quired to be refilled. The upper cut was finally tied and cut short when the operation was completed, and the little wound was stitched up.

There is a limit to the rate of injection on each side. One may possibly take longer to inject than the blood will remain fluid, or one may inject too rapidly for the comfort of the patient. In amputation, neither of these can easily happen; but in this case, I committed both errors. This point of course involves the question as to how much phosphate of soda ought to be added, and as to the coagulating quality of the blood. The solution of phosphate of soda was of 5 per cent., and one part of the solution was added to three parts of blood. A slightly larger proportion is probably advisable, and was frequently used in the amputation cases.

The donors for the pernicious anemia were healthy and powerful young students. One of them, Mr. Hardyman, found before he was bled that his red corpuscles were largely above the average, and on that occasion six ounces and a half of blood were added to two ounces of soda-solution. I was obliged to stop before the last ounce was injected, because it showed signs of thickening in the dish, and it actually coagulated six or eight minutes afterwards.

On the next occasion, with the same donor, I hastened the operation considerably, in order to avoid this coagulation. The patient, however, had only received four ounces when she experienced so much distress from pain in the back and forcible cardiac action, that I ceased injecting. It was annoying to find that, by an error in compounding, the soda-solution had been made of double strength, and that the remaining blood had not coagulated half an hour afterwards.

Experience, in short, shows that, in such a case, and with sufficient phosphate of soda, one may occupy at least twenty or thirty minutes in injecting; and that at a slow rate the patient will experience not the least discomfort. At the same time, the effect will vary with the condition of the patient. In one amputation, I injected eight ounces in five minutes; in the hip, sixteen ounces in about fifteen minutes, without any disturbance. But in the case of pernicious anemia, we had already by previous operations added considerably to the vascular contents, and the quantity of blood in the body was daily increasing, so that it is not astonishing that four ounces added to the blood in five minutes should produce unpleasant though evanescent symptoms. The more complete and rapid depletion has been, the more quickly and largely may repletion be effected.

One other observation has to be made. The process of re-injecting the patient's own blood is incompatible with the use of spray or irrigation during the operation. For myself, I am satisfied by experiment and from clinical experience that the spray does not kill micro-organisms in the air; and that in most cases the application of the germicide may safely be delayed till near the end of the operation. With pure hands and instruments, the risk from the air is trifling, and it is not worth considering when a patient is in imminent danger from hæmorrhage and collapse.

ABDOMINAL SECTION FOR THE REMOVAL OF SMALL INTRAPELVIC TUMOURS OF THE OVARIES AND ADJACENT PARTS: WITH NOTES OF TWO CASES.

Read before the Lancashire and Cheshire Branch.

By CHARLES J. CULLINGWORTH, M.D., M.R.C.P.,
Professor of Obstetrics and Gynecology at Owens College; Physician to St. Mary's Hospital, Manchester.

THE operation for the removal of the ordinary ovarian tumour has now become so general, that it is no longer necessary to plead that it should be recommended early. Medical men are, for the most part, sufficiently alive to the desirability of such a course, knowing how much their patient has to gain by submitting to treatment before the constitution has begun seriously to suffer. But the feasibility of operative interference in the class of cases, of which the two to which I am about to call attention are typical specimens, is not yet established on anything like so firm a basis. We are, indeed, only just beginning to realise the vast fields of usefulness that have been opened up to us by recent advances in abdominal surgery—advances due, in the first instance, to the experience gained by our great ovariologists; in the second place, to the introduction of the various antiseptic methods, whether Listerian or otherwise; and lastly, if not chiefly, to the conspicuous ability and enterprise of a distinguished provincial surgeon; I mean, of course, Mr. Lawson Tait. I confess that, in common with many others, I was somewhat slow to undertake ovarian operations where there was no perceptible tumour in the abdomen. But

I have now for some time been convinced that surgical interference affords us the best, if not the only, means at our disposal of relieving and curing a large number of women, who have hitherto drifted on from year to year, without sensible amelioration of their suffering, and who have long been the opprobria of our gynecological out-patient and consulting rooms.

