plasma transfusion, a raised pulse rate may still indicate a lowered red cell volume. (*Clarke, R.: On the Nature and Treatment of Wound Shock, Ann. Roy. Coll. Surgeons England 24: 239 (April) 1959.*)

TRANSFUSION REACTIONS A transfusion reaction exhibits three clinical phases: (1) acute reaction, (2) oliguric phase, (3) diuretic phase. Anesthesia masks most of the classical symptoms of acute transfusion reactions; during an operation, the most prominent sign may be bleeding from cut surfaces. Emergency measures of the acute reaction phase are: (1) Immediate discontinuance of the transfusion. The needle should be left in place for treatment of shock should it develop: intravenous fluids, dextran, or compatible blood. Arterenol may be required in addition. (2) Establishment of the diagnosis. The physician himself should draw blood from the patient, examine it for hemolysis, and have it cross-matched with blood from the incriminated bottle. He should refuse to accept any previously used samples. (3) Immediate intravenous administration of five per cent solution of dextrose in water (two liters) with 300 mEq. of sodium bicarbonate (to prevent blocking of renal tubules with acid heme). (4) Administration of Mannitol, 50 or 100 ml. of a 25 per cent solution, in the hope of increasing urinary flow by osmotic diuresis. Medical management of the oliguric phase includes restriction of fluid intake and prohibition of sodium intake. Protein catabolism is discouraged by a high-calorie, low-protein regimen. Prophylactic antibiotic treatment is indicated. Indications for the artificial kidney are chemical and clinical. Dialysis is an important adjunct to therapy and should be employed relatively early in the oliguric phase before the patient's clinical condition deteriorates. (*Barlas, G. M., and Kloff, W. J.: Transfusion Reactions and Their Treatment, Especially with the Artificial Kidney, J. A. M. A. 169: 1969 (April 25) 1959.*)

AMMONIA INTOXICATION Ammonia in stored blood increases at an average rate of 20 micrograms per 100 ml. per day. The most practical method at present for reducing or controlling ammonia intoxication that may result from massive transfusion in a cirrhotic patient is to administer intravenously arginine simultaneously with the blood as described. (*Britton, R. C.: Ammonia Intoxication from Bank Blood in Patients with Cirrhosis of the Liver, Cleveland Clinic Quarterly 26: 81 (April) 1959.*)

CARDIAC ARRHYTHMIAS Direct coronary artery pressure and flow, coronary sinus flow, and systemic blood pressure were measured in 264 dogs. After control studies, cardiac arrhythmias were induced. Auricular and ventricular premature contractions, paroxysmal auricular tachycardia, auricular fibrillation and flutter, ventricular tachycardia and fibrillation all were found to decrease coronary artery pressure and flow and systemic arterial pressure significantly, particularly when irregular and rapid rates (190 and above) were present. Direct brachial artery pressure measured in humans, showed significant decrease in blood pressure when heart rate was 180 or above. Vasopressor drugs may abolish arrhythmias plus correcting hypotension. On the basis of animal experimental evidence, therapy of cardiac arrhythmias should aim toward rapid correction with vasopressors and later permanent correction should be secured with quinidine and digitalis drugs. Patients with coronary artery disease should have arrhythmias treated to maintain adequate coronary perfusion since both clinical and electrocardiographic evidence of myocardial ischemia may become evident with even very small reduction of coronary artery pressure and flow. (*Corday, E., and others: Effect of Cardiac Arrhythmias on the Coronary Circulation, Annals. Int. Med. 50: 535 (March) 1959.*)

VENTRICULAR FIBRILLATION Fibrillation of the ventricle in the human is produced by an electric charge made within the heart itself. A checkerboard distribution of coronary artery blood produces these electric charges. They do not appear when the heart is uniformly deprived of oxygenated blood, but when only part of the muscle is deprived of oxygenated blood. Conversion of oxygen differentials into electric charges requires further investigation. Hearts with adequate inflow but with checkerboard distribution require even distribution for