disease. A comparison of results obtained with the end tidal sampling technique in patients with asthma and emphysema indicates that the use of carbon monoxide in these two conditions enables an estimate to be made of the relative normality of the lung parenchyma. (*Bates, D. V.: Measurement of Pulmonary Diffusing Capacity in Presence of Lung Disease, J. Clin. Invest. 37: 591 (April) 1958.*)

RESPIRATOR The Pesty positive-negative pressure respirator with variable pause has been used successfully in a variety of conditions associated with prolonged respiratory inadequacy. Mixtures of anesthetic gases can be administered in place of oxygen or compressed air. The versatility of the apparatus is such as to permit control of minute ventilation, tidal volume, insufflation speed, expiratory pause, ventilation rate and positive and negative pressure values. Should the patient begin to initiate his own respiration, the automatic cycling stops and frequency and depth are instantly adjusted so as to allow him to breathe spontaneously without interference (one of the characteristics of an "ideal respirator"). (*Trémolières, J.: New Apparatus for Artificial Respiration, J. A. M. A. 167: 1086 (June 28) 1958.*)

IPPB Atelectasis remains the most common postoperative complication. The usual prophylactic measures (e.g., coughing, standing in the immediate postoperative period) may be feasible in some patients. It is particularly in these as well as in patients with previous bronchopulmonary disease that IPPB is of greatest benefit. The preferred method is: (1) gas mixture of 60 per cent helium and 40 per cent oxygen, (2) three to four treatments for 15 minutes each for five days, (3) positive pressure with 15 to 20 cm. water for adults and 10 to 12 cm. water for children, (4) 8–10 respirations per minute, and (5) aerosol therapy with 6 to 8 drops of a bronchodilator in 15 drops of water. (*Rudy, N. E., and Crepeau, J.: Role in Intermittent Positive Pressure Breathing Postoperatively, J. A. M. A. 167: 1093 (June 28) 1958.*)

VENTILATORY FAILURE The diagnosis of ventilatory failure is difficult from signs and symptoms alone. The rapid infrared CO_2 analyzer using the "rebreathing method" offers a simple, reliable test for ventilatory failure which can be performed by a technician in less than 10 minutes. It can be performed on all types of patients, awake or unconscious. Carbon dioxide narcosis can be readily diagnosed and mechanical measures to increase ventilation quickly instituted. (*Griggs, D. E., and others: Rapid Diagnosis of Ventilatory Failure with Carbon Dioxide Analyzer, Am. J. Med. 25: 31 (July) 1958.*)

ASPHYXIA Ninety-eight experiments were carried out on puppies to study the effect and mechanism of action of intra-arterial infusions of blood and of hypertonic calcium chloride and glucose solutions in asphyxiation. Intra-arterial infusions of blood and of hypertonic calcium chloride and glucose solutions are effective methods for the treatment of severe asphyxation; the effect is attained reflexly via stimulation of the receptor apparatus of the arteries. (*Persianinov, L. S.: Role of Vascular Interoception in Restoration of Vital Functions in Asphyxation, Fiziol. Zh. 42: 685 1956.*)

POSTOPERATIVE HYPOVENTILATION A majority of patients in whom arterial oxygen, pCO_2 and pH determinations were made during the postoperative period, showed evidence of inadequate ventilation. Metabolic acidosis perhaps secondary to the respiratory acidosis persisted into the first postoperative day. Ventilation was improved by proper dosage of analgesic drugs correctly timed to relieve pain and splinting. (*Mastio, G. J., and Allbritten, F. F.: Respiratory Function in Postoperative Patient, A. M. A. Arch. Surg. 76: 732 (May) 1958.*)

POSTOPERATIVE HYPOXIA Studies on 62 postoperative pulmonary resection patients revealed that arterial blood oxygen saturation was lowest on the second and third days after pulmonary resection with a gradual return to normal by the seventh or eighth day. There was no correlation between oxygen saturation and the pulse rate. (*Siebecker, K. L., and others; Postoperative Ear Oximeter Studies on Patients Who Have Undergone Pulmonary Resec-*

tion, J. Thoracic Surg. 36: 88 (July) 1958.)

