aorta with a solution containing a controlled concentration of potassium and electrical stimulation was applied to the ventricle at a high rate to start fibrillation. Lack of glucose in perfusing solution allowed fibrillation to persist but fibrillation could be stopped by the addition of glucose, insulin, mannose or pyruvate. Fibrillation at 37 degrees centigrade was abolished by lowering temperature to 32 degrees possibly due to the fact that oxygen deficiency was less at the lower temperature. Adrenaline promoted fibrillation, possibly by increasing oxygen demand. (*Goodford, P. J.: Metabolic Factors and Ventricular Fibrillation, Brit. J. Pharmacol. 13: 44 (June) 1958.*)

MYOCARDIAL CONTRACTILITY When the lungs of a denervated heart-lung preparation were ventilated with 15 or 30 per cent CO_2, a striking cardiac decompensation resulted. This was manifested by a precipitous reduction or cardiac output against constant outflow resistance, elevated superior vena caval pressure, severe cardiac dilatation, decline in outflow pressure, and elevated left atrial pressure. In contrast was the remarkable tolerance of the intact dog to severe hypercapnea. The nature of the compensating mechanism in the intact animal is not clear; however, the myocardial failure consequent to high CO_2 administration was reversed or prevented by epinephrine, norepinephrine, acetyl strophantidin, or hydrocortisone. Each of these substances, with the possible exception of a digitalis-like derivative, is present, in the intact animal. (*Calvert, H. M.: Some Current Views on Biochemistry and Physiology of Myocardial Contraction, Bull. New York Acad. Med. 34: 445 (July) 1958.*)

CORONARY CIRCULATION The effects of atropine cardioacceleration on the coronary flow, cardiac work rate and cardiac oxygen metabolism was studied in six patients. A 38 per cent increase in rate produced a 38 per cent increase in coronary flow and a 33 per cent increase in oxygen consumption. There was a direct relation between the increased oxygen consumption and the increase in number of seconds of systolic contraction time occurring with tachycardia. The increased coronary flow was mediated by a decrease in vascular resistance which compensated both for the increased flow and the decreased diastolic time. (*Gorlin, R.: Studies on Regulation of Coronary Circulation in Man, Am. J. Med. 25: 37 (July) 1958.*)

CARDIAC ARREST No signs of cerebral or cord damage are noted in moderately hypothermic dogs after ten minutes of vena caval occlusion. Recovery without evidence of neurologic impairment is slower after 15 minutes of vena caval occlusion. Electrical cardiac standstill can be accomplished in the moderately hypothermic dog by coronary perfusion with sodium citrate and resuscitation by coronary perfusion with calcium gluconate or calcium gluconate followed by oxygenated blood. Ventricular fibrillation may occur if complete electrical arrest has not occurred. In such cases, conversion follows continued perfusion with oxygenated blood, electric shock or massage and electric shock. The use of sodium lactate is effective in producing clinical and electrical arrest in the moderately hypothermic dog. (*Riberi, A., and Shumacker, H. B.: Elective Cardiac Arrest Under Moderate Hypothermia, Ann. Surg. 148: 21 (July) 1958.*)

CARDIAC ARREST Elective cardiac arrest in dogs could not be maintained with acetylcholine with or without cardiac hypothermia. Infusion of cold blood into the coronary arteries following potassium arrest gave the lowest incidence of ventricular fibrillation and the best acute recoveries. Coronary perfusion with cold blood alone, cold blood prior to potassium arrest, or potassium arrest followed by coronary perfusion with warm blood showed a high incidence of ventricular fibrillation and/or post-recovery arrests. (*Berne, R. M., and others: Myocardial Hypothermia in Elective Cardiac Arrest, J. App. Physiol. 12: 431 (May) 1958.*)

