riers 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-