what drew the patient's attention to there being something wrong, and in only 2 of the cases of cancer was pain a prominent symptom at any time. In 3 of the 11 cases the disease appears to have lain dormant for a year or longer, and in only 1 can the patient suggest any cause, either for the original development or for the activity of the growth, and the cause given in 1 of the cyst cases was a blow some months previously. In 3 of the cases, and these were all cancer, retraction of the nipple was an early symptom. In no case was disease of the nipple recorded as an antecedent condition.

I have said that in only 3 of these cases was there any difficulty in coming to a conclusion as to whether the disease was malignant or not, and we may quickly reduce that to 2, because in 1, that of subacute mastitis, although on first examining the patient there was found an ill-defined non-circumscribed lump in the breast, tender to the touch, and this tenderness extending into the axilla, and a history of darting pains and a marked family history of cancer, the course of the disease had been too rapid for an actual tumour to have developed, and the idea of an inflammatory swelling was uppermost in our minds, which a few hours' observation proved this to be. The 2 cases that presented real difficulty were Nos. 3 and 4, both of which turned out to be malignant, and in the case of No. 4 it was only a microscopical examination that determined the nature of the disease. To recognise malignant disease in its early stage is of the utmost importance, because when it has spread to the adjacent glands the chance of cure is very much lessened even if they be thoroughly removed, and though some may say, If in doubt operate, I think we should, to say the least, feel dissatisfied with ourselves if we removed a breast and then found that we might have saved it. What then are the conditions most likely to be mistaken for cancer? I think they are the following—chronic mastitis, chronic abscess, cystic disease deep in the breast, and sometimes, but not often, fibro-adenoma.

The chief signs of cancer in the early stage are a patient over, or at any rate not far from, 40 years of age, often one whose health has previously been excellent, a rapidly enlarging diffuse indurated, inelastic tumour in the breast, sometimes attended with lancinating pains, but often painless, sometimes retraction of nipple or the level of the two nipples not the same. In some cases when it is deeply seated the breast does not glide freely over the subjacent tissues, and when it is superficial the skin gets early adherent, and often on manipulation the skin puckers; sometimes, even fairly early in the disease, there is enlargement of the axillary glands. All the above signs may be present in the first three conditions just mentioned, and in not a few it is impossible to diagnose between chronic mastitis and scirrhus without resorting to an incision; a puncture is not enough. In abscess and cyst there is generally more elasticity, and the centre is softer and more elastic than the periphery. In abscess there is often some oedema of the adjacent tissues as well, and tenderness along the line of the lymphatics and in the glands of the axilla, and in these cases a puncture should be made, and may be sufficient to confirm the diagnosis. Fibro-adenomata generally occur in younger people; they are also more distinctly circumscribed, and are more movable. In these two cases we are discussing one was painful the other not; neither had a retracted nipple, but in one the level of the two nipples was altered the other not. In one the tumour was freely movable and the skin moved over it; in the other the reverse was the case; in one the glands were not affected in the other they were. In neither was there a history of malignant disease in the family. In one the previous health had been excellent in the other indifferent; in one the history extends over a year in the other about two months. You see how the symptoms differ and yet they both turned out to be malignant.

In the one case an incision into the tumour at once revealed the nature of the disease, the peculiar hard creaking sensation communicated to the fingers the moment the knife entered the tumour being sufficient to make the diagnosis a certainty, but in the other case, after removal and an incision, the diagnosis was not certain, and it is only the microscope that has settled the question for us. Had time permitted I should have liked to have compared Case iv and those of non-malignant disease with a view to discussing the differential diagnosis of non-malignant tumours. I may, how-

ever, have an opportunity of doing that on some future occasion.

I wish now to say a few words on the treatment. Eight of the cases were subjected to operation, and the operation is a perfectly safe one; death is very rare even when the axilla is freely opened up, and union by the first intention, at any rate of the greater part of the wound, is the rule. All the patients got well without a bad symptom, the time required for the healing process varying from sixteen days to six weeks. In 1 of the cases the axillary glands were removed, and in 2 it was necessary to sacrifice so much skin that the edges of the wound could not be approximated, and it was these that took the longer time to heal, and in which union was accompanied by suppuration. Healing was most satisfactory in those cases that were healed by dry dressing and strapping firmly applied, great care being taken to stop all oozing before the dressings were put on. In those cases in which we could not satisfactorily apply the strapping so as to make firm pressure, a drainage tube was used, and removed at the expiration of twenty-four hours. They were all dressed with our usual dry dressing: the skin was dusted with iodoform, and covered with antiseptic gauze and wool.

