and alterations in body-fluid volumes. (*Guyton, A. C.: Regulation of Cardiac Output, New Engl. J. Med. 277: 805 (Oct.) 1967.*)

**MYOCARDIAL CIRCULATION** Radioactive krypton may be used to measure regional myocardial blood flow, expressed as a clearance constant. Uniform clearance constants have been demonstrated in the normal canine and human myocardium. A distinct difference in the clearance constants in the normal canine myocardium and in areas of naturally-occurring disease has been demonstrated. Heterogeneous clearance constants have been found in a majority of human subjects with coronary artery disease, the lowest rates being in areas of fibrous aneurysm. It is a reasonable assumption that myocardial blood flow is distributed unevenly in the presence of sufficient coronary artery disease. Implantation of an extracardiac artery into relatively ischemic regions of the myocardium increases the development of communications with the coronary arteries by influencing the size, number, or extent of such communications. Implantation into areas of scar tissue lessens the chance for success of the implant. Although these areas are sometimes grossly visible at surgery, this method of charting regional myocardial perfusion, localizing areas of ischemia, and avoiding areas of scar tissue has proved useful in determining the site for mammary artery implantation. (*Sullivan, J. M., and others: Regional Myocardial Blood Flow, J. Clin. Invest. 46: 1402. (Sept.) 1967.*)

**MITRAL STENOSIS** The effects of artificially-induced tachycardia upon hemodynamic variables were studied in 11 patients with pure mitral stenosis. Ventricular rates were altered from a mean of 95 to a mean of 146 beats/min. Cardiac output fell significantly with the rise in ventricular rate, whereas oxygen consumption was unchanged. As a result, arteriovenous oxygen difference widened. Mean pulmonary arterial pressure increased in all patients when ventricular rate increased. Pulmonary artery wedge pressure increased linearly as ventricular rate increased, with dyspnea occurring in four patients. These findings of falling cardiac output and rising wedge pressure demonstrate the deleterious effects of uncontrolled ventricular rates in patients with mitral stenosis. (*Arani, D. T., and others: The Deleterious Role of Tachycardia in Mitral Stenosis, Circulation 36: 511 (Oct.) 1967.*)

**CARDIOPULMONARY BYPASS** Anatomic changes in organs of dogs subjected to two hours of cardiopulmonary bypass were studied. Two types of pump oxygenators were compared: (1) A Clark-Selos bubble oxygenator and (2) a Mayo-Gibben screen oxygenator. In both groups, and in nonperfused control dogs, early ischemic cardiac lesions were noted. The causes of these lesions included altered coronary perfusion, manipulation of the heart, and trauma from simple sternotomy. The kidneys of dogs in the bubble oxygenator group contained massive silicone embolization. The bubble oxygenator uses a silicone antifoaming agent that is not baked on. The kidneys from the screen oxygenator group (silicone is baked onto the screens) had no emboli but were swollen and edematous. The lungs in all animals were grossly atelectatic and the livers in all groups were passively congested. No other abnormalities were found consistently. (*Buettner, L. E., and others: Pathological Findings in Experimental Extra Corporeal Circulation Utilizing Two Pump-Oxygenator Systems, Amer. J. Med. Sci. 254: 438 (Oct.) 1967.*)

**HEART FAILURE** Excess interstitial fluid is returned to the vascular compartment via the lymphatic system. Elevated systemic venous pressure in right heart failure will prevent or retard return of lymph to the circulation. This will protect the circulation but also will lead to the clinical manifestations of heart failure. By anastomosing the thoracic duct to the low-pressure pulmonary veins, lymph flow was increased substantially in dogs after right heart failure had been produced artifically. In addition, there was a fall in systemic venous pressure, an increase in renal salt and water excretion, and a reduction in ascites. These findings suggest that venous hypertension, salt and water retention and ascites seen in right heart failure are related as much to inadequate