pliance in the infant is noted. This is probably because the infant's thorax has little influence on pulmonary expansion because of its characteristic anatomical structure; *i.e.*, horizontally placed ribs and cylindrical shape. Decrease in total compliance may be measured many hours prior to onset of clinical signs of respiratory disease. (*Richards, C. C., and Bachman, L.: Lung and Chest Wall Compliance of Apneic Paralyzed Infants, J. Clin. Invest. 40: 273 (Feb.) 1961.*)

AIRWAY RESISTANCE The extrathoracic airway includes the trachea, larynx, pharynx and nose. During mouth breathing this portion of the airway accounted for 45 per cent of the total airway resistance in normal subjects and 20 per cent in emphysematous subjects. Large inter- and intra-subject variations were observed. Extrathoracic airway resistance decreased as inflation of the lung increased. The major component of upper airway resistance is located in the larynx. (*Hyatt, R. E., and Wilcox, R. E.: Extrathoracic Airway Resistance in Man, J. Appl. Physiol. 16: 326 (Mar.) 1961.*)

RESPIRATOR A transistor electronically controlled respirator is triggered by the electrical activity of respiratory muscles, thus permitting the patient's own respiratory center to regulate breathing. The device has an automatic cycler and an alarm monitor system. Complete wiring diagrams are illustrated and the estimated cost of the parts is $100.00. (*Bennett, H. D., and Boren, H. G.: A Transistor Electronically Controlled Respirator, Dis. Chest 39: 382 (Apr.) 1961.*)

CARBON DIOXIDE The effect of respiratory hypercapnia and hypocapnia on the accumulation and entry of several organic electrolytes in a selected group of brain structures has been investigated. Twenty-five adult cats were used in the experiments. Upon exposure to 25 per cent carbon dioxide, the concentrations of phenobarbital, salicylic acid, and urea were increased in all anatomical regions of the cat brain. Conversely, brain levels of all of these substances were reduced by hyperventilation. High concentrations of carbon dioxide produced a greater relative increase in the entry and accumulation of salicylic acid and phenobarbital in predominantly myelinated areas than in gray matter. Hyperventilation produced the opposite effects. (*Goldberg, M. A., Barlow, C. F., and Roth, L. J.: Effects of Carbon Dioxide on Entry and Accumulation of Drugs in Central Nervous System, J. Pharmacol. Exp. Ther. 131: 308 (Jan.) 1961.*)

CONTROL OF RESPIRATION Conscious volunteers did not exhibit apnea at the conclusion of a period of active or passive hyperventilation to an end-expiratory carbon dioxide tension below 25 mm. of mercury. Anesthetized patients become apneic when hyperventilation lowers the end-expiratory carbon dioxide tension below 38–43 mm. of mercury, the so-called "apneic threshold." Cerebral activity associated with wakefulness probably plays an important part in the maintenance of the resting respiratory rhythm. Anesthetics probably do not alter the sensitivity of the respiratory center to carbon dioxide but merely depress the cerebral signal on which carbon dioxide operates. (*Fink, B. R.: Influence of Cerebral Activity in Wakefulness on Regulation of Breathing, J. Appl. Physiol. 16: 15 (Jan.) 1961.*)

PULMONARY RADIATION Radiotherapy directed to the thoracic region causes radiation injury to the lung. Radiologically, pathologically and clinically changes may be described as an early radiation pneumonitis progressing to late radiation fibrosis. All subdivisions of lung volume are irreversibly diminished. Pulmonary compliance is decreased and airway resistance is slightly increased. Unchanged alveolar ventilation and increased dead space ventilation are manifested by an increased minute volume of ventilation. Maximum breathing capacity and diffusing capacity of the lung are decreased. Transient hypoxemia occurred in all patients but usually reverted toward normal values as the syndrome progressed. There was no evidence of carbon dioxide retention or uneven distribution of inspired gas. (*Emirgil, C., and Heineman, H. O.: Effects of Irradiation of Chest on Pulmonary Function in Man, J. Appl. Physiol. 16: 331 (Mar.) 1961.*)