convenient, and parallel to the whole length of the skin incision. Through this opening the whole of the upper abdomen can be explored, and if operation on lateral organs is deemed advisable, the horizontal limb is then added. The best point for dividing the rectus is at its umbilical intersection, but it may be divided anywhere. This intersection is readily exposed by prolonging the vertical incision if necessary, and from the lower end of this a curved incision is made upwards and outwards to the lowest part of the costal margin. This divides skin and superficial fascia only. The muscle with the skin and anterior sheath is now raised up with the left hand, and the whole cut straight outwards through the middle of the fibrous intersection till the whole thickness of the rectus is divided. The deep epigastric, or a branch, may bleed and require securing. The posterior sheath is divided $\frac{1}{2}$ in. higher up for ease in suturing later.

In very fat subjects the ends of the skin incisions are prolonged and gradually shallowed out at their ends. This gives considerably more room, and does not weaken the cicatrix in the least. When turned up the base of this flap lies along Kocher's incision. The costal cartilages can be cut from the peritoneal side if necessary for operations on the spleen or cardiac end of the stomach. With the sandbag under the patient excellent exposure is got, and the edges of the opening are not too rigid. Only one

The thick line indicates incisions in skin; the dotted line, incisions in posterior sheath and peritoneum; the fine lines, prolongations of skin cuts for stout people; the shading shows ribs, cartilages, nerves, and muscles. (Diagrammatic.)

retractor is required, and when the liver and gall bladder are rotated upwards this, too, may be dispensed with. There is thus no danger of damage to the organs. This sickle-shaped wound is closed in layers with silk, cotton, or celluloid thread as follows: The sandbag is removed, and the vertical peritoneum together with the posterior sheath is closed first. Efficient drainage may be secured through the upper end of the lateral wound before the peritoneum and transversalis fascia are brought together. When the inner end is reached the rectus is sutured at the fibrous intersection, where the suture holds well. The anterior sheath is made to overlap a little, and the fibres of the external and internal oblique and transversalis muscles are gently approximated. The skin is closed by celluloid thread or Meckel's clips.

A more perfect cicatrix can hardly be obtained, and hernia need not be feared. Bevan speaks of the possibility of necrosis at the angle, but in my own cases the union has always been perfect. To round off the angle is more difficult, and can be done with the skin incision only. The exposure obtained need not be described, as the opening must be tried to be appreciated.

THE fifth International Congress of Medical Electrolgy and Radiology will be held at Barcelona from September 13th to 18th, 1910. The questions proposed for discussion are as follows: (1) The present state of electro-diagnosis; (2) measurements in radiology; (3) electricity as an anti-phlogistic agent; (4) the electrolytic introduction of medicinal ions compared with the therapeutic action of the constant current; (5) the use of the x rays in the examination of the abdominal segment.

INTESTINAL OBSTRUCTION PRODUCED BY AN ENORMOUSLY DISTENDED STOMACH.

By A. ERNEST MAYLARD, M.B., B.S.LOND.,
SURGEON TO THE VICTORIA INFIRMARY, GLASGOW.

So remarkable and exceptional were certain features in this case that it seemed to me worthy of being put on record.

I have met with instances of great gastric dilatation reaching even to the pelvis, but I have never encountered anything at all approaching the somewhat extraordinary symptoms presented in this instance, nor do I know of any precisely similar illustration in the literature of gastric disease. The patient was a man suffering from advanced carcinoma of the stomach with symptoms of apparently only three weeks' standing, and these of a nature to suggest that the trouble was in the large bowel rather than in the stomach. But before venturing upon any comment upon the case I will let his history tell its own tale.

R. S., aged 66 years, was admitted to the Victoria Infirmary on May 21st, 1908.

History.

He stated that up to two years ago he had enjoyed good health, but at this time he began to lose his appetite, was conscious of a sense of oppression and fullness in the stomach, and suffered from pyrosis. Under treatment these symptoms disappeared. He then continued to take his food as before, and remained actively engaged in his work until three weeks ago, when his bowels commenced to be very costive and he was conscious of distension and gurgling in his abdomen. As the difficulty in getting the bowels to move increased, he used enemata, and thereby effected the discharge of some "little round balls." Neither blood nor mucus was seen. He had had no crampy or acute pains in the abdomen, but merely a sense of great discomfort from extreme distension. He had also noticed internal movements, evidently peristaltic. Position seemed to have some effect on his symptoms. When he lay on his left side they were increased, but diminished when he sat up, as he was then able to belch up some gas. He had not vomited, but pyrosis had been a frequent symptom. He was conscious that he was losing flesh.

Condition on Admission.

