both in micturition and defæcation. The uterus was much impaired in its mobility, and a brawny thickening was felt in the left fornix. The posterior and right lateral fornices were normal. There was a slight laceration of the cervix, posteriorly and to the right. After a fortnight's treatment in hospital the thickening had almost disappeared, and when discharged, after having been in a month, she was free from pain, and felt quite well.

There can be little doubt here about the course of events. The gonorrhoeal infection spread to the left tube, and so to the peritoneum, causing a pelvic peritonitis, with adhesions, strictly confined to the parts about the left broad ligament. That the inflammation was not of an intense character was shown by the rapidity with which both the discomfort and physical signs disappeared under treatment.

The next case is one in which the patient became infected at an earlier period of her married life, with the usual results of sterility and recurrent attacks of pelvic peritonitis.

Case iv.—S. W., aged 19, residing at Walworth, was admitted into Adelaide August 8th, 1888, complaining of pain in the lower part of the abdomen and in the right leg. She had been married three years and had not been pregnant. About two months after her marriage she noticed a vaginal discharge, and about the same time began to suffer from pain in the lower part of the abdomen, which had frequently recurred, lasting longer each time. The present attack commenced three weeks ago. The pain was relieved by lying with the knees flexed. The pain down the right leg was a new feature. The temperature was normal in the morning, and varied from 99° to 99.8° in the evening. On bimanual examination, a hard, irregular mass was felt to the left of the uterus and behind it. The symptoms quickly yielded to treatment, and the patient left the hospital on the tenth day declaring herself well.

In the next case, the mischief in the pelvis was of a much more serious character than in the instances last mentioned.

Case v.—E. R., aged 30, was transferred from Christian Ward to Adelaide June 1st, 1888. She was married twelve years ago to a man of loose character, whom she was obliged to leave on account of his ill-treatment of her, and who has now been dead seven years. She has never been pregnant. Nine years ago she had a swelling of the right labium, and has felt ill, and has had a vaginal discharge ever since. For the past six weeks she has had severe pain in the lower part of the abdomen, especially in the right iliac region. A fortnight ago she had an attack of shivering. She was admitted into the medical wards supposed to be suffering from enteric fever.

On bimanual examination the uterus was found displaced forwards, and immovably fixed; cervix immediately behind pubes and diverted to the right. There was a large hard swelling behind the uterus, bulging backwards into the rectum and downwards into the vagina. On the third day after being transferred the evening temperature reached 103.2°, and soon afterwards a profuse discharge of pus took place *per rectum*, followed by signal relief. The abscess continued to discharge for some time; and when the patient left the hospital, on July 8th, her temperature was normal and her condition generally much improved.

I have before me notes of other cases not less instructive, but I must not weary you. I have carefully examined the notes of all the cases of pelvic inflammation admitted into Adelaide during the nine months I have been in charge, and I find that in nearly one-half of them there is a history pointing more or less clearly to a gonorrhoeal origin. This may be, and probably is, an unusual proportion. There can be little doubt that septicæmia, following parturition or abortion, occupies the first place amongst the causes of pelvic inflammation. Next in importance comes, in my opinion, the poison of gonorrhoea. These two sources of infection are together responsible for an overwhelming majority of the cases, a small minority being due to cold, tubercle, injury, internal hæmorrhage, etc.

I have said nothing about the bacteriology of gonorrhoea. I do not in the least underrate the importance of Neisser's discovery of the gonococcus—a discovery which I think has a direct bearing on the question of treatment—but it has been my aim to keep within the lines indicated in the title of my paper, so as to restrict any discussion which may take place within practicable and useful limits.

It will, however, no doubt be expected that, having expressed a strong opinion on the importance of energetic treatment in every case of acute gonorrhoea in the female, I should state my views as to what that treatment should be. Regarding, as I do, the evidence of the

