a trace of peritonitis was found, but an intense swelling and injection of the mucous membrane of the stomach and upper part of the small intestine, with minute hæmorrhages into the mucous membrane.

The converse was seen in a patient of my own from whom a stenosed vermiform appendix was removed from an abscess cavity which to some extent had already infected the general peritoneal surfaces. In the first forty-eight hours after this operation there was marked improvement; but later the pulse quickened greatly, though it remained very soft; the face became flushed, not pinched; there was delirium; the abdomen was not distended; it was not tender when palpated, and the only conclusion one could arrive at was that the patient was dying of acute septicæmia, and that it was probably due to absorption from the abscess cavity which had been opened; at all events, there was nothing to justify a diagnosis of spreading peritonitis, and yet at the necropsy a general purulent peritonitis was found.

To sum up: instead of the constipation generally present there may be diarrhoea; instead of a hard wiry pulse we may have a soft and dicrotic one; distension and tenderness may be absent. The most reliable signs in my experience are the steadily increasing frequency of the pulse, often with a low or falling temperature, and the facial appearance, this being either pinched and anxious or flushed, and this latter is usually associated with delirium. In many cases the phenomena are those of septicæmia, which mask and obscure the symptoms immediately due to the inflammatory process in the peritoneum. These latter are pain, shock, paresis of the bowel, and hard pulse, and are mainly produced through the impression made on the widespread sympathetic plexuses of the abdomen by the inflammation which envelops them. It is worth noticing that the umbilicus seems to be the point at which inflammatory collections naturally find their way out, if they are general. In Case vii this actually happened, and it was threatening in Cases iv and x at the time they were drained.

With regard to treatment, there is not much to be said which the notes of the cases do not convey. Incision in the middle line, irrigation, and drainage, is a simple procedure and carries with it but little risk, and it is a question whether it is resorted to as often as it should be. The profession is, perhaps, fully alive to its advantages when a very acute onset, such as is due to perforation, can be recognised, but when the commencement is less acute and the symptoms less alarming in the early days, then I doubt if drainage is adopted as often as it is called for, in such cases, for instance, as Nos. i and ii. When the inflammatory collection is localised, and more especially if this be in the upper part of the abdomen, it is well not to do too much. Simple incision and drainage suffices; anything like forcible irrigation or searching about with the fingers by disturbing limiting adhesions is likely to do harm. In such cases as No. ii, in which the second attack of peritonitis was due to perforation of the appendix, drainage by median incision is insufficient to meet the case, as there is constant reinfection of the peritoneum through the perforation. If a perforative focus is discovered it should be dealt with directly, and in the case of such a lesion as perforation of the appendix an incision directly down over this organ should be made for its removal, and at the same time median section should be performed for irrigation and drainage of the general cavity.

What the future of my patients who recovered may be is to some extent a matter for anxiety, although at the present time they are all perfectly well. The necropsy obtained after the second operation in Case ii emphasises a danger that may always follow recovery from peritonitis, whether requiring operation or not. In this case a firm band of adhesion so constricted the rectum as to interfere with the proper emptying of the colon, and it is probable that had the patient recovered, he would eventually have suffered from intestinal obstruction.

I am much indebted to my colleague, Dr. Simon, for the readiness he showed to adopt early surgical measures in several of these cases which in the first instance were under his care.

Dr. R. CRONIN has been appointed a Justice of the Peace for the county of Meath.

NOTES OF ABDOMINAL SURGICAL CASES.

By J. CRAWFORD RENTON, M.D.,

Assistant to the Professor of Clinical Surgery in the University of Glasgow, Assistant Surgeon to the Western Infirmary, and Additional Examiner in Clinical Surgery in the University of Edinburgh.

GASTRO-ENTEROSTOMY.

