waves. Hyperventilation with rapid or slow breathing caused identical ECG changes. Only "some occasional" showed lowering of the T waves and depression of the RS-T segment. (*Scherf, D., Vildiz, M., and Jody, A.: Electrocardiographic Changes During Hyperventilation Tetany, Am. J. Med. Sc. 236: 369 (Sept.) 1958.*)

**HYPOTHERMIA** Hypothermia was produced 18 times in 11 dogs. Intragastric cooling alone was used in 4 dogs; in the remaining 7 cooling and warming was by intragastric balloon and thermic blankets. With the latter method, the rate of temperature change was two to three times more rapid than with blankets alone. Studies of the gastric mucosa showed no damage. (*Holt, M. H., Benvenuto, R., and Lewis, F. B.: General Hypothermia with Intragastric Cooling, Surg., Gynec. & Obst. 107: 251 (Aug.) 1958.*)

**PROLONGED HYPOTHERMIA** Hypothermia (30–40 C.), maintained up to 72 hours, was employed in 4 patients with cardiac arrest occurring outside the operating room, in whom cardiac massage was instituted within 4–6 minutes and all of whom had exhibited signs of severe neurological injury. Three patients recovered completely; the fourth patient showed residual neurologic damage of moderate severity. It is believed hypothermia was effective in reducing cerebral edema and hence a beneficial effect. (*Williams, G. R., and Spencer, F. C.: The Clinical Use of Hypothermia Following Cardiac Arrest, Ann. Surg. 148: 462 (Sept.) 1958.*)

**PROLONGED HYPOTHERMIA** Lethal pneumococcal peritonitis in mice has been treated with prolonged hypothermia at 19 C. for 24 hours. This increased the percentage of survivals by 24 per cent compared to normothermic controls. There appeared to be no additional benefit in combining hypothermia with penicillin. (*Wotkyns, R. S., Hirose, H., and Eiseman, B.: Prolonged Hypothermia in Experimental Pneumococcal Peritonitis, Surg. Gynec. & Obst. 107: 363 (Sept.) 1958.*)

**HYPOTHERMIA PLUS BYPASS** The advantages of combining hypothermia and a low flow pump oxygenator have been studied experimentally in dogs. Blood has been recooled prior to its return to the animal. Marked reduction in the temperature of the heart, brain, liver, and kidney is easily produced. The result is an oxygen saving due to depression of metabolism by the cooling. Metabolic acidosis is avoided. No irreversible effects of the cooling have been discovered. (*Pierce, E., and others: Reduced Metabolism by Means of Hypothermia and the Low Flow Pump Oxygenator, Surg. Gynec. & Obst. 107: 339 (Sept.) 1958.*)

**BYPASS** The use of the dispersion type bubble oxygenator and total cardiopulmonary bypass following two hours of extracorporeal circulation resulted in the survival of 14 of 15 consecutive dogs. Seven animals showed signs of temporary neurologic damage. Only a mild metabolic acidosis developed and no consistent abnormalities were seen in electrocardiograms or electroencephalograms. (*Reed, W. A., and Kittle, C. F.: Survival Rate and Metabolic Acidosis After Prolonged Extracorporeal Circulation with Total Cardiopulmonary Bypass, Ann. Surg. 148: 219 (Aug.) 1958.*)

**CARDIOPULMONARY BYPASS** Total cardiopulmonary bypass using the LillehieDeWall heart-lung machine has been performed in 42 dogs. The periods on the machine varied from 0 to 75 minutes at flow rates up to 1500 ml. per minute. In 28 of the dogs, elective potassium arrest or ventriculotomy or both were performed. (*Abrams, L. D., and others: Total Cardiopulmonary Bypass in the Laboratory, Lancet 2: 239 (Aug. 2) 1958.*)

**EXTRACORPOREAL CIRCULATION** The Section of Anaesthetics of the Royal Society of Medicine (Great Britain) presents a superb review of the current status of intracardiac surgery. Subjects discussed include: history, types of bypass machines, techniques, general physiological considerations, central nervous system damage and electroencephalography (with illustrative examples) and anesthetic management. An abstract could not do justice to the original, which should be studied in its entirety. (*Discussion on the*

*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