HUMIDIFIED OXYGEN Low water temperatures in the devices used for humidifying or moistening oxygen during the course of inhalation therapy reduce the efficiency of these devices. Use of heating elements that permitted the maintenance of a water reservoir temperature sufficient to provide a supply of water vapor at or near body temperature after its passage through a standard length of large-bore tubing increased the water vapor content of the gas issuing from the heated nebulizer. The large-bore tubing is necessary in order to prevent condensation of the water on the lining of the tubing so as to avoid blocking or impeding the flow of gas to the patient. Care must be taken in constructing these devices to obtain a temperature at the entrance to the patient's airway at or slightly below body temperature. (*Wells, R. E., Jr., Perera, R. D., and Kinney, J. M.: Humidification of Oxygen During Inhalational Therapy, New Engl. J. Med. 268: 644 (Mar. 21) 1963.*)

HYPERBARIC OXYGENATION Case reports are presented from 26 patients suffering from *Clostridium welchii* infections and treated with hyperbaric oxygenation. The treatment was effected in a chamber with atmospheric air compressed to 3 atmospheres and continued for one and a half hours during which time the patient breathed oxygen through a mask at a flow-rate of 8–10 liters per minute. Patients received seven such treatments in three days. Surgical procedures were not undertaken before treatment and antibiotics were not used routinely. Only one of the 26 patients died from the gas-gangrene, and possibly one other as well. Three other patients died from causes not directly related to the clostridial infection. (*Brummelkamp, W. H.: Treatment of Clostridial Infections with Hyperbaric Oxygen Drenching, Lancet 1: 235 (Feb. 2) 1963.*)

POSTOPERATIVE HYPOXEMIA Arterial oxygen saturation determined after regaining consciousness from halothane anesthesia and while the subjects were breathing room air had a mean value of 89 per cent (range 75 to 94 per cent). Mean P_{CO_2} values were 38.24 mm. of mercury. After breathing oxygen from a mask at flows of two liters per minute (38 per cent oxygen) the mean blood saturation was 94 per cent. No significant increase followed the raising of oxygen flow to 4 liters per minute nor did P_{CO_2} change significantly at either flow rate. Withdrawing oxygen caused a fall in percentage saturation to control values. This was at least 2 to 3 hours after the end of operation. This desaturation also occurs with cyclopropane, chloroform and ether. Most patients had only intubation doses of suxamethonium, if any relaxant was used at all. This hypoxemia appears due to disturbed ventilation perfusion relations since it is improved by oxygen breathing. (*Conway, C. M., and Payne, J. P.: Post-operative Hypoxaemia and Oxygen Therapy, Brit. Med. J. 1: 845 (Mar. 30) 1963.*)

GASTRIC CONTENTS In 100 children for elective surgery, a naso-gastric tube was passed shortly after the induction of anesthesia. Measurements of respiratory minute volume and gastric contents were made before operation began and near the end, while surgical stimulation was minimal. There was no significant difference in volume of gastric contents before and after operation but gastric emptying greatly improved minute ventilation. Controlled ventilation during induction was associated with a greater amount of air in the stomach, but gentle assisted respirations during anesthesia did not contribute to the accumulation of gastric air. (*Smith, N. T., and Lilly, E. J.: Changes in Ventilation in Pediatric Patients after Removal of Gastric Contents, J.A.M.A. 183: 1078 (Mar. 30) 1963.*)

HYPERBARIC OXYGEN CHAMBERS Caution is urged upon hospitals contemplating installation of hyperbaric oxygenation equipment for the treatment of hypoxemia due to various medical and surgical conditions. Such a unit must be shown to be uniquely beneficial, practical in its use, and applicable to a reasonable number of patients before installation. Clinical problems to which hyperbaric oxygen therapy has been employed include carbon monoxide poisoning, anaerobic infections, radiation therapy, and cardiac surgery. Problems concerned with hyperbaric oxygen chambers are oxygen toxicity, arterial gas embolization, decompression sickness, barotitis, and finally

the expense of operation and installation of such units. (*Research Council Urges Low-Pressure Approach to High Pressure Therapy, Mod. Hosp. 100: 5 (May) 1963.*)

