then current systems of classification, but he suggested as basis for a natural classification the arrangement of the vascular, the respiratory, and the nervous system; and he tentatively drew out the scheme of a natural classification founded on a combination of what he termed essential and circumstantial characters. Thus of the order Mammalia he gives as essential characters "a four-chambered heart; lungs confined to a proper chamber, the enlargement of which is the cause of respiration; lungs divided into small cells; respiration quick; viviparous, etc.; whilst circumstantial characters are found in the structure of the auditory organ." This illustration will suffice to prove how sound and how advanced were John Hunter's views as a systematic zoologist.

If in this sketch of John Hunter—imperfect, incomplete as I know it to be—I have in some small degree succeeded in presenting to you our great master as one of the most indefatigable workers, one of the most earnest seekers after truth, one of the very closest of skilled observers, one of the most sagacious expositors of the facts of vegetable and animal life, I shall not, I trust, have altogether failed in the design I aspired to place before you on this commemorative day—a presentment of John Hunter as a biologist in the widest and truest sense of this now much used word. For this I have made large use of John Hunter's own words, because these best show his mind, and "the mind is the man."

TWO CASES OF ENTERECTOMY IN WHICH MURPHY'S BUTTON WAS USED.

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In the two following cases Murphy's button was used as a means of end-to-end approximation of the intestine.

A. M., an unmarried female, aged 30, had enjoyed very good health until about eighteen months before her admission into the Liverpool Royal Infirmary. She then began to suffer from attacks of constipation, which were relieved by purgatives and dieting. During the intervals between these attacks she was quite well. As time went on the attacks became more frequent and more severe, each succeeding one lasting a longer time and being more difficult to get over. Moreover a certain amount of pain and discomfort began to be experienced in the region of the cæcum. She lost flesh, and, during the attacks, there was not only constipation but vomiting. At last complete obstruction came on. As her life was in serious danger, she was transported from North Wales, where she lived, to Liverpool. When she arrived she was in an extremely emaciated condition and greatly exhausted. The obstruction had been complete for a fortnight; nevertheless, the abdomen was not much distended, because the patient had been fed on the smallest possible amount of easily absorbable liquid food, and had been kept free from pain by opium. Being so thin as she was the action of the small intestine could be plainly seen through the abdominal wall struggling to force a passage through some obstruction, but where that obstruction was could not be ascertained. The only guide was the patient's statement that most of her pain and uneasiness were felt in the region of the cæcum, but nowhere could any tumour or swelling be felt. As she was obviously nearing her end unless relief were given, the abdomen was opened in the middle line so as to permit of an inspection of all parts of the cavity. Presently distended and hypertrophied small gut was found, which, being followed down to the cæcum, led to the cause of obstruction. This was a thickened and strictured condition occupying about two inches of the bowel, and intensely hard to the touch. At the moment its hardness induced us to believe it malignant, but subsequently microscopical examination showed it to be mostly fibrous. This could not have made any difference in the treatment, for nothing short of removal would have been of any avail.

The difficulties in connection with it were two: (1) That the ileum on the proximal side of the stricture, by reason of its severe and protracted exertion, had become enormously hypertrophied and increased in calibre, so that it was quite as large as great intestine, while the ileum between the

stricture and the ileo-cæcal valve was atrophied, and not larger than the small bowel of a child. (2) That the last-mentioned piece of bowel was extremely short, being only about three-quarters of an inch in length, and when the stricture was cut out became even shorter by retraction of its muscular coat. It is difficult to imagine more difficult circumstances under which to attempt union of intestine. As something, however, had to be done, I rapidly removed the stricture, and proceeded to fit the Murphy's button. The difficulty with the proximal end was that it was far too big for the upper half of the button, and had to be very much crumpled up; while, on the other hand, the distal end was so short and small that I could not get enough to cover the button until I had divided one flap of the ileo-cæcal valve and thrust it into the cæcum. All this had to be done in such a hurry, owing to the weak condition of the patient, that it was done in a manner which I felt was unsatisfactory and imperfect, but there was no help for it, and we were glad to get her back to bed alive. She lived for thirty hours, but never properly rallied. At the *post-mortem* examination it was found that semi-fluid fæces had passed abundantly through the button, so that there was no longer any obstruction; also that the bowel was well united and soundly glued together, except at one small point, and at that point a little fæcal extravasation had taken place. Commenting upon the case one would say that the real cause of failure was the exhausted condition of the patient, so great that she would have died under all circumstances, whether the button had held completely tight or no. The only other method I could have employed would have been to have united by an end-to-side approximation the proximal end of the ileum with the ascending colon, closing up the short end of ileum which led into the cæcum. Theoretically this would have been the best thing to do. Practically the condition of the patient did not permit of more than was done, and that was done in such a hurry that it was done imperfectly. Nevertheless, the untoward result of the case did not prejudice me against the use of the Murphy's button. On the contrary, I at once recognised in it such valuable qualities that I resolved to use it the very next chance I had. This occurred within a few weeks, the facts of the case being briefly thus.

