first sound at the apex was almost inaudible. These symptoms lasted for about a fortnight and finally disappeared. In another child, aged five years, the pulse was intermittent and a little later a questionable systolic bruit was detected at the apex, but no further extension occurred, the intermission of the pulse disappeared, and the valvular sound once more became normal.

Welbeck-street, W.

MALIGNANT DISEASE OF THE COLON; 14 COLECTOMIES WITH 10 RECOVERIES.¹

By H. LITTLEWOOD, F.R.C.S. ENG.,

SURGEON TO THE LEEDS GENERAL INFIRMARY AND LECTURER
ON PRACTICAL AND OPERATIVE SURGERY IN THE
YORKSHIRE COLLEGE.

THIS paper is based on the study of about 26 cases of malignant disease of the colon which have occurred in my practice during the past four years. I have also included one case of malignant disease of the rectum; the disease was in the upper part and was removed by an abdominal proctectomy with end-to-end union, and for this reason I have added it to my list of colectomies. All the cases referred to were columnar carcinoma. I propose to deal with the subject under two headings (1) the diagnosis, and (2) the treatment. Under the heading of treatment I shall refer more particularly to the operation of colectomy. The cases of colectomy—14 in number—I have arranged in a special table, so that they can be more easily referred to; in these cases 10 of the patients made good recoveries and four died. In cases where colectomy is not possible or advisable owing to the general condition of the patient, the size and fixity of the growth, or the presence of secondary deposits, other operations may be required to relieve the patient, such as typhlotomy, colotomy, or the short-circuiting operation by lateral anastomosis.

DIAGNOSIS.

The diagnosis of malignant disease of the colon is sometimes quite an easy matter, but in the early stages of the disease it is often a matter of the greatest difficulty. Probably in all cases, when carefully inquired into, there is a history of increasing difficulty in getting the bowels opened. The patient may have noticed some blood or mucus in the motions. It is often only when these symptoms have increased so as to be a real inconvenience that the patient will consult a medical man. Many patients look upon constipation as an unimportant condition, for which they treat themselves by one or other of the natural mineral waters or patent pills which are now so seductively advertised. I feel that every patient suffering from constipation who consults a medical man should have the cause carefully investigated before any remedy is prescribed and that if possible malignant disease should be excluded, for it is in those cases in which an early diagnosis is made that we shall get the most encouraging results by means of operation. If a patient has been in the habit of having his bowels opened at regular intervals and this regularity has been interfered with, so that the intervals have increased in duration or there have been one or more definite attacks of obstruction associated with "colicky" pains and the presence of blood and mucus in the motions, then a very careful examination of the anus and rectum must be made to ascertain if the cause of the obstruction is in this region. I have not had much experience in using specula for rectal examinations; I feel I can rely more on my sense of touch than on my sense of sight. If nothing is found by rectal examination—and it is a great thing to be able to exclude the presence of anything in the rectum—then the abdomen must be carefully examined.

On thinking over the cases of malignant disease of the colon which I have seen I divide them into two classes: (1) those in which a very definite tumour is present; and (2) those in which there is a constricting ring of growth which it is often impossible to discover by abdominal palpation. I am inclined to think that the larger tumours are invariably

found in the cæcum, the hepatic flexure, or in the transverse colon and that beyond this point in the colon a large growth is the exception. The commonest seats in which to find carcinoma of the colon are the flexures; growths are most difficult to discover in the splenic flexure as it is so deeply hidden beneath the ribs; next to this those in the hepatic flexure are most difficult to find unless the tumour is of considerable size. A very large tumour may be present and yet the patient may be unaware of its existence until its presence has been pointed out by the medical man. In Case 12, where there was the largest mass which I have yet removed, the patient knew nothing of its existence. I think that it may also be stated, as a general rule, that the bigger the growth and the nearer it is to the cæcum the less likely is there to be obstruction—for this reason, that the motions are more fluid in the cæcal region and the larger growths are less liable to contract and so to produce a narrowing at the point of growth. If no growth can be discovered and still malignant disease is suspected, enemata and the inflation of the colon may sometimes give valuable help in diagnosis, or it may be necessary to give an anæsthetic and to make a more complete examination by palpation, specula, &c., and there are some cases in which we so strongly suspect carcinoma that we may feel it wise to recommend an exploratory operation. This we did in Case 4, and it is the earliest case of malignant disease of the colon upon which I have operated. A method which I learned from Mr. T. P. Teale I have sometimes found very useful when the patient is under an anæsthetic—i.e., to pass a pair of vulsella high up and to pull down the mucous membrane; by this means a growth high up in the rectum or sigmoid flexure may be brought within reach. Let me here point out the dangers sometimes associated with the use of enemata—I have twice seen fatal peritonitis due to a malignant ulcer bursting into the peritoneum during the administration of an enema, and in Case 6 I believe another enema might have produced a fatal result.