The operation of abdominal section for the removal of intrapelvic tumours is in several respects a more difficult one than ordinary ovariectomy. The incision in the abdominal walls is more likely to be attended with troublesome hæmorrhage when the tissues are in their normal condition, than when they have been distended and atrophied by the pressure of an underlying tumour. Again, instead of a tumour presenting itself to one's eye the moment the incision is made, one is apt to come upon coils of small intestine, amongst which one has, as it were, to grope for the diseased structures which lie deeply down, out of sight. One has, in short, to rely much more on the sense of touch, and much less on the sense of sight. Further, when the diseased structure is seized, its removal is very often attended with considerable difficulty, owing to its deep situation, and the firm adhesions frequent under these circumstances. But notwithstanding these difficulties, the operation is not only a feasible and justifiable one, but, thanks to the improved methods of operating now practised, is as safe as ordinary ovariectomy.

Without further preface, I proceed to describe, as briefly as possible, two cases upon which I have operated successfully during the present year.¹

The first case was that of a young woman, aged 25, named Annie McC., who presented herself in the out-patient department of St. Mary's Hospital, Manchester, on account of a constant pain and a sensation of weight in the lower part of the abdomen, which rendered her quite unable to continue her calling as a dressmaker. She had married at the age of 17, had never been pregnant, and had now been a widow for three years. The pain commenced six years ago, and had continued ever since with one or two short intervals; it was most severe on the left side. She had consulted several eminent gynecologists in London, and had at one time been a patient at the Chelsea Hospital, where she obtained considerable temporary relief. But the symptoms returned when she resumed her ordinary life, and increased in severity from year to year, until, twelve months ago, she found she was unable to maintain the sitting posture sufficiently long to continue her occupation. During the last six months, she had earned what she could as an artist's model. She had an anæmic and careworn appearance, and her general health was evidently becoming impaired.

On bimanual examination of the pelvis, a firm, rounded, tender swelling was felt to the right of, and slightly behind, the uterus; the uterus itself was normal in size and position. The patient attended in the out-door department for about seven weeks, and, as she did not in any way improve, I suggested an exploratory incision, with a view to removing the disease, if it were found practicable. As her life was a burden to her, and she was unfit for any kind of work, she readily consented to run the risk of the operation; and, accordingly, I admitted her as an in-patient on May 11th, 1885, and explored the abdomen, with antiseptic precautions, on the 13th.

I expected to find a chronically inflamed and enlarged ovary on the right side, and an inflamed and adherent ovary, without marked enlargement, on the left. What I did find was as follows: on the right side, a chronically inflamed and indurated ovary, of the size of a walnut, and, in addition to this, a firm tumour of the broad ligament, of the size of a closed fist, consisting of a compact mass of exceedingly small cysts; on the left side, another broad ligament tumour of similar character to that on the right side, but smaller. The left ovary was apparently healthy. I enucleated both the broad-ligament tumours, and removed the right ovary with part of the Fallopian tube, leaving the left ovary and tube undisturbed. The operation was rendered somewhat difficult, owing to numerous very firm adhesions. The pedicle of the right ovary and tube was secured by a carbolised silk ligature, and left within the abdomen. A glass drainage-tube was inserted, and left in for forty-eight hours. The temperature rose to 102° Fahr. in the evening of the day of operation, but soon fell to 100° Fahr.; and, although it rose on the morning of the fifth day, and again on the morning of the sixth day, to 101° Fahr., it did not again occasion the least anxiety, and the patient made an excellent recovery.

I saw her so recently as yesterday (December 15th, 1885). She has lost her anæmic appearance, and become stout and well. A lady, from whom I removed an ovarian tumour some time ago as a private

¹ The descriptions which follow are condensed from notes kindly taken for me by Dr. Archibald Donald, house-surgeon to the hospital.

patient, happened to visit the hospital while McC. was under treatment, and, taking an interest in her fellow-sufferer, has very kindly established her in business as a dressmaker, where she now follows her occupation in comfort, being entirely relieved of her pain. Her only trouble now arises from some menstrual irregularity, which, I quite hope, will prove to be merely temporary.

