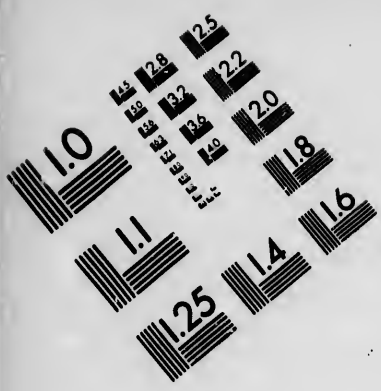

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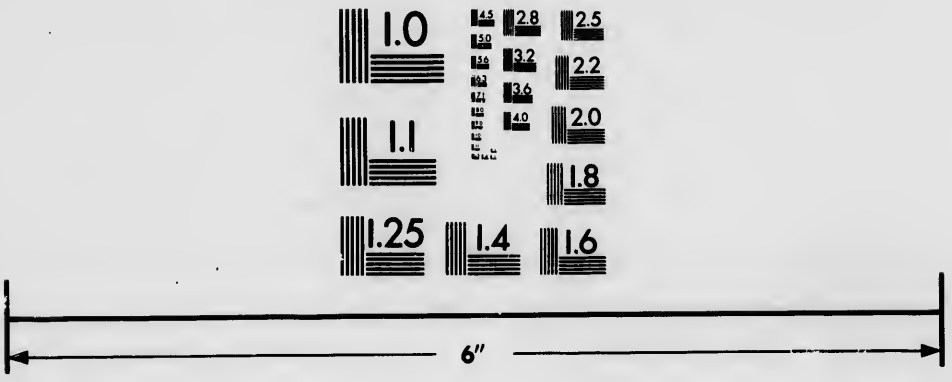

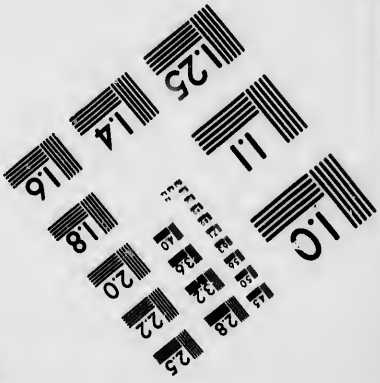

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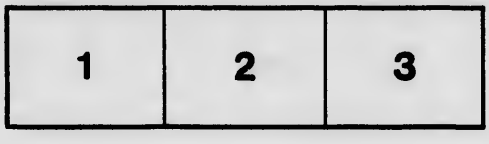

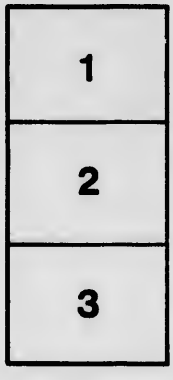

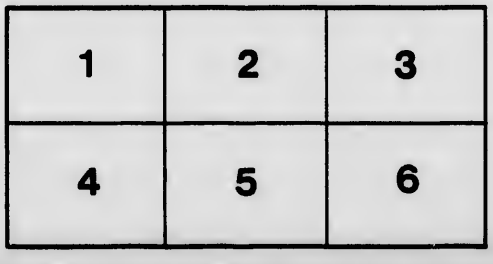

END TO END ANASTOMOSIS OF INTESTINES BY MEANS OF THE MURPHY BUTTON.

BY

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I am able to report three cases in which I have used the Murphy button to secure end to end union of intestine after resection. In two the results were completely successful and most satisfactory. In one thus made there was non-union, sloughing of the apposed ends of the bowel, escape of contents and death from peritonitis. Two of the three operations were upon the same patient, and it was the second operation upon this patient which proved fatal. I am, therefore, enabled to present specimens showing (1) the union which had resulted from the first operation, as well as (2) the sloughing of the bowel which resulted from the second operation. This case is, moreover, a most interesting and puzzling one from a pathological standpoint, although I wish for the present to direct attention specially to the use of the Murphy button.

The second case was one of femoral hernia, in which 39 hours of strangulation had produced complete gangrene of the extruded loop of bowel. Until very recently such cases were the *bête noir* of the surgeon, and the question

* Read before the Montreal Medico-Chirurgical Society, November 30th, 1894.

"What shall be done with cases of gangrenous hernia?" has been much discussed. This case and others, now a goodly number, of recoveries after resection of the bowel, indicate the only rational treatment, and it is particularly in this very class of cases, where rapidity of operation is frequently such an important consideration, that artificial aids are, if useful at all, of the greatest service.

