In that case, where there has been only one solitary attack following the lodgment of some mass in the cecum, the child may never have another attack unless it repeats the same alimentary performance. The other class of case is this: the adult who has a great many errors in the matter of feeding to correct. For instance, the commercial traveller who, perhaps, has no masticating teeth, eats anything he comes across at all times of the day; lunches at one, two, or three o'clock, rushes into the bar with his hat on the back of his head, eats anything that happens to present itself, bolts it, and goes about his business in an atmosphere of tobacco and alcohol. That man has gross dietary errors to correct and if they be corrected that man may never have another attack. I think that in the consideration of cases of appendicitis the circumstances in those two classes of the disease that I have mentioned must be taken into account. I might, perhaps, just quote one such case. A medical man was working in a colliery district under the very worst possible conditions. The man was up day and night and got his meals anyhow, and he practically had no masticating teeth. He was a man temperate in every respect. Eventually he inherited a fortune, a very large sum of money, and, of course, the very first thing he did was what any of us would have done —he abandoned the profession and sought opportunity for rest. Previously he had had one attack of appendicitis and he now came to me saying that he wanted to have some enjoyment out of life and he thought that the first element of success in that direction was to have his appendix removed. I thought that perhaps he might make a little cult of his appendix, so it was agreed that it should not be removed. That man observed the general rules of health and I see him occasionally and he has never had a single attack since. With regard to chronic appendicitis I think that in every such case the appendix should be removed when there is no other treatment for it.

Last of all I must say this: the removal of the appendix is not a panacea for every ill in the lower part of the abdomen, because there is apparently an impression abroad in the present day that any kind of disturbance below the umbilicus must of necessity involve the removal of this very much discussed organ. —*Lancet.*

# THE CAUSES AND MANNER OF DEATH IN EPILEPSY.

By William P. Spratling, M.D., Sonyea, N.Y.
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Aside from the scientific interest that attaches to the study of the causes and manner of death in epilepsy, there is one of practical value involving the possible saving of life under certain circumstances in some cases. Our experience has been such that we feel justified in stating that epilepsy should not be regarded as a relatively harmless disease so far as life is concerned, for as a matter of fact *any epileptic may die suddenly at any time.*

The manner and causes of death in epilepsy may be summarized as follows: (1) It may occur suddenly in any case as the result of a single seizure; (2) it may result from a series of seizures occurring in rapid succession and ending in status epilepticus; (3) it may result from an accident suffered because of a fit; (4) it may result from all other causes that ordinarily produce it, with a seeming preponderance in favor of diseases of the heart and lungs.

As to the first, sudden deaths occurring as the result of single fits are not very common, representing somewhere between 3 per cent. and 5 per cent. of the total number. In a series of 190 deaths occurring at the Ohio Hospital for Epileptics during several years, five of them, approximately 2½ per cent. of the total, were reported as having been due to a single fit, while similar cases have come under my own observation in a total of ninety-five deaths that occurred at the Colony in six years. The circumstances surrounding one case at the Colony were rather extraordinary in that death occurred while the patient was standing upright. The patient, a young woman, went to the faucet for a glass of water, and, evidently feeling an attack coming on, placed both hands on the top of the marble wash-basin for support. Apparently the violence and duration of muscular contractions about the thorax and neck were great enough and lasted long enough to produce asphyxiation, and the patient died in the position described. The upper portion of the body, neck and face bore the characteristic evidences of death from suffocation, and so rigid were the contractions that the body remained standing, fixed in the attitude in which death occurred for some minutes before it was placed on the floor.

In the second class of cases, in which death is due to status epilepticus—a condition rightly to be considered as the bane of every epileptic's existence—the number runs up to 23 per cent. of the total. Practically, status epilepticus causes the death of one epileptic out of every four who die. Serial attacks in themselves rarely lead to a fatal issue, although they may in any case pass into

status and lead to a fatal issue in that way, and it is in successfully combating the development of status that the physician can sometimes save life.

