duce depression. Nitrous oxide has moderately good analgesic properties but is a weak anesthetic. Thirty per cent oxygen should be given to the patient under anesthesia to insure safety and good physiologic effect. Curare in the form of intocerin disconnects the myoneural junction, thus producing relaxation. It may also produce some degree of analgesia in larger doses. Curare is used with cyclopropane. Pentothal and curare are both administered intravenously. Various proportions of the two drugs have been tried. "The proportion that has worked most satisfactorily is 10 units of intocerin with each 25 milligrams of sodium pentothal." "The sodium pentothal has customarily been used in 2 1/2 per cent solution. Translated into volume, this proportional administration is 1 cc. of intocerin to each 2 cc. of 2 1/2 per cent sodium pentothal. This ratio is administered from the very beginning of induction, 2 cc. of 2 1/2 per cent sodium pentothal followed by 1 cc. of intocerin, this quantity of both being repeated at short intervals until the patient becomes unconscious. Half of the above quantities is then administered intermittently until the desired plane of anesthesia is reached. In the meantime, as soon as the patient loses consciousness, the anesthesia mask is applied, the bag having previously been filled with a mixture of 1/3 nitrous oxide and 1/3 oxygen. The flow is then continued at 500 cc. each of nitrous oxide and oxygen per minute."

The anesthetic mixture can be used for any type of surgery. The mixture is non-inflammable and non-explosive. Hiccups have occurred in about one in 15 or 20 patients. This has been controlled by "controlled respiration" or the addition of a small amount of cyclopropane. Increased sodium pentothal-curare stopped the respiration and the hiccups. Respiration was then carried on by compression of the bag. Intratracheal tubes have been inserted after the induction with pentothal-curare. Relaxation was adequate. Pentothal and curare are kept separate from each other because they precipitate. After injecting either one of the drugs the tubing and needle are washed down with a small amount of physiologic saline, 5 per cent dextrose or blood transfusion.

F. A. M.


Past attempts to find an adequate method for the treatment of the neurotropic virus diseases have been largely unsuccessful. The ideal agent would destroy the virus without causing permanent injury to the host cell and should have the same tissue predilection as the virus. General anesthetics seem to fall in this category. Some experiments have been done on the effects of some anesthetics on certain toxic diseases affecting the central nervous system. It was decided to investigate the effect of anesthesia on those diseases already studied as well as others.

The virus of Eastern equine encephalitis was shown to be destroyed by ether. "Anesthesia with diethyl ether significantly alters the course of experimental infections with the equine encephalomyelitis virus (Eastern or Western type) or with the St. Louis encephalitis virus. No comparable effect is observed in experimental infections with rabies or poliomyelitis (Lansing) viruses. The neurotropic virus infec-
tions altered by ether anesthesia are those caused by viruses which are destroyed in vitro by this anesthetic, and those infections not affected by ether anesthesia are caused by viruses which apparently are not destroyed by ether in vitro. Another striking difference between these two groups of viruses is their pathogenesis in the animal host; those which are inhibited in vivo by ether anesthesia tend to infect cells of the cortex, basal ganglia, and only occasionally the cervical region of the cord. On the other hand, those which are not inhibited in vivo by ether anesthesia tend to involve cells of the lower central nervous system and in the case of rabies, peripheral nerves. This difference is of considerable importance in view of the fact that anesthetics affect cells of the lower central nervous system only in very high concentrations. It is obvious from the complexity of the problem that no clear-cut statement can be made at this point as to the mechanism of the observed effect of ether anesthesia in reducing the mortality rate in certain of the experimental neurotropic virus infections. Important possibilities include a direct specific effect of diethyl ether upon the virus and a less direct effect of the anesthetic upon the virus through its alteration of the metabolism of the host cell." 34 references.

F. A. M.


The science and art of anesthesia is now over one hundred years old, but it is convenient and useful to compare the state of the specialty as it was after the war of 1914–18 with that at the present time. At the beginning of the period selected preoperative starvation and purging were common practice. Premedication was confined to subcutaneous morphine and atropine. The anaesthetics in common use were nitrous oxide, ether, chloroform and ethyl chloride. Oil-ether rectal anesthesia and intravenous ether in saline were occasionally used. Local anesthesia was used, especially on the continent. Spinal analgesia was confined to hypobaric solutions and little was known as to controllability.

In the quarter of a century since the end of the war (1914–18) the preparation of the patient has been directed toward putting him in the best possible condition. Intravenous fluids, blood transfusion, adequate provision of food and drink and minimum purging are among the preoperative preparations. Premedication is now calculated for each patient and may include basal narcosis. Anesthesia may be started with intravenous induction. New volatile anaesthetics include ethylene, propylene, acetylene and cyclopropane. Of these cyclopropane alone has gained a permanent place in England.

New ethers include one which has attained popularity, divinyl ether. Trichlorethylene is a new volatile agent now in general use. Curare, as used in anaesthesia, "seems likely to mark the greatest advance in recent years." Apparatus for the administration of anaesthetics has developed considerably. The endotracheal technic has changed radically. The technique of controlled respiration is a recent development.

Local analgesia covers a wide field. New drugs for local analgesia which have attained popularity in Great Britain include nupercaine and amethocaine. Refrigeration of limbs has proved useful for amputations. Spinal analgesia has undergone many changes. Extradural spinal block has become more popular. Curare may replace high spinal analgesia in the future. The care of the patient's general con-