The rule that I have adopted in regard to the extent of the operation is to remove the tumour when non-malignant and the breast when the disease proves to be malignant, as well as the axillary glands, if they are affected, but you may have observed that in these 8 cases there were 2 exceptions to this rule. In the one (Case iv) I left the breast, though the disease was scirrhus, removing only the tumour. The reason of this was that at the time of the operation I could not satisfy myself of the nature of the disease, and, though the principle When in doubt remove too much rather than too little, is a good one, in this case I felt satisfied in removing the tumour only, as it appeared to me that none of the diseased tissue remained. Time will prove whether this is correct. I saw the patient last week—a month after she had left the hospital—and up to that time everything was satisfactory, but I shall watch her carefully, and in the event of any recurrence in or near the scar I shall advise a radical operation. In Case x, although the disease was not malignant, the breast was excised. The reason of this was that the breast was very small and the tumour involved practically the whole of it. One more remark, and that is about Case xi. Why was not that excised instead of being treated by Fell's paste? I wished to excise it, and believe that would have been the best course, but the patient absolutely refused any operation, so the next best thing seemed to be the treatment adopted. She is still in the hospital, and you can see now in the place of the tumour, which has sloughed off, a healthy ulcer. In certain cases, such as this one, that method of treatment is effectual, though it is slower and more painful.

HUNTERIAN LECTURES

ON THE

EXPERIENCE OF ST. GEORGE'S HOSPITAL IN LAPAROTOMY;

EXCLUSIVE OF GYNÆCOLOGICAL OPERATIONS,
FROM 1888 TO 1894 INCLUSIVE.

Delivered at St. George's Hospital Medical School

By T. HOLMES, F.R.C.S.,

Consulting Surgeon and Treasurer to the Hospital.

LECTURE II.—CHOLECYSTOTOMY: LAPAROTOMY FOR TUMOURS AND FOR GASTRIC ULCER.

THE first topic of to-day's lecture is cholecystotomy, our recorded experience of which has been remarkably small, only three cases being noted; but I believe that there have been other successful cases which have not been recorded. In all three cases the operation was, as an operation, perfectly successful, but in the one which first occurred, that of a woman under Mr. Bennett's care, it was useless, as after the extraction of two gall stones from the bladder, it was found that a

malignant tumour lay behind, involving the common bile duct. The patient went home after recovering from the operation, and died there from the progress of the cancer about three months after. The other two were striking examples of the success of this operation in suitable cases. The first is recorded in the *Lancet* for May 23rd, 1891. The other patient was an elderly woman, deeply jaundiced, who was operated on by Mr. Bennett last year. After she had had been under medical treatment for a month with no benefit, numerous stones were removed, and the permeability of the cystic duct was established. Some polypous fragments of a suspicious appearance were removed from the interior of the viscus, but were judged on microscopic examination to be merely the result of irritation of the mucous membrane. The edges of the wound in the gall bladder were sewn to the abdominal parietes. The jaundice rapidly disappeared, and the wound was nearly healed on her discharge about five weeks afterwards.

The best summary with which I am acquainted of the indications for surgical operations on the gall bladder and bile ducts is in a paper by Mr. Mayo Robson, read at the International Medical Congress at Rome, and published in the *BRITISH MEDICAL JOURNAL* for April, 1894. This paper gives the results of 78 operations in Mr. Robson's own practice, of which only 4 proved fatal. In many cases the permanence of the cure had been ascertained. Mr. Robson's list contains not only cases of simple cholecystotomy, but other more complicated proceedings, such as the formation of anastomosis between the gall bladder and intestine (cholecystenterostomy), the crushing of the stones in the bladder or duct (cholelithotripsy), the incision and suture of the common duct (choledochotomy), and the excision of the gall bladder (cholecystectomy).