As a rule, status should be feared when more than three or four well-marked and distinct attacks occur within an hour's time; and the most vigorous treatment to prevent status should be instituted at once. Status develops wholly irrespective of the type of epilepsy from which the individual suffers, whether it be grand mal, petit mal, psychic or Jacksonian, or any combination of these, and there is reason for believing that some cases develop what might be termed "masked status," a condition characterized by a few light convulsive attacks, mostly psychic or petit mal in character, and followed by excessive temperature elevation, the fever often running up to 106 or 107° F., and by a more or less prolonged period of unconsciousness, followed by death. A case illustrative of this recently came under my notice. M. W., a woman of thirty-four years, was admitted to the Colony on December 18th, 1901. It was stated that she had been an epileptic for two years only. She showed no fixed impairment of any of the faculties of the mind, was entirely free from any of the so-called stigmata of degeneration, did not possess the "facies epileptica" in the slightest degree, nor, in short, was there anything about her apparent on inspection in any way indicative of epilepsy, and yet, symptomatically, she presented a typical picture of having epilepsy in a composite form.

In five weeks' time she had forty-eight petit mal, fourteen psychic and eight grand mal seizures, each fit being typically distinctive of its class. Soon after midnight on January 23rd, she complained of intense pain in the lower and back part of her head, which a simple remedy seemed to relieve so that she rested quietly the remainder of the night. At ten o'clock the next morning she had two psychic seizures close together and soon after became unconscious, remaining so until death occurred through respiratory failure three and one-half hours later. The autopsy showed a marked increase in the amount of cerebro-spinal fluid; a deep engorgement of all blood-vessels exposed to view, and particularly of those at the base of the brain; an attachment of the pia-arachnoid over the vortex to the brain substance, so intimate as to tear away some brain tissue when the membranes were stripped off; and a tumor at the inferior and inner side of the temporo-sphenoidal lobe, 2 x 3 inches in size, jelly-like in consistence. (Pathologically the tumor has not yet been examined, but the mere fact of its presence in this connection is sufficient.)

Idiopathic epilepsy with a favorable prognosis as far as life

was concerned might easily have been the diagnosis in this case, since there was absolutely no evidence of the presence of a tumor in the brain, nor were there any symptoms of any kind save the three types of convulsions; just as a similiar prognosis might have been given in another case that came under my observation in 1898, in which a young woman had 519 separate and distinct grand mal seizures in forty-nine and one-half hours, and in which the autopsy showed absolutely nothing abnormal in the brain, although the initial spasm 519 times in succession had been the contraction of the first joint of the right thumb. Numerous microscopical sections from the right thumb centre in the brain showed the same condition of vacuolation that we would expect to find as the result of exhaustion or extreme fatigue.

I mention these two diametrically opposite cases, as far as causes are concerned, to show how completely concealed may be the real cause of the disease and how any cause may apparently at any time suddenly leap into fatal activity and terminate life in a very short while.

Some diseases are characterized in lay terms as "striking in," and the same anomaly is sometimes observed in certain epileptic phenomena in which the convulsive force seems to expend itself almost entirely in the central nervous system and to affect the muscular apparatus of the body either not at all, or only in the way of producing fine, fibrillary tremors, chiefly confined to the finer muscles of expression about the mouth.

Under the third heading, that of death from accidents, about one-half as many epileptics die from such causes as from status epilepticus. It is literally true of the epileptic that always in life he is "in the midst of death." At no time is he free from liability to accident, and the one period of his greatest danger comes when he is asleep.

Some twelve years ago, while I was serving as an assistant physician in a large State hospital for the insane in which more than 100 epileptics were confined, three epileptics were found dead in bed one night. It requires only from one to five minutes for an epileptic to have a severe convulsion, and less than five minutes more for him to die from suffocation by rolling over and burying his face in the pillow or in the bed-clothes. In a record kept at the Colony in one hundred cases in which the attacks were chiefly nocturnal, it was found that 13 per cent. of them always rolled or were bent over on their faces by the force of the convulsion, and many of them would unquestionably have perished through asphyxiation had they not received prompt attention from the nurse in charge. It was also noted that the force of the convulsion spent itself in the same direction each

time; that is, the patient, when in convulsion, was always turned to the right or to the left, as the case may be, indicating the permanency in location of the seat of the convulsive discharge.

Efforts have been made to perfect a woven-wire pillow and a breathing mask for epileptics' use when sleeping, but so far without satisfactory results. Epileptics should sleep on a hard, flat hair pillow, or, better still, on none at all; and as far as possible they should be under some supervision while they are asleep. But in spite of any precautions that it is possible to take for their safety at such a time, accidental deaths are bound to occur.

In the fourth class, in which death is due to a variety of causes, but in which disease of the heart and lungs predominate, we note that in 95 deaths occurring at the Colony tuberculosis was the cause of 24 per cent., and that organic heart diseases produced death in 10 per cent. of all cases studied.