bacterial origin of gonorrhoea as indisputable, I naturally rely for its cure on remedies that have the power of destroying pathogenic micro-organisms. The old system of instructing the patient to syringe the vagina with lotions of lead, borax, or zinc is, or ought to be, obsolete. The local treatment should be undertaken by the medical attendant himself. The patient being placed in front of a window, in the dorsal position, with knees flexed and separated so as to expose the vulva, all discharge is to be wiped away by means of pledgets of cotton-wool, which are to be at once burnt. If there is any abrasion on the nymphæ, it should be swabbed by means of pledgets of lint dipped in strong carbolic acid; as also should the mucous membrane surrounding the orifices of the vulvo-vaginal gland-ducts, after pressing out and removing any pus that may be lying in the ducts themselves. The urethra should then be pressed systematically from the neck of the bladder to the meatus externus by means of a finger in the vagina. If a drop of pus exudes, the urethra is known to be implicated. The method I adopt under such circumstances is to wrap a film of cotton-wool around a Playfair's uterine probe, and, having dipped it in strong carbolic acid and removed any superfluous moisture, pass it along the urethra. I also administer copaiba by the mouth. If that remedy is ever indicated in the gonorrhoea of women, it is when the urethra is infected, and my own belief is that it is then useful.

With reference to the cervix, my treatment is, having removed all discharge from the canal and scraped any erosions that may be present, to apply strong carbolic acid to the scraped surface by means of a pledget of lint, and to the interior of the cervix by means of Playfair's probe. If there is reason to believe that the infection has reached the interior of the body of the uterus, the probe should be passed its full length, so as to bring the application in contact with the entero-mucous membrane of the body as well as the cervix. There only now remains the vagina to be dealt with. Its surface is too large and too sensitive for the application of strong carbolic acid. I, therefore, adopt the plan, suggested by Schwarz, of swabbing the whole vaginal surface through a speculum, with large pledgets of cotton-wool saturated with solution of corrosive sublimate (1 in 1000). These manipulations take much longer to describe than to carry out. They are not really very formidable, and, theoretically, they ought not to need repeating, though, in practice, they often do. I merely mention here the method of treatment I have myself been led to adopt. I am not in a position to dogmatise on the matter, for my experience is not large. Cases rarely come under our notice in this early stage. Whatever treatment be adopted, it should be capable of destroying pathogenic micro-organisms, and of penetrating the tissues to a certain extent, so as to reach any that may be just below the surface. When the infection has passed beyond the uterus, to the tubes, peritoneum, and ovaries, we can only deal with its results as we should with similar conditions of the same parts however caused.

Postscript.—There appeared after the above address was written, and therefore, unfortunately, too late for me to notice it at length, a valuable paper by Professor White, of Philadelphia, entitled, "Oophorectomy in Gonorrhoeal Salpingitis."¹ The author's main conclusions do not materially differ from my own.

ON THE INFLUENCE OF PERMANGANATE OF POTASSIUM ON MENSTRUATION.

By W. STEPHENSON, M.D.,

Professor of Midwifery in the University of Aberdeen.

In a paper on the Treatment of Amenorrhoea by Manganese,¹ published in 1883, Drs. Ringer and Murrell drew attention to what promised to be a rich vein of ore, well worthy of the attention of specialists. Since that time, however, the work remains pretty much as they left it. A few cases have now and again been recorded confirmatory of the opinions advanced, but contrary views have also been expressed, notably by Dr. Braithwaite, of Leeds.² He says he "has given the remedy in not less than forty suitable cases. Any benefit from its use was very seldom met with." My own first impressions, formed from casual observations, were likewise unfavourable. This led me to investigate the subject systematically, with the view of ascertaining the truth. The result

¹ JOURNAL, February 19th, 1889.

² Lancet, January 6th, 1883.

³ JOURNAL, April 30th, 1887.

has been to show that Drs. Ringer and Murrell have but broken the surface ground, and that this is not a bogus remedy floated on a too credulous public.

The present investigation has extended over a period of three years. The cases have all been under my personal care, and the large majority of them have been seen in the consulting-room; in all, notes were taken at each visit. As is the usual experience, many of the cases in which the remedy was prescribed have been found imperfect, but I have been able to collect 105 cases in which reliable results were obtained.

In the present series the permanganate of potassium alone has been used. It was prescribed in the form of pill, containing two grains of the salt with sufficient kaolin ointment; one pill three times a day after meals; in a few cases twelve grains a day were taken. Many of the patients continued to take the pills regularly for two and three months. In only three cases did they complain of any pain after the medicine, and in these reducing the number of pills per day or the dose in each was sufficient. My experience, therefore, is different from that of Dr. Döering,³ of America, who found that "the administration of the drug in doses large enough to be effective is accompanied by severe pain, which frequently necessitates a discontinuance of the remedy, and hence impairs its value as an emmenagogue." This result is explained by the mode of administration. He recommends it to be given in "capsules, taken midway between meals, and followed by large draughts of some pure mineral water." The drug is thus thrown rapidly in solution on the stomach, whereas the pills undergo very slow disintegration.

