from above; finding it could be removed, I proceeded at once to excise it from the perineum. The whole rectum was removed and about 4 in. of the sigmoid flexure. The sigmoid was brought down and stitched to the sphincters. The wound was stitched up except for a small opening where the gauze was brought out at the back. The patient made a good recovery and was about again one month after operation. Six weeks after the operation he could expel a bougie from the new rectum and had good sphincteric control. A year later I closed the colotomy opening and his bowels now act in the normal manner. It is now over two years since the operation and he is quite well.

CASE IV.

The patient was a lady aged 33. She had had blood in the stools for a little over a year. There was a large soft ulcerated tumour about 2 in. from the anus. It was freely movable, and about 3 in. in diameter. The whole rectum and cellular tissue in the hollow of the sacrum were removed, together with 2 or 3 in. of the sigmoid flexure. The sigmoid was brought down and attached to the sphincters. There was some shock after the operation, which, however, soon passed off. The bowels were opened on the sixth day with castor oil. The wound healed by first intention, and there was no rise of temperature after the first twenty-four hours. The patient left the nursing home under three weeks from the operation and returned to her home. She has perfect control over the bowels, though at first she complained of some difficulty in feeling when the bowel was going to act, owing to lack of sensation in the anus. This is now better, and control is perfect. This patient married two years after operation.

I have performed this operation successfully in four more cases during the last eighteen months, and all the patients have perfect faecal control.

This operation is a modification of Quénu's perineal operation for excision of the rectum, but Quénu did not advocate removal of the entire rectum.

It also somewhat resembles Sir Charles Ball's abdomino-perineal operation, but the whole operation is performed from the perineum.

I was very much interested at the annual meeting of the British Medical Association to find that M. Henri Hartmann of Paris has for some years been performing a similar operation. He has performed 12 of these operations without a death, and with only three recurrences up to the time of writing his paper.

The chief point in the operation to my mind is the complete removal of the entire rectum in all cases of carcinoma of that organ. By this method of operating the whole of the rectum, the glands in the hollow of the sacrum, and the attached cellular tissue are removed in one piece, and there is thus a much greater probability of eradicating the disease. The local removal of malignant disease has never been very satisfactory, and the excellent results which have been obtained in recent years in the treatment of cancer of the breast and uterus date from the time when surgeons recognized the importance of removing the entire organ *en masse* when any part of it was affected with cancer.

In the case of the rectum this is not only possible, but it enables us to perform the operation aseptically, and to restore the parts better than if a portion of the rectum only is removed. The sigmoid flexure is, I believe, much more suitable for plastic operations than the rectum.

The rectum is normally a more or less fixed tube, and is therefore unsuitable for such operations as resection and anastomosis or for bringing down the stump after partial amputation and stitching to the sphincters. The sigmoid, however, is a freely movable organ, and is particularly well suited to any form of plastic operation.

Sloughing of portions of the bowel, which is often so troublesome when the stump of the rectum is used to form the new anus, will not occur if the sigmoid is used, providing that care is taken to see that the bowel is still provided with a mesenteric attachment down to the divided edge.

The advantages of this operation are:

1. That the entire rectum and growth, cellular tissue and lymphatics, are removed *en masse*.
2. That it renders it possible for the operation to be performed aseptically and for the wound to be kept clean after the operation.
3. That it enables the normal opening of the bowel to be restored in almost all the cases that do not necessitate removal of the sphincters.
4. That it permits of the removal of more extensive growths than either the perineal or Kraske methods.
5. That there is none of the mutilation of the pelvis which is a necessary accompaniment of the Kraske opera-

tion—the removal of the coccyx does not seem to cause any subsequent inconvenience.

CONTROL OVER DEFAECATION AFTER OPERATION.

From the patient's point of view this is perhaps the most important point in the operation for excision of the rectum.

