hormones, excessive intake of water or potassium-free fluids, and alkalosis. (*Snively, W. D., Jr., and Westerman, R. L.: Serum Potassium Determinations. A useful laboratory toll, J.A.M.A. 197: 579 (Aug.) 1966.*)

**ALKALOSIS** Post-traumatic alkalosis, in general, is a disorder of patients with good visceral (cardiac, pulmonary, renal) function whose prognosis otherwise is good. Acidosis, by contrast, is a manifestation of severe visceral failure, often precipitated by a low flow state and its attendant oliguria. Ventilator produced hypocapnia was the most frequent cause of posttraumatic alkalosis which also produces tissue hypoxia through its effects on the oxygen-hemoglobin dissociation curve and on vasomotor tone. The rise in blood lactate accompanying respiratory alkalosis sets the stage for severe metabolic acidosis should hypocapnia suddenly yield to hypoventilation or hypoperfusion. (*Lyons, J. H., and Moore, F. D.: Posttraumatic Alkalosis: Incidence and Pathophysiology of Alkalosis in Surgery, Surgery 60: 93 (July) 1966.*)

## Respiration

**MUCOLYTIC AGENTS** A study was conducted to determine whether an ascorbic acid-percarbonate-copper sulphate mixture would be of value in treating chronic bronchitis. The drug known as Cumox was administered by inhalation to nine patients and the results compared to the effects of isotonic saline solution administered in the same fashion. The immediate physiologic effect of the drug mixture was not significantly different from the saline control, both being associated with comparable improvements in the 1-second vital capacity, maximum expiratory flow rate and maximum voluntary ventilation. However, the delayed effect extending over a period of several days showed further improvement in all three functions for the drug while the values following saline treatment stabilized or returned towards the base line. (*Sabath, L. D., Sasahara, A. A., and Burleson, V. A.: Evaluation of a New Mucolytic Agent, Dis. Chest 50: 47 (July) 1966.*)

**EMPHYSEMA** The lungs from 73 subjects with all degrees of emphysema from none to severe were studied by inflated macrosections and postero-anterior and lateral chest films. Nearly all cases of moderate to severe disease were detected by experienced observers and about one-third of the mild largely asymptomatic cases. The most reliable criterion was manifestation of overinflation. (*Nicklaus, T. H., and others: The Accuracy of the Roentgenologic Diagnosis of Chronic Pulmonary Emphysema, Amer. Rev. Resp. Dis. 93: 889 (June) 1966.*)

**PULMONARY SURFACTANT** Chronic atelectasis experimentally produced by bronchial ligation did not reduce alveolar surfactant though different extraction techniques do give markedly different results. (*Yeh, T. J., and others: Alveolar Surfactant in Chronic Experimental Atelectasis, Amer. Rev. Resp. Dis. 93: 953 (June) 1966.*)

**PULMONARY RESECTION** In 64 tubercular patients long term (5 years) results of segmental and upper lobe resections were compared with selected pulmonary function tests obtained preoperatively and within six months after surgery. Patients with pneumonectomies or lower lobe resections were not included in this study. The following parameters were investigated: vital capacity (VC), total lung capacity (TLC), maximum voluntary ventilation (MVV) and residual volume (RV). All changes were expressed in percentages of preoperative values. VC fell by 15.9 per cent postoperatively; after five years the value was minus 11.2 per cent. TLC was minus 11.1 per cent; after five years, minus 4.7 per cent. MVV was minus 17.2 per cent and after five years, minus 8.1 per cent. RV decreased by 2.4 per cent in the early period, but showed an average rise of 19 per cent within five years. There was no correlation between age and rise of RV, but a distinct parallel to the extent of the resection could be noted. Younger patients showed the best rehabilitation of ventilatory function, breathing exercises being of considerable value. But even in older patients long term functional deficits were small in those with a normal postoperative course and not too extensive resections. The degree of the functional loss de-

pends more on an uncomplicated course of recovery than on the extent of resection. Even bilateral reactions usually lead to good long term results. (*Mockenkaupt, J.: Ventilatory Studies Five Years after Segmental or Upper Lobe Resections, Thoraxchirurgie 14: 137 (July) 1966.*)