On Saturday evening, December 29th, 1894, I was asked by my friend, Dr. Holmes, of Anfield, to see at his own home, A. H., a schoolboy, 7 years of age. His mother told us that he had for a long time been in the habit of bolting his food. For some weeks before his present attack he had gone as usual to the watercloset after his hastily-swallowed breakfast, but had come down complaining of griping pains in his belly, which passed off after a little while. On Sunday, December 23rd (six days before I saw him), he had been taken with pains all over him, and remained in the house. Next day (Monday) he lay on the sofa, "generally ill all over." In the evening he had a dose of castor oil, which was said to have operated twice in the night. From that time onwards he had complete obstruction. On Tuesday he had frightful abdominal pains, and vomited everything, and this continued all Wednesday and Thursday. On Thursday evening he had a simple enema, and on its return it was accompanied by the passage of a considerable quantity of blood. On Friday and Saturday he was comparatively free from pain, and lay in a quiet, dreamy state. The abdomen was not much distended, but all that could be felt was that there was a feeling of fulness to the right of the umbilicus. A diagnosis was made of intussusception, chiefly owing to the passage of blood. It was agreed that if no relief came during the night the child should be brought to the Royal Infirmary next day (Sunday, December 30th). This being done the abdomen was opened in the middle line, and an intussusception of the ileum, situated about 18 inches from the cæcum, came readily up to the incision. The bowel was black and gangrenous at the site of constriction, and for some distance downwards from it. Points were selected quite free of the mischief, the bowel divided at them, and its ends approximated by a Murphy's button. The abdominal wound was completely closed. The boy soon began to get over his shock. On the nineteenth day the button was passed, and on the thirty-eighth day he was sent home. Here a correct diagnosis was made. One was prepared for what was coming, and the operation was done with the greatest ease and rapidity.

Dr. Murphy's button has been in use for about two years and a-half in America, and in a paper published by him in the *New York Medical Record* for June, 1894, he refers to sixty-five cases that he had collected. The success seems to have been astonishing. Of course one must always remember that on the introduction of any new surgical procedure the successes attributed to it are very remarkable. This arises from the modern practice on the part of surgeons of recording their successful and saying nothing about their unsuccessful cases. It is a miserable and dishonest habit, and causes much of our recent surgical literature to be very untrustworthy. But even if one were to deduct a considerable percentage for unsuccessful cases not reported there would still remain such a mass of splendid work as to compel the serious attention of all persons interested in abdominal surgery. To those who wish to look into the literature of the subject, Dr. Murphy's papers in the *New York Medical Record* (just referred to), and in the *Lancet* of September 15th, 1894, will give a vast amount of information. So far as I can gather from the journals the button has been used in this country on three occasions; at any rate, I cannot find reports of other cases. In the *Lancet* of April 21st, 1894, Mr. Arbuthnot Lane described a case of sarcoma of the sigmoid, where the tumour was removed along with 12 inches of the large intestine, the bowel being approximated end to end. The button was passed on the eighth day. There was some slight feculent leakage, but it escaped into the wound, which was conveniently situated for its exit. In the *Lancet* of October 20th, 1894, Mr. Paul Swain narrates a case of non-malignant stricture of the small gut in a lad aged 15, the result of injury, which he removed along with 5 inches of intestine. The button passed on the thirteenth day. In the *BRITISH MEDICAL JOURNAL* in January, 1895, a brief reference is made to a case of removal of gangrenous intestine by Dr. Murphy, of Sunderland. Mr. Lane spoke in praise of the button, and Mr. Swain wrote as follows: "The great objection to all intestinal resection is the length of time spent in securely suturing the ends of the gut. I was surprised at the facility with which the operation was performed. I was only familiar with the use of the button from the description I had read, and yet I found the reunion of the gut a very easy process. The adaptation of the serous surfaces was so perfect that it was with entire confidence that I returned the bowel into the abdominal cavity."

