

of the mouth and respiratory tract are markedly increased. In the agents employed in anaesthesia, it produces at first excitation of function, and then inhibition, but not destruction, of the protoplasm. Hence, even if the inhibition is permitted to extend to a dangerous degree, the tissues recover their power of function when favourable conditions are re-established. Ether acts powerfully upon bacteria. It possesses a great avidity for fatty material, and, so it is believed upon experimental evidence, tends to destroy phagocytes by damaging their essential fatty environment; hence phagocytosis is lessened or destroyed until the ether is eliminated and the phagocytes are able to re-assert their function. Owing to its ready volatilization, ether rapidly dissociates itself from the tissues; its elimination requires considerable absorption of heat, and hence it occasions a fall of body temperature. It certainly causes some tissue irritation, revealing itself in catarrhal conditions; especially is this so in the case of the lungs and kidneys. The extent of this action, so far as the renal structures are concerned, was investigated by me with the aid of Dr. G. Chalmers Levy, and the conclusion at which we arrived was that, provided the amount of ether perfusing the renal vessels was not excessive, interference with function was slight. The comparison of chloroform and ether in this connection is valuable. The former anæsthetic is less prone to initiate albuminuria, although more apt to increase its amount if pre-existing. Ultimately, chloroform tends to cause necrobiosis of renal epithelium, while ether does not; though it must be admitted that this deleterious result only follows excessive quantities of the former anæsthetic. As ether increases the activity of the circulation and speeds up the heart, it induces an increase of blood-pressure. In this way the prognosis of ether, although in most cases favourable, is less so when there exists disease of the heart or arteries, e.g., arteriosclerosis, since it increases the danger of rupture of a cerebral or other vessel. As it will in some cases produce waterlogging of the lungs through its irritant action, it is dangerous in cases in which a tendency to the outpouring of secretion in the lungs is present. In this connection may be mentioned the supposed danger of ether pneumonia, especially when an abdominal operation has been performed. Dr. William Pasteur has, however, shown that the cases of fatal lung trouble, assumed to have been due to ether, are in fact the result of trauma, which brings about massive collapse of the lungs.

Nitrous oxide resembles ether in its stimulating action upon cells. This is followed by inhibition of function. It unquestionably possesses a specific action,* and does not superinduce unconsciousness either by depriving the tissues of oxygen, or by splitting up and causing peroxidation (apnoea). As to some extent it replaces oxygen in the hæmoglobin of the erythrocytes, and probably in the fixed cells.