The mesmerists were hostile to ether and chloroform. They claimed that mesmerism was safer as an anesthetic agent. The advocates of mesmerism kept alive the interest in the subject and helped pave the way for the acceptance of chemical anesthetics. 89 references.

F. A. M.


John Snow was the “alpha” of physician anesthetists. Snow is remembered by some members of the medical profession for his investigations of cholera. His first medical paper, which he read in 1841, was on the subject of asphyxia and the resuscitation of stillborn children. Snow’s monograph on ether was published in September, 1847. In the monograph he first published his observations on the stages or degrees of anesthesia. He divided the signs into four well known stages which are still recognized. In 1858, in his book on anesthesia, he described a fifth stage, intercostal paralysis. Snow developed anesthetic apparatus and was positive in his opinion as to the desirability of administering anesthetics by exact methods. He warned of the dangers of chloroform. The acceptance by Queen Victoria of chloroform analgesia assured its continued use in obstetrics. Snow made important observations on the use of chloroform and repeatedly warned of its dangers. After his death, his monograph, “On Chloroform and Other Anaesthetics: Their Action and Administration,” was published. Snow searched for the perfect anesthetic, investigating many possibilities. Of the substances he tried, amylene seemed to come closest to his ideal. He administered it clinically in 238 cases but discontinued its use after the death of two of the patients. Modern anesthesia owes a debt to John Snow who was an indefatigable worker, a scientist of no mean ability and a searcher for the ultimate truths. 43 references.

F. A. M.


Before the era of modern anesthesia, attempts were made to relieve the suffering of childbirth. The ideal agent for the relief of such pain has not been found. The advisability of complete analgesia and amnesia during labor has been questioned. Early efforts to relieve the pain of childbirth were met with opposition. Sir James Y. Simpson is credited with the introduction of modern anesthesia in obstetrical practice. He first used ether for childbirth on January 19, 1847, and on November 8 of the same year he used chloroform for the first time in an obstetrical case. John Snow administered chloroform to Queen Victoria for the birth of her eighth child. In the United States there was a long delay in the application of anesthesia for obstetrical purposes after it was used for surgical cases; however, a case was reported in April, 1847, in which lethione had been used in a case of labor. The principle American champion of the use of ether in childbirth was Walter Channing. Augustus Kinsley Gardner administered chloroform for the first time in this country for a normal delivery in February, 1848.

Nitrous oxide was introduced into obstetrical practice by Kikowitsch of Petrograd in 1880 and by Winckel of Dresden in 1881. Nitrous oxide and oxygen were used by J. Clarence Webster of Chicago in 1909. Seopolamine hydrobromide and morphine sulfate were introduced by von Steinbüchel in
1902 to produce amnesia and analgesia during the first stage of labor. The method, known as "twilight sleep," was abandoned because a high incidence of asphyxiated babies resulted from its use. The barbiturates were introduced into obstetrical practice in 1928. Many agents and methods have been introduced to produce painless childbirth. Gwathmey's synergistic analgesia, spinal, paravertebral, peridural and sacral anesthesia all have their advocates. The safest method is direct local infiltration. 12 references.

F. A. M.


Pharmacology as a scientific discipline has developed during the last hundred years although various drugs had been applied to the relief of pain since the beginning of civilization. Semi-pharmacologic studies on such gases as oxygen and nitrous oxide began with the development of modern chemistry. Humphry Davy and Henry Hill Hickman conducted such experiments before the demonstration of nitrous oxide for surgical anesthesia by Horace Wells and of ether by W. T. G. Morton. After these practical demonstrations of anesthesia, pharmacologic studies of anesthetics began. In 1847, Fluorens reported crude studies on the anesthetic properties of chloroform in comparison with ether. Pirogoff studied etherization and Simpson made an extensive survey of ether and chloroform. J. F. M. Heyfelder studied ethyl chloride as an anesthetic. John Snow made systematic pharmacologic studies on anesthetic agents. His student, B. W. Richardson, studied the comparative toxicities of various alcohols, ethers, and other hydrocarbon compounds. Claude Bernard made an analysis of anesthetic agents and proposed the first theory of the mechanism of action of anesthetic agents in incomplete reversible coagulation of protein. In 1806, F. W. A. Sertürner isolated a chemically pure, crystalline compound from opium. This was named morphia. Cocaine has been isolated from coca leaves, and Carl Koller studied this drug and introduced it as a local anesthetic. R. Willstätter determined the chemical constitution of cocaine and this led to the further study and chemical modification of the drug which in turn led to the introduction of other local anesthetic agents. A. Einhorn developed "novocaine" which, under the public name of procaine, is the least toxic and most effective local anesthetic for infiltration anesthesia.

Quantitative methods in studying anesthetic agents were developed slowly but many workers have contributed to these studies. The effect of various general anesthetic agents on metabolism and devices for measuring the content of these agents in the tissues have been developed. Ethylene was rediscovered. Cyclopropane was discovered. The anesthetic properties of divinyl oxide were predicted before the agent was produced. Further studies are being made among the unsaturated and unsymmetrical hydrocarbon ethers. The barbiturals were vigorously explored under excessive commercial competition. The central depressant action of the alcohols were also studied, with the addition of halogenes. Avertin was one of the results of these studies. Many pharmacological studies on the mechanism of anesthesia have resulted in brilliant hypotheses, without much substantial evidence in conclusive support of any particular one. As yet we do not know how anesthetics act nor what pain is.

F. A. M.