HISTORICAL TRACHEOSTOMIES Making an opening into the trachea for the relief of laryngeal obstruction has been known since the days of Asclepiades, the Greek physician who was the fashionable doctor in Rome in the last century before Christ and a friend of Cicero and Mark Antony. This paper recounts the history of tracheostomy and the details surrounding two historical cases from which the following excerpts are taken. Morell Mackenzie wrote: 'On the evening of Wednesday, May 18th, 1887, as I was about to retire to rest after a day of hard professional work, I received a message requesting me to proceed to Berlin to see Her Imperial Highness the Crown Princess of Germany. No hint was given as to the nature of the case, about which I had only heard vague rumours to which I had paid no particular attention.' Sir Frederick Treves gave a dramatic account of the emergency tracheostomy which he carried out on Sir John Millais in the early hours of one Monday morning in 1896 (Treves 1961): 'The operation I performed on Sir John Millais, President of the Royal Academy, was carried out under circumstances of some disorder. Sir John had been ill for many months with cancer of the larynx. The trouble appars to have first shown itself about October, 1892, but I did not see the patient until I was summoned to operate upon him.' (*Cawthorne, T.: Two Historical Tracheostomies, Proc. Roy. Soc. Med. 61: 1169 (Nov.) 1968.*)

HYPOXIA The adequacy of spontaneous ventilation was measured in 13 patients who had been subjected to an average of two and three-quarter hours of hyperventilation during anesthesia and operation. Each patient studied was free of cardiopulmonary disease. Spontaneous ventilation started when arterial CO_2 tension rose from 18 to 38 mm Hg. During the first postoperative hour of air breathing, the tidal and minute volumes increased progressively despite Pa_{CO_2} variability of less than 2 mm Hg. Twenty minutes after the onset of spontaneous breathing, Pa_{O_2} reached an average low of 72 mm Hg and progressively increased, averaging 83 mm Hg at 30 minutes and 88 mm Hg at one hour. The hypoventilation following hyperventilation in man can result in decreased Pa_{O_2} despite a normal P_{CO_2} if air is breathed. In addition, the data demonstrate that Pa_{CO_2} is not a reliable index of ventilatory adequacy (normal Pa_{O_2}) following hyperventilation and anesthesia. (*Salvatore, A. J., Sullivan, S. F., and Papper, E. M.: Postoperative Hypoventilation and Hypoxemia in Man After Hyperventilation, New Eng. J. Med. 280: 467 (Feb.) 1969.*)

APNEIC OXYGENATION Seven lightly-anesthetized dogs were exposed to apneic oxygenation after denitrogenation. Death was caused by acidosis and hypercarbia but not by hypoxia provided that the arterial oxygen tension at the beginning of apnea was 400 to 500 mm Hg. Circulation became depressed when the Pa_{O_2} was 200 mm Hg and the *p*H 6.7. Circulatory arrest occurred at Pa_{CO_2} of about 400 mm Hg and a *p*H of 6.4 to 6.5. P_{CO_2} increased at a rate of 4.2 mm Hg/min. If Pa_{O_2} at the beginning of apnea has been lower than 400 to 500 mm Hg, hypoxia may be a limiting factor for survival. During apneic oxygenation, P_{CO_2} is higher in the aorta than in mixed venous blood and the pulmonary artery. (*Kristoffersen, M. B., and Rattenborg, C. C.: Apneic Oxygenation, Der Anaesthesist 17: 292 (Sept.) 1968.*)

HALOTHANE ANESTHESIA In 20 healthy individuals undergoing surgical procedures under light endotracheal halothane–nitrous oxide–oxygen anesthesia, systolic blood pressures, respiratory rate, *p*H, P_{CO_2} and standard bicarbonate before operation and after an hour of surgery were compared. In all patients, there was a slight decrease in systolic blood pressure, marked increase in respiratory rate and development of a slight respiratory acidosis. In women, there was also a slight but statistically significant metabolic acidosis. In patients with normal respiratory and circulatory systems, spontaneous respiration is adequate for at least an hour of halothane anesthesia provided the anesthetist has sufficient experience to maintain light levels of anesthesia. (*Unseld, H., and Clauberg, G.: Respiratory and Metabolic Changes during Halothane–Nitrous Oxide Anesthesia under Spontaneous Respiration, Der Anaesthesist 17: 347 (Nov.) 1968.*)

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