BRIEFS FROM THE LITERATURE

JOHN W. PENDER, *Editor*

RESPIRATORS To provide effective ventilation to a patient with high resistance and low compliance (emphysema) it is advantageous to choose as high a mask-pressure range as is compatible with safety. Optimal inflow rates are quite low, 15–30 liters per minute. It should be possible, therefore, to regulate inflow gas rates over a wide range and down to much slower rates than are usually available. Present commercially available apparatus do not do this since they provide peak flow rates of 80–90 liters per minute. The Seeler respirator, however, is effective. (*Hickam, J. B., and others: Use of Mechanical Respirators in Patients with High Airway Resistance, Ann. New York Acad. Sc. 66: 866 (April) 1957.*)

ARTIFICIAL RESPIRATOR Under nitrous oxide-oxygen anesthesia with succinylcholine drip, this artificial respirator monitors the end-tidal (and hence usually the arterial) carbon dioxide tension and automatically varies the pulmonary inflating pressure accordingly to maintain the carbon dioxide tension at the desired level. (*Frumin, M., and Lee, S. J.: Physiologically Oriented Artificial Respirator Which Produces N_2O-O_2 Anesthesia in Man, J. Lab. & Clin. Med. 40: 617 (April) 1957.*)

OXYGEN SATURATION Continuous recordings of oxygen saturation of venous, right heart, and pulmonary arterial blood have been obtained with an oximeter cuvette-amplifier system during cardiac catheterization. The technique might be superior to intermittent sampling and chemical analyses of blood samples. (*Wiederhielm, C. A., Bruce, R. A., and John, G. G.: Continuous Recording of Oxygen Saturation During Cardiac Catheterization, Am. J. Med. Sc. 233: 542 (May) 1957.*)

OXYGEN TENSIONS Oxygen tensions of tissues *in vivo* may vary from values near the tension in arterial blood down to zero. In vasodilated skin, oxygen tension approaches that of arterial blood, and changes in inspired air are quickly reflected by changes in oxygen tension in the skin. The pressure of oxygen in the skin will increase four to five times when a person breathes oxygen compared to tension present when subject breathes room air. Arterial occlusion produces a fall in tension. Transfer of oxygen from capillaries to tissues is rapid. (*Montgomery, H.: Oxygen Tension of Tissues in Vivo, Circulation 15: 646 (May) 1957.*)

OXYGEN REMOVAL Normal values at rest are 40 cc. per liter of ventilation and at exercise 60 cc. A diminished oxygen removal or one which decreases with exercise, or both, may indicate unrecognized right ventricular damage, intraluminal neoplastic invasion or extraluminal compression of the right or left pulmonary artery. (*Korach, J. C., and Morales, G.: Clinical Significance of Oxygen Removal, J. Thoracic Surg. 33: 690 (May) 1957.*)

FETAL OXYGENATION One-tenth of deaths in America are those of babies dying in association with the birth process. The oxygen supply of the fetus corresponds to that at 33,000 feet altitude. The fetal blood is oxygenated at a pressure of 35–40 mm. of mercury, and the fetus is continuously cyanotic. Placental blood to the fetus has 8.0 volumes per cent oxygen and there are 3.5 volumes per cent in the umbilical artery, making an adequate difference. Protective features for the fetus include a high hemoglobin—17 Gm., a fetal hemoglobin which picks up more oxygen per gram than adult hemoglobin, preferential circulation to the brain, and relative inactivity. Relative placental insufficiency is an important factor in perinata. mortality. Early recognition and proper treatment can reduce the mortality of babies in the perinatal period. (*Barnes, A. C.: Hazards of Being Born, Postgrad. Med. 21: 339 (April) 1957.*)

HYPOTHERMIA Cooling dogs as low as 16 F. produced no significant barrier to