In March, 1891, I showed to the Medico-Chirurgical Society of Glasgow a patient on whom I had performed the operation of gastro-enterostomy for pyloric tumour causing obstruction of the pyloric orifice and dilatation of the stomach. Full details of the case were published in the *BRITISH MEDICAL JOURNAL* for January 9th, 1892. Two years after the operation, which was performed on November 16th, 1890, the patient was again shown to the Society, quite well.

In a second case of gastro-enterostomy for dilatation of the stomach due to chronic fermentative dyspepsia, the operation was performed on February 6th, 1892.¹ He is now quite well, and has no occasion to wash out his stomach, because the digested food gets out of it before fermentation takes place. The stomach is still dilated, but the organ is mechanically relieved by the anastomoses which has been formed between the stomach and jejunum or ileum.

The union in both the above cases was effected by means of Senn's plates of decalcified bone, which became absorbed in forty-eight hours, long enough time to permit of satisfactory union between the stomach and bowel.

The short time occupied in performing gastro-enterostomy is a very important factor in the success of the operation. Indeed, it may be laid down as a rule that in abdominal operations the shorter the time occupied in the doing of the operation and the warmer the patient is kept the better. This latter is generally effected by plenty of warm bags around the patient, or by a water bed filled with hot water, or by a large hollow tin pan on the operating table, which Professor Macewen kindly showed me in use in the Royal Infirmary.

PYO-NEPHRO-LITHOTOMY.

In the absence of Professor George Buchanan I was asked by Professor McCall Anderson to see C.D., who was a patient in his ward in the Western Infirmary during the summer of 1892. The medical report I have received from Dr. Bishop, resident physician in Dr. Anderson's wards:

C. D., aged 24, was admitted on June 8th, 1892, complaining of repeated vomitings and great weakness, of two months' duration; previous health good. She was confined on April 18th, 1892, and since then has had frequent vomiting. Three days after delivery a lump formed in the abdomen, and was easily detected on admission. It was the size of an ostrich's egg, in the right ilio-lumbar region, and since her admission had increased in size without there being any pain. There was a distinct deposit of pus in the urine but no frequency of micturition. On June 22nd Dr. Anderson and I saw her together, and we were quite satisfied that the symptoms pointed to some swelling in the renal region. The examination of the urine, while showing pus, did not, when tested by Dr. Buchanan, show any tubercle bacilli, and even in the absence of pain we were hopeful that there might be a renal abscess caused by a calculus, although of course we were quite prepared for the possibility of an abscess opening into the kidney or ureter without a calculus. The patient was transferred to Professor Buchanan's ward, and in his absence, on June 28th, I cut down on the kidney by the posterior incision, and found it occupied by a large fetid abscess with a calculus in the ureter. The calculus was difficult to dislodge, and I regretted that I had not the bent forceps for the purpose which I believe Mr. Clarke of London advises. After extracting the calculus, the cavity was washed out, a drainage tube introduced, and the usual dressings applied. The case progressed favourably, and on August 5th she was dismissed well.

The point of interest in this case is the absence of pain. Generally there is severe pain in cases of calculus in the kidney, but from time to time we meet with complete absence of pain.

In a case in which Professor Buchanan had removed a stone from the bladder I removed one from the right kidney, and when he died, a year after, we found the left kidney full of calculi.

In another case which I dissected when a house-surgeon, and in which Dr. Heron Watson had successfully performed suprapubic lithotomy, I found the kidneys full of calculi. In this case there was pain in the renal region, but not to the extent that might have been expected. Consequently, we cannot dismiss the possibility of a stone in the kidney although there is no pain in the renal region, just as we cannot be certain that there is a stone although we have pain.

¹ Fully described in the *Glasgow Medical Journal* for December, 1892.

Recently, for severe pain in the renal region, I cut down and found no stone, but the patient has been well ever since, and this has been frequently noted by others.

OVARIOTOMY TWICE PERFORMED ON THE SAME PATIENT.

In 1882, M. G., aged 43, was sent to me by Dr. Allan, suffering from an abdominal tumour, which we diagnosed as ovarian.