At the Ohio Hospital for Epileptics 42 deaths out of 190 were recorded as due to diseases of the lungs, either in the form of tuberculosis or pneumonia, making a total of 22 per cent. of the entire number.

According to the New York State Commissioner of Health, there were 129,257 deaths in the State from all causes during the year 1901. Of this number 13,766, or 9 3-5 per cent., died from pulmonary tuberculosis. In the same State during the year 1900 there were 128,468 deaths, 13,590, or substantially 10 per cent. of them, being due to pulmonary tuberculosis. It would appear from this that the number of epileptics who die from lung diseases is twice as great as the number of non-epileptics who die from the same cause.

From the foregoing, based on a study of 220 deaths among epileptics, we might state the causes and manner of death in this disease to be approximately as follows: Out of every 100 epileptics who die about 4 do so as the result of a single fit; about 24 as the result of status epilepticus; about 12 as the result of some accident, including suffocation in bed; about 24 as the result of some disease of the lungs, chiefly tuberculosis; about 10 as the result of some organic disease of the heart; and about 26 from all other causes.

For data in the foregoing, I am indebted to Dr. Daniel Lewis, New York State Commissioner of Health; Dr. Everett Flood, Superintendent of the Massachusetts Hospital for Epileptics at Palmer; and to Drs. Foshay, Coleman and Ohlmacker, manager, superintendent and pathologist, respectively, of the Ohio Hospital for Epileptics, at Gallipolis.—*Medical News.*

# THE RENAL COMPLICATIONS OF THE ACUTE DIARRHEAS OF INFANCY.

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The literature of this subject is decidedly scanty. The text-books on the diseases of children, as a rule, pay it but slight attention. Holt's is the only one which gives any data founded on actual personal observations. Most journal articles are also of little value, as but few of them are based on actual experience. They show great differences of opinion as to the frequency of renal complications in the acute diarrheal diseases of infancy. It is a striking fact, however, that the great majority of those who have written special articles on the subject are convinced of the frequency of these complications. These anatomical conditions in infancy seem favorable, moreover, to their development. There is, as so well stated by Jacobi, "a predisposition to nephritis in the young, caused by the fragility of the blood-vessels in the newly-born; by the relative imperviousness of the young renal capillaries compared with the large size of the renal arteries; by the feebleness of the young intestinal muscle, which proves insufficient to expel toxic contents; by the extensiveness and size of the young intestinal blood-vessels and lymphatics, and the large size of the villi, all of which favor the absorption of toxins."

*Morbid Anatomy.*—The pathological conditions found in the kidneys by various observers agree pretty closely, although there is much difference of opinion as to their frequency and severity. It is difficult to explain the discrepancy in their results, unless it be that some have studied almost entirely the very acute, rapidly-fatal cases, while others have studied those of more varied and less severe types.. Generalized congestion is marked in the very acute cases, but is much less so in the subacute and chronic. Thrombosis of the renal veins with hemorrhage has also been found not very infrequently. Degenerative lesions, granular in type, are common. They are most marked in the epithelium of the convoluted tubules. All degrees of degeneration with changes in the nuclei and epithelial desquamation may be found. The tubules contain casts of various sorts and sometimes blood. Similar but less marked changes are found in Henle's loops and in the straight tubules. In cases of the cholera infantum type coagulation necrosis may also occur. Fatty degeneration is unusual and occurs only in the chronic forms. Glomerular changes are rare. Interstitial changes are very unusual, but are sometimes found in the more chronic

cases. Foci of round cell infiltration are also found among the tubules of the cortex or about the glomerular capsules. Micro-organisms are usually not present. That is to say, the alterations in the kidneys in the acute diarrheas of infancy are mainly degenerative in type, show nothing characteristic, and are similar in every way to those found in other infections, both infants and adults.

*Etiology.*—Felsenthal and Bernhard are inclined to attribute these pathological changes to the circulatory disturbances and the deficient nutrition of the tissues resulting from the concentration of the blood. They admit that toxic absorption cannot be entirely excluded as a cause, but consider that it plays but a subordinate part, except in the cases in which vomiting and diarrhea are slight and death results from toxemia. Almost all other observers, however, attribute them to the absorption of toxic substances from the intestines. In a few cases bacterial infection of the kidneys also plays a part.