CASE I.—J. W. McC., male, æt. 40, had always enjoyed good health until June, 1893, when, while in Chicago attending the World's Fair, he was suddenly seized with severe and painful diarrhœa. The diarrhœa subsided in four or five days, but pain remained, and he felt so badly that he came home and was unable to work for six weeks. His bowels had never been quite regular since this attack. He recovered fairly well, however, until December, 1893, when he had another attack of pain and a hæmorrhage from the bowels. Since that time he had never had a natural movement of the bowels, without a purgative, and he had suffered greatly from wind, which, after rumbling about for some time, finally escaped in an explosive manner, giving great relief. In February, 1894, he was seized with faintness and some hours afterwards passed a large quantity of blood per rectum. A similar attack had occurred once since. On the 14th June, 1893, he was admitted to the Royal Victoria Hospital, with complete obstruction of the bowels of six days standing, and for which he had been given various kinds of purgatives, as well as enemata, but without any effect. His abdomen was greatly distended. The principal distress was referred, vaguely, to the hypogastrium, and bimanual examination, (with a finger in the rectum), discovered an ill-defined mass in the middle line, about midway between the umbilicus and the pubes. This examination gave a good deal of pain and was followed by the passage of a little flatus and soon afterwards by a liquid stool. The symptoms were at once relieved and free evacuation of liquid fæces continued for two or three days. He remained well, with the exception of the wind and constipation, which was relieved from time to time by purga-

tives until the 14th of July, when he was seized with faintness, and became quite pale. This condition lasted all the afternoon, and the patient stated that he knew from his past experiences that he was about to have a hæmorrhage, and within a few hours a large quantity of dark clotted blood was passed per rectum. I now advised operation, to which he readily consented, and on the 19th of July I opened the abdomen in the middle line below the umbilicus and directly over the part at which the mass had been felt, although it had disappeared with the free evacution of the bowels and had not since been discoverable. Two loops of small intestine, each acutely bent upon itself, were found attached to a mass which overhung the brim of the pelvis. These were carefully separated, when it was found that they both communicated with a free cavity, bounded posteriorly by the mass above mentioned, and in which lay a long irregular mass of inspissated fæcal matter. The obstruction was at the upper of the two acutely bent portions of the ileum, and the bowel above this angle was three times as large as it was below it. Over a space of two inches in length, and involving one-third of the circumference of the bowel the wall of the gut was entirely absent. This portion was excised and the ends united by the Murphy button. At the lower attached loop the destruction of the bowel was less, being about one inch in length, and involving a narrow strip along the mesenteric border. These deficiencies in the wall of the bowel were apparently the result of a destructive ulcerative process. It was from this point that the hæmorrhages had occurred, and a small artery, which was ulcerated through, bled very freely. The vessel was ligatured and the opening in the bowel closed by a continuous Lembert suture running obliquely from the mesenteric border to near the free border of the bowel. This, of course, narrowed the lumen of the gut somewhat, and gave me some anxiety as to the possibility of the passage of the button, which, it will be noted, was on the proximal side of this suture. My only alternative, however, was another resection and end to end anastomosis,

and I decided to leave it as it was, as I had still to turn my attention to the mass overhanging the pelvis, and which had been in such intimate relation with the bowel already operated upon. Careful examination of the mass led me to the conclusion that it was simply cicatricial, and that it did not involve any other part of the intestinal canal. The subsequent history shows that I was wrong in the conclusion arrived at, as to the character of the mass, but right as to its not then involving any other portion of the bowel. The patient made an excellent recovery, and after a week or ten days his bowels moved regularly and he passed large well formed stools (showing that there was then no obstruction in the rectum or sigmoid flexure), but the button never came away. With the exception of some discomfort after an enormous dinner of corned beef and cabbage and several summer apples, he continued well and left the hospital on the 12th of August in first rate condition. (He wrote me the day after leaving the hospital, to say that we had not felt so well for two years.) On the 11th September he returned, again suffering from obstruction. He had enjoyed good health for from one to two weeks after leaving the hospital. Then diarrhœa set in for a few days, after which it was succeeded by constipation and rumbling of wind in the intestines, ending as before in painful and explosive evacuations with temporary relief This continued until September 18th at 4 p.m., when obstructive symptoms, (inability to pass even flatus, vomiting, &c.), came on. These were attributed by the patient to the arrest and impaction of the button (which had never been found), in some portion of the ileum or large intestine. In this condition he reached the hospital on the night of the 11th of September, and on the following day at 2 p.m., forty-six hours after the onset of the symptoms I reopened the abdomen through the original median incision. The button was found free in the splenic flexure of the colon and removed through a small incision on its free surface, which was closed by Lembert sutures. I had