Why the pain in this case was on the left side, when the principal mischief was on the right, I cannot explain. The satisfactory point is, that removal of the disease has put an end to the pain.

The second case is that of a married woman, aged 26, named Mary M., a winder in a cotton-mill, who was admitted into St. Mary's Hospital, Manchester, on September 25th, 1885, complaining of continuous pain in the lower part of the abdomen, especially on the right side, and down the right thigh. The pain had existed for seven years, commencing soon after the birth of her only child. At first, it only came on immediately before each menstrual period, but it was even then so severe while it lasted, that she was rendered unfit for work. During the last two months, the pain had been severe and continuous, and there had been persistent hæmorrhage from the uterus.

The patient, on admission, was thin and anæmic, with a haggard and pinched countenance, betokening much suffering. On bimanual examination of the pelvis, the right side was found to be occupied by an oblong firm swelling, very tender to the touch, pushing over the uterus to the left of the middle line. The diagnosis was uncertain; but I thought it most probable that there was distension of the right Fallopian tube. The hot douche and absolute rest were found, at the end of a fortnight, not to have resulted in the least relief; and, accordingly, the risk having been explained to the patient, an exploratory incision was made in the middle line of the abdomen on October 7th. The right ovary was found to be enlarged to the size of a hen's egg, and to be cystic; the contents of the cyst, which escaped during removal, consisted of dark fluid blood, altered by long retention. Closely connected with the diseased ovary was a thick fusiform swelling, consisting of the Fallopian tube distended with blood, partly fluid and partly clotted, the walls of the tube being much thickened by chronic inflammation and firmly adherent externally to a coil of small intestine. After carefully separating the adhesions, the tube and ovary were both removed, the ligature being placed close to the uterus. The left ovary was also found to be enlarged from incipient cystic disease, and was accordingly removed. The tube on the left side was healthy. A glass drainage-tube was inserted at the lower angle of the wound, and allowed to remain until the fourth day. The patient made an excellent recovery, the temperature only once rising to 100° Fahr. She had some pain about a fortnight after the operation, but it soon passed off, and she is now entirely free from pelvic discomfort, and able to go about as usual.

These cases require little comment. I have not brought the patients, for there is nothing now to show but a healthy cicatrix.

One word, however, may be added as to the conditions which, in my opinion, justify operative interference. In considering the treatment of disease of the so-called uterine appendages, it is always necessary to bear in mind that even severe and continuous pain may be after all purely neuralgic, or, at any rate, merely functional. In such cases, probably no one would consider an operation justifiable. Having found it necessary, as everyone engaged in the practice of gynecological surgery must have done, to formulate for my own guidance the conditions which justify exploration, and bearing in mind the special liability of the female pelvic organs to the functional disorders to which I have alluded, I have come to the conclusion that the essential conditions are two in number; namely, (1) the presence of physical signs of actual disease, in the form of one or more circumscribed intrapelvic swellings not springing directly from the uterus; and (2) the existence of continuous pain, which rest and other simple methods of treatment fail to relieve, and which is sufficiently severe in character to disable the patient from following the ordinary occupation of her life, whether that occupation be the means of earning a livelihood, or merely the work of her own household. Where these two conditions are present, and the patient and her friends are made acquainted with and are willing to accept the risk, I believe we not only may operate, but that it is our duty to do so.

EPIDEMIC OF GOITRE.—Dr. Hand, in the *North-Western Lancet*, reports an epidemic of goitre among the inmates of the Minnesota State Reform School. Forty-four out of 140 were suffering at the time of Dr. Hand's observation. It was thought that the origin of the trouble lay in the flour from which the bread was made. The usual treatment, with a change in the flour, was speedily followed by a cure of most of the cases.