Amenorrhœa is the test which has mainly been used for the action of the permanganate, and, therefore, naturally leads to a condition which tends to right itself. Unfortunately, it is deceptive. The greater part of the evidence adduced is, nevertheless, composed of such cases. The authors of the paper first referred to state: "Our most striking results have been obtained in young women between the ages of 18 and 25, who from some accidental or trivial cause, such as catching cold or getting wet, have missed once or twice after having been regular."

Evidence of this character must be accepted with caution; and did the belief in the action of the permanganate rest on such alone, it would require a very large number of successive cases (not cases taken here and there) to eliminate the uncertainty that is inseparable from the affection. Two of my cases were instructive in this respect, for they both menstruated before they had taken the pills.

In so-called emmenagogue remedies I have no belief, and that such is not the action of permanganate of potassium is evident, for I have found it as serviceable in restraining the menstrual flow when in excess as in promoting its recurrence when suppressed.

Of the beneficial effect of the drug in amenorrhœa I have no doubt, but this opinion is not based on the result of the treatment of such cases alone. Corroborative tests can be used. First, where menstruation has not been suppressed, but the intervals between the periods have been irregular, does the permanganate promote regularity? Secondly, where the periods have been regular, but the quantity has been scanty, does the permanganate increase the amount of the discharge? And, thirdly, has the remedy any influence in modifying the amount of suffering experienced at the periods?

An analysis of the 105 cases gives the following results on these points: Of amenorrhœa, where menstruation had previously been fully established, there are 22 cases. Of these the flow was re-established in 12 cases, and no such effect in 8; in 2 the remedy acted well at first, but on a subsequent amenorrhœa it failed. Of primitive amenorrhœa, or where menstruation had been imperfectly established, there are 10 cases; in 6 good results were obtained, and in 4 none. In 7 cases the interval was too long, but otherwise menstruation was natural; in 5 of these there was marked improvement, in 2 the character remained the same. In 21 cases menstruation was scanty in amount, and too long between the periods; in 11 there were good results, in 10 no improvement. In 18 cases there was very marked improvement in the amount of pelvic pains, and frequently the patients stated that they felt much stronger during the periods, and were not "so pulled down."

In estimating the value of these general results it must be remembered that in the inquiry the permanganate of potassium was prescribed indiscriminately, with the view of testing its action;

the failures are, therefore, more numerous than they otherwise would have been had cases deemed most suitable been selected. Thus a number of them were cases of chlorosis, where iron should first have been employed or given in conjunction with the manganese.

Together with the above tests, there is another which should be taken along with them, that is the marked action of the remedy in checking leucorrhœa. This effect I observed early in the investigation, and I find Dr. Ringer also mentions it. The action is very reliable, and generally immediate, but in some cases it is obtained only after the first menstrual period; in two cases only there was no improvement in the leucorrhœa, and as both were unmarried no examination was made.

Whilst treating a case of long-standing amenorrhœa, I found that without menstruation being restored, she had been relieved of severe headaches from which she had suffered for four years. This directed my attention to the subject of menstrual headaches. Since that time I find amongst my notes 29 cases in which headaches were a prominent symptom; in only 4 of these was no relief obtained.

There is one striking case where the patient, aged 35, had suffered from headaches all her menstrual life. They occurred on the first, and occasionally the last, day of each period, but for three years they have returned every fortnight, at the mid-period. Since taking the permanganate (now nine months) she has not had a headache.

The headache of the menstrual period was not always removed, but generally greatly moderated. The best results were obtained in cases where the headaches had begun to return in the intervals, once a fortnight, then weekly, and, at times, two or three times a week.

In a similar manner I was gradually led to the fact that the permanganate has a marked influence in relieving ovarian pain. Amongst the notes there are 22 cases in which the ovarian spot pain was a special symptom. They were all more or less relieved, some in a very marked manner. I now prescribe the remedy in all cases of functional ovarian pain with as much confidence as I do in leucorrhœa. The relief is not always complete or permanent, but there is ample proof that the drug exerts a beneficial influence over this very intractable symptom.