CEREBROSPINAL FLUID A cerebrospinal fluid sample was obtained by lumbar puncture from 19 patients who either were in congestive heart failure at the time or had been in failure within the prior 14 days. The CSF pressure was elevated in those patients in congestive failure. Although the total protein content was within normal limits in all cases,

the CSF glycoprotein level was significantly elevated in 33 per cent of the group. Therefore, an increased CSF pressure and glycoprotein level are not specific for neurological disease and should not, of themselves, suggest neurological disease in a patient with heart failure. (*Green, J. B., and others: Cerebrospinal Fluid Protein and Glycoprotein Levels in Congestive Heart Failure, J. A. M. A. 167: 1491 (July 19) 1958.*)

CIRCULATION TIME By measuring the time from injection of succinylcholine until fasciculations appear in the palpebral or platysmal muscles, the anesthesiologist can determine the circulation time. In 26 apparently good risk adult patients the average was 22 seconds with a range of 15 to 32 seconds. This may detect an impending or early congestive cardiac failure. (*Glover, N., and Marcus, P. S.: Drug Reaction Times During Surgery and Anesthesia, South. M. J. 51: 478 (April) 1958.*)

OXYGEN CONSUMPTION Oxygen consumption in dogs during extracorporeal circulation at low flow rates (20–30 ml./kg./minute) was reduced to about 50 per cent of control levels. Oxygen consumption rose with increasing flow, reaching control levels at flow rates of about 100 ml./kg./minute. The relation of oxygen consumption during extracorporeal circulation to decreasing flow rate is similar to the relation of oxygen consumption to reduced cardiac output. The decline in oxygen consumption at low rates of flow appeared primarily due to decreased circulatory rate rather than to the concomitant fall in arterial blood pressure. The arterial saturation fell progressively with increasing flow rates with oxygenators of limited capacity or with subjects too large for the capacity of the oxygenator. (*Anderson, M. N., and Semning, A.: Studies in Oxygen Consumption During Extracorporeal Circulation with Pump-Oxygenator, Ann. Surg. 148: 59 (July) 1958.*)

PERIPHERAL BLOOD FLOW Biphasic velocity flow patterns in the human forearm were measured utilizing an Evans blue dye technique. Local hyperemia produced by intra-arterial injection of tolazoline, reactive hyperemia, or local exercise increased the flow and volume in the rapid component relative to that in the slow component. Venous congestion resulted in marked but proportionate prolongations of circulation times. The relative flows and volumes of the two components were not significantly changed. Intra-arterial infusion of epinephrine or norepinephrine and systemic administration of epinephrine produced no obvious changes in these parameters. Systemic infusion of norepinephrine produced characteristic changes indicating a relative increase in blood flow of the rapid component. This was probably due to hypertension plus vasoconstriction occurring in response to significant elevation of mean pressure. These data suggest that the biphasic system of forearm blood flow and volume is dynamic, the relative proportion of the rapid and slow components changing with appropriate stimuli. (*Freis, E. D., and Schnaper, H. W.: Effects of Variety of Hemodynamic Changes on Rapid and Slow Components of Circulation in Human Forearm, J. Clin. Invest. 37: 838 (June) 1958.*)

IMPACT PULSE WAVES The relationship between the velocity of induced waves and arterial blood pressure has been explored in the living human brachial artery. At lower pressures, the propagation velocity of these waves increases with age. This is not evident at higher pressures, suggesting that in older subjects there is an initially greater resistance to transverse stretch, but the change in elastic properties induced by stretch is less than it is in young arteries. The artery in older subjects behaves as if its fibers were initially more completely extended. (*Landowne, M.: Relations Between Intra-arterial Pressure and Impact Pulse Wave Velocity with Regard to Age and Arteriosclerosis, J. Gerontology 13: 153 (April) 1958.*)

BLOOD BRAIN BARRIER Experiments were carried out on rabbits and cats. As tracers radioactive phosphorus (P^{32}), sulphur (S^{35}), penicillin and radioactive iodine (I^{131}) were used. More than 100 experiments showed that the blood-brain barrier occupies the primary place on account of its pronounced barrier properties; the hematolabyrinthine, hematoophthalmic, hematoplacental, and hematosynovial bar-