INTRAVENOUS LIDOCAINE In four patients undergoing cardiac catheterization under "light barbiturate anesthesia," infusion of 1 mg lidocaine per minute for one hour caused no significant change in cardiac output, heart rate, stroke volume, mean arterial blood pressure or total systemic resistance. One patient had a transient drop in left ventricular dp/dt from 1,518 to 1,363 mm Hg/sec after intravenous injection of 1 mg/kg of lidocaine over a two-minute period. Injections of 400 mg lidocaine in dogs (almost 20 mg/kg) caused transient severe falls in arterial blood pressure. In patients receiving large doses of lidocaine, arterial blood pressure as well as the electrocardiogram should be monitored. (*Binnion, P. T.: Toxic Effects of Lignocaine on the Circulation, Brit. Med. J. 1: 470 (May) 1968.*)

OCULOCARDIAC REFLEX Oculocardiac reflexes occur quite frequently during operations on the eye performed with the patients under general anesthesia. Sympathetic effects are far more dangerous than parasympathetic ones. Several patients had serious disturbances in rhythm following traction on eye muscles. In one patient (a 24-year-old man, physical status I) traction on the bulbus caused tachycardia, followed by cardiac arrest which responded to resuscitation. (*Benzer, H., and others: Pulse Rate during Ophthalmic Surgery, Der Anaesthesist 17: 157 (May) 1968.*)

CARDIAC MASSAGE During closed-chest cardiac massage, left-atrial and systemic arterial blood pressures are nearly equal. The former falls while the latter rises toward pre-arrest values with the resumption of effective cardiac activity. The high left-atrial pressures may explain pulmonary edema after prolonged closed-chest cardiac massage. An extremely critical state exists so long as there is no effective cardiac contraction even if a satisfactory systemic arterial blood pressure is maintained by closed-chest cardiac massage. (*Thomsen, J. E., and others: Intracardiac Pressures during Closed-chest Cardiac Massage, J.A.M.A. 205: 46 (July) 1968.*)

Respiration

RESPIRATORY NEURONS AND CO_2 The effects of changes in alveolar Co_2 tension on discharge patterns of medullary and pontine respiratory neurons were studied in cats. Efferent phrenic-nerve discharge served as an indicator of central respiratory periodicity. In all neurons, lowered CO_2 resulted in reduction of respiratory oscillation of discharge frequency. On the basis of direction and degree of change in discharge, the responses to lowered CO_2 levels were classified as three major types. Respiratory periodicity arises from activity of systems of reciprocally discharging neurons: a pair of reciprocal systems consisting of expiratory–facilitatory neurons with type 2 responses and inspiratory–facilitatory neurons with type 1 responses; a pair of reciprocal systems consisting of inspiratory–facilitatory neurons with type 2 responses and expiratory–facilitatory neurons with type 1 responses. (*Cohen, M. I.: Discharge Patterns of Brainstem Respiratory Neurons in Relation to Carbon Dioxide Tension, J. Neurophysiol. 31: 142 (March) 1968.*)

PULMONARY MECHANICS Lung tissue resistance is not a constant fraction of total pulmonary resistance. It is directly related to size of tidal volume, inversely related to vital capacity and lung compliance and independent of the flow rate at which it is measured. These observations suggest that lung tissue resistance is not an ohmic type of resistance where force required to overcome oppositions to motion originating in lung tissue would be related to flow. Lung tissue resistance probably represents the degree of retarded elastic response of the lung related to non-flow-resistive volume–pressure hysteresis and stress relaxation. (*Bachoffen, H.: Lung Tissue Resistance and Pulmonary Hysteresis, J. Appl. Physiol. 24: 296 (March) 1968.*)

LUNG MECHANICS Comparison of esophageal and pleural pressures in anesthetized dogs in the prone position indicated that differences were less than 3 cm H_2O except at extremes of lung volume, and pneumothorax did not systematically alter the differences. When static volume–pressure curves obtained

from living dogs were compared with those obtained from the same dogs' lungs following excision, small but systematic differences were observed. Excised lungs contained more gas on deflation at moderate distending pressures and exhibited greater static hysteresis than living lungs. Differences between *in vitro* and *in vivo* results are related to alterations in smooth muscle tension, vascular pressures and alveolar surface-tension properties. (*Wohl, M. E. B., Turner, J., and Mead, J.: Static Volume–Pressure Curves of Dog Lungs In Vivo and In Vitro, J. Appl. Physiol. 24: 348 (March) 1968.*)

PULMONARY FUNCTION Preoperative pulmonary function studies were correlated with the clinical course in 29 patients undergoing pneumonectomy, 26 of them for carcinoma of the lung. It was concluded that significant airway obstruction alone was not an immediate contraindication to surgery and does not preclude long-term survival. Hypercapnia at rest and cardiovascular decompensation were considered strong relative contraindications to pneumonectomy and in this study such patients, with one exception, were not operated upon. (*Karliner, J. S., Connmaraswamy, R., and Williams, M. H.: Relationship Between Preoperative Pulmonary Function Studies and Prognosis of Patients Undergoing Pneumonectomy for Carcinoma of the Lung, Dis. Chest 54: 32 (Aug.) 1968.*)

RESPIRATORY DEADSPACE During long-term mechanical ventilation, patient comfort frequently requires use of large tidal volumes. This can be done without producing excessive hypocapnia by adding an external mechanical deadspace in series with the patient. The present study demonstrates the feasibility of maintaining normal levels of alveolar ventilation during mechanical hyperventilation using this technique. Increases in measured physiologic deadspace were always smaller than the volume of the added mechanical deadspace because of distribution of deadspace gas during inspiration to both perfused and nonperfused alveoli in proportion to their incremental volume change. (*Suwa, K., and Bendixen, H. H.: Change in Pa_{CO_2} with Mechanical Dead Space during Artificial Ventilation, J. Appl. Physiol. 24: 556 (April) 1968.*)

COMPLIANCE IN EMPHYSEMA Patients with severe obstructive lung disease usually reach a stage of deterioration in pulmonary function after which function may remain stable yet symptoms may be progressive. Symptoms in such patients may abate during exercise programs without improvement in pulmonary function. Total compliance was measured in eight subjects with severe emphysema. The mean chest wall compliance was approximately one-third normal and the mean total thoracic compliance half normal. The work of breathing in emphysema may sometimes account for more than 50 per cent of the total oxygen uptake. Dynamic pulmonary compliance at normal respiratory rates is not increased in emphysema. Much of the increase in symptoms may therefore be related to decreasing chest wall compliance. (*Krumholz, R. A., and others: The Compliance of the Chest Wall and Thorax in Emphysema, Amer. Rev. Resp. Dis. 97: 827 (May) 1968.*)

LUNG SCANNING Of 18 subjects with chronic obstructive lung disease, 16 had abnormal lung scans. No diagnostic criteria were drawn from study of the scans, which varied from time to time for the same patient. Frequent discrepancies between pulmonary arteriograms and lung scans were noted. The scan provided information regarding relative arterior–capillary flow; it did not distinguish anatomic from pathophysiologic causes for decreased perfusion. The arteriograms defined the distribution of pulmonary artery branches, but could not be equated with the status of arteriolar–capillary flow. (*Bryant, L. R., and others: Pulmonary Blood Flow Distribution in Chronic Obstructive Airway Disease, Amer. Rev. Resp. Dis. 97: 832 (May) 1968.*)