

it the power of locomotion, it is only for a time; another attack of coma follows, and this is fatal. These statements are founded chiefly on experiments made on the lower animals, but there is no essential difference between the phenomena which occur in them and in the human subject. The case which I am about to mention justifies this observation. It was communicated to me by Mr. Rose, under whose care the patient was placed. A boy of the name of William Claridge, 17 years of age, attempted to hang himself on the evening of the 17th of July, 1820. He was discovered after a short period of suspension (the exact length of the period being unknown) and immediately cut down. He was at this time completely insensible; his face was livid, his lips were of a dark purple colour, the pupils of his eyes were dilated and motionless, his pulse not perceptible at the wrist. A pair of bellows being at hand, artificial respiration was immediately had recourse to. In about a quarter of an hour the diaphragm began to act. The artificial respiration was now discontinued. He breathed at irregular intervals, with *stertor*, and a *rattling noise*, from the *air passages being choked with mucus*. The pulse was now perceptible, but often flagging, and the surface of the body was disposed to be cold. The countenance was still of a livid hue, but the breathing became more frequent and regular, and there was also an improvement in the pulse. At the end of another hour an attempt was made to take some blood from the arm, but it was not successful; and from the coldness of the surface of the body it was thought expedient to place him in a warm bath. During the night he continued to breathe; *the stertorous breathing continued*. In the morning a vein was again opened in the arm, and 12 ounces of blood were taken away, but no relief followed. He continued insensible, cold on the surface, and *frothing at the mouth*, and died at the end of 24 hours from the time of his having been cut down. The body was carefully examined. The vessels of the brain seemed to be turgid, with dark-coloured blood, but there were no other morbid appearances."

The case above related is an instance of what may be called secondary apnoea, and the cause of death is evidently looked upon by Sir Benjamin Brodie as some failure in the nervous system; whereas, from my observation on the causes and course of "mucous stertor," I am led to believe that death ensued in this as in other similar cases from bronchial suffocation, a sort of suffocative bronchitis, from neuro-paralysis from possible injury to the vagus, and that if the patient had been placed on one side and left to nature he might have survived. The patient was almost certainly drowned by his own mucus. With the exception that death in this case was subsequent to hanging and not to drowning it was, in its symptoms, almost identical with the case just related of the woman who had been conveyed from the receiving house on the banks of the Serpentine to St. George's Hospital and had there died from secondary apnoea.

In October, 1839, I was engaged with my assistant, Mr. John Stainer, in investigating the internal anatomy of the porpoise. On cutting into the trachea, which was strong and large (one inch in diameter) and completely surrounded by its cartilaginous rings, I was surprised to find it three parts full of sanguinolent spumous fluid. On squeezing the lungs, more frothy fluid exuded, and with it a number of slender white worms four or five inches in length. The lungs themselves were dense and spongy, and here and there were cysts containing worms in embryo. From these conditions I inferred: (1) that the animal had been drowned in the element in which it lived; and (2) that its larynx must be closed or the fluid would have drained away or have been poured out or have evaporated during the many rough handlings the creature had been subjected to since its death three days before. Further inquiry and investigation corroborated these assumptions, for the animal had become entangled in a fishing-net deep under the water and was thus deprived of its breathing requirement, air, and brought up dead. On dissecting the pharynx from behind I found that the larynx passed upwards and forwards as a tubular prolongation far into the post-narial cavity and that about one and a half inches below its orifice it was encircled and firmly clasped and closed by the palato-pharyngeus muscle. It would appear that the laryngeal tube was, when in a state of rest, kept closed by this outside sphincter (the palato-pharyngeus), so as to prevent the untimely entrance of water when the animal was beneath the surface of the

sea. The tubular portion was composed of the elongated cornicula or cartilages of Santorini above and the epiglottis in front and below, loosely joined together by soft expansile tissue and mucous membrane. The cavities of the mouth and nares were completely separated by the velum palatinum. The fluid extract from the bronchial tubes amounted to six drachms; it was of specific gravity 1026—precisely the same as the sea-water in which the animal had been drowned.