The patient was put under chloroform, and, assisted by Drs. Allan and Beatson, I removed the cyst of the right ovary, which was multilocular; the pedicle was tied. The other ovary appeared to be healthy. The case did well, and she went home in three weeks. In February, 1892, Dr. Allan wrote me that our old patient was again suffering from an ovarian tumour. She was admitted to the Blythswood Home, and on February 29th ether was administered by Dr. Garnet Wilson, and, assisted by Dr. Allan, Dr. Dudgeon, of Pekin, and Dr. Bryce, I removed the tumour, which was multilocular, adherent, and more difficult to deal with than the first. The pedicle was tied; the abdominal incision was made a little to one side of the former one, and it was interesting to note the firm line of union in the first. The patient did well, and went home in a month.

It is important in performing ovariectomy to examine the other ovary when the one affected is removed. I have had occasion once to find the other ovary affected by a cyst, and therefore removed it at the same time. Professor Buchanan records an interesting case in which he performed ovariectomy thrice on the same patient, no doubt in one case the cyst was parovarian.

EXPLORATORY INCISIONS FOR ABDOMINAL TUMOURS.

Mrs. G., aged 45, was sent to me by Dr. McLachlan, of Dumbarton. She complained of a swelling in the abdomen, and suffered from attacks of sickness, which were not typically pyloric in character.

The swelling in the abdomen was in the region of the stomach, between the umbilicus and the sternum, and our impression was that we had to deal with a malignant tumour in the anterior wall of the stomach. On March 3rd, ether having been administered by Dr. Bryce, Dr. McLachlan being present, I opened the abdomen, and found that the stomach was occupied by a large malignant tumour on the anterior wall not invading the pylorus and not limited, so that it was impossible to remove it. The patient had no discomfort from this operation, and was much more free of pain and sickness, and Dr. McLachlan, whom I saw recently, told me he was surprised at the amount of benefit the exploratory incision produced. It certainly in no way hurt her.

J. D., aged 53, was sent to see me by Dr. Lawrie. For a year he had been losing flesh, and for six months had felt a lump in his abdomen. On examination I found a swelling in the right hypochondriac region, which from its hardness, the patient's emaciation, his pallor, and age made me feel almost certain that it was a malignant growth. At the patient's desire an exploratory incision was made, and the tumour found to be malignant.

The man recovered from the operation, and was satisfied that every effort had been made to save him. The tumour might have been an abscess, it might have been removable, as we have seen in other cases, notably in the first case mentioned, where, after exploratory incision, operation was found possible, and the woman's life preserved.

Should an exploratory incision be performed? Yes, I think it should in any case of doubt. Some surprises will be met with, at the same time the patient will be satisfied that the best has been done, even although it may be impossible to do more than confirm the serious impressions formed of the condition by external examination. The safety of the operation is established, and with proper care there should be no trouble with the management of such cases.

ABDOMINAL HYSTERECTOMY WITH TREATMENT OF THE PEDICLE BY THE INTRA- PERITONEAL METHOD.

By A. W. MAYO ROBSON, F.R.C.S.,

Honorary Surgeon Leeds General Infirmary; Professor of Surgery in the Victoria University.

ALTHOUGH all operators have agreed as to the best method of treating the pedicle in ovariectomy, there is still considerable difference of opinion with regard to the treatment of the stump in suprapubic hysterectomy.

Undoubtedly great success has attended the use of Koeberle's *serre-neud*, and during the past few years, since I have been careful to keep the pedicle dry by daily dressing, I have had no reason to complain of my success, but like most other operators I have always felt that this was a clumsy method, and would probably be superseded by some proce-

dures like Schroeder's, which would avoid the prolonged convalescence with its attendant risks.

Schroeder was undoubtedly the pioneer, and on the same lines Milton, Sinclair, and others have worked with success, but in any new departure additional experience is always valuable, hence my reason for briefly mentioning the following cases.

