Abstracts

Esthesia is fairly common. The reflexes of the throat seem to become hyperactive during light pentothal sodium anesthesia. The presence of mucus, blood or other foreign materials in the throat during pentothal sodium anesthesia is likely to cause severe laryngospasm.

"We feel that many postoperative pulmonary complications can be prevented by the aspiration of all free fluids from the patient’s airway. This is done most easily by passing a suction catheter through an intratracheal tube. . . . Pulmonary complications, such as atelectasis, brought about by the presence of mucus in a bronchus can be relieved usually by bronchoscopic aspiration. In operations on the chest, especially for bronchiectasis or other productive pulmonary diseases, in which lobectomy or pneumonectomy has been carried out, we feel that the patient’s lungs should be aspirated thoroughly in order to prevent atelectasis, pneumonitis or pulmonary abscess from developing in the dependent lung. During certain operations on the upper part of the abdomen or on the kidney the surgeon may open the pleural cavity accidentally. In such instances the anesthetist should be prepared to administer gases to the patient under positive pressure so that the lungs are entirely expanded at the time the surgeon closes the pleura. Positive pressure should be used on all patients who are undergoing lobectomy or pneumonectomy. If pulmonary ventilation is inadequate after an operation, oxygen may be administered through an oxygen mask, by nasal catheter or by an oxygen tent. The tent has the advantage of conditioning the atmosphere surrounding the patient. If the patient’s respiration is depressed, he should be turned from side to side frequently. He should be encouraged to cough and breathe deeply in order to minimize the possibility of development of atelectasis or pulmonary edema.

"Patients who suffer from intractable asthma are often relieved by the administration of 80 per cent helium and 20 per cent oxygen. . . . Occasionally, severe attacks of asthma can be relieved by the administration of ether and oil by rectum. We have used small doses of pentothal sodium in anesthetizing a few asthmatic patients during mild attacks of asthma. The attacks have been relieved. The probabilities are that pentothal sodium anesthesia is not contraindicated for most asthmatic patients. Inadequate pulmonary ventilation is sometimes due to the inability of the patient to breathe deeply because of a painful wound in the upper part of the abdomen. We have tried the infiltration of a combination of 5 and 10 per cent metycaine in peanut oil in an attempt to minimize the abdominal pain. We have felt that in some instances the patient had little or no pain for a period as long as twenty-four hours. Other patients seem to get no more relief from metycaine and oil than they would have obtained from procaine hydrochloride. The splinting effect of pain in the upper part of the abdomen was shown by work done by Lemon who demonstrated that even tight binders used in dressings of wounds in the upper part of the abdomen would interfere with pulmonary ventilation to such an extent that postoperative complications would develop." 5 references.

J. C. M. C.


"An anaesthetic which is in the gaseous state at N. T. P. can be administered in any desired quantity or concentration, by regulating the measured
rate of its flow. The object of the work to be described in this and the following papers was to devise means by which the anaesthetist shall be able to control, in a similarly simple and accurate manner, the composition of a mixture containing the vapour of a liquid anaesthetic. . . . We have made use of the latent heat of a subsidiary substance to act as a heat reservoir at constant temperature. It is well known that if heat is added to or lost from a vessel containing melting ice the temperature of the ice-water mixture does not change. There is an increase in the amount of water present when heat is added, or in the amount of ice when heat is taken away, in each case at the expense of the other phase. Thus any changes in heat content of the system either melt ice or crystallise water, but do not result in changes of temperature. Such a thermostat is well suited to our purpose, but instead of ice we must choose another crystalline substance with a melting-point lying at a more convenient temperature. The maximal concentration of the vapour desired determines the temperature to be maintained within the ether container, and the melting-point of the heat-reservoir substance must correspond with this temperature.

"The general scheme of the new type of ether vapouriser is . . . [a] container in which ether is evaporated, . . . [a] heat reservoir containing the crystals, and . . . a chamber into which hot water is poured to provide heat to melt the crystals. Let it be assumed that just sufficient hot water has been put into the chamber . . . to melt all the crystals in the reservoir. . . . When ether vapour is taken out of the container . . ., more ether will evaporate in order to restore the original concentration of vapour above the surface of the fluid ether. The temperature of the fluid does not fall, because the heat used for the evaporation is furnished from the reservoir . . . in which an equivalent amount of molten ‘reservoir’ substance crystallises. This process goes on at constant temperature until all of the liquid in the reservoir . . . is solidified, which will be shown by a sudden fall in the reading of the thermometer registering the temperature of . . . [the reservoir]. . . . There is no need for the temperature of the water to be below the boiling-point of ether, for the crystals . . . will act as a thermal buffer, taking up heat at any higher temperature but releasing it only at the temperature of their melting-point.

"Both the vapourisers to be described in the following papers work according to the principle outlined. . . . In the construction of vapourisers . . . we have not only to ensure that sufficient energy is furnished for the evaporation and that this evaporation takes place at a constant temperature but we must also see that attention is given to the problems of heat transfer, heat insulation, and the mixing of the anaesthetic vapour with air or other gases. It is not possible to give a simple general solution of these problems, so that the way in which they have been dealt with is outlined in the descriptions of the two vapourisers." 7 references.

J. C. M. C.


"The operation of this ether inhaler depends on the principles outlined in the previous paper. . . . The dimensions of the various chambers are determined by: (1) the amount of ether vapour which is to be furnished in a given time; and (2) the frequency with which it is convenient to supply heat by refilling the apparatus with hot water. In order to fulfil comfortably the maximum demands which may be