Mr. Mayo Robson's experience appears to me to show that cholecystotomy is an operation which in skilful hands involves only slight danger; and the operation will in all probability be much more extensively used in the near future, to relieve the atrocious sufferings sometimes caused by gall stones; while the other more complicated proceedings, though some of them are no doubt highly dangerous, have their own field of application, and ought to be carefully studied by those who may be called upon to treat such emergencies.

Our own limited experience certainly favours such a conclusion.

I will next speak of laparotomy for tumours. The following is a tabular statement of our cases:

Laparotomy for Tumours.

Name.	Age.	Date.	Nature of Tumour.	Surgeon.	Result.	Remarks.
1. J. K.	—	Nov., 1889	Hydatid of liver	Mr. Bennett	R.	—
2. J. H.	—	Jan., 1894	Hydatid in pelvis	Mr. Howard	R.	—
3. A. O.	44	Sept., 1894	Hydatid of liver	Mr. Dent	R.	—
4. R. H.	—	Oct., 1894	Hydatid of gall bladder	Mr. Bennett	R.	Convalescence retarded by influenza. Was in the hospital in April, 1895, to have the sinus left by the operation dealt with.
5. M. L.	—	Feb., 1891	Hydatid of liver	Mr. Pick	D.	Had had the cyst twice tapped ineffectually.
6. E. A.	34	Nov., 1893	Hydatid of liver, ruptured	Mr. Turner	D.	Admitted for rupture of the hydatid into the peritoneum. Had just left the hospital, having refused to submit to laparotomy.
7. W. S.	34	Feb., 1894	Pancreatic cyst	„	R.	Cyst laid open and stitched to wound.
8. J. P.	—	May, 1891	Hydronephrosis	Mr. Bennett	R.	Removal of kidney attempted on account of hæmorrhage, but this was impossible on account of his exhaustion. Renal vessels tied with permanent success.
9. A. C.	38	April, 1893	Uterine fibroids	Mr. Dent	R.	Recovered after hysterectomy.
10. A. F.	33	„ 1888	Extrauterine foætation	Mr. Pick	D.	Nature of case not discovered at operation.
11. C. M.	5	May, 1889	Glandular tumour of mesentery	„	D.	Tumour pressing on bowel, and causing obstruction. Died from peritonitis.
12. A. G.	—	Aug., 1889	Malignant tumour in peritoneum	Mr. Turner	D.	The tumour surrounded the intestines. The vermiform appendix and colon had given way.
13. S. T.	55	Nov., 1890	Malignant tumour in peritoneum	Mr. Bennett	R. from operation	The operation consisted in laying open a cyst near the liver, which, however, was found to be part of an epitheliomatous tumour. She recovered from the operation, and went home.
14. J. B.	—	Dec., 1891	Malignant tumour of umbilicus extending inwards	„	D.	Epithelioma implicating the omentum. Separate growths in the stomach, liver, and falciform ligament.
15. M. H.	52	March, 1892	Cancer of liver and gall bladder	Mr. Howard	D.	Exploratory operation for gall stones. Cancer found which lapped round the neck of the gall bladder, etc.

There were then 4 cases of hydatid tumours—3 in the liver, and 1 in the pelvis; which were operated on promptly, and recovered, 1 of hydatid in the liver, which was not operated on till after prolonged treatment by tapping, which died, and 1 of hydatid of the liver in which the patient

refused operation and left the hospital, but soon afterwards returned in a collapsed state from rupture of the tumour. She was then operated on unsuccessfully. Closely connected with these is the following very successful case of laparotomy for pancreatic cyst. Here, a man, aged 34, was admitted, under Mr. Turner's care, with a prominent fluctuating and obviously cystic swelling in the epigastrium, separated from the liver by an area of resonance. The symptoms had lasted for nine months and had become rather threatening, so that operation was necessary. The incision was made in the left linea semilunaris. This revealed nothing in front of the omentum, the fluctuating tumour lay behind that structure. It was explored with a needle and then aspirated, 37 ounces of dark-coloured fluid being withdrawn. The cyst was then opened sufficiently to allow the finger to explore its interior, which was smooth, but a hardish mass could be felt lying on the vertebral column. This was left undisturbed, and the opening in the cyst wall fixed to the abdominal wound and a drainage tube inserted. Everything went well except for some discomfort due to the necessary tension on the sutures. The interior of the cyst suppurated and gradually filled up, the tube was withdrawn in a month, and the patient soon afterwards discharged.