Up to the present I have assumed that we have been examining a case before any very definite obstruction has occurred. We will now consider those cases in which on the first time we see the patient acute obstruction is present and it may be that this is well marked before the patient has even consulted any medical man. All the signs of acute obstruction may be present—the distended abdomen with or without visible peristalsis, the rapid pulse and the cold or discoloured extremities of fæcal toxæmia—and we may only be able to make a shrewd guess that the cause of the obstruction is malignant disease by excluding every cause which is more or less obvious. The age of the patient may help, but we must not forget that malignant disease may occur in quite young people; the youngest case (Case 11) in this series was 28 years of age.

TREATMENT.

If one sees the cases early and there is no intestinal obstruction then a primary enterectomy should be done and it often requires considerable judgment at the time of the operation to decide this point. I am quite convinced it was an error of judgment to perform a primary enterectomy in Case 11, but I shall refer to this later. There are several ways of doing the operation, many of them having good points, and naturally the surgeon will perform the operation best that he is most accustomed to. I am amongst those who believe that the suturing can be quite easily and efficiently accomplished without the aid of any of the special appliances which have been and are still being invented. Surgery is a handicraft and I hope will always continue so to remain, and not a branch of mechanical engineering, and it is the business of the surgeon to train his fingers so that he can use his needle with as much facility as a woman who makes any pretence to be a good needlewoman.

It is only during the last four years that I have had many opportunities of doing colectomy; my cases before this either had secondary growths or I thought that they were too ill to run the risk of a radical operation. My first colectomy has been already recorded.² The patient was a woman with intestinal obstruction. I did a preliminary typhlotomy and subsequently removed a mass from the ascending colon and united the divided ends by Halstead's method. Death occurred six months later when there were secondary deposits in the liver. Between this case and those which are included in the table of colectomies appended to this

¹ A paper read before the Leeds and West Riding Medico-Chirurgical Society on Oct. 18th, 1902.

² THE LANCET, Oct. 13th, 1894, p. 853.

TABLE SHOWING THE RESULTS OF 14 COLECTOMIES PERFORMED FOR MALIGNANT DISEASE OF THE COLON.

