Extracorporeal Circulation, Proc. Roy. Soc. Med. 51: 579 (Aug.) 1958.)

OPEN HEART MORTALITY Seventy patients were operated upon for heart disease using the total cardiopulmonary bypass method. Thirty-nine were operated upon using the plastic screen oxygenator and thirty-one using the rotating disk operator. Lowering of mortality from these procedures is associated with improvement in team skill rather than improvement in mechanical design. The most satisfactory clinical course follows the perfusion that most nearly maintains hemostasis. *(Gerbrode, F., and others: Extracorporeal Circulation in Intracardiac Surgery, Lancet 2: 284 (Aug. 9) 1958.)*

HEART-LUNG DEVICES To avoid overfilling of the pulmonary vascular bed during use of a heart-lung machine three devices have been developed—(1) a precise automatic control of blood volume in the oxygenator to prevent forward overloadings of the lungs by changes in volume; (2) an open reservoir in the venous line to preclude the possibility of drawing the walls of the vena cavae into the openings of the cannulae; (3) a cannula in the left atrium (a) to monitor left atrial pressure, and (b) to permit release of blood from the left atrium to avoid buildup of pressure and retrograde overfilling of the pulmonary vascular bed. *(Olmsted, F., Kolff, W. J., and Effler, P. B.: Three Safety Devices for the Heart-Lung Machine, Cleveland Clinic Quart. 25: 169 (July) 1958.)*

RECORDING MONITOR An instrument for clinical use has been devised that displays several physiologic phenomena simultaneously and records them on magnetic tape. The recorded information can be reproduced any number of times and observed in the same manner as it was while it was being recorded. *(Proudfit, W. L., and Dobosy, J. F.: Magnetic Tape-recording Electro-physiologic Monitor, Cleveland Clinic Quart. 25: 15 (July) 1958.)*

TISSUE OXYGEN UPTAKE The effect of altering local external temperature on oxygen uptake of the tissues of the forearm was studied during reactive hyperemia in 23 healthy subjects. At both high and low forearm temperatures the mechanism of repaying an oxygen debt incurred in a period of arterial occlusion involved an increase in local circulation, with the factor of greater removal of oxygen from the blood playing a secondary role. Depression of the local tissue temperature of the forearm from an artificially elevated level definitely decreased the oxygen debt incurred in a period of arterial occlusion. Increased local temperature of tissues "in vivo" raises their oxygen uptake, while decreasing it has the opposite effect. *(Abramson, D. I., and others: Relationship Between a Range of Tissue Temperature and Local Oxygen Uptake in the Human Forearm. II. Changes Observed After Arterial Occlusion, in the Period of Reactive Hyperemia, J. Clin. Invest. 37: 1039 (July) 1958.)*

VENOUS PRESSURE Venous pressure-volume changes in response to hyperventilation were studied in 20 individuals. Forearm venous pressure decreased during hyperventilation with air and increased slightly during hyperventilation with carbon dioxide. Active venous constriction occurred during hyperventilation. There was no significant difference in this response while breathing air as compared to carbon dioxide. Blood shifted out of the forearm veins during hyperventilation with air. Peripheral venous constriction may serve to increase the availability of blood to the heart during hyperventilation. *(Eckstein, J. W., Hamilton, W. K., and McCammond, J. M.: Pressure-Volume Changes in the Forearm Veins of Man During Hyperventilation, J. Clin. Invest. 37: 956 (July) 1958.)*

PULMONARY ARTERY FLOW Instantaneous linear velocity of blood flow in the human pulmonary artery is measured by using an indwelling double lumen catheter, through which pressures are recorded by means of pressure transducers from the tip of one and a side fenestration of the other catheter 4 mm. distal to the tip. The pressure differences are related to a derived equation from which instantaneous velocity can be calculated. Pressure curve data are presented from two sites, (1) just distal to pulmonic valve and (2) in a branch of right pulmonary artery. Maximum