having entirely disappeared, so that the wall of the cavity consisted entirely of fibrous tissue, which in certain areas was thin and almost transparent; it looked as though the first part of the duodenum had been gradually dilated to such an extent that its walls, thinning and fraying out, had by degrees given way until in some parts only peritoneum remained. The opening from this cavity into the second part of the duodenum was situated on the posterior wall of the cavity, and admitted two fingers, and the orifice was guarded by three large flap-like projections about an inch in length and a quarter of an inch in thickness. These were soft and elastic to touch, more or less united by their bases, and covered by healthy mucous membrane. The valve-like arrangement was distant from the pyloric orifice of the stomach about an inch and a-half, and it was the intermediate part of the duodenum that had given way. Although the opening into the second part of the duodenum was sufficient to admit two fingers, the progress of food from the dilated cavity into the second part must have been greatly obstructed by these flap-like projections acting as a valve. The remaining part of the duodenum was healthy.

It is evident that the patient died from rupture of the dilated duodenum, induced no doubt by the over-distension of the thin-walled cavity by the extra obstacle to its emptying which the anastomosis between the duodenum and stomach set up. I do not think the method of anastomosis is to blame for the accident, but believe that however the union had been carried out the result would have been the same. It is of course unfortunate that the anastomosis was not performed at the time of the exploratory operation, and there is every reason to believe that this operation did really exaggerate the patient's sufferings by setting up adhesions between the scar and the pyloric end of the stomach, which still further embarrassed the already dilated organ. The initial cause which produced the duodenal dilatation is not clear. It is, however, most probable that a congenital defect in the shape of valve-like projections of the mucous membrane was the starting-point of the mischief. Other possible causes are duodenal ulcer, or an acute duodenitis, but there is no evidence in favour of either of these.

A CASE OF GASTRO-JEJUNOSTOMY FOR COMPLETE RUPTURE OF THE INTESTINE AT THE DUODENO-JEJUNAL FLEXURE.

By B. G. A. MOYNIHAN, M.S.LOND., F.R.C.S.ENG.,
Assistant Surgeon, Leeds General Infirmary; Consulting Surgeon,
Skipton and District Hospital.

THE case now recorded is of value in that it shows that the functions of the stomach can be carried on without disturbance when bile and pancreatic juice pass freely into the organ.

E. H. L., a boy aged 6, was admitted to the Leeds General Infirmary on September 6th, 1899, under the care of Mr. W. H. Brown, for whom I acted. The patient had sustained an abdominal injury which caused collapse and gave rise to the signs of increasing fluid in the peritoneal cavity. Without entering into details, it may be said that the case clearly demanded surgical intervention. The following operation was performed.

Operation.—An incision 5 ins. in length was made to the right of the middle line, extending from about 1 in. below the ensiform cartilage downwards. On opening the abdomen there was an escape of blood, and blood was seen lying everywhere among the intestinal coils. A rapid search soon revealed the fact that there was a complete rupture of the intestine at the duodeno-jejunal flexure. The jejunum appeared to have been torn out from the duodenum in such manner that the divided end of the duodenum was beneath the peritoneal level, and was ragged and irregular. The jejunum in its upper 4½ ins. was torn away from its mesentery; this portion was removed. An end-to-end approximation was clearly impossible, as the cut duodenum was inaccessible. The duodenum was therefore closed as securely as possible with a continuous catgut stitch, and the peritoneum around it sutured over this stitch. In order to ensure a complete closure, the upper part of the mesentery which had been torn away from the jejunum was stitched as a sort of lid over the obliterated end of the duodenum. The jejunum was implanted in the anterior wall of the stomach with the aid of a Murphy button. After doing this it was my intention to make an anastomosis between the lower portion of the duodenal loop and the jejunum so as efficiently to drain the former, but the child seemed on the verge of death, and I had to complete the operation as speedily as possible. Stimulants, in the form of saline infusion, strychnine, and a hot-water enema were given during the operation, and one minim of strychnine was given every hour for the first twelve hours. The patient gradually rallied and made a good recovery.

After-History.—After the first ten days we had a skiagraph taken, and three were subsequently taken. On each occasion the button showed in a different position, and we were inclined to accept this as an indication that it was passing along the intestinal canal. The patient gained weight, ate ordinary diet, and was quite well, and his condition was in every respect satisfactory. One untoward incident alone was observed, and that was a copious attack of vomiting, which we ascribed to a pork pie injudiciously given by a friend on the visiting day. The question of a second operation, the performance of an anastomosis between the duodenal loop and the jejunum, was frequently discussed, but the condition

of the child was so satisfactory that we were unwilling to interfere. The stools were examined and pronounced in appearance and constitution normal.

Perforation.—On the 10th day after operation the patient was suddenly seized with acute and overwhelming abdominal pain, and I was urgently summoned. I found him pale, pulseless, and utterly collapsed. He died an hour subsequently.

Post-mortem Examination.—A perforation of the duodenum at the lowest point of the loop was found, the perforation being due to the Murphy button, which lay in the ulcer its pressure had produced.

a, Mesenteric flap covering sutured end of duodenum; b, point of perforation of Murphy's button.

This case is especially interesting in that it shows that the passage of all the bile and all the pancreatic juice secreted into the stomach does not interfere in any degree with the functions of that viscus. Riegel, Malbranc, and Weil have related cases where a reflux of bile into the stomach resulted in grave symptoms. Billroth remarked upon the serious import of bile regurgitation after gastro-enterostomy. Claude Bernard and others, founding their opinion upon laboratory work, considered that bile inhibited gastric digestion. Dastre, in dogs with gastric fistulae, introduced bile at all stages of digestion, and concluded that the alkalising effect of the bile was swiftly negated by a copious outflow of gastric juice. No ill-effects were noticed either in the digestive powers or in the general health. Oddi, experimenting upon dogs, obliterated the common bile duct and united the gall bladder to the stomach; all the bile consequently flowed at once into the stomach with the result that the animals gained in weight and suffered not at all. Max Wickhoff, Angelberger, and Terrier have performed cholecyst-gastrostomy for obstruction in the common bile duct.

These observations all show that the mere presence of aseptic bile alone is insufficient to induce vomiting. Chlumschij has suggested that the "regurgitant vomiting" after gastro-enterostomy is due to the presence of pancreatic juice in the stomach. This theory is negated by the case now related, and also by Steudel's experiments. Steudel performed upon dogs the same operation as was done by me. He divided the intestine completely across at the duodeno-jejunal junction, closed the duodenal end, and implanted the jejunal into the anterior wall of the stomach. The dogs lived and thrived for a time, but died from perforation of the duodenal loop by fragments of bone which had been eaten, and had passed from the stomach through the pylorus. The conditions and the results of Steudel's experiments and my case tally precisely. Had I known of the experiments when watching the case, my desire for a second operation would have been strengthened.

DR. ELLA E. SUMMERS, a young lady of 26, and a graduate of Omaha Medical College, was recently appointed coroner of Franklin County, Nebraska.