## INTESTINAL SUTURE BY MEANS OF CONTINUOUS CATGUT STITCH AND EXCISION OF THE MUCOUS MEMBRANE.<sup>1</sup>

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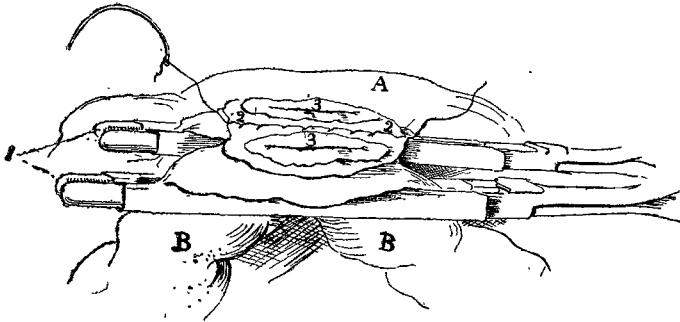
IN surgery, as in many other arts, the nearer we approach simplicity the more nearly do we arrive at perfecting any method, and it is astonishing how many cumbrous and complicated apparatus we have to discard in arriving at simplicity of detail. After the revival of the operation of intestinal suture the earliest methods adopted were by means of a simple suture without the assistance of any special apparatus. Many cases of simple suture were successfully performed, still many were fatal. It was thought that one of the main factors in the success of a case was the duration of an operation. These operations were often performed at a time when the patients were extremely ill, when the disease from which they were suffering was far advanced, and when the methods of combating shock were not so well understood as they are at the present time, so that many appliances to expedite the operation were invented, beginning with Senn's plates and ending, so far as the present is concerned, with Murphy's button and La Place's forceps. Now the operations are done earlier, when the patients are better able to stand them, and we have many ways of combating shock—heated operating tables, strychnia in large doses, hypodermics of camphor and brandy, and large saline injections either into the veins, the cellular tissues, or the rectum; or if we are operating on cases of acute intestinal obstruction the obstruction is first relieved by means of a Paul's tube. This intestinal drainage relieves the obstruction and prevents any further intestinal toxæmia, so that at the end of two or three weeks the more serious operations of enterectomy or lateral anastomosis can be performed with a very good chance of success. At the present time many surgeons have reverted to the earlier practice and have abandoned the use of any special apparatus, and I am amongst those who believe that all accessory apparatus for intestinal suture will ultimately be discarded and that we shall rely on our fingers, the forceps, and needles and sutures. It is with this object that I wish to describe the method which I have lately adopted for intestinal suture in gastro-enterostomy, enterectomy, &c. During the last session of the Leeds and West Riding Medico-Chirurgical Society Mr. W. H. Brown read the notes of a very interesting case of gastro-enterostomy in which the opening had closed, necessitating a second operation which had been successful. Just before this I had witnessed the post-mortem examination of a fatal case of gastro-enterostomy in which the opening had become almost entirely closed by the union of the cut edges of the mucosa. On thinking over these cases I determined to carry out the following details in performing intestinal suture. I venture to think that the method which I am advocating is worthy of further trial. I have done three successful colectomies and seven or eight gastro-enterostomies.

*Gastro-enterostomy.*—The abdomen is opened in the middle line, a suitable portion of the stomach is selected (either the anterior or posterior wall), and a loop of jejunum. These are now emptied and clamped by means of Doyen's pedicle forceps, the blades of which are covered with indiarubber tubing, and are held by an assistant so that the portion of

<sup>1</sup> A paper read before the Leeds and West Riding Medico-Chirurgical Society on Oct. 19th, 1900.

the stomach and bowel to be operated on are in close apposition. The parts are surrounded with strips of gauze or flat swabs. An incision about one and a half inches in length is now made into the stomach and bowel through all the coats down to the mucosa, and then with a pair of ophthalmic scissors and forceps the coats all round are separated from the mucosa for a short distance, so that a broad surface of all these coats may be brought into contact. The posterior edge of the stomach incision is now stitched to its full extent to a similar portion of the bowel with chromic

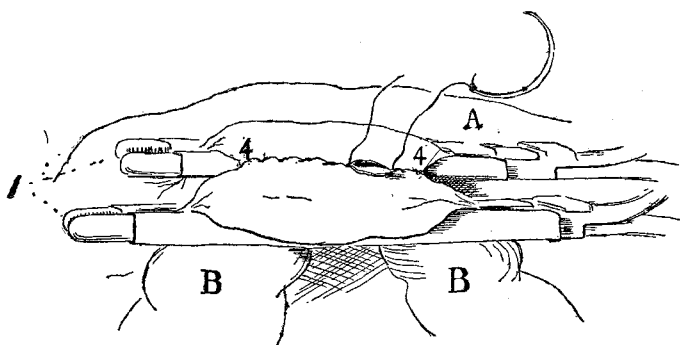
FIG. 1.



- 1, Doyen's forceps covered with rubber tubing clamping.  
A, Stomach. B, Jejunum. 2, Posterior edges of sero-muscular coats united with continuous catgut suture.  
3, Mucous membrane excised from stomach and jejunum.

gut by means of a small curved Hagedorn's needle, the suture is knotted at both ends, and left long (Fig. 1). An elliptical portion of the mucous membrane is now excised from the stomach and a similar portion from the bowel and the parts are cleansed. The cut edges of the mucous membranes are now stitched the whole way round by a continuous stitch of catgut, knotting it at the two extremities of the openings so as to prevent its drawing too tightly and narrowing the opening. This done the anterior edges of the incisions into the stomach and bowel through the remaining coats are united by a continuous stitch, the same suture which was left long after uniting the posterior edges (Fig. 2). I am

FIG. 2.