Careful and elaborate analysis of the fluid was made by Mr. Latham. It proved almost identical with that of a pancreatic cyst in the *Roy. Med. and Chir. Trans.*, vol. lxxiv, and left no doubt of the pancreatic origin of the cyst.

The number of such operations which have been successfully performed is as yet small. An interesting example, and one very similar to the above, was published by Dr. Newton Pitt and Mr. Jacobson in the *Roy. Med. and Chir. Trans.*, vol. lxxiv. The whole question of the origin, diagnosis, and treatment of these cases is very interesting, and we may hope to have a treatise on this subject from the surgeon who operated in this instance.

I do not quite know how to classify the following interesting case of an operation for hydronephrosis, which is, I believe, quite unique.

J. P. was admitted May 12th, 1891, under Mr. Bennett's care, on account of pain in the left loin and profuse renal hæmorrhage. The left kidney was of large size. It was explored through the loin on June 1st, and found to be hydronephrotic. There was no stone. A drainage tube was inserted. On June 25th, repeated attacks of bleeding from the kidney having occurred, both into the bladder and from the lumbar wound, the patient was nearly moribund. Laparotomy

was performed with a view of removing the kidney, but this proved impracticable, as the patient was too weak to bear the operation. A ligature was therefore tied round the renal vessels. He rapidly recovered, and is now in good health, but with a permanent urinary fistula in the loin. A second

attempt was made to remove the kidney, but sudden collapse came on, and brought the attempt to an end.

This list of laparotomies for tumours of various kinds I think enforces the observation that I made in my first lecture, that the operation is seldom prejudicial to the patient's prospect of recovery; but that its postponement is often so. This is forcibly shown by the contrast between the complete recovery of the first four patients with hydatid, in whom the operation was timely performed, and the death of the sixth patient from her unlucky refusal of operation. Again, who can doubt that the patient with pancreatic cyst would have died but for the operation?

I do not, of course, go so far as to assert that the operation involves no danger, and in the solitary case of the third patient with cancer, it may have hastened by a few days the inevitable end of a painful and necessarily fatal disease.

My next topic is laparotomy for the cure of gastric ulcer.

None of the wonderful developments of modern surgery, or rather, I should say, "medico-chirurgery," has struck me personally with more admiration than the bold proposal to cut down on the stomach in cases of perforating ulcer, and by sewing up the rent (or, when that is impossible, by attaching its edges to the abdominal wall) save the patient from the death which is otherwise inevitable. I well recollect that the first *post-mortem* examination at which I ever assisted, when quite a young student, was on a case of this sort, where a young woman, never known to have been seriously ill before, died very shortly after a hearty meal. In a paper on the subject published by Mr. J. W. Taylor¹ it is shown that the average period of survival after perforation into the peritoneal cavity is twenty-four hours. This refers to free or sudden perforation, but there is a tolerably large class of cases² in which the ulcer perforates slowly, and the edges of the hole are fenced round by adhesions, so that a subphrenic cavity is formed, bounded usually by the stomach, the falciform ligament and liver, the spleen, the diaphragm, and the adhesions. In such cases life may be prolonged for an indefinite period, which, however, is not usually a long one. The circumscribed cavity will almost certainly burst into the peritoneum, its size being liable to sudden increase by gas poured into it from the stomach, when the adhesions are likely to give way, and thus general and probably rapidly fatal peritonitis is set up. Again, the inflammation is very liable to be transferred to the thorax, either by suppurating making its way through or behind the diaphragm, or by the absorption through the lymphatics of the diaphragm of irritating matters from the subphrenic cavity. In 7 out of 10 cases recorded by Drs. Penrose and Lee Dickinson³ this complication had occurred. In these cases, therefore, laparotomy is

urgently indicated in order that the cavity may be opened, its edges stitched to the abdominal incision, and its contents drained. This having been done, the gastric ulcer may be trusted to heal; or, as Mr. Haward says, if the adhesions have completely given way, or a large opening is found into the general peritoneal cavity, it may be right to attack the ulcer directly and treat it by suture, or attach it to the abdominal parietes.