CASE I.—Miss P., aged 40, was seen at first with Dr. Dawson, of Headingley, on August 4th, 1893, in a state of profound anæmia, with a rapid pulse, distended abdomen, and threatened intestinal obstruction. There was a solid abdominal tumour extending to a point midway between the umbilicus and ensiform cartilage. Although three years' history of metrorrhagia was elicited, the abdominal tumour had only been noticed for seven months. There was rather serious mitral disease, and congestion of the base of the lungs. The patient was manifestly too ill for operation, but, after a few weeks' careful medical treatment at home she improved somewhat, and it was felt that operation was possible. She was admitted to the infirmary, and at the end of August hysterectomy was performed, the pedicle being treated by the intra-peritoneal method, no drainage tube being employed. Recovery occurred absolutely without an untoward symptom; the wound healed by first intention; the stitches were removed on the sixth day, and the patient returned home at the end of the third week.

CASE II.—Miss H., aged 49, was seen in Scarborough, with Dr. Godfrey, November 4th, 1893, in a state of profound anæmia with water-hammer pulse, but free from organic disease, except myoma of the uterus, which was the cause of very great loss of blood at every period. When I saw her, she had just recovered from thrombosis of the right femoral vein, which had come on without any apparent cause except the anæmia and profound weakness. She gave the history of having suffered from metrorrhagia for five years. The tumour reached to $2\frac{1}{2}$ inches above the umbilicus, and the sound passed $6\frac{1}{2}$ inches into the uterine cavity. Hysterectomy was advised, and, as there was only a fortnight's interval between each period, it was arranged to perform it just before the next. The operation took place in Scarborough on November 11th, the incision extending from $\frac{1}{2}$ inch above the pubes to 1 inch above the umbilicus, the pedicle being treated by the intraperitoneal method without drainage. The operation occupied a few minutes more than an hour, and was followed by little or no shock. There was an absence of vomiting, and the after-progress was like that of an ordinary ovariectomy. The temperature and pulse were normal throughout, and the wound healed by first intention.

The method employed in both these cases was the same. The incision in the middle line was made just sufficiently large to allow the tumour to be brought forward, when immediately a large flat sponge was placed over the intestines so as to avoid their exposure, and an elastic tourniquet applied around the base of the tumour as low as possible. A silk ligature was passed through the broad ligament close to the uterus on each side, and was tied firmly below the ovary, thus securing the ovarian arteries; the parts above the ligatures were then divided, leaving the ovaries and Fallopian tubes adherent to the tumour. The uterus was then removed by making anterior and posterior semilunar flaps, the anterior incision being prolonged downwards and backwards, the posterior one downwards and forwards, the two incisions meeting at the level of the internal os or just above it. Two wedge-shaped flaps were thus left, which were easily apposed. The uterine arteries and all other vessels which could be seen were then ligatured, after which the tourniquet was removed, and a few small vessels seized and tied. Iodoform was applied to the uterine canal, so as to fill the orifice completely.

By means of a curved sewing needle the uterine tissue was brought together by a series of buried sutures until the two surfaces were closely apposed. The peritoneal flaps were then sutured by a continuous suture commencing at one broad ligament and ending at the other. The operation in both cases was almost bloodless beyond what was actually present in the tumour at the time of the tourniquet being applied, and the peritoneum was so dry that in neither case was it thought needful to insert a drainage tube.

I happened to have a good opportunity of testing the difference in recovery after the intraperitoneal and extra-peritoneal methods, as, on the same day that I operated on the first case in the infirmary, I performed hysterectomy on a private patient. In the former case the patient was convalescent at the end of a week and able to return home in three weeks; in the latter, although the progress was very satisfactory, the pedicle needed daily dressing, and the patient was unable to return home until the sixth week.

I think the method of intraperitoneal treatment will be applicable to a considerable number of cases of hysterectomy, but in any case it is easy to be prepared with the *serre-neud* if it be found desirable to hasten the termination of the operation or should it be felt that the *technique* was unusu-