HYPOTHERMIA Maintenance of renal circulation results in improved maintenance of blood pressure and circulation below 22° C. in rats. When renal contribution to the maintenance of blood pressure is removed, either by hypothermia or by ligation of renal vessels, cardiac performance is impaired and blood pressure falls. Infused renin or angiotensin II maintains blood pressure during deep hypothermia more effectively than epinephrine or norepinephrine. (*Hunter, J., and Hurley, D. A.: Influence of Respiratory and Renal Factors on Cardiac Activity During Deep Hypothermia, Canad. J. Biochem. 41: 551 (Mar.) 1963.*)

HYPOTHERMIA In normothermic dogs, thoracotomy decreased renal circulation but systemic circulation remained unchanged. Extracorporeal circulation was followed by decreased systemic blood pressure, but renal circulation increased. In hypothermia with extracorporeal circulation, systemic blood pressure decreased but renal vascular resistance increased five-fold. (*Albrecht, K. F.: Renal Hemodynamics in Extracorporeal Circulation Under Normothermic and Hypothermic Conditions of 10 Degrees Centigrade, Bruns Beitr. Klin. Chir. 206: 145 (Mar.) 1963.*)

HYPOTHERMIA Ventricular fibrillation during deep hypothermia can be overcome in dogs by controlling respiratory chemical balance. Clamping the aorta and vena cava causes cardiac standstill before ventricular conductivity is lost, which greatly facilitates the spontaneous resumption of ventricular contractions after deep hypothermia. Using this method of deep hypothermia alone in a series of dogs it has been possible to perform intracardiac surgery for intervals up to 75 minutes without evidence of neurologic damage. Such a method, if applicable to humans, should have many advantages over extracorporeal bypass techniques. (*Comar, K. D.: Open-Heart Surgery in Hypothermic Dogs Without an Extracorporeal System, Western J. Surg. 71: 55 (Mar.–Apr.) 1963.*)

HYPOTHERMIA Using the technique of separate perfusion of the systemic and pulmonary circulations, by means of two extracorporeal pumps and separate heat exchangers, the hemodynamic effects of changing the temperature of the blood in the pulmonary circuit selectively was investigated while the temperature of the blood perfusing the systemic circulation was kept constant at body temperature. A rise in pulmonary artery pressure was due to changes in the pulmonary vascular resistance caused by the direct effect of cold on the pulmonary vasculature; a drop in systemic blood pressure was due to a reflex decrease in total systemic vascular resistance caused by arteriolar dilatation. The drop in systemic pressure could be abolished by sectioning both vagi and injecting dihydroergocarnine into the systemic circulation. It was not affected by the administration of atropine. (*Goetz, R. H., and others: Hemodynamic Effects of Selective Pulmonary Hypothermia, J. Thor. Cardiov. Surg. 45: 574 (May) 1963.*)

HYPOTHERMIA Venous oxygen saturation has been considered a critical index of the efficiency of extracorporeal circuits. Oxygen consumption decreases under hypothermia but still continues, as evidence by reduction in venous oxygen saturation following cardiac arrest. Oxygen saturations of 45 per cent developed after 45 minutes of arrest at 10° C. Metabolic acidosis will develop if oxygenation is insufficient for the tissue needs. In several patients, vasoconstriction developed with marked increase in perfusion pressures and decrease in flow rates. Cooling should be started with blood at room temperature using as large blood flows as compatible with venous return. The blood pressure is maintained well above the "critical capillary opening pressure" allowing the acid metabolites to be washed out and buffered at the onset of bypass. (*DeGasperis, A., and others: Profound Hypothermia and Cardiocirculatory Arrest For Intracardiac Surgery, J. Thor. Cardiov. Surg. 45: 353 (Mar.) 1963.*)

HYPOTHERMIA Combined internal and external heat exchange for the induction and rewarming of profoundly hypothermic animals greatly reduced the severity and duration of