previously discovered the obstruction in the lower portion of the sigmoid flexure by passing the button down through the descending colon and attempting to expel it per anum. The site of the previous resection could only be located by the irregularity in the mesentery, and the bowel was of uniform size above and below it. The mass overhanging the brim of the pelvis was apparently smaller and was certainly much more movable than at the previous operation. The site of the obstruction having been located in the lowermost portion of the sigmoid flexure, I proceeded to remove it, together with the tumour overhanging the brim of the pelvis, with which it was continuous. This was finally accomplished after some difficulty owing to the depth in the pelvis at which the manipulations had to be carried on. The mass, which was dense and hard, surrounded the bowel as a narrow band, (about an inch in width externally), and nearly closed its lumen, leaving only a narrow slit about as large as a waistcoat button hole. It was infiltrating and was evidently either cicatricial tissue or scirrhus cancer. It has since been demonstrated to be the latter. During the operation the bowel was occluded on either side by a piece of hollow rubber tubing. About three inches of the bowel was removed, and the ends united by the largest sized Murphy button. The operation lasted about two hours and was well borne. There was little loss of blood and no fouling of the peritoneal cavity. A glass drainage tube was carried down to the bottom of the pelvis and exhausted from time to time. A small quantity only of odourless fluid—at first blood-stained and afterwards colorless—was all that was withdrawn from the tube for forty-eight hours, during which the patient did typically well in every respect. Several copious evacuations of dark liquid fæces occurred, the first about three hours after the completion of the operation. There was no vomiting, the pulse ran from 88 to 94, and the temperature from 98.5° to 99.5°F, and with the exception of the thirst and restlessness usually observed after

severe abdominal operations, he was perfectly comfortable. About 2 p m., on the 14th, (48 hours after operation) the patient was seized with very severe pain which was not sensibly relieved by a moderate quantity of Lig. opii sed. (Battley) injected hypodermically The dressing was removed and the glass drainage tube found filled with liquid fæcal matter. From this time he sank rapidly and died in about 18 hours. Post-mortem examination discovered a general peritonitis, with quantities of liquid fæcal matter free in the peritoneal cavity. The button remained in situ, but the approximated ends of the bowel were completely gangrenous in their whole circumference and had given way just beyond the border of the button. I cannot offer any satisfactory explanation of this unfortunate result. Dr. Murphy states, in a letter to me, that "this is an exceptional case and has not occurred so far, except where there was infection from without, preventing the union, and where the post-mortem showed that there was no effort at union at any portion of the circumference, as well as at the point where the perforation occurred. This condition was certainly shown by the post-mortem in this case, but I cannot believe that it was primarily due to infection from without. I cannot believe that with such symptoms as I have narrated in the history of the first forty-eight hours after operation there could have been infection from without. I am much more inclined to attribute it to one of two things, either (1) impairment of the vitality of the ends of the bowel by the use of the elastic ligature; or (2) pressure upon the wall of the bowel between the end of the glass drainage tube externally and the button internally, producing erosion and escape of intestinal contents, and then infection from without. Finally, it is perhaps open to question, whether the vitality of the bowel was not already impaired by its great distension about the stricture, and also whether, considering the thickness of the wall of the bowel in this situation, the button may not have been closed too tightly.

Case II.—Mrs. M., æt 49; strangulated femoral hernia.