After this operation the sphincters rapidly recover their function; but at first, owing to complete absence of sensation in the new rectum, the patient is not conscious of the presence of faeces in the lower bowel, and partial incontinence results from this cause. In a very few weeks, however, a certain amount of sensation at the anus is established, and the patient is easily able to tell when the bowel is full, and to control the action of the bowels in the ordinary way.

The normal rectum is an organ specially designed for the expulsion of faeces, and when it has been partly or entirely removed this function is not readily established in the new rectum.

In Case IV the patient suffers from constipation unless an enema is used daily; this is, however, but a slight inconvenience, considering the nature of the operation, and I believe that in time it will improve, and the enema be dispensed with.

As compared with many of the older operations for excision, this method of bringing down the sigmoid instead of utilizing the stump of the rectum is a great advance. There is none of the risk of obstinate stricture necessitating the constant use of bougies, which was so common after the old operations.

The point of greatest importance in this operation, however, is, I consider, that it makes it possible for excision of the rectum to be performed aseptically, thus diminishing the risks to the patient's life, and greatly improving the results which can be obtained. It enables the operation of excision of the rectum to be brought more into line with other operations for cancer.

The number of operations are too few to enable any conclusions to be drawn with regard to recurrence, and I have not brought them to your notice with that object, but only as illustrations to this paper to show what can be done by the operation and the condition of the patient that results from it. There can, however, be little doubt that the more extensively the growth is removed, the better will the results be as regards recurrence.

The operation is not easy, and a thorough knowledge of the anatomy of the rectum and posterior pelvis is essential before attempting it. I performed it several times on the dead subject before attempting it in the living, and I believe this to be wise practice.

The most scrupulous care in aseptic technique is essential, as the peritoneal cavity and pelvic cellular spaces are widely opened, and serious consequences may follow any infection reaching these structures.

SQUAMOUS-CELLED CARCINOMA OF THE STOMACH AND OESOPHAGUS

IMITATING TUBERCULOUS ULCERATION OF THE INTESTINE.

BY

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THE points of peculiar interest about this case are: (1) A large squamous-celled carcinomatous ulcer, having all the naked-eye appearances of a primary growth, in the stomach associated with a smaller and apparently more recent growth in the oesophagus; (2) repeated intestinal haemorrhages without haematemesis, which, taken in conjunction with the presence of acid-fast bacilli in the material thought at the time to be sputum, gave rise to a diagnosis of tuberculous ulceration of the intestine.

A painter, aged 40 years, was admitted to St. George's Hospital on November 4th, 1906, having passed a pint of black blood by the bowel the day before. For some time previously he had been feeling out of health and had had vague pains in the abdomen, but had not suffered from indigestion or loss of appetite. At no time either before or after admission was there any difficulty in swallowing.

He was intensely anaemic, rather drowsy, the abdomen was rather retracted, but nothing abnormal could be made out in it, and the rectum was normal. The temperature was irregular, and at first the possibility that the case was one of ambulatory enteric fever was entertained, but the agglutination reaction was negative. After this he was treated for duodenal ulcer for a time, but the temperature became more constantly raised to between 100° and 102° F., and on November 15th a considerable quantity of blood was passed by the bowel. On November 19th some material, thought to be sputum, was brought up, and was tested by Dr. Slater, who reported that tubercle bacilli were present. Although it was assumed that the material had come from the lungs, inquiry from the Sister after the patient's death made it clear that the fluid might have been regurgitated from the oesophagus. After the report as to the presence of *B. tuberculosis* the case was regarded as one of tuberculous ulceration of the intestine, although no signs of pulmonary tuberculosis could be made out. The patient steadily went downhill. On November 27th he had a rigor, and passed into a semicomatose condition, dying on December 1st.

Necropsy (performed forty-one hours after death).

Emaciated body.

Thorax.—Pleurae normal, save for a fairly firm band-like adhesion at right apex. Lungs both very oedematous. No bronchitis; no evidence of any form of tuberculosis present. Larynx and trachea normal; no ulceration. Thyroid gland normal. Pericardium contains a slight excess of pale, straw-coloured fluid, otherwise nothing abnormal. Heart, 11 oz.; normal, except that the muscle is pale and cloudy.