Lesné and Merklen endeavored to determine the part played by bacteria in the causation of these conditions and also the nature of the toxic substances. They fed guinea-pigs with the intestinal contents of infants with green diarrhea and with cultures of colon bacilli or mixed cultures of the colon bacilli and streptococci from these cases. They also injected guinea-pigs with filtered cultures of the colon bacillus.

The pigs fed on the intestinal contents all developed a green diarrhea and died in from twelve to twenty-three days. The urine was scanty and contained albumin. Cultures from the organs and blood were sterile. The kidneys showed general intense injection. The capsular endothelium was proliferated in places. The epithelium of the convoluted tubules was granular and desquamated and the nuclei poorly stained. These epithelial changes were most marked in the pig which lived the longest. One of the pigs fed on cultures of the colon bacillus died after two months. It had attacks of diarrhea during the last two weeks with diminution in the amount of urine and slight albuminuria. The kidneys were congested and in places the epithelium of the convoluted tubules showed granular degeneration. The other pig fed on cultures of the colon bacillus, as well as the one fed on mixed cultures of the colon bacillus, and streptococcus thrived. The pigs injected with filtered cultures of the colon bacillus died in from eleven to twenty-four days. Congestive lesions predominated. The epithelium of the convoluted tubules showed localized granular degeneration. There were also foci of leucocytic infiltration, that is, while the colon bacillus or its toxins caused lesions in the kidneys resembling those found in children dead of enteritis, the ingestion of the intestinal contents produced more marked changes, as well as symptoms very like those of enteritis in infants. They conclude, therefore, that the pathogenesis of the renal affection is a complex one, other

factors besides micro-organisms being active. These must be the toxic products of fermentation and alimentary poisons.

To sum up, the pathological changes found in the kidneys are chiefly due to the absorption of various toxic substances from the intestinal canal. They are mainly degenerative in type and are best described as acute degenerative nephritis. They differ in no way from the changes produced by similar substances in other diseases. It is reasonable to suppose that similar changes occur in the great majority, if not in all, of the severe non-fatal cases and in many of the mild cases.

*Urine.*—The changes which are found in the urine of the autopsied are those which would be expected from the pathological lesions. The quantity is more or less diminished in amount and the color and specific gravity are increased. The diminution in the quantity and the concentration are due in part to the dehydration from the diarrhea and the diminished ingestion of liquids. It is often turbid and the urates are almost always increased. Albuminuria is present, but usually not in large amounts. The sediment contains casts, usually hyaline, fine granular or epithelial, but sometimes blood. Degenerated renal cells are numerous, but the blood and blood elements are uncommon. There is an excess of uric acid or uric acid salts.

Similar changes are found in the urine of cases which recover. They sometimes appear early and sometimes late in the course of the disease. They are more common and more marked in the severe than in the mild cases. Albumin may be found without morphotic elements even after centrifugalization. It is fair to assume that these changes are due to the same pathological conditions in the kidneys as in the fatal cases, namely, acute degenerative nephritis. Very few large series of cases with urinary examination have been reported. Those of Von Hoffsken, Epstein, Le Gendre, Koplik, Zamfiresco, Lesné and Merklen and Morse are the most important. The results in these series have been very different, urinary changes having been found almost constantly in some and in others being the exception. The most satisfactory explanation of these discrepancies is that the types and severity of the cases studied by the various observers were not the same.

*Symptoms.*—There are also great differences of opinion as to whether or not these renal and secondary urinary changes produce any characteristic symptoms. Koplik thinks that their symptoms may be divided into two classes, the first being general and inseparable from those of the primary disease, while the second are characteristic. These are restlessness relieved only by periods of stupor, persistent vomiting not relieved by lavage, and slight edema of the anterior surfaces of the thighs, legs and feet. These symptoms he regarded as uremic rather than as toxic in origin. Lesné and Merklen consider characteristic dyspnea for which no

cause is found on physical examination. They have also seen myosis. They conclude that edema, dyspnea and myosis are the only clinical signs. In my own cases careful study failed to reveal the slightest relation between the presence of albumin and renal elements in the urine and any symptom or set of symptoms. It seems reasonable to suppose, however, that marked renal changes, even if only degenerative in character, may cause so much disturbance of the renal function as to produce symptoms. It would seem difficult, however, to distinguish the symptoms due to this cause from those due to the general toxemia which produced the degeneration of the kidneys as well as of the other organs.