**METHEMOGLOBINEMIA** Cyanosis without significant cardio-respiratory impairment was diagnosed and confirmed as methemoglobinemia in two cases reported. The methemoglobin levels were greater than 1.5 g./100 ml. Treatment with methylene blue injected intravenously slowly (1–2 mg./kg.) is recommended if hypoxia is present, otherwise removal of the cause is sufficient therapy. (*Clinical Anesthesia Conference. New York J. Med. 66: 2145 (Aug.) 1966.*)

**CONTROLLED VENTILATION** A comparison of the effects of spontaneous respiration to those of controlled ventilation after open heart operations has led to the routine use of controlled ventilation for six to twenty hours in the immediate postoperative period. The patients studied were returned to the recovery room with a plastic cuffed endotracheal tube in place; they were allowed to waken to a level whereby they understood and responded to commands. Narcosis and sedation were maintained by using controlled ventilation with a 20 to 40 per cent mixture of nitrous oxide and oxygen. Morphine and Phenergan were administered as needed to assure the patients' submission to the automatic settings of the ventilator. The ventilator was arbitrarily set at 16 to 20 breaths per minute. Minute ventilation was determined clinically by observing the excursion of the chest wall and was adapted to the size of the patient. The advantages of controlled ventilation include (1) avoidance of tracheostomy, and (2) marked reduction in incidence of hypoxia, acidosis, hypercarbia, hypotension, and major atelectasis. (*Lefemine, A., and Harken, D.: Postoperative Care following Open Heart Operations; Routine Use of Controlled Ventilation, J. Thor. Cardiov. Surg. 52: 207 (Aug.) 1966.*)

**BLOOD GASES** The difference between blood gases of cutaneous and arterial blood is insignificant in normothermia. In 20 patients during hypothermia (rectal temperatures between 20 and 33° C.) *p*H, carbon dioxide tension, standard bicarbonate base excess and buffer base in cutaneous and arterial blood were quite similar. Their results show that for clinical use in hypothermia the cutaneous blood may be regarded as representative for arterial blood. (*Stoll, W., and Hossli, G.: Measurement of pH, $P_{CO_2}$, Standard Bicarbonate, Base Excess and Buffer Base in Cutaneous Blood by the Micro Astrup Method during Hypothermia, der Anaesthesist 15: 223 (July) 1966.*)

**VENOUS BLOOD GAS TENSIONS** Blood samples from a central vein provide a reliable indication of blood *p*H and carbon dioxide tension when compared with arterial blood gas values. Technical ease without the risks of arterial puncture makes this an attractive technique for monitoring acid-base changes in critically ill patients. A total of 101 pairs of samples of arterial and central venous blood were obtained from 32 patients, 29 in circulatory shock. A high correlation was obtained between the central venous and arterial values for *p*H ($r = 0.978$) and $P_{CO_2}$ ($r = 0.962$). Thus, in addition to its other important functions, the central venous catheter is recommended as a convenient and reliable source of blood for repetitive measurement of pH and $P_{CO_2}$ in critically ill patients. (*Zahn, R., and Weil, M.: Central Venous Blood for Monitoring pH and $P_{CO_2}$ in the Critically Ill Patient, J. Thor. Cardiov. Surg. 52: 105 (July) 1966.*)

**RESUSCITATION** A large cart, named MAX, has been designed to incorporate the items needed for resuscitation. The patient is placed on the cart and can be moved without interrupting resuscotation. The cart provides completeness, reliability, simplicity of operation, and mechanical aids, as well as recording facilities for later analysis of data. (*Nobel, J. J.: Mobile Emergency Life Support and Resuscitaiton System, Arch. Surg. 92: 879 (June) 1966.*)