opinion of the author, has no rival. The signs of anesthesia with ether are definite and form the basis for comparison when other agents are studied. Ether is the anesthetic to which even the most experienced anesthetist retreats when in difficulty with cyclopropane. The danger of explosion is common to both agents. In Bombay there has been no explosion reported. This is probably due to the increased humidity which prevails. That chest complications are associated with ether is probably an imaginary fault. Ether is being used without ill effects in operations on the thorax for bronchiectasis and tuberculosis. Ether pneumonia does not exist and the type of anesthetic has little or no influence on the incidence of complications.

Ether possesses two genuine faults. It has no merits as an inducing agent, however, in the hands of those who are used to it, it is given as an inducing agent. A second fault is that nausea and vomiting are associated with recovery from its effects. A difference of opinion exists on this subject, even among anesthetists.

The fact that ether is still being given, after one hundred years, goes to prove that in spite of its disadvantages, it is a valuable aid to the beginner, to the occasional anesthetist, to the average and even to the most experienced anesthetist. 3 references.

F. A. M.


The incidence of causalgia is greater in time of war when many casualties with wounds of sensitive structures came under observation. Early recognition of the condition is important because severe and crippling deformities may result if it is allowed to continue. The single constant finding is the dramatic response of the pain to the injection of procaine into the paravertebral sympathetic ganglia supplying the segment affected.

In a series of 2,167 patients with wounds of the extremities, there were 114 cases of causalgia; an incidence of approximately 5 per cent. Twenty of these cases had severe causalgia. The patients were Chinese soldiers. These men are generally intelligent and cooperative, rarely neurotic and, although brave, they are not hesitant to show suffering of pain. It is not part of the Chinese philosophy to minimize complaints. For these reasons the study of subjective sensations was especially satisfactory in this group.

Causalgia should be suspected when complaints are out of proportion to the severity of the wounds, especially when the pain is greatly increased by passive movement. The pain is characteristically described as "burning" but "numbness," "sticking" and "stabbing" were common descriptions given by the patients. Usually the pain is worse at night. Although the pain came on immediately after injury in a few patients, the majority developed pain during the first week.

Confirmation of the diagnosis was made in every case by the clinical response to temporary interruption of nervous impulses. In the lower extremity, 20 cc. of 2 per cent procaine containing 2 drops of 1:1,000 adrenalin were injected in the region of the second lumbar ganglion. For the upper extremity 15 cc. of procaine solution was injected by the anterior approach from a point one inch above the clavicle.

Repeated injections were tried in an attempt to produce permanent relief. Only mild cases of causalgia responded to repeated injections and relief did not persist. Preganglionic sympathectomy was then used for relief of pain in the extremity in 2 patients, but
the pain returned within one week. Four cases were treated by resection of the ganglia, including the stellate. Only two times have the patients had complete and lasting relief. Plaster immobilization of the extremity and repeated paravertebral injections in 21 cases gave poor results as far as function was concerned. A more radical type of sympathectomy was performed and this operation was followed by consistent relief of pain but poor return of function. When radical sympathectomy was done early in the course of the causalgia, relief of pain was obtained in all cases and functional results were excellent. Of 10 patients treated this way, 8 were returned to light duty.

Four patients with causalgia and peripheral nerve injuries were treated by a course of penicillin, early removal of devitalized tissue and nerve suture. In 2 patients postoperative injections of procaine into the sympathetic ganglia were necessary. Radical sympathectomy should be used for those patients in whom it is impossible to obtain clean healing of the wounds which involve the nerves or in those in whom the pain persists. Fibrosis and contractures do not occur as often or with as great severity when sympathectomy is done early. 16 references.

F. A. M.


The surgeon and the patient appreciate regional analgesia only when the art has been properly applied. Balanced anesthesia following proper premedication should be utilized for the fit patient as well as for the bad risk patient.

Procaine is the drug most extensively used for local analgesia. Ame-thocaine, which is tending to replace procaine, produces analgesia of longer duration. Adrenalin, neosynephrine or cocaine are added to local anesthetic solutions in order to prolong their action. Some dangers accompany the use of vasoconstrictors. Several methods of regional analgesia are: surface application, local infiltration, field block, nerve block, epidural block, subarachnoid block and refrigeration.

Cooperation of the entire theater staff is essential to the proper application of regional analgesia. For additional anesthesia nitrous-oxide and oxygen or light open ether are the agents of choice. In abdominal cases, when there are no contraindications to the barbiturates, intravenous pentothal in very small, repeated doses is used. The barbiturates are useful in the treatment of convulsions which may occur from toxic doses of local analgesic drugs.

F. A. M.


During the years from 1900 to 1945 there have been five major changes in anesthesia. They are: (1) Premedication, including basal anesthesia and the intravenous use of barbiturates; (2) the general use of oxygen; (3) the increasing use of spinal anesthesia; (4) Magill's tube; and (5) Mechanization.

Cyclopropane, curare, refrigeration and electrical anesthesia are too recent to be properly classed as major developments.

Early in the twentieth century ether was given, often with a Clover ether inhaler. The deep breathing which followed the administration of ether with this device often hampered intra-abdominal manipulations. Chloroform was preferred by surgeons who objected to the deep breathing. The administration of chloroform on lint for