tive bacteria, can be grown more readily in the "shocked" animal than in the normal. However, the number of bacteria that can be recovered is too small to be of any significance in the endotoxemia of advanced hemorrhagic shock. *(Frank, E. D., and others: Effect of Hemorrhagic Shock on Viability of Invading Bacteria, Proc. Soc. Exp. Biol. Med. 106: 394 (Feb.) 1961.)*

SHOCK The coronary resistance and coronary sinus blood flow in dogs fall to about half their control levels during acute hemorrhagic shock in open-chested anesthetized dogs. The peripheral flow decreases as the resistance rises. Despite an inadequate pressor response, use of blood transfusion during shock is helpful in restoring both coronary and peripheral flows and resistance toward normal. Coronary flow increases and coronary vascular resistance decreases with the use of norepinephrine while peripheral effects are exaggerated. Norepinephrine protects the myocardium and thus may be a helpful but temporary measure in treating shock while other procedures are carried out to treat the cause. *(Vowles, K. D., and others: Studies of Coronary and Peripheral Blood Flow Following Hemorrhagic Shock, Transfusion and L-Norepinephrine, Ann. Surg. 153: 202 (Feb.) 1961.)*

HEART-LUNG MONITORING The maintenance of a normal physiologic state during extracorporeal circulation is difficult. No specific routine meets the needs of all patients. Some patients die from inexplicable causes during or after open-heart operations. Difficulties may be related to alterations in blood gas or acid-base balance. To avoid damage to the blood by excessive trauma in the pump, and to keep the blood gases close to normal, continuous monitoring should be carried out. Pump speed, rotator disc speed, and gas flow are adjusted to meet patient requirements. Moment to moment information is provided by continuous monitoring of venous and arterial blood pressures, electroencephalogram, electrocardiogram, rectal, esophageal, and blood temperatures, venous and arterial oyxgen tensions, and arterial blood *p*H. *(Paton, B. C., Montgomery, V., and Swan, H.: Methods for Control of Extracorporeal Circulation, A. M. A. Arch. Surg. 82: 405 (Mar.) 1961.)*

MECHANOCARDIAC MASSAGE Manual cardiac massage was compared with mechanical massage. Hand massage can maintain a satisfactory pressure response in both the pulmonary and systemic circulation. Mechanical compression of the heart using a pulsating balloon between the ventricles and the pericardium maintains adequate pressures. Heart trauma from prolonged mechanical massage is less than that from manual methods. Wide variations in flow and pressure response are frequently obtained with manual massage due to changes of position of the operator's hands while compressing the heart. Fatigue of the hand occurs in three to seven minutes depending on the rate of compression. A mechanocardiac pulsator is recommended in cases requiring prolonged cardiac massage. *(Jones, G. A., and others: Fundamental Studies on Maintenance of Circulation in Cardiac Asystole by Mechanocardiac Pulsator, Dis. Chest 39: 207 (Feb.) 1961.)*

CARDIAC DEFIBRILLATION If defibrillation is to be successful, fibrillation must cease completely in every fraction of the myocardium. If even a vestige of fibrillating muscle remains, coordinate contractions never develop. Successful defibrillation can be accomplished by means of relatively weak (100–170 volts), short-duration (0.15–0.30 second) alternating current shocks if the electrodes cover a large portion of the heart. During cardiac resuscitation procedures, there should be no hesitation to use epinephrine, in spite of warnings to the contrary. Sufficient cardiac tone helps prevent vigorous massage from damaging the myocardium. The use of rapidly-acting cardiac glycosides (ouabain, acetyl strophanthidin) is indicated, especially if prolonged massage and multiple episodes of defibrillation are necessary. A hypothermic state with a decreased threshold to ventricular fibrillation may develop in patients (especially infants) undergoing prolonged surgery and in patients requiring large quantities of blood. Maintenance of normal body temperature and avoidance of use of cold blood when large quantities are needed are prophylactic measures against ventricular fibrillation. (*MacLean, L. D., and van Tyn, R. A.: Ventricular Defibrillation, J. A. M. A. 175: 471 (Feb. 11) 1961.*)

DEFIBRILLATOR The shock of the human heart should not exceed 250 volts (12 amp.) for 0.2 second. Seldom does one find it necessary to exceed 5 amp. for 0.2 second. Excessive stimulation will also produce an atrioventricular block or asystole rather than a normal sinus rhythm. The use of saline in the pericardium to moisten the electrodes caused severe abnormalities of electrical conduction after the shock. These abnormalities could be reversed by the application of mammalian Ringer's solution. (*Shephard, R. J.: Design of Cardiac Defibrillator, Brit. Heart J. 23: 7 (Jan.) 1961.*)

HEART SOUNDS The intensity of cardiac sounds is frequently at or near the lower level of hearing, therefore, one must pay close attention to a particular sound or event in the cardiac sound cycle in order to obtain a good evaluation. The first and second heart sounds are relatively high pitched and result from valve closure. The interval between the first and second sound approximates mechanical systole of the ventricles. The third and fourth sounds are low pitched ventricular filling sounds that may occur during diastole. Opening snaps of the mitral and tricuspid valves are frequently associated with atrioventricular valve pathology. (*Schwartz, M. L., and Little, R. C.: Physiologic Basis for Heart Sounds and Their Clinical Significance, New Engl. J. Med. 264: 280 (Feb. 9) 1961.*)

BALLISTOCARDIOGRAPHY Quantitative ballistocardiography proved to be a practical and clinically useful research tool. In 7 out of 12 patients myocardial depression was demonstrated during Fluothane anesthesia. Ganglionic blockade and peripheral vasodilatation are insufficient to explain the hypotension during Fluothane anesthesia. (*Eger, W., and Hügin, W.: Ballistographic Investigations During Narcosis, Especially Concerning Hypotension Under Fluothane, Der Anaesthesist 10: 38 (Feb.) 1961.*)

VASOPRESSORS Different vasopressors were given during Fluothane-induced hypotension. All of them elevated peripheral resistance but caused a marked reduction of stroke and minute volumes as shown by ballistography. Anticholinergic drugs prevented hypotension to some extent without interfering with peripheral blood flow. (*Hügin, W., and Eger, W.: Ballistographic Investigations Concerning Effect of Vasopressors in Halothane Anesthesia, Der Anaesthesist 10: 44 (Feb.) 1961.*)

PERIPHERAL RESISTANCE Quantitative ballistocardiography showed that thiopental caused a marked reduction of stroke and minute volume with moderately lowered blood pressure. There was in every case a marked and sudden increase of peripheral resistance which subsides in about ten minutes after a single sleeping dose. Third stage cyclopropane anesthesia also caused increased peripheral resistance but with elevated blood pressure. These effects are prevented or abolished by *d*-tubocurare or ganglionic blockers. (*Hügin, W., and Eger, W.: Ballistographic Investigations Concerning Changes in Peripheral Resistance due to Thiopental or Cyclopropane Narcosis, Der Anaesthesist 10: 46 (Feb.) 1961.*)

CORONARY FLOW Changes in the hemodynamics of coronary blood flow were revealed in dogs by producing varying degrees of cardiac failure, with the aid of graded constriction of the pulmonary artery. The coronary blood flow may be considered the critical factor in determining cardiac performance and diastolic size. (*Bacaner, M., and others: Coronary Blood Flow as Critical Determinant of Cardiac Performance and Cardiac Size, Amer. J. Med. 30: 392 (Mar.) 1961.*)

BLOOD BRAIN BARRIER There may be no morphological evidence of a blood-brain barrier. The relationships for various agents may be explicable in terms of central nervous system metabolism and it is unwise to assume