ployed: 1. A suture through the mucous membrane alone, or *Czerny's suture*. 2. That through the peritoneal coat alone, or *Lembert's suture*. 3. One which pierces the peritoneal coat, and, passing along with the muscular layer, comes out on the free border of the divided gut, the *intermediate suture*.*

In Fig. 2, which represents a longitudinal section through the ends to be approximated, is shown at *b* the Czerny suture as it is passed through the mucous layer of the gut from the inner surface of the canal, while at *a* the method of introducing the Lembert suture through the peritoneal layer is shown.

When a gut is cut across, the longitudinal muscular layer retracts, carrying the peritoneal layer with it and leaving the thick mucous membrane projecting about one eighth of an inch. The object of the Czerny suture is to bring the mucous membrane and the connective tissue upon which it rests together, and thus strengthen the line of union after adhesion occurs. If this is not done, the slight adhesion between the peritoneal surfaces obtained by the Lembert suture might give way under the strain of distention of the intestine by gas or ingested matter. The objection to passing a suture entirely through the wall of the gut and thus approximating all the coats at once, is the danger that the perforation may be followed by escape of gas or other contents to either side of

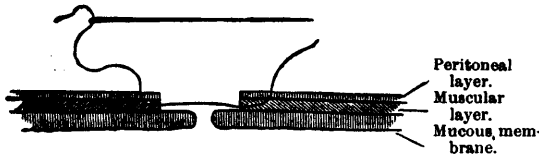

FIG. 4.—Schematic. Showing the route of the intermediate sutures.

the line of adhesion between the ends. The inversion of the mucous membrane by Czerny's suture and of the peritoneal layer by Lembert's suture after the threads are tied is shown in Fig. 3.

The mechanism of the intermediate suture is well shown in Fig. 4. This suture adds strength to the union by taking in the muscular layer and connective tissue of the mucous membrane, together with the peritoneal covering. Applied after the Czerny suture, there can be no danger of escape of intestinal contents through the wound.

In suturing the intestine, the very finest black (iron-dyed) silk, and a delicate, perfectly round needle, should be used. The straight needles are preferable to those which are half or full curved. The thread should be made aseptic in sublimate solution (1 to 3,000), and it and the needle taken from a 1-to-20 carbolic-acid solution as they are used.

In commencing the sutures, first insert one Czerny suture just over the mesenteric or attached border of the intestine, and tie this, the knot, of course, coming within the lumen of the gut. The needle should pass from within through the mucous layer at a distance of about three-sixteenths of an inch from the free border (Fig. 2), out along the border of the same end, and, being carried across to the opposite end, should be made to enter below the muscular and mucous layer, and to emerge through the mucous layer three sixteenths of an inch from its cut edge. A Lembert suture should be next inserted just at the edge of the mesenteric attachment, as follows: * The needle is made to enter the peritoneal coat one-eighth of an inch from the edge, and, passing between the serous and mucous coats, is again brought through the peritoneal layer about one twenty-fifth of an inch from the edge (Fig. 2, *a*). At a point exactly opposite, the same stitch is passed through the peritoneal layer of that side for the same distance, and this thread is tied. In knotting all of these sutures it is a wise precaution to use the *double* or *friction* knot for the first trying, for by so doing

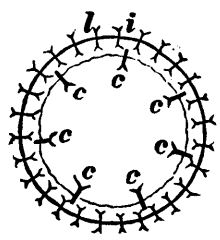

FIG. 5. — Schematic. Section of intestine, showing the proportion of each form of suture, and their distance apart. *l*. Lembert; *i*, intermediate sutures, alternating; *c*, Czerny sutures. (Natural size.)

* Dr. Sutton, of Pittsburg, employed this suture in a case which ended in a good recovery. I saw the line of union in this patient about two years after the operation, through the courtesy of Professor J. B. Hunter, who was performing a second laparotomy.

* When the peritoneal surfaces of the intestine are held in apposition by this suture, adhesion occurs in remarkably short time. In January, 1887, I was called in consultation in a case of suspected volvulus. Upon opening the abdomen, it was found impossible to untwist the loop without puncture and evacuation of the contents of the greatly distended gut. The opening, one fourth of an inch long, was closed by four Lembert sutures at 11.30 a. m. At 3 p. m. the patient died. On autopsy, not only had well-marked adhesion taken place, but the silk threads were with difficulty recognized, being hidden beneath the inflammatory exudation.