of insulin. The first measurements were also made under conditions of zero and 5 per cent CO_2 in air. Experimental results indicate that the O_2 consumption of isolated plasma-perfused lung tissue is about 0.048 ml/min/g dry weight. The lung can utilize carbohydrate almost exclusively for its energy. The lung produces lactic acid even when the lactic acid concentration in the perfusate reaches values greater than 100 mg/100 ml. Under hyperglycemic conditions, a significantly elevated R.Q. indicates a probable conversion of carbohydrate to fat within the lung. The total energy utilization of the canine lung is about 1 per cent of the total energy utilization of the entire body at rest. (*Weber, K. C., and Visscher, M. B.: Metabolism of the Isolated Canine Lung, Amer. J. Physiol. 217: 1044 (Oct.) 1969.*)

HYPOCAPNIC VERTEBRAL ARTERY PERFUSION Transient perfusions of hypocapnic and hypercapnic blood were made into the vertebral arteries of anesthetized dogs. During hypocapnic perfusion while the dogs were breathing air there was a 5 per cent reduction in ventilation. With perfusions of hypocapnic blood while the dogs breathed CO_2 a greater reduction in ventilation occurred. This was 9 per cent at 40 sec, 14 per cent at 70 sec, and 33 per cent at two minutes. After two minutes of hypercapnic perfusion, rates of recovery of ventilation were twice as fast as those observed after 8 to 10 minutes of CO_2 breathing. These rates were still not as rapid as those previously observed during recovery from hypercapnic perfusion of carotid bodies. These results suggest: 1) that CSF and brain tissue act as a reservoir for CO_2; 2) that CO_2 diffuses slowly out of the brain chemoreceptive tissue following stepwise decreases of P_{CO_2} in the cerebral capillaries; 3) that during transient states, the P_{CO_2} of brain chemoreceptive tissue is dominated by the P_{CO_2} of CSF and adjacent brain tissue rather than by the P_{CO_2} of cerebral capillaries. (*Dutton, R. E., and others: Respiration during Transient Perfusion of Vertebral Arteries with Hypocapnic Blood, Amer. J. Physiol. 217: 1178 (Oct.) 1969.*)

DIAPHRAGMATIC ACTIVITY IN OBESITY Minute ventilation, diaphragmatic activity and total chest compliance were measured in eight adults each weighing at least 300 pounds. Four had normal and four had abnormal arterial blood gas values. The diaphragmatic electromyogram was recorded with an esophageal bipolar lead. There was no significant difference between chest compliance in the two groups, but there were marked differences in diaphragmatic activity/mm change in Pa_{CO_2}. The increase in integrated diaphragmatic electrical activity averaged 66 units in the obese normal subjects and 17 units in the obese hypoventilation subjects. Results suggest that an incapacity to increase the activity in the respiratory muscles to levels necessary to overcome the load imposed by obesity plays a major role in the genesis of respiratory failure in obese subjects. (*Lourenco, R. V.: Diaphragm Activity in Obesity, J. Clin. Invest. 48: 1609 (Sept.) 1969.*)

EMPHYSEMATOUS LUNGS At autopsy, bronchograms of emphysematous lungs were made, using fine particulate lead. Distending pressures of 0, 5, 10 and 20 cm H_2O were used while roentgenograms were taken. The volumes of individual centrilobular emphysematous spaces were calculated at each distending pressure from measurements made from the bronchograms and from pressure–volume curves constructed for each space. Normal lungs and lungs with centrilobular emphysema were compared by determining the volume of air that could be expressed from them at each distending pressure as a percentage of the volume contained at 20 cm H_2O. Centrilobular emphysematous spaces have a high residual volume, are less compliant than normal lung tissue, and are much less compliant than the emphysematous lungs which contain them. These spaces undergo little volume change within the tidal breathing range and probably add a relatively nondistensible series deadspace to the surrounding lung parenchyma. (*Hogg, J. C., and others: Elastic Properties of the Centrilobular Emphysematous Space, J. Clin. Invest. 48: 1306 (July) 1969.*)

CHEST THERAPY Randomly selected "poor-risk" patients were treated preoperatively and postoperatively with cessation of smoking, bronchodilator drugs, antibiotics, inhalation of humidified gases, segmental pos-