No. of case.	Sex.	Age.	Nature and position of disease.	History.	Signs and symptoms at the time of operation.	Nature and date of operation.	Result.	Remarks.
1	F.	57	Large mass in the cæcum.	The patient had been ill for two months. She had had a great deal of pain in the right iliac region and the back. There was some constipation but no vomiting. She had lost weight.	There was a large tumour in the region of the cæcum, which could be both seen and felt. The patient's chief symptom was pain.	On June 18th, 1900, the cæcum and part of the ascending colon and mesentery were removed; the ileum was stitched to the cut end of the ascending colon.	A good recovery.	In this case there was no obstruction. The presence of the tumour and pain were the prominent features. No secondary growths were noted at the time of operation.
2	F.	46	Large mass in the hepatic flexure.	The patient had been ill for about five months and was getting thinner. She was suffering from constipation and occasional attacks of vomiting were noticed.	There was a large tumour in the hepatic flexure. Constipation was present.	On July 25th, 1901, about ten inches of the colon and the corresponding mesentery were removed. End-to-end union was effected.	A good recovery and the patient is apparently now quite well.	The case was seen with Dr. A. Dennison of Burley. The tumour was the prominent feature in the case. No secondary growths were noticed at the time of operation.
3	M.	34	Large mass in the transverse colon.	The patient had complained of a dragging pain in the lower part of the abdomen since August, 1900. The tumour was noticed a month later. There was no constipation.	There was a tumour in the lower and right part of the umbilical region. It was freely moveable and was of about the size of a closed fist.	On April 22nd, 1901, about six inches of the transverse colon, including growth, with mesentery, were removed. End-to-end union was effected.	A good recovery and the patient is apparently now quite well.	The case was sent to me by Mr. Edwin Lee of Dewsbury. The tumour was the prominent feature of the case. No secondary growths were noted at the time of operation.
4	M.	54	A small growth of the size of a florin in the splenic flexure near the mesenteric border involving about half of the lumen.	The patient thought that in September, 1900, he had strained himself whilst lifting; since then he had had on two occasions constipation and obstruction lasting for a fortnight. When in bed he was free from pain. He had been getting thinner.	The patient was suffering from constipation. There was no obstruction at the time of operation or evidence as to the cause of the obstruction. Early malignant disease was suspected.	On Nov. 22nd, 1900, a small malignant mass which was found in the splenic flexure was removed. End-to-end union was effected.	A good recovery and the patient is apparently now quite well.	The growth appeared to produce obstruction by tilting or possibly by producing a slight intussusception.
5	F.	37	Constricting mass of malignant disease in the splenic flexure.	The patient was apparently quite well until August 25th, 1900, when symptoms of complete obstruction revealed themselves.	There were well-marked signs of complete obstruction. The abdomen was distended, with well-marked visible peristalsis.	On Sept. 5th, 1900, the abdomen was explored in the middle line. The cæcum was enormously dilated and somewhat rotated. Typhlotomy was performed. On Oct. 22nd, 1900, a small ring of malignant growth was found in the splenic flexure and removed. End-to-end union was effected.	A good recovery and the patient is quite well at present.	At the first operation the cause of obstruction was not found. It was a very small ring of growth in the splenic flexure and the intestines were enormously distended. The descending colon was also distended, probably the result of enemata.
6	M.	52	There was a mass of malignant disease surrounding the lower part of the sigmoid flexure at the pelvic brim. In one part the growth had ulcerated and in this cavity an orange-pip had lodged.	The patient had complained of pain in the body and of constipation for 12 months. Eight months before he had a violent attack of pain and vomiting and since then he had taken medicine regularly. He had lost weight.	During his stay in the infirmary before the operation the patient was examined several times, but the cause of the obstruction could not be discovered. Malignant disease of the colon was suspected. The bowels could be opened by means of purgatives and enemata.	On Dec. 17th, 1900, the abdomen was explored in the middle line and the mass of growth found in the lower part of the sigmoid flexure. About four inches of bowel were removed. The gut was severed through the lower part of the sigmoid flexure and the upper part of the rectum. End-to-end union was effected.	A good recovery.	The stitching was very difficult. On examining the specimen it looked as if another injection would have burst through the base of the ulcer and so might have produced a fatal peritonitis.
7	F.	43	Malignant growth surrounding the rectum; the lower limit could just be felt. It appeared moveable by bimanual examination.	Six months before operation the patient began to suffer from constipation. This at times alternated with diarrhoea and the passage of blood and slime. She lost weight.	There was a tumour at the upper part of the rectum with passage of slime and blood.	On Feb. 27th, 1902, the patient being in the Trendelenburg position, the abdomen was opened in the middle line and about four inches of rectum were removed. End-to-end union was effected.	A good recovery and the patient is quite well at present.	This was a very difficult operation. There was no evidence of secondary growth. The case was sent to me by Dr. D. J. Macaulay of Halifax.
8	F.	53	Constricting ring of malignant disease in the hepatic flexure.	The patient had suffered for several months from chronic constipation which culminated in an attack of acute obstruction which was complete for a week.	There were complete obstruction and vomiting of offensive fluid. The abdomen was greatly distended. There was visible peristalsis. The pulse was rapid. There was no visible tumour.	On Jan. 10th, 1901, a constricting ring of growth was found in the hepatic flexure. Typhlotomy was performed and on Feb. 24th about three inches of the colon with the growth were removed. End-to-end union was effected.	The patient never really rallied from the operation and she died on March 1st, 1901.	At the necropsy the parts were in good apposition at the line of suture. The growth was a small constricting ring. There were no secondary growths. The case was seen with Mr. J. N. Hawtin of Leeds.