When admitted to the infirmary he was noticed to be in a poorly-nourished condition. His face was pinched and drawn in expression. His tongue was coated with a dirty viscid fur, and the teeth were in a bad condition. His temperature was 97.6° F., and his pulse 96. He complained of no pain, but only of an uncomfortable sense of distension. On examination of the abdomen, there was seen to be very marked bulging both in front and laterally, although it was more marked in the left iliac region. No peristalsis was observed; abdominal respiration was diminished. To percussion there was a tympanitic note in the epigastrium, becoming dull down towards the iliac regions and the flanks, and there appeared to be slight shifting with change of position. A suspicion of fluctuation seemed present in the epigastrium. By palpation, "splashing" was detected in the epigastrium, and resistance and tenderness existed in the left iliac region, where slight gurgling was also heard. The area of liver dullness was diminished. Neither the heart nor the lungs presented anything abnormal. The urine was normal. During the three hours that elapsed between his admission and the operation he did not actually vomit, but seemed to cough up a little dark fluid, and a 2-pint enema which was given returned with flatus and a few small round scybala of black colour.

Before continuing the report of the case, as taken by my resident assistant, Dr. N. McNeil, which proceeds to describe the operation, I will add a few additional observations taken at the time of my visiting the patient in consultation with Dr. George Halket, under whose care he had been for a short time prior to my interview.

It was three days before the patient was admitted to the infirmary that I saw him in his own house with Dr. Halket. In his general condition he was remarkably cheery, and, except that he was pale and somewhat emaciated, he in no way looked like a man suffering from advanced malignant and fatal disease. His chief complaint was abdominal discomfort from inability to obtain a movement of his bowels. His abdomen was greatly distended, and all indications of normal liver dullness had disappeared. There was dullness in both flanks, but tympanicity in the epigastric region and well-marked "splashing." The patient remarked that he had once before had a similar attack, which had completely passed off, and that, although this had lasted longer than the original one, he was confident that it would likewise disappear if only his bowels could be got to move. Dr. Halket, from his previous observation of the patient, had been under the impression that he was suffering from some gastric condition. The symptoms, however, which he presented at the time of our conjoint visit were so suggestive of intestinal obstruction that the suspicion was aroused in my mind that possibly we had to do with a malignant stricture of

the sigmoid or upper rectum, and that the great distension was due to an enormously dilated colon. My advice was, therefore, to give a copious enema, to be repeated if the first attempt failed to have any satisfactory result, with the further instruction that if the symptoms were not relieved he should, without further delay, be transferred to the infirmary.

Operation.

The abdomen was opened by an incision in the left flank. The intestine was seen collapsed and pressed down by what appeared to be a large tense cyst. A second incision was then made into the abdomen in the middle line, when a bluish, thin-walled cyst, with blood vessels stretched over its surface, at once presented. It was punctured, and ink-like fluid, sour to the smell and containing whitish masses of solid matter, spouted out with considerable force. Eleven pints of this fluid were drawn off, and it was then discovered that the supposed cyst was the stomach, which rapidly contracted down, and presented the normal appearance of muscle parietes. The vessels, also, which had spread over the apparent cyst, were seen to be the normal branches proceeding from the two curvatures. On further examination a mass of scirrhous was found involving the lesser curvature and anterior surface of the stomach towards its pyloric end. Nodules were also found freely scattered throughout the mesentery and omentum. The stomach wound was stitched up and both the abdominal incisions closed.

After-history.

He was greatly relieved by the operation, and the next morning was reading the daily paper with very little concern about himself, and feeling comparatively comfortable. In the afternoon, however, the distension commenced again, and on the following day the abdomen was so swollen that the stomach tube had to be passed. By this means a quantity of fluid, similar to that removed at the operation, was withdrawn. The washing-out was then continued on the succeeding days, as much relief seemed to be afforded by it. On the evening of the fourth day he still seemed quite comfortable, but shortly before 2 a.m. on the 26th he suddenly collapsed and died.

Necropsy.

A *post-mortem* examination was made by Dr. John Anderson, who reported as follows upon the condition of the stomach: "The stomach is greatly dilated, and its wall remarkably thin, so that without very gentle manipulation it is easily torn. The cavity contains a quantity of dark grumous fluid. A malignant stricture exists at the pylorus, of the concentric type; it extends along the anterior wall and lesser curvature for about 2 in., causing the wall itself to be about three-quarters of an inch in thickness. An area of ulceration exists on the posterior surface of the growth. The tumour tissue is more evident on the anterior wall; the lumen of the pyloric aperture is still of fair size, admitting the passage of the finger." The liver contained no secondary nodules, and there was nothing of note in the other organs or tissues.