- 4, Anterior edges of sero-muscular coats united with a continuous catgut suture, the edges of the mucous coats having been sutured in a similar manner. 1 and A and B refer as in Fig. 1.

not careful to bring serous coat to serous coat, but I rather prefer to bring the deeper layers into apposition. The clamps are then removed. As a rule there is no bleeding—the stitching prevents this. It is important not to pull the stitches too tightly. The gauze is removed and the abdomen is closed. The actual cutting and stitching can easily be done in from 10 to 15 minutes.

**Enterectomy**—In doing enterectomy I perform a very similar operation. The parts to be excised are clamped above and below with Doyen's clamps and are removed with scissors. A portion of mucous membrane is excised so that it retracts beyond the cut edges of the other coats. This leaves a good broad surface for stitching. The two cut ends are approximated by the clamps and they are then closed by continuous catgut stitches in the same way as for gastro-enterostomy. Half the lumen, consisting of all the coats with the exception of the mucosa, is first stitched and fastened, then the mucous membrane the whole way round, interrupting and knotting the stitches in two places, and finally the remainder of the coats are sutured. The clamps are removed and the cut surfaces of the mesentery are approximated by interrupted sutures. The long handles of the clamps enable them to be held in such a manner that

the hands of the assistant are well away from the field of operation.

I am indebted to my late house surgeon, Mr. F. Talbot, for the drawings.

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## A CASE OF ECTOPIC GESTATION WITH SEPTIC INFECTION OF THE GESTATION SAC.<sup>1</sup>

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A PATIENT, aged 30 years, was seen by me in consultation with Dr. Alexander McDonnell of Stamford-hill towards the end of March, 1901. She had been married nine years, her only pregnancy being one at the close of the first year. The periods had been normal and regular up to Nov. 24th, 1900. On different occasions she had been treated for retroversion and prolapse of the uterus. On Dec. 10th, 1900, she was attacked with violent abdominal pain which passed off but recurred on Jan. 10th, 1901. The catamenia appeared on Jan. 24th. On the 29th there was a recurrence of the severe pain, which lasted for three days, when she passed from the vagina what she described as "a yellowish pink substance somewhat like the roe of a mackerel." She remained in bed for a fortnight and on Feb. 10th was able to go out of doors. On the 25th she was attacked with severe hæmorrhage, and again she passed portions of the same substance as before. Hæmorrhage and pain ceased until March 11th, when the former again recurred. On examination I found a fairly large tumour behind the uterus and associated with it, the uterine cavity being some two and three-quarter inches in length. Believing with Dr. McDonnell the case to be one of ectopic gestation and having regard to the size of the mass and the presence of adhesions, abdominal coeliotomy was determined upon and the operation was performed on April 1st. The adhesions were separated with but little trouble, but in the delivery of the sac through the enlarged abdominal incision a portion of the thin wall ruptured and some extremely foetid fluid escaped, creating at the time quite a stench. The pelvic cavity was repeatedly cleansed with weak formalin solution, and as the bowel was well protected from the sac the only parts really affected, and this was unavoidable, were the margins of the wound. These latter were well wiped with 1 in 1000 of formalin before being closed, and an iodoform gauze drain was left in. There was nothing unusual in the course of the case for 48 hours, when the temperature rose to over 100° F. and the patient commenced to vomit. This, however, was controlled by an effervescing mixture. Sulphate of magnesia and calomel were given, both being retained, but without any result. Still, the temperature did not again reach 100°, nor did the pulse exceed 96 up to the fourth day. In the afternoon of that day, as the abdomen was distended and there was no result with enemata, while the vomiting recurred and the countenance did not improve, the pulse reaching 110, I determined to reopen the abdomen. On doing so I found the atonic bowel to be considerably distended but could not detect any kink or cause for obstruction. The pelvic cavity was quite free from any fluid and there was no evidence of any peritonitis or of infection of the peritoneum, but the margins of the abdominal wound showed a dense slough for its entire extent. There had been no indication of this from the appearance of the incision. The patient had complained of little or no pain from the time of the operation. The slough at either side was cleared off as far as possible and a drainage tube was inserted. As I had to leave home the same night Mr. Targett kindly took charge of the case for me. The temperature fell the next day to normal, but again it rose to 100° in the evening, the pulse becoming more rapid (from 120 to 140) with a return of the vomiting. Despite every means employed to combat the sickness and maintain her strength, including enemata, saline injections, washing out of the stomach, &c., death occurred on the seventh day after operation.

<sup>1</sup> A paper read before the British Gynæcological Society on June 13th, 1901.