TABLE SHOWING THE RESULTS OF 14 COLECTOMIES PERFORMED FOR MALIGNANT DISEASE OF THE COLON (*continued*).

No. of case.	Sex.	Age.	Nature and position of disease.	History.	Signs and symptoms at the time of operation.	Nature and date of operation.	Result.	Remarks.
9	F.	42	Ring of malignant growth in the splenic flexure. No tumour could be felt.	The patient was apparently quite well till three months before, but had always had constipation.	The abdomen was a little distended, with well-marked peristalsis. The abdominal wall moved a little with respiration. The patient had vomited everything since August 18th and there had been no passage of either motion or flatus. The pulse was 92 and of a good quality.	On August 24th, 1902, a constricting growth was found with difficulty at the splenic flexure. Typhlotomy was performed. On Oct. 14th the growth from the splenic flexure was excised. End-to-end union was effected.	A good recovery and the patient is now apparently quite well.	The patient was a long time convalescing from the first operation so that the second was delayed more than six weeks. After this she recovered well.
10	F.	60	Malignant stricture in the transverse colon was discovered after the removal of a large adherent ovarian cyst to which all the patient's symptoms were thought to be due.	For some months the patient had been getting large in the body and suffering from pain. She had some constipation which could be relieved with purgatives.	There was an ovarian tumour extending above the umbilicus. There were a good deal of tenderness over this and some constipation. The patient was very feeble.	On April 10th, 1902, the ovarian tumour was removed and at the end of the operation the malignant mass in the transverse colon was discovered and about five inches of the colon were removed. End-to-end union was effected.	The patient never really rallied from the operation and died on the sixth day.	The patient was sent to me by Dr. J. T. Haworth of Filey. She was really too weak for two such extensive operations but I felt at the time that it was worth the risk. The bowels were well opened on the fourth and fifth days by enemata. The patient died from heart failure. A necropsy was not allowed.
11	F.	28	Malignant stricture in the descending colon, with a small circular constricting growth.	The patient had always suffered from constipation and three months before had had a well-marked attack of obstruction which lasted a week.	There were well-marked signs of intestinal obstruction. The abdomen was distended and there was visible peristalsis. No tumour could be felt anywhere.	On June 22nd, 1902, the abdomen was opened in the middle line. The intestines were distended and there was well-marked peristalsis in the colon. A narrow ring of growth was found in the middle of the colon. Three inches of colon were removed. End-to-end union was effected.	The patient appeared to go on well for three days, but became worse on the sixth day; the stitching had evidently given way. The abdomen was reopened and death occurred four hours later.	I was asked to see the case with Dr. J. Stewart of Leeds but had to go away two days after the operation. As I was away from Leeds Mr. Walter Thompson kindly saw the case and did the second operation. The parts had entirely separated.
12	M.	65	Large mass involving the cæcum and the ascending colon.	The patient was apparently quite well until two months before the operation. There was some constipation but no obstruction. The patient had got a little thinner. He was working until a few days before the operation.	There was a big mass in the cæcum and ascending colon which could easily be seen and felt, but no obstruction. The patient's general state of health was good.	On Sept. 22nd, 1902, the mass was removed. The divided ends could not be brought into apposition. Anastomosis of the ileum and sigmoid flexure was effected.	Death six days after the operation. The patient became suddenly collapsed two days after operation but improved for a time with saline infusions and strychnia.	The patient was sent to me by Dr. W. L. Hunter of Pudsey. The mass was an enormous growth which had infiltrated the mesentery quite up to its attachment to the abdominal wall. It was attached by inflammatory adhesions to the pylorus and gall-bladder.
13	F.	50	Malignant stricture in the sigmoid flexure.	For two years the patient had been suffering from constipation. Complete obstruction occurred about a week before.	There were well-marked signs of complete intestinal obstruction. The abdomen was greatly distended. There was well-marked visible peristalsis. Vomiting and rapid pulse were present. No tumour could be felt anywhere.	On June 9th, 1899, the abdomen was opened in the middle line. Constricting growth was found in the sigmoid flexure. Another incision was made in the left anterior lumbar region and a loop of bowel with the growth was withdrawn outside and fixed to the incision. The intestine was opened above and drained. A week later the loop of bowel was removed without anæsthetic.	A good recovery and the patient was up and walking about on July 17th. She was well three years after and is, I believe, still living and well.	The case was seen with Dr. G. W. Thompson of Scarborough. There was too much obstruction to think of doing a primary enterectomy. The patient has never cared to have the continuity of the bowel restored, the opening having been quite comfortable.
14	F.	64	Malignant stricture of the sigmoid flexure.	The patient had been suffering from constipation and indigestion since April, 1901, and was taking an aperient daily. Acute obstruction commenced on Sept. 30th, 1901.	The patient was extremely ill with complete obstruction. The abdomen was greatly distended. There were well-marked visible peristalsis and distension. Vomiting and rapid pulse were present.	On Oct. 5th, 1901, a similar operation was performed to that in Case 13. The second operation was performed on Oct. 26th. The patient was very collapsed after the first operation and stood the second operation badly.	A good recovery ultimately and the patient now appears to be fairly well and without any signs of secondary growth.	The case was seen with Dr. J. McCracken of Coxwold.

