

vessels are much contracted, which, with the rapid pulse rate, causes a marked rise in the blood pressure. The cause of the arterial contraction is stimulation of the vaso-motor centre. Subsequently, the blood pressure falls from peripheral vaso-motor paralysis.

The local effect of the drug is due to paralysis of the termini of some of the afferent nerves, particularly those conveying impressions of pain and touch, but the temperature sense does not seem to be affected. Cocaine acts best on mucous membranes. In the nose, it paralyzes the sense of smell as well as sensation, but it has very little effect, if any, on the healthy skin. Schleich's method of infiltration anesthesia is probably the most satisfactory. I have found that a weak solution of cocaine is especially applicable in work on the mucous membrane, but in operations on the deeper tissues, and in bone work, the stronger solution is more effective. I, therefore, use from a ten per cent. to a saturated solution. The great advantage gained by employing solutions of high strength is economy of time in the operation, which, to a busy practitioner, is important. In from one to two minutes after the injection the surgeon can proceed and the operation be completed by the time a weaker solution would have taken effect.

The most successful surgeons of to-day aim to consume the least possible time in operating, and thus lessen shock.

The opportunities for the use of cocaine are numerous. It is effective in major as well as in minor operations. If more operators would follow Schleich's example, much of the discomfort and danger of general anesthesia would be averted. I predict that the time will come when ether and chloroform will be held in reserve as emergency drugs, and that cocaine, or some other local anesthetic will supersede them. I am able to do fully ninety per cent. of my work with cocaine. The principal objection to it is its toxic effect; if that can be overcome by an antidote, surgery will forge ahead and many major operations will become minor ones.

Cushing says: "Cocaine is a protoplasmic poison. It destroys the protoplasm of nerve and organs, hence explains its local anesthetic action. When a solution of cocaine comes in contact with other organs it destroys their vitality. Ciliated epithelial cells, leucocytes and spermatozoa become motionless. Cortical nerve cells lose their excitability. Many of the invertebrates are killed by even a short exposure to cocaine. Movements of protoplasm in plants are also retarded or entirely suppressed by this poison." This doubtless accounts to a greater or less degree for the general languor that usually follows the use of cocaine. In continued daily operations where cocaine is employed, the strength and energy of the patient decline, and often a morbid condition exists.

A rational antidote cannot be expected to prevent protoplasmic