Alimentary Canal.—**Stomach:** The fundus is occupied by a large mass of new growth, irregularly circular, and of a diameter of 3 in. to 4 in. (see Fig.). Almost the whole of the growth is to the left of the oesophageal opening. The edges of the growth are considerably raised and hard, and beyond this the neighbouring rugae are also infiltrated and firm. The central part of the growth is extensively ulcerated and presents a foul necrotic appearance. In this region the stomach is firmly adherent to the posterior and outer part of the gastric area on the inferior surface of the left lobe of the liver, which is infiltrated by a direct extension of the growth, and contains a necrotic cavity communicating directly with the stomach through the ulcerated centre of the gastric growth. This cavity in the liver extends through towards the upper surface of the liver, where its position is marked by a soft yellowish circular zone of the size of a penny. This area is not adherent to the diaphragm. The glands around the cardiac orifice of the stomach, those on the lesser curvature and in the portal fissure are infiltrated with growth. Secondary nodules are also present on the under surface of the liver, extending into the portal fissure and thence along the fissure of the ductus venosus. The nodules and glands near the stomach growth are soft and necrotic in the centre, while those nodules more distant are quite firm. **Oesophagus:** At the lower end of the oesophagus is an oval, somewhat polypoid mass of growth, with its long axis in the mid-anterior line of the lumen (see Fig.). This mass is nearly 2 in. long and $\frac{1}{2}$ in. wide, and almost fills the oesophageal lumen, as seen on transverse section. About $\frac{1}{2}$ in. above the upper limit of this is another small nodule. Below, the larger oesophageal mass reaches to within $\frac{1}{2}$ in. of the opening into the stomach, and between this and the margin of the gastric growth is apparently normal mucous membrane. The edge of the latter reaches to within about $\frac{1}{2}$ in. of the orifice, and at this distance more than half encircles the orifice. In the transverse section of the oesophagus at the level of the middle of the larger nodule, 1 in. above the lower

end of the oesophagus, there is a strand of growth in the muscular coat, which is apparently in connexion with the deeper part of the gastric growth. Duodenum and intestines are normal. Gall bladder normal. Bile ducts pervious. Spleen enlarged (13 oz.), soft and diffident, typically toxæmic. Liver and kidneys both show cloudy swelling. Nothing further abnormal found in abdomen.

Microscopical Examination.

The mass of growth in the oesophagus occupies, and appears to arise from, the submucous coat. It consists of squamous cells in a fibrous reticulum. There is much keratinization and cell-nest formation. The growth has broken through and destroyed the mucous membrane. The lining of the oesophagus at the level of the growth consists of the normal many-layered squamous epithelium. It ends quite abruptly where the growth has broken through, and the broken edges show no sign of irritation, downgrowth, or malignant change. The submucous mass of growth only occupies about one-third of the circumference of the tube and shows little tendency to spread transversely. The muscular coat opposite the base of the growth contains small groups of squamous cells, some of which appear to be in lymphatics which have been cut across.

The growth in the stomach is of the same nature as that in the oesophagus, there being squamous cells in a fibrous reticulum and advanced keratinization and cell-nest formation. Here again the growth is mainly in the submucous layer. The mucous membrane of the stomach between the oesophageal opening and the edge of the gastric growth is normal except for slight catarrhal changes. As the mucous membrane passes over the edge of the growth in the submucous layer, the muscularis mucosae, at first normal, is soon invaded with squamous cells and the whole of the mucous membrane becomes destroyed. The glands over the edge of the growth are inflamed.

The nodules on the under surface of the liver and the lymphatic glands contain growth exactly similar to that described above. There is growth in the edge of the necrotic cavity in the left lobe of the liver where the stomach is adherent to it, but the rest of the wall of this excavation shows no growth, only an ordinary acute inflammation due to pyogenic cocci small-celled infiltration with necrosis of the liver cells.

REMARKS.