paper I have only done colectomy on two others. Both cases were malignant disease of the sigmoid flexure and at the time of the operation had well-marked intestinal obstruction. In the one case a Murphy's button was used and in the other case a bone bobbin; the real cause of the failure was not in the apparatus used, but was due to obstruction present at the time of the operation with faecal toxæmia. Both patients died. Since then I have adopted the method of which I gave a short account in a paper on intestinal suture which I read before the Leeds and West Riding Medico-Chirurgical Society in October, 1900,³ and which I now wish to describe more in detail, after which I will refer to the cases of colectomy performed by this method.

OPERATION.

The abdomen having been opened by an incision most suitable for the site of the new growth, if possible the loop of the colon involved in the growth is withdrawn and clamped a good distance above and below the growth (Fig. 1).

FIG. 1.

a, Colon and mesocolon clamped with Doyen's forceps, the blades protected with rubber tubing. *b*, Divided ends of colon. *c*, Continuous suture for mucous membrane. *d*, Continuous suture for sero-muscular coats. *e*, Gap in mesentery. *f*, Ligature to unite opposing parts of cut mesenteric edge.

I know of no better clamps than Doyen's pedicle clamps, the blades of which are protected by pieces of india-rubber tubing. The bowel is now divided with a strong pair of scissors and the portion containing the growth, together with a corresponding portion of mesentery with its lymphatics, is removed; the cut ends of the bowel are protected with anti-septic gauze and the vessels in the mesentery, which have been secured with forceps, are ligatured. The divided portion is now thoroughly cleansed with some antiseptic solution. I now remove a circular portion of mucous membrane about from one-eighth to one-quarter of an inch in breadth from both divided ends in order to have a good broad surface of the other coats to bring into apposition. For suturing I prefer a small curved Hagedorn's needle, the eye part of which is no broader than the other portion of the needle; this I use on the flat. Suturing is now commenced, beginning at both cut edges at the mesenteric attachment and the sero-muscular coats are united for half the circumference by means of thin chromic or formaline gut (000). The mucous membrane is now sutured around the whole circumference with the same material, the suture

being interrupted by knotting at two or three points; now the remaining half of the sero-muscular coats is united by means of the first suture interrupted by knotting at two or three points of the circumference, so as to prevent the continuous stitch from making the lumen too narrow. The clamps are now removed and the opening in the mesentery is closed; this I do by including opposite points of the gap in the same catgut ligature, three or four ligatures of this kind being generally sufficient to close the opening. This procedure prevents the possibility of perforating a mesenteric vessel which sometimes occurs when a needle and gut are used to suture the cut edges of the mesentery. If possible, the parts operated on are now surrounded with omentum and the abdomen is closed without drainage. The actual suturing can be done in from 10 to 15 minutes. For the last three or four years I have used catgut exclusively for intestinal suture and other abdominal operations—e.g., ovariectomy, hysterectomy, &c. If one cannot bring the parts into sufficiently close apposition to secure an end-to-end union then the cut ends of the bowel should be closed by suture and a lateral anastomosis made; this was done in Case 12.