All this is also true of duodenal ulcers. They may perforate acutely or may lead to a subphrenic cavity, the boundaries of which are usually somewhat different to those of the cavity caused by a gastric ulcer, but which is otherwise indistinguishable from it.

There are some subordinate points in the treatment of these cases which only further experience can clear up. One of the most important is how to prevent that "pocketing" of the contents of the cavity backwards, between the spleen and the diaphragm, on which both Mr. Haward and Drs. Penrose and Dickinson lay stress, and which seems to me to have had much to do with the fatal issue in some of the cases which nearly approached success, such as No. 5 in the following list. A counter-opening here, at the time of operation, if feasible, would seem to afford a considerable safeguard to the patient, as Mr. Haward has suggested. I append a table of cases.

I will give you the leading facts of the 3 cases of free perforation. The first is the well-known case published in the *Clin. Trans.*, vol. xxvi, p. 179, by Dr. Lee Dickinson and Mr. Haward. The woman had clear symptoms of perforating gastric ulcer and peritonitis, and was operated on as soon as possible after admission, about fourteen and a half hours after the occurrence of the perforation, the incision being made in the linea alba. Turbid fluid and gas were found in the peritoneal cavity, and lymph in the neighbourhood of the stomach, but the peritonitis did not seem to have extended widely. The locality of the perforation could not be exactly determined at the operation, but was afterwards ascertained to be on the anterior surface, about 3 inches from the pylorus, near the lesser curvature. Much rotation of the stomach downwards and forwards was required in order to bring the ulcer in contact with the laparotomy wound. There was too much thickening of the walls of the stomach to allow of their inversion so as to bring the coats together over the edges of the ulcer, so the perforation was attached to the wound and a drainage tube inserted, the peritoneal cavity having been carefully washed out. She survived for six weeks, and when she died the subphrenic cavity was almost obliterated, but the gastric ulcer had not healed. Three days after the operation "that curious complication" came on, says Mr. Haward, "which has been observed in connection with so many cases of gastric ulcer—namely, inflammation and suppurating of the parotid glands;"⁴ but save this she had nearly recovered. She died from abscess in the left pleura and multiple abscesses in the left lung, not apparently con-

¹ *Birm. Med. Rev.*, xxiii, 155.
² In our list the number of cases of sudden perforation is much smaller than those of limited cavity, but this is accidental. Dr. L. Dickinson, in a search through fifty years of our *post-mortem* records, found 37 examples of free perforation (25 from gastric and 12 from duodenal ulcer) and 24 in which the suppurating from the same cause was more or less limited; of these latter only 1 was duodenal.—*BRITISH MEDICAL JOURNAL*, February 3rd, 1894.

³ *Clin. Trans.*, vol. xxvi.

⁴ The same complication has been recorded in other abdominal cases, as in one of successful laparotomy for kinking of the bowel, under Mr. Rouse's care, to be mentioned in the next lecture.

Laparotomy for Perforated Ulcer of Stomach or Duodenum.

Name.	Age.	Date.	Nature of Case.	Surgeon.	Result.	Remarks.
1. M. N.	26	Dec., 1892	Gastric, free perforation	Mr. Haward	D.	Ulcer sewn to wound; died six weeks after from suppurating in pleura and lung.
2. E. G.	41	July, 1894	" "	Mr. Bennett	R.	Ulcer sewn up; recovered without symptoms.
3. C. M.	27	Dec., 1894	Duodenal, free perforation	Mr. Sheild	D.	Ulcer sewn to wound; died; operation too late, when dying.
4. A. A.	21	Oct., 1891	Gastric, subphrenic cavity	Mr. Haward	D.	Pleurisy.
5. L. J.	21	Jan., 1892	" "	Mr. Pick	D.	Survived nearly eight weeks; gastric ulcer healed; suppurating perforating the diaphragm and invading the lung.
6. J. G.	—	Mar., 1892	" "	Mr. Turner	D.	Multiple gastric ulcer; also had pericarditis and pleurisy.
7. E. P.	19	Mar., 1893	" "	Mr. Dent	D.	
8. B. E.	42	May, 1893	Subphrenic cavity, origin not ascertained	Mr. Rouse	K.	Recovered rapidly.
9. M. M.	27	July, 1893	Gastric, subphrenic cavity	Mr. Pick	D.	Died two months after operation from empyema; gastric ulcer healed.
10. E. J.	22	Mar., 1894	" "	Mr. Dent	D.	Died third day; general peritonitis and left pleurisy.
11. F. —	25	Nov., 1893	" "	Mr. Bennett	R.	Recovery retarded by pleurisy.
12. H. B.	27	Nov., 1894	" "	Mr. Pick	R.	Multiple gastric ulcer.
13. P. H.	28	Nov., 1894	Subphrenic cavity	Mr. Bennett	R.	Recovery retarded by pleurisy.
14. W. H.	25	June, 1894	Duodenal, subphrenic abscess	Mr. Sheild	D.	There was general peritonitis also; it was necessary to incise the distended bowel, and suture it.

