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The effect of mechanical obstruction of the pyloric outlet on gastric secretion.

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Obstruction at the pylorus was induced in dogs with Pawlow double stomachs, by passing a silver band around the pylorus and regulating the constriction so as to narrow but not entirely occlude the pyloric lumen. The effects of this operation upon gastric secretion were primarily: (1) A diminution in the amount of gastric juice secreted in the first two hours after taking food, that is, there was a decrease in the amount of appetite juice. (2) The digestive period was much prolonged, a copious secretion continuing into the seventh and eighth hours, when, under normal conditions with the same foods, no secretion took place after the fourth hour. (3) There was a constant secretion of gastric juice without regard to the time of the last feeding and having no apparent relation to whether the stomach contained food or was empty, and also (4) a marked hypertrophy of the muscle coats of the stomach at the pyloric end, with moderate dilatation of the cardiac portion.

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Transplantation of devitalized arterial segments.

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Before entering upon the discussion of the subject matter, we will take this opportunity to pay our tribute to the pioneer in the surgery of blood vessels. On the eighteenth of last April, Dr. N. V. Eck died in St. Petersburg. Nearly a decade ago he succeeded in uniting the portal vein to the cava in a dog, thus performing the operation for the Eck fistula.

Carrel demonstrated that it is not only possible to unite the two ends of a severed artery by a circular suture, but also to interpose between the cut ends a segment of an artery of another

animal and perform a double anastomosis. The success of the operation is due to the fine technique elaborated by Carrel.

Now, the question arises, upon what does this success depend? This question has not only a technical, operative, but a general physiological interest. To implant an arterial segment successfully means to avoid an intravascular thrombus after the operation.

According to the generally accepted theory of Brücke, blood remains fluid as long as it circulates in a vessel lined with an unimpaired living endothelium. Should the endothelium be injured through infection or trauma, a thrombus must form. In Carrel's experiments with implantation of arterial segments of the same species of animals, it seemed probable that the implanted segments remained alive. But in implantation of arterial segments of different animal species, the question presented itself whether these segments really remain alive, or, whether it is possible to implant *devitalized* arterial segments and the theories of intravascular coagulation of blood have to be revised. Our experiments consisted in implantations of a segment of an aorta from a dog, about one inch long, hardened in 4 per cent. formalin, into the abdominal aorta of another dog.

On January 23, 1908, we performed the first experiment. For ten days the dog did well; there was normal pulsation in both femoral arteries. On the eleventh day, the animal was found in the morning with protruding intestines. A secondary laparotomy was performed, but the dog died during the day. Both anastomoses held perfectly; the implanted piece was patent, without any thrombi. Microscopically there was hardly any cellular structure to be found in the implanted piece, but the elastic fibers could be seen in nearly normal quantity.

We then did some unsuccessful experiments on implantation of boiled arteries and ureters (from a freshly autopsied human body) hardened in formalin, in a dog and cat.

Meanwhile, Guthrie reported successful implantation of formalized segments into the carotid of a dog. We repeated the experiments and must state that in places where we felt pulsation during life the implanted segment contained an organized thrombus with numerous blood vessels running through it.

On May 8, last, we performed another experiment with implan-

tation of a formalized segment in the abdominal aorta of a dog. The animal had normal pulsation in the femoral arteries and was otherwise doing well with the exception of a subcutaneous infection of the abdominal wound. On May 18, we gave the animal anesthesia in order to dress the wound, and it died in a few hours apparently from the influence of ether.

The specimen of the aorta presents a very interesting condition. The distal part of the segment is free from thrombus, the anastomosis is perfect, in the proximal portion there is a large thin parietal thrombus covering the suture line, and also a small gangrenous part of the segment.

Our research is not yet concluded, but the results obtained present some points of theoretical importance.

For ten days the circulating blood was passing through a dead canal over one inch long, and it remained fluid. It seems, then, that blood need not necessarily run through a vessel lined with an unimpaired endothelium in order to remain fluid.

The implantation of devitalized segments is technically a great deal more difficult than that of living ones. If the implanted segment is of the same size as the rest of the artery then the anastomosis is easy to perform but as soon as the clamps are removed both the afferent and the efferent parts of the artery become wider than the implanted segment and the result is thrombosis. In order that the size of the segment should correspond after implantation to the rest of the artery, we have to use a segment wider than the rest of the artery and this increases the technical difficulty.

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A study of nitrogen metabolism in a case presenting short paroxysms of fever of unknown origin.

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The patient upon whom these studies were made presented an unusual paroxysmal syndrome probably toxemic in origin, characterized by attacks of prostration, pain — chiefly abdominal — fever, tachycardia and polynuclear leucocytosis, with some nausea and