*Prognosis.*—Still greater differences of opinion exist as to the prognostic import of the renal and urinary changes. Epstein attaches great importance to them. Henoch thinks that "a complicating nephritis may be the cause of death." Lesné and Merklen think that they must be considered in the immediate prognosis. Koplik feels that in many cases the fatal ending is hastened by the renal complications, but that in general the prognosis is not altered. Holt, on the other hand, states that he has "met at autopsy with but a single case in which there was nephritis marked enough to have seriously diminished the patient's chances of recovery or to have formed an important factor in the fatal result." In my own series the urinary changes were not of bad prognostic import. They were present in mild cases and absent in severe and *vice versa.* A number of patients in whom the urine showed no changes died.

Acute degenerative nephritis occurs in all the acute infectious diseases. In them it is not, as a rule, regarded as of great prognostic import. There seems to be no very evident reason why it should be considered of any more prognostic importance *per se* in the diarrheal diseases of infancy. It is to be regarded rather simply as an index in a general way of the toxemia which involves the organism as a whole. In the rare cases in which the urine shows evidence of more serious renal changes, interstitial or glomerular as the case may be, the prognosis is rendered more grave, as it would be in any acute disease complicated by acute nephritis.

The degenerative lesions presumably always end in restitution *ad integrum.* This is probably the usual result in the case of the other lesions. Certain writers think, however, that these nephritides occurring in the course of the diarrheal disease may explain the origin of some of the chronic nephritides appearing in later childhood the pathogenesis of which is so obscure. This supposition seems reasonable. There is no proof, however, either for or against it.

*Pyelitis and Pyelonephritis.*—Acute pyelitis and pyelonephritis may occur as complications of acute enteric diseases. They are usually of a mild type and are almost always due to infection by

the bacillus coli communis. The symptoms are masked by those of the primary disease. They alter the prognosis but little, if at all.

*Cystitis.*—Acute cystitis is a not infrequent complication of these diseases. It also is almost always of a mild type. It is usually due to the colon bacillus. Infection may occur through the blood, through the rectum, or in little girls directly through the urethra. The symptoms are usually covered by those of the causative disease and the cystitis is unsuspected. It does not affect the prognosis.

*Treatment.*—The treatment of these complications is to relieve the primary disease, to favor elimination and to avoid further irritation of the kidneys; in short, the usual treatment of such conditions.

*Conclusions.*—Acute degenerative changes may occur in the kidneys in the acute enteric diseases of infancy, as in other acute infectious and febrile diseases. There is nothing characteristic about these changes. In rare instances proliferative and interstitial changes may develop. The etiology of these conditions is a complex one, including not only micro-organisms and their toxic products, but also the products of intestinal fermentation and alimentary poisons. The urine shows the changes usually found with such pathological conditions in the kidneys. It is doubtful if these renal complications cause any symptoms distinguishable from those due to the general toxemia. Restlessness, persistent vomiting, unexplainable dyspnea, edema and myosis have, however, been attributed to them and considered characteristic. It is probable that *per se*, except in rare instances, they are of little or no prognostic importance. They are to be regarded rather merely as an index of the degree of toxemia. Recovery from these lesions is usually complete. It is possible, however, that in rare instances they may lead to chronic nephritis in later years. Pyelitis, pyelonephritis and cystitis may also develop as complications. They are usually of a mild type. Their symptoms are generally masked by those of the primary disease. They affect the prognosis but little. The treatment of these renal complications is that of such conditions in general.—*Medical News.*

## A CONTRIBUTION TO THE THERAPEUTICS OF ANEMIC CONDITIONS.

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(Translated from the German.)

In the medicinal treatment of the various forms of anemia; whether it be essential chlorosis or the so-called secondary forms

arising from severe loss of blood and various diseases (tuberculosis, cancer, etc.), iron has always occupied the most prominent place. In the management of chlorosis, especially, the chief object is the administration of an adequate quantity of iron, since upon this depends the success of all treatment. As to the manner in which iron acts in anemic conditions, that is a secondary matter. Whatever be its mode of action, it remains an empirical remedy and yet one of incontestable value.

According to the unanimous opinion of many authors the effect of iron in chlorosis cannot be replaced by alimentation. Reinert, Klein, Immermann, Ensli, and others have shown that typical chlorosis cannot be cured in any other way, even by forced feeding. Some of them have made a series of very careful experiments for this purpose, and reached the remarkable result that during superalimentation, extending even over a number of weeks, the quantity of hemoglobin in the blood increased scarcely a few per cent. and remained permanently at this level. That this is actually so we daily convince ourselves in cases of chlorosis in girls of the better classes. These girls, if placed on full diet, accumulate more fat, while the chlorosis remains practically unaffected—it requires iron. The dietary therefore plays a sub-ordinary part in the therapy of chlorosis (Klein), and is to be regarded only as an important adjunct to the treatment.