nected with any general septicæmia, but resulting from the absorption of irritating matters from the cavity by the lymphatics of the diaphragm. Mr. Haward's observations on this case are of the deepest interest, and although the patient died, the operation was of great importance as showing clearly the perfect possibility of success.

The next case was a brilliant success; it was that of E. G., aged 41, admitted April 5th, 1894, under Mr. Bennett's care. She had been seized suddenly at 2 P.M. with violent pain at the umbilicus. There was no sickness. On admission she was much collapsed, with evident symptoms of peritonitis, and was operated on at once at midnight, nine to ten hours after the access of pain. The incision was made in the middle line. Food was found in the abdominal cavity, and after careful search an opening the size of the little finger was found in the posterior wall of the stomach. The hole was stitched up and the cavity of the peritoneum thoroughly flushed out with warm water. She went on well, was fed by the rectum for four days, then with a tablespoonful of milk hourly. The nutrient enemata were discontinued in a week, and in a month she was able to leave her bed, and left the house on May 23rd.

The third case was that of a woman, aged 27, who was admitted on December 21st, 1894, with symptoms which were not so marked as to lead to a confident diagnosis, so that some delay took place in the operation (by Mr. Sheild), which was not performed till the day after admission, about two days after the perforation took place, and when the patient was in fact dying. General peritonitis was found, and the edges of the perforation, which was in the duodenum, were stitched to the wound.

The chief lesson of this case is the necessity for prompt operation. The diagnosis on admission lay between perforated gastric ulcer and peritonitis from tubal suppuration, and had an exploratory operation been performed earlier there might have been a fair prospect of recovery.

For the cases of gradual perforation, leading to the formation of a cavity beneath the diaphragm (the so-called subphrenic pyopneumothorax)⁵ which have been treated by laparotomy, I must refer you to the table.

I am not quite clear what the published results of laparotomy for gastric ulcer hitherto have been. On March 13th, 1894, Mr. Morse, of Norwich, read a very interesting paper at the Royal Medical and Chirurgical Society on a successful case of his own, and appended a list of 16 cases, including his own, of which only 2 had recovered. This list, however, was imperfect. In the discussion which ensued, Mr. Barwell stated that 24 cases had occurred to his knowledge, but gave no addition to the list of recoveries. Mr. Page, however, while referring to 2 fatal cases in his own practice (which were, I presume, included in Mr. Barwell's 24), read a communication from Mr. Maclaren, of Carlisle, who had operated three times and once with success. If this were correct, we should have 3 recoveries out of 27 cases. In the *Lancet* for 1895, vol. i, p. 545, however, Mr. Jowers gives a list of 25 published cases, in which the cases recorded by Dr. Ewart and Mr. Bennett and that of Mr. Haward are included; of these 16 died, 8 recovered, and in 1 the result is not recorded.

