izing the digestant solution, which was done by passing it through a Berkefeldt filter, the digestant solution became contaminated in 3 instances. Of the 10 animals in which, in addition to the separation of the adhesions, the digestant solution was added to the pericardial cavity, no adhesions re-formed in 3. The other 7 showed evidence of extensive pleural infection, and in 3 the digestant solution contained organisms at the time of its introduction into the pericardial cavity. It has been previously shown that the digestant solution will not prevent adhesions in the presence of infection.

Evidence is submitted that the re-formation of experimentally produced pericardial adhesions may, following their division, be prevented following digestant solutions.

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Some Observations on Experimental Arteriovenous Aneurysm.

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Arteriovenous aneurysm experimentally produced in the dog has been the subject of many studies, but we feel that there are still some mooted questions to be elucidated and many interesting facts to be established. Clinical experiences, under the stimulating influence of Professor Rudolph Matas, with his intense enthusiasm in this subject, have prompted our experiments. The earlier experiments were disappointing because of the almost invariable thrombosis of the vessels, but one of us (Gage) has now perfected the technique to the point where a functioning arteriovenous aneurysm always results. A technique of the operation, roughly comparable to that of side-to-side intestinal anastomosia has yielded uniformly successful fistulae. The common carotid artery and external jugular vein were the chief vessels in which anastomoses were accomplished.

Arteriovenous aneurysm has been successfully produced in 8 dogs. The clinical observations on these, 4 of which have died, will form the basis of this report. The lesions have been present in the dogs that have been sacrificed for 4, 40, 80, and 140 days. Four animals have now had functioning fistulae for 120 days, and are apparently unaffected by the presence of the lesion.

Control electrocardiograms were taken with the dogs in 3 stand-

ard positions, on the back, on the left, and on the right side. Control teleoroentgenograms were made, and the phase of respiration noted. The animals were operated under complete barbitol and ether anesthesia.

Several interesting observations presented themselves to us immediately after removing the clamps from the completed arteriovenous fistula. There was bleeding from the suture holes, which stopped within 2 minutes. Dilatation of proximal and distal segments of the vein appeared, most marked in proximal segment. Whirling eddies were noted in the vein, with the point of maximum intensity 1 to 1.5 cm. distal to the fistulous opening. An increase in diameter and stretching of the proximal artery was uniformly present. The intensity of the thrill and bruit is seen to be dependent upon the size of the vein, the size of the fistula, and the mass of the blood column passing unobstructed past the fistulous opening directly back to the heart.

In some instances where there is complete obstruction to the proximal segment of the vein, although the arterial blood could be seen passing into the distal segment of the vein, producing whirling eddies, there was neither a thrill nor a bruit present. Where no obstruction persisted the thrill extended several centimeters distally and proximally along the vein.

Clinically the thrills were felt for several centimeters along the vessels with, however, a maximal impulse about a centimeter distal to the actual orifice of the fistulae. The Branham phenomena, a sharp drop in the pulse rate and a slight rise in the systolic and diastolic blood pressures, were present in all of the animals.

Fluoroscopic studies confirmed previous observations of immediate and conspicuous cardiac dilatation upon first opening the fistulae. Teleoroentgenograms subsequently taken in the same phase of respiration that the control was taken uniformly and regularly showed increasing enlargement of the cardiac shadow at monthly intervals, even though the dogs were kept confined and not allowed to exercise. Electrocardiograms showed quite regularly a decrease in the amplitude of the main deflections, with some tendency toward slight predominance of right ventricular effects. The great increase in the length of the diastolic periods coincident with the slowing following the occlusion of the fistulae was regularly recorded electrocardiographically.