Morbid Anatomy.—Primary squamous-celled carcinoma of the stomach is practically unknown; the only reservation necessary is that in a few instances metaplasia in a gastric carcinoma has given rise to squamous-celled areas. It is not, however, improbable that primary squamous-celled carcinoma will be found to occur in the stomach in isolated instances. There are several reasons for this opinion. A considerable number of cases of primary squamous-celled carcinoma of the gall bladder have been recorded. Thus, in 1904 Fütterer collected 13 examples, and other cases have been recorded by Hebb (1895), Mayo Robson (1896), and Speese (1906). Cases of primary squamous-celled carcinoma of the body of the uterus have also been recorded (Keith). In this connexion reference may be made to a fibrocystic tumour of the breast in which many of the cysts were lined by squamous epithelium (Griffiths), and to 4 cases of mammary

adenomas, collected by Børst, lined by keratinizing epithelial cells. There has been considerable discussion whether this exceptional squamous-celled character in growths arising primarily in mucous membranes of the gall bladder and stomach is due (1) to metaplasia of the epithelium as the result of chronic irritation, or (2) to the presence of a "rest" or isolated area of squamous epithelium the result of some irregularity of development. In the case of squamous-celled carcinoma of the gall bladder, which is a considerable distance from any squamous-celled surface, the first explanation would appear to be the more probable, though Deetz did not find any evidence of squamous-celled metaplasia in an examination of 300 gall bladders, and Ribbert inclines to the view of an aberrant germinal deposit, while in the case of organs in communication with squamous-clad surfaces, such as the stomach, uterus, and breast, the second explanation would appear the easier. As bearing on this it may be pointed out that at least six cases of columnar-celled carcinoma of the oesophagus are on record (Hewlett), and that this can be explained by the *Anlage* hypothesis. On the other hand, it has been shown experimentally by Fütterer that squamous-celled metaplasia can be produced by irritation, and in a case of primary columnar-celled carcinoma of the stomach, recorded by Dr. Trevor and one of us, metaplasia in the growth had led to islands of squamous-celled growth.

In view of its rather complicated character we do not assert that the present case should be regarded as a primary squamous-celled carcinoma of the stomach. For although the carcinomatous ulcer in that organ has all the naked eye appearances of being the older, and that in the oesophagus of being the more recent, the most obvious view is that the primary growth remained small, and that the secondary (or ? implantation) growth grew rapidly. Another interpretation, that the primary oesophageal tumour gave rise to a secondary growth in the left lobe of the liver which spread to the stomach and so led to the malignant ulcer, and thus to the gangrenous cavity in the liver, did not appear probable either from the naked eye or microscopical appearances, the wall of the liver abscess not showing growth.

This anatomical condition appears to be worth recording as a contribution to the literature of carcinoma of the stomach.

The acid-fast bacilli which were reported to be tubercle bacilli formed the subject of a communication by Dr. Slater to the Pathological Society of London on February

5th, 1907, from which a few details are, by his kindness, appended. The material sent to him "contained large numbers of acid-fast bacilli resisting decolorization by absolute alcohol for two hours; these occurred in large groups, though there were a good many isolated bacilli which in many respects resembled *B. tuberculosis*. They were, however, in many cases unusually long, sinuous, and lacking in any beading, and were sufficiently unusual to cause me to show the specimens to other workers in my laboratory, and to note their characters in my own report. The organisms resembled bacilli that are occasionally met with in putrefying sputum and retain the red stain to a certain extent, but these were brilliantly stained, and resisted absolute alcohol for two

hours. With some misgivings, however, I reported that tubercle bacilli were present. After the patient's death these bacilli were found in smears from the ulcerated surface of the gastric growth, and also in the superficial portion of a section through the sound non-ulcerated edge of the growth, but nowhere else. Attempts at cultivation not having been possible in this case, I can only suggest that these bacilli were probably similar to the acid-fast tubercle-like bacilli which have been described in faeces and sewage. The point of clinical interest lies in the presumption that these organisms from the stomach gained access to material which had the characters of sputum, and so became the source, though probably a very rare source, of a possible error in diagnosis."