As the subject thus became widened, another point demanded attention. Has the permanganate any influence over menstruation when it is in excess either in time or in quantity? I have notes of 27 cases where this condition was present, and in 2 only was there no improvement. The beneficial effect in this respect is even more marked and reliable than in the opposite condition of suppressed or scanty menstruation. There is here less likelihood of wrongly attributing the improvement to the medicines, and some of the cases leave no room to doubt the action of the remedy. Thus one patient, aged 44, had for nine months menstruated every fortnight, and any excitement would bring it on. For the first four days of a period the discharge was very free, and thereafter moderate for other six days, making ten in all. The first menstrual period came on a week after beginning the medicine, with but little improvement; the second menstruation, at twenty-eight days' interval, quantity less, but still free, lasted five days, instead of ten; third menstruation, twenty-six days' interval, lasted six days, "not so pulled down," general health improved; fourth menstruation, twenty-eight days; fifth menstruation, twenty-four days, quantity normal. The effect is thus observable both as to time and quantity.

Each of the above points merits and would require a separate paper for its consideration. Time at our disposal permits general statements of results only. It is, however, evident that in the permanganate of potassium we have a remedy which has a considerable influence upon the function of menstruation when that function is deranged. In the matter of time, it tends to promote the normal periodicity both when the periods are too long and when too soon. It aids in restoring the menstrual flow when suppressed, to increase it when scanty, and to moderate it when in excess. It relieves much of the menstrual suffering, has a direct influence on some forms of ovarian pain and the headaches of menstrual origin. It has a remarkable influence in checking leucorrhœa.

The questions naturally arise, then, how does the permanganate act, and what are the cases suitable for its administration? It might be argued that manganese has, as its emmenagogue action implies, a direct influence on the generative organs, as ergot has on the uterus, and digitalis on the heart; but the evidence at our

³ *American Journal of Obstetrics* for 1885.

disposal does not warrant any such conclusion. As yet the action of the drug has been studied only in relation to disease, and we have no evidence to prove its physiological effect in health. A study of the cases seems to point to the view that its beneficial action is due to its correcting the *constitutional* states which give rise to menstrual derangements, rather than to any specific effect on the uterine structures. It might equally well be stated that lime-juice has a direct action on the gums because it removes the scorbutic lesions of these parts.

The action of manganese has generally been supposed to be similar to that of iron, and accordingly at one time it was given in chlorosis and anæmia, but "failed to be of service." It does not act on the blood, its action is totally different from iron, but yet I have found it of decided use in chlorosis for its effect on menstruation, and of late I have added the carbonate of manganese to Bland's pill.

The study of my cases, from a constitutional point of view, apart from its action on menstruation, tends to indicate that manganese acts on the vasomotor system, improving and giving tone to the circulation. This is well seen in a constitutional state met with in young girls. They are not anæmic, rather the reverse, full blooded with languid circulation; the chief characteristic is that the face and extremities are hoven, with a tendency to blueness; there is a great loss of energy and a disposition to drowsiness in the daytime. Under the permanganate this constitutional state steadily improves. At first there may be a loss of weight, the colour becomes clearer, the fullness of the tissues subsides, and the energy returns. The loss of weight I have several times observed in patients taking the permanganate is not due, in my opinion, to increased combustion of the tissues, but to the diminution of the watery elements of the blood and tissues. The condition is not oedema, but a vascular fullness.

Much of the relief to menstrual suffering afforded by the permanganate is doubtless due to the improvement in vascular action. Several of the cases, which time will not permit to quote, clearly indicate that some forms of menstrual pain are caused by vascular distention and increased venous blood-pressure. It is in these cases the remedy may be relied upon to afford relief, and so improve the system that the suffering does not return at subsequent periods. The influence of the remedy on leucorrhœa is likewise, in all probability, due to the improvement in the circulation. The effect in affording relief to the ovarian pain admits of the same explanation.

The vascular changes associated with menstruation are, however not merely local but are truly systemic. The relief obtained in headaches can therefore be also understood by an improvement in the general circulation. But, as we have seen, the remedy influences not only the amount of the discharge but also the time, by restoring the normal periodicity. This points to an influence on the nervous system. Laschkeewitsch has shown that in toxic doses "manganese causes general paralysis, at the same time the heart's action ceases, owing to the direct effect of the drug on the motor apparatus."¹ From these pharmacological experiments, together with the results of clinical observation, we may confidently infer that the direct action of the remedy is on the vasomotor centres, and from the marked influence on menstruation it is probable that it stimulates especially the centres regulating the generative system.

A NEW METHOD OF EXCISING THE WRIST-JOINT.