PULMONARY COMPLIANCE Elastic properties of the lung were measured in 5 patients during Cheyne-Stokes respirations. Compliance was normal in 3 patients and reduced in 2. Thus the periodic breathing is due to periodic fluctuations in the activity of the respiratory center in some patients and to peripheral factors in other patients. Aminophylline abolished periodic breathing in the 3 patients to whom it was given. Oxygen will abolish periodic breathing of central origin and carbon dioxide will usually do the same for that associated with cardiac disease. *(Lyons, H. A., and others: Pulmonary Compliance in Patients with Periodic Breathing, Circulation 17: 1056 (June) 1958.)*

EXTENDED ASYSTOLE Normothermic dog heart begins to show EKG evidence of myocardial injury after 39 to 44 minutes of asystole and 50 to 60 minutes of asystole ended fatally in cardiac by-pass experiments. Thirty-five minutes is a recommended safe limit. *(Milnes, R., and others: Extended Asystole, A. M. A. Arch. Surg. 77: 13 (July) 1958.)*

HYPOTENSION Reduction in cerebral cortical oxygen as measured by the oxygen electrode occurred more readily when dogs given chlorpromazine were subjected to blood-letting hypotension. Greater reduction in blood volume was necessary to produce hypotension in a control group and at the same arterial pressure cortical oxygen tension dropped less in the control group than in the group of dogs receiving sympatholytic drugs. Electroencephalographic abnormalities occurred at higher blood pressure levels when a blocking agent was used than in the controls. *(Bloor, B., and others: Study of Cortical Oxygen Tension During Induced Hypotension, A. M. A. Arch. Surg. 77: 65 (July) 1958.)*

SHOCK Rats raised in germ-free conditions and subjected to hemorrhagic shock under germ-free experimental conditions did not differ from a control group in their response. This evidence must be interpreted carefully according to the authors and does not necessarily eliminate the possibility that bacteremia is of importance as a cause of irreversibility of shock as postulated by Hine. *(Zweifach, B. W., and others: Irreversible Hemorrhagic Shock in Germ-free Rats, J. Exp. Med. 3: 437 (March) 1958.)*

EXTRACORPOREAL CIRCULATION Magnesium sulfate or potassium chloride solution perfused into the coronary arteries separately were not as effective in stopping an isolated cat heart as the combination. Persistence of asystole followed use of potassium alone. Magnesium sulfate caused increase in ectopic beats. Neostigmine was added to induce a slower rate with better coronary perfusion as the heart was recovering. *(Merritt, D., and others: Potassium, Magnesium and Neostigmine for Controlled Cardioplegia, A. M. A. Arch. Surg. 75: 365 (March) 1958.)*

HEMOLYSIS With the plastic-sheet bubble oxygenator, hemolysis is partly due to the jets of oxygen entering the blood at the bottom of the chamber. Other factors include the percentage volume of red cells, cohesion of cells, spheroidicity, changes in membrane strength and heating to 52–58 C. The reticulo-endothelial system probably removes hemoglobin from the blood stream as rapidly as the hemoglobin is released. Another potential hazard of hemolysis is the effect of the red cell stromata which may produce hypotension and shock. Disturbances in the blood clotting mechanisms have also been ascribed to hemolysis. *(Ferbers, E. W.: Studies of Hemolysis with a Plastic-Sheet Bubble Oxygenator, J. Thoracic Surg. 36: 23 (July) 1958.)*

ULTRASONIC DEFIBRILLATION When ventricular fibrillation was induced electrically in the hypothermic rabbit ultrasonic irradiation restored 20 per cent of the rabbit hearts to normal rhythm. This technique failed entirely when dog hypothermic heart was used. *(Haeger, K. H.: Ultrasonic Irradiation of Ventricular Fibrillation in Hypothermic Rabbit and Dog, Acta chir. scandinav. 114: 99 (Feb.) 1958.)*

VENTRICULAR FIBRILLATION Rabbit hearts were perfused through the