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: 1494 (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 barriers are secondary. The barrier functions of the fetus are not very pronounced. Experiments on kittens whose eyelids were sutured together, showed that in the process of barrier property formation the effect of an adequate stimulus is very important. Experiments on the stimulation of different nerves showed an increase of the permeability of the barrier. (From the book: *Zaiko, N. N., and others: Use of Tagged Atoms in Study of Barrier Functions in Organism, Trudy vsesoyuznoi konferentsii po meditsinskoi radiologii pp. 228–232, 1957.*)

CEREBRAL CIRCULATION Cerebral vasomotor change was recorded by an adaptation of the plethysmographic technique. Increase in amplitude of cerebral pulse volume, accompanied by an increase of intradural volume, occurs in response to the inhalation of a mixture of carbon dioxide 5 per cent and oxygen 95 per cent. A similar change is seen in response to voluntary apnea, sleep, voluntary facial nerve activity, superior cervical ganglion block, and intravenous administration of alcohol or papaverine. This is considered to be cerebral vasodilatation. The reduction of pulse volume amplitude with a reduced intradural volume is the observed response to hyperventilation, abdominal and cutaneous pain, and stimulation of the middle or superior cervical ganglion. This is considered to be cerebral vasoconstriction. The administration of nicotinic acid, performance of mental work, and electrical stimulation of the stellate ganglion produce no affect on cerebral vasomotor activity. The craniocervical sympathetic system whose fibers accompany the vagus nerve to the superior cervical ganglion has been shown to subserve cerebrovascular activity. This system is separate from the thoracolumbar sympathetic outflow. (*Bridges, T. J., Clark, K., and Yahr, M. D.: Plethsymographic Studies of Cerebral Circulation: Evidence for Cranial Nerve Vasomotor Activity, J. Clin. Invest. 37: 763 (May) 1958.*)

CEREBRAL CIRCULATION Aging is associated with a decrease in cerebral blood flow and oxygen consumption and an increase in cerebrovascular resistance. There is no good correlation between cerebral blood flow or cerebral oxygen consumption and the patient's mental status. Inhalation of 5 to 7 per cent carbon dioxide is the most potent and possibly the only selective means of causing cerebral vasodilatation and increasing cerebral blood flow. The length of time that cerebral vasodilatation mediated by inhalation of carbon dioxide can be maintained is unknown. Effects of other agents used in an effort to obtain selective cerebral vasodilatation are inconsequential when compared to effects of carbon dioxide. The response of cerebral circulation to fall in blood pressure is fairly consistent and independent of the etiology of that fall in pressure. As blood pressure is reduced, cerebral vascular resistance is reduced proportionately, tending to maintain cerebral blood flow. At some point, maximum dilatation is reached and fall in cerebral blood flow accompanies any further reduction in blood pressure. As blood flow falls cerebral oxygen consumption is maintained by increased extraction of oxygen from the available blood. Aminophylline is unique in its ability to cause cerebral vasoconstriction with a consequent increase in cerebral vascular resistance and a decrease in cerebral vascular blood flow. (*Novack, P., and Goluboff, B.: Cerebral Circulation and Metabolism of Aging, Geriatrics 13: 285 (May) 1958.*)

AMINOPHYLLINE The cardiovascular effects of intravenously administered aminophylline were studied in 11 patients with moderately severe pulmonary emphysema. The drug caused an increase in minute ventilation, a decrease in arterial CO_2 and no change in the resting reduced arterial oxygen saturation. There was a slight increase in oxygen consumption, a widening of the arteriovenous oxygen difference and a decrease in cardiac output. Cardiac rate increased, mean brachial artery pressure decreased as did stroke volume and left ventricular work. Peripheral resistance did not change. Coronary blood flow decreased with a widening of myocardial arterio-venous oxygen difference. There was no change in myocardial oxygen consumption, myocardial respiratory quotient, or in coronary vascular resistance. Left ventricular efficiency decreased. It is concluded that while amino-