Operation in the Royal Victoria Hospital, October 20th, 1894, at 11 a.m., thirty-nine hours after onset of symptoms. The patient, a stoutly built woman, had always enjoyed good health. About fifteen years ago a hernia first appeared in the right femoral region. It had always been reducible and had never given her much trouble. She had not worn a truss. Symptoms of strangulation came on about 8 o'clock in the evening (October 18th), severe pain, swelling of the mass, which could not be reduced, great tenderness (a specially marked symptom), and frequent vomiting which soon became fæcal in character. On admission these symptoms persisted, but in a modified degree. The pulse was 96 and the temperature 100°F. The abdomen was moderately distended. No attempt was made to reduce the hernia. On making the incision through the skin and fascia, brownish serum exuded from the cellular tissue having a strongly putrefactive odor, The sac was greatly thickened, dark, œdematous and friable, and contained a couple of drams of dark blood-stained serum, which also gave off a strong odor of putrefaction. The hernia consisted of about three inches of ileum tightly caught and quite gangrenous. When the opening was enlarged by incision of Gimbernat's ligament and healthy bowel brought down, the gangrenous part lay collapsed and empty, and was almost separated from the healthy gut at both ends where it had been constricted. The bowel was emptied and compressed by the fingers of an assistant, and six and a half inches removed and the ends united by the Murphy button. The mesentery corresponding to this portion had been ligated off at some distance from the bowel through healthy tissue. In spite of the greatest precautions, however, the mesentery stripped itself away from the bowel at either end. There was no great bleeding, but I felt that I could not leave the patient in that condition, for fear of hæmorrhage in the first place, and secondly, for fear of sloughing of the bowel which had been thus deprived of its vascular supply. I therefore continued my incision upwards and outwards through Poupart's ligament and opened the abdominal cavity. I

again resected ; this time five inches, going well within the border of the attached mesentery, united the ends with the Murphy button, ligatured the mesenteric vessels and brought the mesenteric borders together with catgut sutures close up to the bowel. There were thus 11 inches of bowel removed. The hernial sac was excised, and the peritoneal wound closed with mattress sutures of silk. The muscular borders were next closed with buried sutures of silk-worm gut and the pectineal fascia was attached to the re-united Poupart's ligament by three sutures of catgut. Finally the skin was closed by a separate layer of silk-worm gut sutures, and a small tent of iodoform gauze introduced at the lower angle of the wound. Tho operation lasted two hours and was well borne. The patient never had a bad symptom and made an uneventful recovery. A liquid motion, (with flatus), was expelled at the end of twenty-four hours, (after adminstration of an enema). A regular movement occurred again next day, and on the fifth, sixth, ninth and tenth days. The button was found imbedded in a well formed stool, which was passed at 1.30 p.m., October 30th, just ten full days after operation. The wound was perfectly healed and the patient allowed up on the 22nd. Healing per primam.

My experience in these three cases leads me to the conclusion that the Murphy button is a valuable aid in end to end anastomosis of intestine. So many artificial aids have been introduced for this purpose, have had their day and have been discarded, that most surgeons are now sceptical about anything of this kind. It is, of course, not to be assumed that union of intestine cannot be secured without such aids, for it undoubtedly can, but the great desiderata, rapidity of operation and accuracy and security of co-aptation, are both admirably effected by this instrument. I cannot agree with the view which has recently been promulgated, that the Murphy button is useful in the hands of the tyro and is not necessary to the experienced surgeon. The actual union of the intestinal ends is but one part of the operation, even if it be the culminating point,

and the surgeon who is not possessed of the necessary skill to unite the ends of the intestine by suture, is certainly not fitted to undertake any such operation by any method. In my experience the most difficult part of such operations, and the part which most requires surgical skill, is that which is preliminary to the intestinal co-aptation. Again the button may be used, (as in my second operation), deep down in the pelvis where accurate union by suture would be almost impossible.

The great want of intestinal surgery at the present time is a suitable clamp, a clamp which will occlude the lumen of the bowel, without too much pressure upon its delicate walls, and without exercising pressure upon the arterial supply at the mesenteric border. Dr. Murphy's ingenious contrivance to exercise a uniform spring pressure gives, I think, a clue which may be utilized to effect this purpose, —I mean to produce a clamp to be locked like an ordinary artery forceps (Péan), with smooth blades capable of being armed with rubber tubing, and upon a spinal spring which will make the pressure indirect rather than direct uniform and capable of regulation. I know of no clamp at present in use which is not open to serious objection. The use of rubber tubing is, perhaps open to less objection than any other device, but it is not by any means satisfactory. As it surrounds the bowel, the wall must be puckered considerably in order to occlude the canal—especially in the large intestine—hence more pressure is required than should be necessary if applied so as to evenly appose the inner surfaces. It also cuts off the circulation for a time completely, and the proper regulation of the degree of pressure is extremely difficult. If one could always have the ideal assistant, I believe that the best clamp is the thumb and forefinger, but a serious objection to this is, that at best, the assistant's hands are greatly in the way of the operator, and worse still, there is the constant danger that by relaxing or moving his fingers the contents of the bowel may be allowed to escape and prove disastrous to the operation.