I will now devote a few words to manganese, which is employed in combination with iron in some ferruginous preparations for the treatment of anemia. Hannon already directed attention to this metal, which is a constituent of healthy blood, and which besides iron has an important bearing on the absorption of oxygen by the blood. In fact, experiments have shown that anemic conditions are most successfully treated with iron in connection with manganese. Chalybeate medication is materially aided and promoted by the addition of manganese. Efforts have therefore been made to introduce combinations of iron and manganese into therapeutics.

After laborious attempts, Dr. Gude, chemist, succeeded in producing such an iron-manganese preparation, which is easily absorbed by the entire intestinal tract, evokes no concomitant effects, and, as is illustrated in the following histories of cases, has proved an excellent remedy for the formation of blood. The preparation referred to is Pepto-Mangan (Gude). It contains iron and manganese in an organic combination with peptone, and is a clear fluid, resembling dark red wine, of an agreeable, non-metallic, non-astringent taste.

The advantage of this preparation is that it exerts a stimulating effect upon the blood-forming organs, these being excited to greater functional activity, and that the favorable effect manifests itself even within a short time by an increased oxygenation of the blood. At the same time, this chalybeate, as already mentioned, causes no digestive disturbances and does not injure the teeth.

In regard to the daily dose of iron, Quincke maintains that it should range from ¾ to 1½ grains of Fe. Most clinicians prescribe commonly 4 grains, which considerably exceeds the maximum dose recommended by Quincke. Some of them, like Niemayer and Trousseau, give even 7 grains of metallic iron daily; hence Pepto-Mangan (Gude) should be prescribed in doses of one tablespoonful three times daily for adults, and one teaspoonful twice daily for children up to twelve years, after meals. Sour, fatty foods and red wine should be avoided during its administration. The preparation is much relished by all patients, and is my custom to administer it to children in water, or, better, in cold milk with the addition of sugar, in which form it is very palatable.

After this brief introduction I will describe a number of cases which have been treated by me with Pepto-Mangan:

CASE I.—Mary B., 16 years old, has complained since a week of general debility and lassitude. She is very pale and restless, has no appetite, and suffers from headache and a feeling of pressure in the stomach. She is constipated, and the menses are irregular. Diagnosis, chlorosis.

| Date. | Red Blood Cells in Cubic Millimetre. | Hemoglobin per cent. | Bodily Weight. | Therapy. |
|---|---|---|---|---|
| August 2.... | 2,480,000 | 20 | 49.2 | Pepto-Mangan (Gude), one tablespoonful three times daily. |
| August 9.... | 3,212,000 | 25 | 50. | |
| August 16... | 4,020,000 | 30 | 50.5 | |
| August 24 .. | 4,500,000 | 40 | 51.3 | |
| September 2. | 5,000,000 | 50 | 53.1 | |

After a week, the appetite was good, no headache; at the end of the second week, no further disturbances; menses not painful, and lasting only three days (formerly five days). After four weeks, the patient discharged cured.

CASE II.—Anna H., 23 years old, has suffered for three years from chlorosis, with irregular menstruation, palpitation of the heart, a feeling of weakness, and occasional syncope. Physical examination showed the presence of anemic murmurs over the heart, as well as a venous murmur; no fever or edema.

| Date. | Red Blood Cells in Cubic Millimetre. | Hemoglobin per cent. | Bodily Weight. | Therapy. |
|---|---|---|---|---|
| August 4.... | 3,750,000 | 35 | 55.5 | Pepto-Mangan (Gude), one tablespoonful three times daily. |
| August 29... | 4,010,000 | 60 | 57.8 | |
| September 14 | 4,200,000 | 70 | 59. | |

Appearance of menses after absence of 12 weeks; subjective disturbances have disappeared.

