

in four per cent. solution (gr. xx ad. \bar{z} i) to the mucous membrane of various parts its effect is decidedly anesthetic. Dr. Heman Knapp, the well-known oculist, of New York, has experimented on himself very carefully, and I cannot do better than to give his results almost in his own words. Applied to *the tongue*, it produced numbness and loss of the sense of taste. When the *soft palate larynx and pharynx* were sprayed they lost their sensibility to touch. A severe cough, from which the doctor was suffering, was relieved for the time. On spraying *the nose*, common sensation and the sense of smell were abolished. Injected into the urethra, that canal lost its sensitiveness as far as the solution penetrated; a catheter could be passed without any sensation whatever.

Dr. Bcsworth has used the remedy locally to the mucous membrane of the nose, and has removed polypi without pain and with much less bleeding than usual. He has also cauterized the cocaineized nasal membrane without discomfort to the patient. Pencilled on the turgescient pituitary membrane in hay fever it has given important relief.

It is chiefly, however, in ophthalmology, the most progressive branch of medical science, that cocaine has been most beneficially used. Its effect on the healthy eye is as follows: When a four per cent. solution is dropped into the eye no pain nor irritation is produced. In from ten to twenty minutes the cornea begins to diminish in sensibility to touch. This increases from ten to twenty minutes and then decreases, and is gone in about half an hour. To produce complete local anesthesia it has to be instilled every five minutes for a quarter of an hour. Normal sensation is restored in about an hour and a half.

The pupil begins to dilate in from ten to twenty minutes, and reaches its maximum in forty-five minutes, remains stationary for about thirty minutes, and then slowly disappears.

The range of accommodation is shortened, owing to the partial paralysis of the ciliary muscle, the near point being removed from the eye. The power of accommodation returns in about half an hour.

The practical uses of cocaine are: To dilate the pupil for ophthalmoscopic purposes, to pro-

duce local anesthesia, to facilitate the removal of foreign bodies from the cornea, also to permit of operations being performed on the eye and its appendages without pain and without chloroform or ether. The advantages thus gained can hardly be over-estimated, avoiding as it does the increased risk of loss of the eye by rupture of a vessel, due to the straining in vomiting incident to the administration of a general anesthetic, to say nothing of the diminished risk to life. In the operations for squint and in iridectomy it has been found necessary to instil two or three drops into the wound in order to produce perfect freedom from pain. I am inclined to the opinion that in operations on painful eyes the drug will be found only partially successful in allaying sensibility.

In the nose it can be used to allay pain in operations on that part; to allay the symptoms of, perhaps cure hay fever, and to facilitate the passage of the eustachian catheter.

In the throat it can be used to facilitate examination in very irritable cases; it is also possible that it may enable us to perform the operation of staphylorrhaphy with better success than heretofore.

In the ear growths may be removed without pain.

In the rectum examinations can be conducted painlessly, and perhaps hemorrhoids treated.

In the vagina minor operations have been performed, and even trachelorrhaphy has been done with little inconvenience to the patient.

The catheter can be passed in a sensitive urethra, when cocaineized, without discomfort. It is also possible that the drug may be found useful in spinal cord diseases. All these various uses entitle the remedy to be called "a great discovery;" but it must be remembered that our knowledge of it is comparatively limited, and that failures may be reported and personal idiosyncrasies discovered, and I would suggest great caution in the internal administration of so powerful an agent.

I have used cocaine in the following cases since I brought it from New York on November 10th, and without unpleasant after effects:

Miss C., aged 18.—Lamellar cataract. Used the four per cent. solution; no pain or discomfort whatever.