It may safely be assumed that these acid-fast bacilli were enabled to grow in the stomach on account of the ulcerating carcinoma and probably—though of this there is, of course, no positive evidence—from the absence of free hydrochloric acid. In this connexion it is interesting to

refer to the cases of caseous masses in the livers of patients with carcinoma of the stomach recorded by Craven Moore and Clement. Tubercle bacilli were not found in these two cases, so it is conceivable that the caseous masses in the liver were due to other bacilli, such as that described by Klein in Thames and Lee water, which produced caseous masses in the liver of animals. As bearing on these observations, the secondary nodules in our case were examined microscopically, but were found to be carcinomatous.

Clinical—As already pointed out, the diagnosis of the cause of intestinal hæmorrhage in this case was beset with difficulties—ambulatory enteric fever, duodenal ulcer, and tuberculous ulcers of the intestine being successively thought of. When the expectorated material was reported to contain tubercle bacilli, the fever, emaciation,

Squamous-celled carcinoma of stomach and oesophagus. The growth in the oesophagus is smaller and to the naked eye looks secondary. The carcinomatous ulcer in the stomach does not invade the cardiac orifice; it opens into a suppurating cavity in the left lobe of the liver.

and intestinal haemorrhage were regarded as the result of tuberculous ulceration of the intestines, and probably of tuberculosis more or less generalized throughout the body. Tuberculous ulceration of the intestines is, in our experience at least, hardly ever accompanied by profuse intestinal haemorrhage; but Professor Osler speaks of having had several fatal cases from this cause. The occurrence of profuse haemorrhage of the stomach without haematemesis was presumably explained by the pressure exerted by the growth against the cardiac orifice, and to some extent by the presence of the oesophageal growth, conditions which would make vomiting impossible. Much stress cannot be laid on the obstructive influence of the latter, inasmuch as there was at no time any recognizable dysphagia. The same argument might, indeed, be raised with regard to the gastric growth; but it seems reasonable to believe that the gastric growth, which did not quite reach the cardiac orifice, did not obstruct that orifice when the stomach was passive, but that in vigorous contraction of the stomach, such as would induce vomiting in a healthy person, the cardiac orifice became obstructed by the pressure of the growth. In other words, that the obstruction was valvular.

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TWO CASES OF MULTIPLE INTESTINAL OBSTRUCTION.

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In the first of these cases the patient, a night watchman, aged 81, stated that though for some years he had been subject to bronchitis in winter and for many years had a left inguinal hernia, he had been a very healthy man, the hernia giving no trouble. About 8 p.m. on the evening preceding his admission the patient, being then on duty, was suddenly, and without apparent cause, seized with severe abdominal pain. He was taken home. Vomiting commenced shortly afterwards and continued, pain later on being felt in the hernia and over the abdomen.

State on Admission.—He was in fair condition; pulse about 100, with occasional irregularities; temperature normal; marked faecal vomiting was present. The abdomen was much distended and tense; the large left inguinal hernia present was firm, painful, irreducible, dull on percussion, and had no impulse on coughing.

Operation.—Under chloroform the hernia was cut down on, and on opening the sac a large quantity of clear serous fluid escaped; there was a loop of bowel in the sac, slightly distended and red, but having no marked appearance of strangulation; the ring was wide and the bowel easily returned. As this did not seem to afford sufficient explanation of such marked faecal vomiting, a median laparotomy was performed, distended small bowel presented, and this, on being followed down, led to a loop of ileum fixed tightly behind the caecum, evidently being of the nature of an internal hernia; this loop was almost black in colour, but on reduction appeared viable, so the abdomen was closed and the patient put back to bed.

Second Operation.—Faecal vomiting continued all night, and, as the patient was rapidly sinking, the abdomen was again opened in the morning, eight hours having elapsed since the former operation. Another impacted and strangulated internal hernia was discovered, this time up in the region of the splenic flexure, where the bowel had got caught in a peritoneal pocket; this bowel was also nearly black, but was treated by simply replacing it in the abdomen.