CASE III.—M. W., 16 years old, has suffered since a year, from headaches, dyspnea, tinnitus aurium, vertigo, and gastric disturbances. There was marked pallor of the face and of the mucous membranes; systolic murmurs over the mitral and pulmonary valves, with dilatation of the heart. No fever; spleen not palpable. Diagnosis, severe chlorosis.

| Date. | Red Blood Cells in Cubic Millimetre. | Hemoglobin per cent. | Bodily Weight. | Therapy. |
|---|---|---|---|---|
| August 5.... | 2,250,000 | 25 | 52.5 | Pepto-Mangan (Gude), one tablespoonful three times daily. |
| August 13... | 3,200,000 | 30 | 53.5 | |
| August 16... | 3,350,000 | 35 | 55.5 | |
| August 23... | 3,530,000 | 40 | 56.5 | |
| September 1. | 4,250,000 | 45 | 58. | |

The subjective symptoms rapidly subsided, the appetite improved, and the stools became regular. The menses reappeared in the second week of treatment after having been absent for a year.

CASE IV.—M. P., 15 years old. Menses absent since one-half year; always scanty. Vicarious hemorrhages from the nose. Since three months the patient has suffered from dyspnea, vomiting, cardiac palpitation, general weakness, headaches, feeling of dulness, and sleeplessness. Physical examination reveals anemic murmurs, moderate dilatation of the heart, venous murmur.

| Date. | Red Blood Cells in Cubic Millimetre. | Hemoglobin per cent. | Bodily Weight. | Therapy. |
|---|---|---|---|---|
| August 5.... | 2,400,000 | 20 | 47. | Pepto-Mangan (Gude), one tablespoonful three times daily. |
| August 10... | 3,600,000 | 25 | 47.5 | |
| August 16... | 3,850,000 | 30 | 48.5 | |
| August 23... | 4,250,000 | 35 | 49.0 | |
| August 31... | 4,700,000 | 40 | 49.7 | |
| September 7. | 5,000,000 | 45 | 52. | |
| September 14 | 5,200,000 | 50 | 53. | |

After the first week improvement set in; at the end of treatment disappearance of all disturbances. Increase of bodily weight, 12 pounds.

CASE V.—J. K., 18 years old. Chlorosis. Anemic murmurs, cardiac dilatation, loss of appetite, insomnia, general lassitude, and headaches.

| Date. | Red Blood Cells in Cubic Millimetre. | Hemoglobin per cent. | Bodily Weight. | Therapy. |
|---|---|---|---|---|
| August 10... | 2,200,000 | 35 | 52. | Pepto-Mangan (Gude), one table-spoonful three times daily. |
| August 24... | 3,000,000 | 45 | 55. | |
| September 12 | 3,300,000 | 60 | 57. | |

At the end of the first week appetite vigorous; headaches had subsided. At the end of the fourth week no disturbances of any kind.

CASE VI.—A. N., 19 years old, has suffered from chlorotic disorders since two years. Improvement occurred under a milk diet and a sojourn in the country. Since five months the patient again complains of disturbances; palpitation of the heart, lassitude, headache, vertigo, tinnitus, and constipation; anemic murmurs and venous hum perceptible.

| Date. | Red Blood Cells in Cubic Millimetre. | Hemoglobin per cent. | Bodily Weight. | Therapy. |
|---|---|---|---|---|
| August 17... | 4,000,000 | 25 | 53.5 | Pepto-Mangan (Gude), one table spoonful three times daily. |
| August 25... | 4,100,000 | 30 | 54. | |
| August 31... | 4,000,000 | 35 | 54.5 | |
| September 7. | 3,950,000 | 40 | 56. | |
| September 22 | 4,200,000 | 45 | 57.5 | |

The subjective symptoms diminished after a few days. The disturbances disappeared, the appetite improved, and the stools became regular.

CASE VII.—J. R., 20 years old, has suffered from chlorosis since two years. Status presens: General lassitude, palpitation of the heart, a feeling of pressure in the stomach, difficulty in breathing; menses irregular as well as dysmenorrhea. In the last three months all the disturbances have become more intense.

| Date. | Red Blood Cells in Cubic Millimetre. | Hemoglobin per cent. | Bodily Weight. | Therapy. |
|---|---|---|---|---|
| August 22... | 4,250,000 | 30 | 52. | Pepto-Mangan (Gude), one table-spoonful three times daily. |
| August 26... | 4,350,000 | 35 | 52.5 | |
| September 5. | 5,420,000 | 40 | 53.5 | |
| September 12 | 5,300,000 | 50 | 54. | |
| September 18 | 5,350,000 | 55 | 54.5 | |
| September 27 | 5,300,000 | 60 | 55.5 | |

The disorders have disappeared, the appetite is good, and the bowels regular; no anemic heart murmurs.