In abdominal surgery two great factors make for success—maintenance of an absolutely aseptic condition of the peritoneum, and rapidity in the actual performance of the operation. In ovariectomy and uterine laparotomies this second condition is not so important as in operations for intestinal obstruction, for the patient of the gynaecologist, although often very worn and emaciated, is, at all events, seldom in a condition of general poisoning, whereas the victim of intestinal obstruction, by reason of faecal auto-infection, is in a thoroughly poisoned state, and almost infallibly succumbs to a protracted operation. Any means, therefore, that will shorten the duration of time occupied in joining intestines together is of moment. I think the general testimony is that Murphy's button fulfils this requirement.

The first of the two patients whose cases I have recorded lost her life through the fact that she was so weak, that the time necessary for the performance of the operation undertaken for her relief was not sufficient to enable that operation to be done satisfactorily. This, by the way, was her own fault, as she objected to an operation until too late. But, although my experience has long ago made me thoroughly alive to the importance of operating before the patient has arrived at the last gasp, still I cannot quite agree with Dr. Murphy in the serious charges he brings against physicians of trifling away the lives of their patients by vain attempts at general treatment, charges which are constantly being made by surgeons of the end-of-the-century type. In the operative treatment of intestinal obstruction there will always be two difficulties: one is the uncertainty that, in spite of all our improvement in diagnosis, will ever surround the exact pathological condition of the patient; and the other is the fact that every surgeon and physician of experience can call to memory plenty of cases presenting all the characteristic symptoms of obstruction which have, nevertheless, recovered without operation. While I hail,

then, with pleasure every operation which will increase the safety of intestinal operations and so enable us with a good conscience to operate as early as possible, still I cannot throw in my lot with those gentlemen who want to open every man's belly after he has been constipated for a week.

For my own part I cannot help thinking that a serious cause of the delay in operating has not so much been any rooted objection to surgical proceedings on the part of physicians as the fact that they (and surgeons too) have been too indiscriminate in the use of opiates in cases of obstruction, and have commenced their administration too early in the progress of their case. It is true that under their use the patient lies in a torpid and painless state, not complaining of much except nausea and vomiting when food is put into him; but this same opium completely masks the symptoms of the disease, and hinders all just attempts at diagnosis. It must without doubt be valuable in cases where there is no mechanical obstruction of the gut of such a kind as Nature cannot undo, but in the case of all other mechanical obstructions we are apt to be lured into viewing our patient as not in very great danger because he is lying tranquil and not complaining much, whereas all the time he is quietly dozing away to his doom. Again, the temperature, the pulse, nay, even the tongue, are no measures at all of the danger in a case of obstruction if it be one of a subacute or chronic kind; and I have often found it most difficult to convince my fellow practitioners that a man may be lying with a slightly sub-normal temperature, a slow pulse, and nothing worse than a white, furred tongue, while at that moment he is near his end.

Returning, finally, to the question of Murphy's button, I will not say that (to use the customary phrase) it has "revolutionised" intestinal approximation, but I do regard it as the best all-round mechanical implement that we have at present for the union of the divided bowel. The *primæ facie* objection that the button would stick somewhere on its journey downwards is answered by the fact that no such case has occurred. As to its producing stricture subsequently, it is less likely to do that than any other method of approximation, because it punches out all the superfluity of the inverted intestinal diaphragm and leaves only a narrow ring, along which union takes place. I cannot make any statement as regards other mechanical means, because each inventor gets used to his own apparatus and can manipulate it quickly, but I can testify to much greater ease and rapidity in uniting bowel by the use of the button than by the simple Czerny-Lembert suture. By this last method I have removed portions of gangrenous hernial small bowel on three occasions, the first case dating as far back as 1883. The history of it is to be found in the *Transactions of the Medical Society of London* for 1885. It was a great success, but the next two cases ended fatally, and I came to think that the safest plan was to make an artificial anus at the site of hernia and trust to uniting the bowel by some means or other at a subsequent date. I may come to change my mind on this point now.

CARCINOMATOUS STRICTURE OF TRANSVERSE MESOCOLON: SUCCESSFUL END-TO-END APPROXIMATION BY MURPHY'S ONE AND A-HALF INCH BUTTON.

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THE end-to-end approximation of the small intestine has for some time been a moderately successful operation, formerly by suture, and now by various mechanical means, but similar operations on the large bowel have in most cases been very disastrous.

It is with pleasure, therefore, that I relate the main features of a case of carcinomatous stricture of the transverse mesocolon in which four inches of great bowel were removed, and end-to-end approximation effected by Murphy's one and a-half inch button.