Neostigmine for Controlled Cardioplegia, J. Thoracic Surg. 37: 655 (May) 1959.)

EXTRACORPOREAL PROBLEMS Many problems occur in extracorporeal circulation relating to venous cannulation and drainage, many of which have been satisfactorily resolved. Siphon caval drainage is preferred to fixed venous pumping. Hepatic venous drainage should not be interfered with. Venous catheters should be accurately and securely placed with attached metal tips. The vena cavae should not be intubated until just before the start of the perfusion to avoid interference with cardiac output. Lethal air embolism in the right atrium may occur. Its mechanism and prevention is outlined. Oxygen consumption in experimental studies is increased slightly by elevation of the venous pressure at flow rates of 50–100 cc./kgm. Modifications in venous cannulation necessitated by anomalies of the cavae system are described. *(Bosher, L. H., Jr.: Problems in Extracorporeal Circulation Relating to Venous Cannulation and Drainage, Ann. Surg., 149: 652 (May) 1959.)*

GAS ANALYSIS By combining a vacuum extraction method with gas chromotography it is possible to make rapid, accurate, and reproducible determinations of gases in biological fluids (*e.g.*, plasma). Determination of oxygen tension in one milliliter of human plasma is possible. *(Ramsey, L. H.: Analysis of Gas in Biological Fluids by Gas Chromotography, Science, 129: 900 (April 3) 1959.)*

CARBON DIOXIDE ANALYZER An apparatus consisting of a bridge-type continuous-flow carbon dioxide analyzer is described which repeatedly samples end expiratory air for use in patients receiving artificial respiration, either by intermittent positive pressure or in a tank respirator. The results of the analysis are rapidly obtainable. A comparison of results obtained with this and other methods is presented. *(Smith, A. C., Schuster, E., and Spalding, J. M. K.: An End-Tidal Air Sampler for Use During Artificial Respiration, Lancet 1: 277 (Feb. 7) 1959.)*

CARBON DIOXIDE STUDIES Under certain conditions, the difference between arterial and venous *p*H and pCO_2 is negligible in the arm. This occurs when patients are at rest in bed with the skin warm, and the temperature of the skin over the dorsum of the hand is at least 35 C. It also occurs in patients under general anesthesia, or upon heating the hand and arm for 15 minutes with electric pads. Observations made from venous blood under these conditions simplified the assessment of alveolar ventilation by blood studies. *(Brooks, D., and Wynn, V.: Use of Venous Blood for pH and Carbon-Dioxide Studies, Lancet 1: 227 (Jan. 31) 1959.)*

PULMONARY FUNCTION After irradiation to the chests of dogs, pulmonary diffusing capacity, lung compliance and functional residual volume decreased progressively, but pulmonary vascular resistance remained normal for a period of five months. A decrease in compliance before six months suggests that an increase in fibrous tissue was present even though it was not demonstrated by pulmonary vascular resistance studies. Little pathologic change was observed after a single dose of irradiation except for capillary dilatation. Four to five months after fractional irradiation, the histologic findings demonstrated focal atelectasis with some fibrosis and hyperemia of the interstitial areas. These changes were not evident on x-ray examination of the chest. In the animals studied after longer periods, there was obvious interstitial fibrosis with a paucity of cellular elements and capillaries. There was some evidence of narrowing due to endothelial proliferation, focal necrosis of the walls and a few areas of acute hemorrhage. *(Sweany, S. K., Moss, W. T., and Haddy, F. J.: The Effects of Chest Irradiation on Pulmonary Function, J. Clin. Invest. 38: 587 (March) 1959.)*

HYPOVENTILATION SYNDROME The fifth of a series of cases of "primary hypoventilation syndrome" is described along special studies which have served to clarify the etiology concerned. It is believed that in "primary hypoventilation syndrome," the essential defect is in the respiratory regulatory mechanism. There is no underlying disturbance in the lungs or musculoskeletal apparatus of the chest. In the special studies performed, there was a totally absent response to hypoxia and