THE PHYSIOLOGICAL ACTION OF CUCA AND CUCAINE.

By EBER CAUDWELL, Westminster Hospital.

THE following observations made on myself were undertaken at the suggestion of Dr. Murrell, with the view of ascertaining whether cuca or its alkaloid possessed any toxic action. The first series was made with valoid of cuca, a fluid extract, each part of which corresponds to an equal weight of the leaves of the cuca-plant. On December 9th, at 2 P.M., being busily engaged in seeing out-patients, I took two drachms in water, and experienced nothing but a little frontal headache. On the 9th, at 7 P.M., after a hard day's work, I took three drachms, and almost immediately fell into a deep sleep, which lasted four hours. On the 13th, I took five drachms at bed-time, slept for two hours, and then passed a restless night. On the 16th, I took a fluid ounce at bed-time, and was kept awake all night. There was a general feeling of wellbeing, with considerable mental excitement, and I was able to read steadily for many hours. On the 19th, I took two ounces at midnight, suffered severely for ten minutes from giddiness and unsteadiness of gait, and then experienced the same sensations as on the previous evening. There was renewed mental and physical activity, and I felt that any exertion could have been undertaken without difficulty.

My next observations were made with the hydrochlorate of cucaine, a supply of which was kindly placed at our disposal by Mr. E. Merck of Darmstadt. Half a grain, taken by mouth at bed-time, produced drowsiness; a grain induced sleep, followed by persistent insomnia; two grains and a half gave rise to frontal headache, great mental excitement, and marked insomnia. Failing to produce any decided toxic effect, I took, at 7 P.M. on the 29th, a single dose of three grains. I had just come off a long railway-journey, and had purposely abstained from food for nearly twenty-four hours. At first I felt decidedly sleepy, and there was slight vertigo; but these symptoms soon passed away, and, in the course of an hour, I felt perfectly fresh and well, and remained awake all night. At 10.30 on the following morning, I took five grains more, and then felt that a decided effect had been produced. In a few minutes I was so giddy I could hardly stand, and was quite unable to make any exertion. There was a slight supra-orbital headache, and a feeling of weight or sinking at the pit of the stomach. The pupils were widely dilated, and I could hardly see. My temperature was taken four times, and was found to vary from 96.7° to 98.6°. The pulse, for a few minutes, rose to 94, but, as a rule, was not above 80. The urine passed at the time had a specific gravity of 1020, and was normal. In about two hours, the unpleasant sensations passed off, and I walked to the hospital, a distance of four miles, in something under fifty minutes. By one o'clock I was quite myself again, and was as fresh and vigorous as ever. The dilatation of the pupils continued for six hours. From these observations I conclude: (1) that cuca and cucaine exert a double action, acting as cerebral sedatives in small doses, and as cerebral stimulants in large doses; (2) that cucaine, given internally, dilates the pupils; (3) that cucaine, unless in large doses, possesses no toxic action.

NOTE ON THE EFFECTS OF THE LOCAL APPLICATION OF CAFFEINE TO THE CONJUNCTIVA.

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THE expense of cucaine is so great, that it is very desirable that some other less expensive substance should be found which acts as powerfully as a local anæsthetic.

Caffeine, which is known to resemble cucaine in chemical constitution, and to some extent in therapeutic properties, naturally suggested itself to many as a possible substitute.

With the view of testing its merits as a local anæsthetic, I obtained a 16 per cent. solution by the employment of sodium-salicylate as a solvent, at the suggestion of Messrs. Duncan and Flockhart; caffeine and its salts being very sparingly soluble in water. This solution I applied in several cases, but was disappointed with the result, as I found that while caffeine acted like cucaine as a mild mydriatic, it did not produce the slightest anæsthetic effect on the conjunctiva to which it was applied. The dilatation of the pupil commenced about half or three-quarters of an hour after the introduction of one or two drops; it only occurred to a moderate degree, and passed off within twenty-four hours. The application produced a little smarting, which lasted

a few minutes, but also induced some slight conjunctival injection, which endured for some hours. This, however, may possibly be attributable to the saline character of the solution.

To prevent needless repetition of experiments, I have thought it desirable to publish these negative results, so far as the anæsthetic properties of caffeine are concerned.

THERAPEUTIC MEMORANDA.

CUCAINE IN OPERATIONS UPON THE VAGINAL ORIFICE.

NOR having seen anything recorded of the use of cucaine in operations on the female private parts, I desire to call attention to its value in the removal of vascular growths from the meatus urinarius. These are so sensitive that the administration of some anæsthetic has always been found necessary during their removal. I have performed two operations, after having twice painted the growth, and the area surrounding its attachment, with a twenty per cent. solution of cucaine, seizing it with forceps, and cutting it off with curved scissors, and on neither occasion was anything felt by the patient. I did not try a weaker solution, but am inclined to think it would answer. It is probable that cucaine will be found serviceable in most cases of operation about the vaginal orifice, the opening of labial abscesses for instance.

CLEMENT GODSON, M.D.

CUCAINE IN DENTISTRY.

A BOY, aged 11, came to the Westminster Hospital to have a tooth out. He was actually crying from the severe pain, which was found to proceed from a badly decayed lower molar.

Having procured a 10 per cent. solution of the hydrochlorate of cucaine in oil of cloves, I applied it freely by means of pledgets of cotton-wool, both to the pulp-cavity and to the gums. In a few minutes' time, the tooth had ceased aching, and the mucous membrane had lost its sensibility. I now proceeded to extract the tooth. The boy gave vent to the usual yell as the tooth left its socket, and it was evident that the cucaine had failed to anæsthetise the deeper structures—a result similar to that obtained by ophthalmic surgeons.

I desire, however, to call attention to its apparent value as a remedy for toothache. In the above case, its application at once stopped the acute pain the boy was suffering from. I also think that dentists will find it useful in the preparation of cavities prior to filling them.

MORGAN HUGHES, L.D.S. Eng.

SURGICAL MEMORANDA.

TOTAL OBLITERATION OF URETHRAL CANAL IN A NEW-BORN CHILD: OPERATION: RECOVERY.

ON January 3rd, 1880, Mrs. J. was confined at full term of a handsome and fully developed boy. A slight venous congestion marked the site of the urethral orifice, on the under side of which there was a shallow groove of about the one-sixth of an inch in length, not, however, dipping into the urethral site, nor taking from its normal length, but infringing slightly upon the frænum. The prepuce was retracted. The examination evidenced occlusion, and the symptoms called for prompt action.

At 7.30 P.M., the infant was placed under chloroform by Dr. Fothergill of this town, who ably controlled the anæsthetisation throughout.

The operation consisted in a gentle, but firm, screwing and pushing movement through the occluding material, and it proved that the canal was obliterated in its entire length. When approaching the neck of the bladder, the index-finger of my left hand was passed into the rectum, and retained there, as indicator and gubernator, until the catheter had passed through the membranous and prostatic portions, and had freely entered the bladder. Very little blood was lost. The instruments used were a probe, director, a stout curved stilette, and a small sized catheter belonging to a pocket-case. The stilette required very delicate management, but proved an apt instrument. The break into the bladder was effected by the catheter, and water immediately flowed. An oiled bougie was passed for two or three days; the wound healed rapidly, and, strange to say, the infant never showed signs of any suffering from the flow of urine over the abraded surface. At the end of a week or ten days the cure was complete, and remained so.

This case is interesting because of its rarity. Sir Henry Thompson,