Our own experience of laparotomy for gastric ulcer is as follows:—There were 3 cases of acute perforation—1 perfectly recovered, 1 nearly recovered but died of parotid abscess and abscesses in the left lung and pleura, the result, doubtless, of a condition of local septicæmia, which was caused in all probability by absorption of putrid matters from the peritoneal cavity through the lymphatics of the diaphragm. The great probability of this event is pointed out

⁵ I do not want to waste time over verbal criticism, but may perhaps be pardoned for expressing a hope that our medical vocabulary may provide some more expressive and more appropriate word for this condition than "pyopneumothorax subphrenicus," a term which in spite of its "learned length and thundering sound" seems to me incorrect and misleading. The collection of air and fluid is no doubt partly under the ribs, and in that sense might be said to be in the "thorax," just as the liver itself might. But the diaphragm has for ages been regarded as the limit between thorax and abdomen, and most of these collections, though they may have displaced the diaphragm upwards, have not perforated it; while the fact that in some cases the cavity has burst into the thorax renders still more confusing the use of a term which seems to imply that in all cases such a communication exists. The meaning of the term "pyopneumothorax" is so definite and so well known that it ought not to be applied to a cavity which has usually no connection with the pleura.

by Mr. Haward in his paper on this case, and is forcibly used by him as a motive for not delaying operation in any case of supposed perforation of the stomach. The third case was operated on too late. The perforation was in the duodenum, not the stomach. The number of cases of chronic perforation with subphrenic cavity was 11. In one of these also the ulcer was duodenal, and the cavity had burst into the peritoneum; 3 recovered.

This is, I submit, a very gratifying result, but only if regarded as a beginning. That such cases will be treated with a far larger proportion of success in the future (and I would say in the very near future), I am confident. The diagnosis is becoming much better understood, and it is also becoming much plainer that the risks of an exploratory operation which may negative the diagnosis are not nearly so great as the fatal consequences of delay would be in a case of real perforation. I have already alluded to a case in which such an exploration was made, and in which the symptoms disappeared and the patient recovered.

There are many details of the operation in cases of free perforation which are still unsettled, as indeed must be expected in so novel a proceeding; such as the best place for the incision, the best way of finding the perforation, and of dealing with it when found, and the desirability of washing out the stomach through the perforation. As far as I am able to form an opinion, I think the limited experience hitherto recorded goes to show that the incision is best made in the middle line; that the anterior wall of the stomach should be very carefully explored before taking the necessary steps to gain access to its posterior surface; that it is unnecessary to excise the ulcerated part; that it is far better to sew up the opening than to attach its edges to the wound; and that the advantages of washing out the stomach through the ulcer do not compensate its disadvantages in prolonging and complicating the operation.

But though we look forward with confidence to much better results for the treatment of gastric ulcer in future, it would be childish to ignore its essential difficulties. The preparations before you show what a formidable extent of the stomach wall is sometimes affected, the size of the perforation—in some cases far beyond anything that could be brought together by sutures—the great vessels which may lie near the opening, and the frequency of multiple ulcers;⁶ while Mr. Haward's case above related shows that the tissue of the stomach may be so thickened by inflammation round the ulcer that its inversion for the purposes of the suture is impracticable. Some of these complications are beyond the surgeon's control, and must remain as permanent dangers both before and after operation. In ulcers of great size, and in those accompanied by extensive infiltration of the stomach wall, nothing can be done except to attach the stomach to the wound, and this no doubt may be successful; but it cannot but be accompanied by greatly increased risk. The most promising cases must be those in which the ulcer is of small size, and easily sewn up, and in which the contents of the peritoneal cavity can be completely washed out. In such instances, as Mr. Bennett's case shows, recovery may be complete, rapid, and permanent. And this really seems to me the most wonderful of all the surgical miracles of our time.

⁶ In two of our own cases and one of those published by Drs. Penrose and L. Dickinson there were three ulcers.

THE Canadian Medical Association will hold its annual meeting this year at Kingston, Ontario, on August 28th, 29th, and 30th. Sir Charles Tupper, M.D., the first President of the Association, is expected to be present.

At a recent meeting of the American Medical Editors' Association in Baltimore, Dr. George M. Gould, editor of the *Philadelphia Medical News*, was elected President, and Dr. A. H. Ohmann-Dumesnil, Vice-President.

SUCCESSFUL VACCINATION.—Mr. Alfred E. Vaughan, Public Vaccinator for the Hartington District of the Nantwich Union, has for the second time been awarded a grant for efficient vaccination.

MR. W. KAYE PARRY, A.M.Inst.C.E., of Dublin, has been awarded a Mullins Gold Medal by the Institute of Civil Engineers of Ireland for a paper on the application of recent advances in the study and treatment of sewage.