

terminating fatally, Even in small doses it has a marked depressing action upon the human heart, whilst large doses may result in dyspnœ, delirium, epileptiform attacks, convulsions, sudden collapse, and finally death from toxæmia. Some individuals manifest idiosyncrasy in regard to cocaine, and in such cases comparatively small doses of the drug may lead to cocaine poisoning. These toxic effects of cocaine have led to the preparation of the substitutes which have been previously referred to, some of which are said to possess less toxicity than the original drug.

In this connection Miller⁴ emphasizes the fact that whilst these substitutes are less toxic than cocaine, none of them can be regarded as entirely safe, so that the idea that they may be safely given in unlimited doses is bound to result in disaster. His experience indicates that alypin is the best preparation to use. According to Pilcher⁵, the mucous membrane of the urethra is particularly susceptible to the toxic influence of cocaine, and he strongly protests against its use before cystoscopy or painful operations in this region.

One of the disadvantages of cocaine and similar preparations is the rapidity with which the analgesic effect passes off, so that sufficient time is not allowed to permit of an extensive operation. This objection has been met by the addition to the cocaine solution of a small quantity of one of the various preparations of the active principle of the suprarenal gland. This combination was first tried in rhinology, with the object of constricting the small vessels at the site of injection, and thus reducing the blood supply. It was subsequently discovered that an important result of this constriction of the vessels is to localize the analgesic solution, and prevent its absorption, thereby prolonging the duration of its analgesic effect and minimizing its toxic influence upon the tissues.

Combined Local and General Anaesthesia. During the last few years many writers, more especially Dr. Crile, have advocated a combination of local and general anaesthesia. In this connection a great variety of drugs has been recommended for producing local anaesthesia, including morphine, scopolamine and atropine, but cocaine and adrenalin are the only two with which I now propose to deal. It should always be borne in mind that there is such a thing as idiosyncrasy in regard to certain drugs, and that a careful enquiry should therefore be made with reference to the previous history of the patient, in order to discover if there have been any signs of intolerance of the particular drug which the anaesthetist proposes to use for the production of local anaesthesia.

Combined local and general anaesthesia is most commonly employed in the surgery of the nose. In 1894 Dr. Scanes Spicer⁶ suggested and practised the method of spraying the fauces with a solution of cocaine