If there is complete obstruction, the exact position of which cannot be ascertained, then I prefer opening the abdomen near the middle line, just making an incision long enough to admit the hand and arm, so that there is no escape of the intestines which, if it occurs, is certainly a factor militating against a successful result. With a little practice the hand soon becomes familiar with the feeling of being surrounded by distended bowels and a careful search is made in the usual sites in which malignant disease is most commonly found; beginning at the top of the rectum and working round to the cæcum the malignant growth will in this way be felt. It is best to make the search in this order, for it is in these positions that the malignant growths are less obvious than in the first part of the colon, where the growth can more usually be discovered without making an exploratory incision. Often the bowel is collapsed below the stricture; sometimes it is distended especially if enemata have been given. Having found the growth then the liver is examined to find out if any secondary deposits are present there or elsewhere in the abdomen, for if any secondary deposits are present it will be of no use to make any attempt later to remove the malignant mass. If the patient recovers from the preliminary colotomy and there are no contra-indications, as soon as it is thought that the patient will stand the second operation this is performed in the way just described. I did this in

three cases, the patients in two of which (Cases 5 and 7) recovered.

There is another alternative to this plan and that is to withdraw the loop of the bowel with the growth, to fix it in the wound, and subsequently to remove it. This I did in two cases (Cases 13 and 14) in which there was complete obstruction at the time of operation, the obstruction being a small ring of growth in the sigmoid flexure in both cases. The abdomen was first opened in the middle line and the site of the obstruction being discovered another incision was made as for a left anterior lumbar colotomy; a loop of the sigmoid flexure with the growth was withdrawn through the opening and fixed in the wound. The anterior abdominal wound was now closed, the bowel was opened above the growth, and the intestinal contents were drained off by means of a Paul's tube. About a fortnight later the portion of bowel and growth were removed without an anæsthetic and both patients made a good recovery and are now living. The first patient (Case 13) was operated on in June, 1899, with Dr. G. W. Thompson of Scarborough, and the second (Case 14) in October, 1901, with Dr. J. McCracken of Coxwold.

³ THE LANCET, June 29th, 1901, p. 1817.

Of the six successful cases of primary colectomy, with end-to-end union, there was practically no obstruction at the time of the operation; of the two fatal cases in Case 10 the malignant stricture in the transverse colon was only discovered and colectomy performed after a very adherent cyst had been removed; the patient, a woman, aged 60 years, was not in a fit condition to stand the dual operation. In Case 11 there was obstruction at the time of the operation; the obstruction appeared to have only produced distension of the colon, the muscular walls of which were apparently in good condition and actively moving. As this was the condition I hoped that I might have succeeded. In this case the better plan would have been to withdraw the loop of sigmoid flexure through an anterior lumbar opening and to treat the case as I did Cases 13 and 14. Although these cases have both permanent colotomy openings they are really very comfortable. I wish to call special attention to Case 4 as it is the earliest condition of malignant disease of the colon which I have had a chance of operating on. After a consultation with Mr. Teale we recommended the patient to submit to an exploratory operation, as we suspected he must have a malignant growth somewhere in the colon. Mr. Michael Teale has kindly made a drawing (Fig. 2) of the portion of bowel

FIG. 2.

Portion of bowel from Case 4. *a*, Growth from mesenteric border projecting into the lumen of the bowel.

removed (I have also to thank him for the other drawing illustrating this paper). It will be seen from this that the growth is of about the size of a florin; it was situated near the mesenteric border and apparently produced the obstruction by tilting on itself, so that the free portion closed the whole lumen and may even have caused a slight intussusception. In the colectomies performed after a preliminary typhlotomy two patients recovered (Cases 5 and 9) and one (Case 8) was fatal, although the patient's condition had greatly improved. At the time of the second operation I believe that a more satisfactory result might have been obtained had I waited for a few weeks longer. Case 12 was a very extensive operation for a man aged 65 years. Cases 13 and 14, considering that they were both operated on during the acute stage of obstruction, are very satisfactory and instructive cases.

If the growth is not removeable, or there are secondary growths in addition, then in some cases a lateral anastomosis can be performed; this I did in one case sent me by the late Dr. J. Muncaster of Halifax. The patient was completely relieved of the obstruction and died a few weeks later from extension of the growth. In another case, sent me by Mr. J. W. Roberts of Knayton, I did not do much good; a faecal fistula formed and the patient died a few weeks after the operation.

