the necessary aeration and so obviates tissue asphyxia, hence permitting extensive employment of nitrous-oxide gas. The hyperpnœa so commonly existent with the methods employed lessens the carbon-dioxide content of the blood, leading to acapnic conditions; so that the addition of carbon dioxide gas to the nitrous-oxide-oxygen mixture finds favour with some persons, and is employed for prolonged operations. The simplest method of supplying carbon dioxide is by allowing *partial re-breathing*, and this is provided for by Teter and others in their apparatus for prolonged administration of these gases for the purposes of major surgery.

Nitrous Oxide and Oxygen in Major Surgery. The prognosis when this method is adopted is far less favourable than its sponsors have in the past claimed for it. Dr. J. F. Baldwin* has collected statistics of deaths in the U.S.A. which demonstrate a very high mortality-rate. In 1911 or 1300 observed cases, this writer states that the mortality in major operations was 1 per cent. The large number of deaths he records in his paper occurred when the anæsthetic was given by men possessed of expert knowledge and wide experience in its use. The deaths appear to have been mainly due to heart failure, and not, as is commonly taught, to gradual asphyxia. There seems little doubt that the cardiac collapse which occurred was led up to by the abnormal condition of the blood in the pulmonary circulation, which imposed a stress upon the heart which it could not withstand. The method would, therefore, prove peculiarly perilous for patients with various heart conditions such as would weaken the resiliency of the organ.

Such combinations as amyl nitrite and chloroform, somnoform (ethyl chloride, methyl chloride, and ethyl bromide), and ethyloform, a more dangerous variant of the last, need merely to be mentioned as extremely unsatisfactory agents.

Auxiliary Bodies used in Association with General Anæsthetics. Those most commonly in use are atropine, morphine, scopolamine, omnopon, strychnine. We may add chlorbutyl, although it is not alkaloidal.

Atropine.—The use of this drug, gr. $\frac{1}{100}$, given hypodermically one hour before inhaling an anæsthetic, has revolutionized the methods of etherization. Its action checks the excessive secretion of the buccal and respiratory areas, and so removes one of the great drawbacks of ether. The dose has to be varied according to circumstances. In some persons, persistent throat dryness follows its use. Children, as a rule, tolerate atropine well. A further advantage of atropine is that it lessens the irritability of the pneumogastric nerves (Schäfer), and so minimizes the danger of vagal inhibition of the heart under chloroform. Hoffscher's observations appear to prove that much of the post-anæsthetic chest trouble is due to the aspiration into the air-passages of saliva and mucus impregnated with the anæsthetic: hence, lessening this secretion by atropine diminishes the risk: further,

* *Med. Rec.*, 1916, July 16, 178.