Result.—After this the vomiting ceased, and in six hours the bowels moved. The patient remained free from pain, his temperature kept from 98° to 100°, his pulse improved, and the day following operation his bowels moved again. On the fourth day his cough became very

troublesome, and a dull patch was detected in one lung. This increased, and he died on the eighth day after the last operation. The following notes were made at the autopsy:

The body is that of an emaciated old man, and the arteries show signs of senile degeneration; there is an operation wound over the left inguinal region, which is almost healed; there is also one over the middle line of the abdomen, below the umbilicus; this one, though quite aseptic, shows very little healing change; the bowel throughout is in good condition; both lungs are in a state of hypostatic pneumonia, consolidation being marked at both bases. There was nothing of note in the other organs.

The second patient, a hammer boy, aged 18, stated that he had always been healthy, but seven years ago had been run over by a van, and had his abdomen injured. After this he was in hospital for eight weeks, but eventually made a perfect recovery.

On July 17th, eight days before admission to the infirmary, he was away for a day's trip, and next morning felt sick and had some abdominal pain; it was thought to be due to what he had eaten the day before. In the evening severe vomiting commenced, and had continued till admission. For the last forty-eight hours it had been faecal in character. Two enemata were given on the 19th with fair result, but since then the bowels had never acted, nothing whatever had been retained, and abdominal pain was excessive.

State on Admission.—He was in a desperate condition; his pulse very weak and about 104 in rate; his temperature 99°; very marked faecal vomiting was present; the abdomen was not markedly distended and no local tumour could be felt.

Operation.—Under chloroform an incision was made in the middle line, somewhat distended small intestine presented, and on following this down it was found to go in at the foramen of Winslow; almost 3 ft. of bowel was pulled out through this foramen; at one part there was a slight mark of constriction, but there was nothing which seemed sufficient to account for the symptoms, so a further search was made and a long, inflamed appendix was discovered twisted firmly round a part of the small intestine and evidently completely blocking it. The adhesions were broken through and the appendix removed; the small bowel thus freed was about 6 in. away from the ileo-caecal valve, and it was much congested.

Result.—He lived about six hours after the operation, and during that time his bowels moved slightly; however, there was no proper rally. At the autopsy the following was observed: There was no marked distension of bowel, no obstruction, intense congestion of a part of the lower end of the jejunum, which had a haemorrhagic appearance in places, no peritonitis nor ulceration of bowel. In the appendix region there was also marked congestion involving the stump of appendix and caput and especially the lower end of the ileum; inside the bowel at this part there was congestion of the Peyer's patches, without ulceration, also enlarged retroperitoneal glands were felt. The other organs showed no marked pathological lesion.

REMARKS.—In both these cases there seems no doubt that the vomiting and peristalsis induced by the primary obstruction were the causes which induced the secondary herniae. This possibility should be remembered, for in any violent vomiting we have a predisposing cause for an obstruction. If, therefore, we find what appears to be an insufficient obstruction, or in cases where an operation has not seemingly relieved the obstruction, the possibility of a second one must be borne in mind. As these secondary obstructions may not be very tight, and may resolve themselves with the general relaxation at death, it is possible that they account for some of the cases of so-called paralysis of the bowel where no peritonitis or obstruction is found after death.

My thanks are due to Dr. Adams for permission to treat these cases in his ward and also to publish the results.

TWO NEW GENERA OF NEMATODES
OCCASIONALLY PARASITIC IN MAN.

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THE helminthic affections of man are in not a few instances cases of accidental or occasional parasitism, the normal host being one of the domesticated lower animals more or less closely associated with him. Thus, *Fasciola hepatica*, *Dicrocoelium lanceatum* and *Opisthorchis felinus* among the Trematoda, *Eustrongylus gigas*, *Ascaris mystax*, and *Strongylus longevaginatus* among Nematodes, and the