A NEW, EASY, RAPID, AND PAINLESS METHOD OF REDUCTION OF DISLOCATIONS OF THE SHOULDER, WITHOUT AN ANÆSTHETIC: WITH CASES.

By NEIL MACLEOD, M.D. Edin., Shanghai.

AN experience in my own person, three years ago, of a dislocated shoulder, and its reduction without an anæsthetic, by the ordinary method, with the heel in the axilla, suggested the method found successful in the two cases here recorded. It has been my misfortune, in three years, to have only these two opportunities of testing the efficiency of the method proposed; but the result so far exceeded my expectations, that I am tempted, without waiting for other cases, to ask surgeons who have more frequent opportunities than I have to make a trial of it, especially as it is a painless one, and, if unsuccessful, does not in any way interfere with the adoption of other methods.

In my own case the dislocation was subglenoid, with very marked abduction of the elbow. When the arm was allowed to hang unsupported, there was pain at the insertion of the deltoid muscle, at once relieved by abduction of the elbow. A surgeon, who was at hand when the accident happened, placed the arm over his shoulder, and tried to press the head of the bone into its proper place with his two thumbs, causing great pain at the point of pressure, and failing to make reduction. I then lay down on the ground, and the reduction was accomplished in the ordinary way, with the heel in the axilla, requiring great force, accompanied by a jerk; the pain at the lower part of the deltoid being very great. For several days after reduction, this pain continued, preventing sleep; and at the end of the week there were tenderness, discoloration, and two lumps with a hollow between at the insertion of the deltoid. There was no discoloration visible at any time in the region of the shoulder itself. I inferred, and I believe rightly, that the deltoid had been partly torn at its insertion. From the behaviour of the pain before reduction, when strain was put on and taken off the muscle, and also its intensity during, and persistence after, reduction, it seems unlikely that the tear was caused by the accident, and that it was more probably due to the procedure in reduction. It is not easy to rupture tendon or muscle by steady traction; but let either be put at the disadvantage present in subglenoid dislocation (as the deltoid muscle is), and the long arm of the lever from the insertion of the deltoid to the hand would easily account for such an accident, when the force was applied by a powerful man. At all events, the pain accompanying reduction in my case, made relaxation of the muscles concerned in the movement of the joint absolutely impossible. Now, after a lapse of three years, I have pain at this point with certain movements, there being none whatever in the region of the joint.

In accordance with the axiom, that the direction of the reducing should be as nearly as possible opposite to that of the producing force, I determined, in the first case that came into my hands, to pull the arm in a direction at right angles to the line of the trunk. This is nothing new, for it is recommended by Hulke and Lowe, and perhaps by others; but Hulke further recommends the sitting posture on a chair, a doorpost, two or three assistants, and a close hitch, and Lowe, the sitting posture on the floor and a sofa. In a sitting posture, while a man may relax his shoulder-muscles (and he will not do so if there be pain there), the other muscles of the body are more or less tense, and so enable him, by association, to resist with the shoulder-muscles, involuntarily as well as voluntarily. The only position in which any and every one is accustomed to relax completely all voluntary muscles, is when lying down. This fact is taken advantage of, certainly, in the ordinary heel-in-the-axilla method; but the direction of traction in this method causes pain, and, so long as pain exists, it is impossible to have relaxation of muscles in any position. It is noteworthy that, to relieve the pain of a dislocated shoulder, the patient supports, that is, abducts the elbow, and the surgeon can raise the elbow to the height of the shoulder, giving comparative ease, while every attempt at adduction produces pain and spasm. Traction in a line at right angles to the trunk in the two cases here described, I found, to my astonishment, did not cause pain when the patient was lying down; and this traction fulfils the axiom as to the direction of the best reducing force.

The deltoid, latissimus dorsi, teres, and pectoral muscles are, as I have pointed out, relaxed when the subject is lying on the ground, and so even with the arm outstretched and also lying on the ground. In the same posture, when the head of the bone has been pushed nearer the middle line of the trunk, as in most dislocations of the shoulder, the insertions and origins of all these muscles have been