By EDWARD THOMPSON, F.R.C.S.I.,
Surgeon to the Tyrone County Infirmary.

Excision of the wrist-joint, even in these days of antiseptic surgery, is an operation not much in favour with most surgeons. It is comparatively seldom practised, probably because, as a rule, the amount of disease which would justify such a very serious proceeding is too extensive to render success probable, while in slighter cases efforts are made to remove limited diseased portions of bone, a proceeding which I have often seen attended with very unsatisfactory results. The operation as perfected by Sir Joseph Lister is, notwithstanding all that can be said in its favour, clumsy and difficult of performance, and includes removal of the whole carpus, resection of the ends of the metacarpal bones, as well as of the ulna and radius. The following case, which has been

¹ Binz's *Therapeutics*.

under treatment in the Tyrone Infirmary, illustrates the change which I propose in the method of performing this operation.

Mrs. I., a strong, healthy, middle-aged woman, living near Dungannon, in the county Tyrone, was admitted into the Tyrone County Hospital, about two years ago, suffering from caries of some of the carpal bodies of the left hand. The diseased and loosened portions of bone were removed by careful gouging, and although there was some improvement, the woman went home very little better than when I first saw her. About five months ago she returned to the Infirmary in a very much worse state of health. She had lost greatly in flesh and strength; the lower part of the forearm and hand were swelled and much inflamed. The slightest motion, even of the fingers, caused intense pain. There were numerous sinuses both on the back and front of the hand and forearm, all of which communicated readily with carious bone. There was also a constant discharge of thin unhealthy pus. The patient was most anxious to have her forearm amputated, as her sufferings were intense. I determined, however, to try and save the hand by removing the diseased bone by a method quite different from the proceeding generally adopted in excision of the wrist. On the back of the hand, and within about half an inch of its ulnar border there was a large shallow ulcer about the size of half-a-crown. I selected the outer edge of this sore as the site of the incision, which ran between the tendons of the extensor communis and minimi digiti, and was about four inches in length. The edges of the wound were kept apart by retractors, the joint freely opened into, and a full and accurate view obtained of its inner aspect. The disease seemed to be confined to the first carpal row of bones, and to the lower extremity of both the radius and ulna.

A gouge was first introduced into the joint, and the semilunar bone gouged completely away; then each of the neighbouring bones was firmly caught by a strong forceps, slowly twisted from its connections and removed. The diseased ends of the radius and ulna were removed by gouging. Subsequently, as there was no difficulty in shoving the extremity of the radius and ulna through the wound, I thought it better to saw both bones straight across immediately above the seat of disease. In order to allow free drainage, a small incision was made on each side of the joint as close as possible to the level of the floor of the joint, and a drainage-tube inserted. The wound was stuffed firmly with iodoform gauze, and dressed antiseptically. A straight splint was placed under the forearm and hand, the palm being supported and raised on a roller bandage instead of a piece of cork as usually recommended. The case made an uninterrupted and speedy recovery, and the patient has now a good useful hand instead of an unsatisfactory mechanical contrivance.

This case seems to me of some importance, because it well illustrates the success of a plan of treatment which I believe has not been hitherto recommended. The method employed differs widely from the usual operation of excising the wrist-joint. It is easy of performance, free from danger, does not tear or injure any of the tendons, vessels, nerves, or deeper structures. It is quite bloodless, and does not require removal of any portion of bone which is sound and healthy. The opening on each side of the joint I consider essential, as free exit is thus given to any discharge that might possibly collect in the cavity left after removal of the diseased bones. Arthrectomy of joints, with removal of diseased masses of bone by gouging and the chisel, has a large field before it. Quite recently in the Tyrone Infirmary I opened freely into the knee-joint, and gouged away nearly the whole of the head of the tibia, draining the joint freely by two large drainage-tubes inserted above and below, and crossing in the joint. The case was a most unfavourable one in every respect, yet recovery was complete, the boy being out of bed in a few weeks, his limb being well supported in a plaster-of-paris case, which was put on immediately after the operation.

CASE OF POISONING BY NEW "SICHERHEIT" EXPLOSIVE.

By WILLIAM SYKES, M.R.C.S., L.R.C.P., AND F. GRAHAM TWIGG, L.S.A.,
Mexborough, near Rotherham.

P. D., male, aged 33, presented himself at the surgery on July 3rd, in the evening.

History.—Previous health excellent. Commenced mixing in-