CASE VIII.—L. N., 19 years old, complains of headaches, cardiac palpitation, vertigo, scanty menses.

| Date. | Red Blood Cells in Cubic Millimetre. | Hemoglobin per cent. | Bodily Weight. | Therapy. |
|---|---|---|---|---|
| August 28... | 2,500,000 | 40 | 54. | Pepto-Mangan (Gude), one tablespoonful three times daily. |
| September 13 | 3,750,000 | 55 | 55.5 | |
| October 1.... | 4,300,000 | 70 | 57. | |

The subjective disorders have vanished; menses more abundant.

CASE IX.—J. M., 16 years old, has suffered since two months from palpitation of the heart, dyspnea, feeling of pressure in the stomach, vertigo tinnitus, and headaches. There is a slight cardiac palpitation, with systolic murmurs and a venous hum. Anorexia and constipation are present. The menses have been irregular since a year.

| Date. | Red Blood Cells in Cubic Millimetre. | Hemoglobin per cent. | Bodily Weight. | Therapy. |
|---|---|---|---|---|
| September 2. | 4,500,000 | 35 | 50. | Pepto-Mangan (Gude), one tablespoonful three times daily. |
| September 11 | 4,750,000 | 40 | 50. | |
| September 20 | 4,850,000 | 50 | 51. | |
| September 29 | 4,950,000 | 55 | 52. | |

Menses regular; bowels normal; no disturbances.

CASE X.—Z. F., 30 years old, had a miscarriage two weeks previously, with profuse hemorrhage. After a month's treatment completely restored to health, and an increase of weight of four pounds.

CASE XI.—A. N., *6 years old*; *rachitis and anemia*. Under treatment an increase of weight of two-thirds of a pound. Much better appearance.

CASE XII.—J. W., 30 years old. Pulmonary tuberculosis and anemia. After two weeks' administration of Pepto-Mangan (Gude), an increase in weight of two pounds and an increase in hemoglobin of 15 per cent.

CASE XIII.—K. L., 50 years old. Cancer of the stomach, cachexia, and anemia. During three weeks' use of Pepto-Mangan (Gude) the patient felt better, the appetite had improved, and there was an increase in weight of two-thirds of a pound.

CASE XIV.—A. B., *14 years old. Chlorosis; hemoglobin 40* per cent. After two weeks' treatment, hemoglobin 85 per cent.; disappearance of all disturbances.

CASE XV.—F. K., 18 years old. Chlorosis; hemoglobin 35 per cent.; after two weeks' treatment 50 per cent.

CASE XVI.—E. J., 5 years old. Anemia following scarlatina. After eight days' treatment with Pepto-Mangan (Gude) the patient developed a vigorous appetite, and recovered so rapidly that he could be discharged cured at the end of the second week.

Altogether, twenty-three cases of anemia were treated with Pepto-Mangan (Gude), of which twelve showed a normal hemoglobin per cent. of the blood after fourteen days, five after three weeks, and five after a month. On the other hand, one of the patients who had hereditary trouble (her father having suffered from pulmonary disease) was discharged only improved, the blood, after two months' treatment with Pepto-Mangan (Gude), showing only an increase of hemoglobin to 75 per cent. This was probably a case of tuberculosis which simulated an obstinate or severe chlorosis at its beginning.

Furthermore, two cases of acute anemia after profuse hemorrhages were treated with Pepto-Mangan (Gude). A favorable result was obtained as early as the end of the first week. In one instance the patient felt so well that only the fear of further hemorrhage constrained him to stay in bed for another week. In the case of three women who had miscarried during the early months of pregnancy, and were making a very slow recovery from the resulting anemia, I was able to obtain a complete recovery after four weeks' administration of Pepto-Mangan (Gude). In six other instances of weakness and anemia following acute and chronic disease (tuberculosis, carcinoma, scarlet fever, etc.), a disappearance of the feeling of weakness and a considerable improvement of the general health could be observed in every instance.

The histories cited above will afford conclusive evidence of the high therapeutic value of Pepto-Mangan (Gude). Unpleasant concomitant effects and disagreeable sequelæ were *never* observed during the use of the remedy. Eructations, pressure in the stomach, and nausea were never noticed.

In conclusion, I would say that Pepto-Mangan (Gude) is a valuable and reliable blood-building remedy, which can be recommended for general use in appropriate cases.—*Medicinisch-Chirurgisches Central-Blott, Vienna, Austria, January, 1902.*

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