In some cases of obstruction, when it is impossible to remove the growth or the presence of secondary deposits makes it inadvisable, a permanent colotomy or typhlotomy can be performed. This I have done several times. In some cases life is prolonged in comparative comfort; other patients are so ill at the time that we see them that typhlotomy is the only thing to be thought of and that sometimes without an anæsthetic. Most of these cases terminate fatally in a few days or weeks from the time of the operation, but sometimes we meet with more encouragement. In a case I operated on with Dr. J. Stewart of Batley, in June, 1901, the patient, a

managed 70 years, had intestinal obstruction due to a constricting malignant mass in the lower part of the sigmoid flexure; it was fixed and I thought it was not a suitable case for removal. An anterior lumbar colotomy was performed. The patient is now in very good health and goes down to business every day. Many surgeons can now show examples of excellent results in this field of work, amongst others the papers of Mr. F. M. Caird and Mr. A. E. Barker are valuable contributions to this difficult subject. To study one's cases helps to clear one's views. "It happily so comes to pass that the more clear views we possess, the more do we learn to respect those that are as yet still vague."

In conclusion, I wish to thank the resident surgical officers, my house surgeons, and others who have at all times so kindly helped me, both at the operations and during the after treatment of the cases.

Leeds.

ON PERITOMY FOR DIFFUSE CORNEITIS AND OTHER AFFECTIONS OF THE CORNEA.

By SIMEON SNELL, F.R.C.S. EDIN.,

OPHTHALMIC SURGEON TO THE ROYAL INFIRMARY, SHEFFIELD;
PROFESSOR OF OPHTHALMOLOGY, UNIVERSITY COLLEGE,
SHEFFIELD.

PERITOMY, or syndectomy as it was sometimes called, was introduced by Dr. Furnari of Paris. He described the operation in the *Gazette Médicale*, 1862. He had, 20 years before this, operated upon some natives of Algiers and had since then repeated the operation in more than 100 cases. Furnari's operation was a much more severe one than is advocated in this article. It has been described as follows: "The patient sits during the operation and the eyelids are kept apart with a speculum. Commencing his incision near the outer canthus Dr. Furnari excised a broad ring of the ocular conjunctiva, extending from the margin of the cornea to within three millimetres (about one-eighth of an inch) of the line where the conjunctiva is reflected from the globe to the inner surface of the eyelids. Symblepharon might ensue if more was taken away. For the purpose of fixing and turning the eyeball during the operation, a flap of conjunctiva is left at the upper margin of the cornea; this is removed last. The subconjunctival tissue must be carefully dissected off so as to expose the surface of the sclera. No trace of cellular tissue or of blood-vessels should be left; any which escape the scissors are to be caught and cut with the sharp hook. The vessels upon the cornea are freely scarified and their ends, if projecting, cut off with scissors."¹ After the subsidence of the bleeding Furnari touched the exposed sclera and ulcerated portions of the cornea with caustic, the vascular only lightly and the transparent portions not at all. The nitrate of silver he applied with a brush which had just before been rubbed upon the solid stick. Furnari stated that a strong irritation but no inflammation followed the operation; the abundant local bleeding apparently acted antiphlogistically. He regarded the operation as indicated in the following conditions: "(1) In the membranous and fleshy pannus; (2) in phlebotasie of the conjunctiva and cornea; (3) in simple vascular keratoiditis; (4) in partial vascularities of the cornea; (5) in interlamellar infiltrations of blood or lymph; (6) in corneal lesions resulting from entropium, ectropium, and trichiasis; (7) in staphylomatous conditions of the cornea, consecutive to softening of the latter."²

The operation, however, was apparently used chiefly, if not entirely, for the pannus associated with granular lids. Bader in 1863 wrote an article advocating its use in which he spoke of having performed the operation several times, the only untoward results being in those instances in which he had followed Furnari's advice and cauterised the sclera. It appears, moreover, to have been used also a good deal at that time by the various surgeons attached to the Moorfields Hospital. I practised it myself in several cases in my early days for pannus associated with granular lids but never with the added cauterising. The operation, however, fell into

¹ Bader: Royal London Ophthalmic Reports, vol. iv., p. 29.

² Ibid.