Perhaps the feature of most striking interest among the many perplexing problems which the case presented was the extreme paucity of symptoms, and their apparent want of gravity when considered in relation to the serious nature and extent of the disease. There was one very prominent fact, however, about the patient that served to mask what otherwise might have been much more in evidence and suggestive, and that was his possession of a remarkably buoyant nervous system. He made light of such symptoms as he had, and doubtlessly disregarded others that might have proved diagnostically useful. He never once took a gloomy view of his case, and always regarded his illness as merely transitory. As stated, he was reading the newspaper the morning after the operation, and was often making jokes with the nurses and the resident assistant. Attention is specially drawn to this particular aspect of his case, because, as already stated, it admits of the reasonable assumption that he probably belittled many of the early symptoms which, in a patient of a less optimistic and cheerful nature, might have shown that an organic complaint of the stomach had been in existence for some time. Irrespective, however, of the influence of the nervous system, it is a well-known fact that carcinoma of the stomach may reach a very advanced stage without giving rise to any marked symptoms, so long, apparently, as it is limited to the body of the viscus and does not involve the pyloric aperture. In this case, as ascertained at the *post-mortem* examination, the finger could be passed through the pylorus; and although the disease distinctly involved the pyloric region, the canal itself does not seem to have been markedly obstructed by it. It is, however, impossible to conceive that at the time of the great distension the contents of the stomach were able to pass into the duodenum. Probably the pylorus got kinked or displaced in such a way as to cause occlusion.

The absence of vomiting was somewhat remarkable, and must, I think, be explained on the ground that the hyper-distension had completely paralysed the gastric parietes. It had become little more than a flaccid sac with walls so thin that they must have very nearly reached the bursting point. As shown at the *post-mortem* examination, the greatest care was required not to tear the walls in the process of handling.

Believing the case to be one probably of obstruction in the large bowel, I opened in the left iliac region, deeming it likely that such enormous distension of the colon would hardly take place unless the obstruction was seated low down in the large intestine. It was with a sense of considerable surprise that I found the bowel collapsed, and apparently so as the result of the pressure of a very tense cyst. As the report of the case goes on to relate, I then opened the abdomen in the middle line, and my remark was, when seeing this uniform tense cyst, that had the patient been a female and not a male, I should have thought that I had an ovarian cyst to deal with. The true nature of the swelling, however, at once became evident on letting out the fluid, for the sour smell and the coagulated lumps of what were evidently the result of ingested milk revealed the fact that it was the stomach which had been opened. This became still more conclusive as the muscle parietes of the viscus contracted, and the vessels, which were so stretched over its surface, were seen to be the normal branches extending over the anterior surface of the organ from the greater and lesser curvatures. As gastric obstructive symptoms had never apparently been a feature in the history of the case, I thought it quite possible that, having relieved the great distension, the pyloric aperture might become sufficiently permeable. I did not, therefore, perform gastro-jejunostomy; and, still further, the marked evidence of widespread malignant disease did not render such a proceeding worth undertaking in view of the above possible competency of the pyloric passage. The nature of the fluid was somewhat striking. In appearance it was more like ink; but in constitution it was probably gastric secretion mixed with blood. From the large quantity removed at the operation—11 pints—and subsequently, it hardly seemed possible to believe that it consisted solely of altered blood, but that the major part of the fluid must have consisted of an excessive gastric secretion, for at no period did the patient seem to be suffering from any great loss of blood.

In reviewing the treatment of the case by that superior wisdom which is always derivable after the event, to have simply passed the stomach tube would probably as effectually afforded relief as did the direct incision into the stomach, for it was the method adopted during the four days that life lasted, and which always gave him comfort. But such treatment would have thrown but little light on the true nature of the disease, although it would certainly have aroused suspicions regarding its possible location in the stomach. An exploratory operation would, therefore, doubtlessly have been executed, supposing the patient's condition had been such as to admit of its execution being advisable. Death was evidently due to sudden cardiac failure, a result not unlikely either of the naturally enfeebled condition which, in spite of the patient's buoyant nervous system, was evident; or of possibly some interference with the action of the heart as the result of great gastric distension.

A REPORT on the malarial investigations in Mauritius from November, 1907, to February, 1908, by Major C. E. P. Fowler, R.A.M.C., who was associated with Major Ross in the recent work conducted in that island, has been issued. It contains details of the outbreak of malaria in 1866. This outbreak in an island supposed to be non-malarial forms one of the most interesting epidemiological facts in the whole history of malaria. The report contains recommendations as to prevention, and a permanent staff for antimalarial work has been already partly formed. It will not undertake major works, its duty being minor works and the keeping in order of the major works after completion. A series of most excellent photographs with which the report is illustrated indicate very clearly the tropical nature of the vegetation and the general type of scenery, which resembles that of the West Indian islands very closely. Leaving out of account altogether major works, the minor works will necessarily prove very expensive in such a place, but if the health of the island is to be improved they will have to be carried out.