years' standing. After having several fits she became violently maniacal. An injection of $\frac{1}{100}$ gr. was given, but as it produced no effect, it was repeated fifteen minutes later. This had the effect of completely quieting her, and making her limbs quite limp, but did not produce sleep.

Case 9.—Harold W—, aged seventeen, admitted under the care of Dr. Beevor, suffering from hysterical contraction and complete anaesthesia of the right arm. The contracted hand did not relax during ordinary sleep, but it did under the influence of an anaesthetic. On one occasion he became very excited and violent after hypnotism. An injection of $\frac{1}{100}$ gr. of hyoscine was given him, and during the sleep and muscular relaxation which followed not only was there opening of the contracted hand, but a prick or pinch on the arm was followed by a movement of the arm away from the irritant, showing a return of sensibility. After the effect of the hyoscine had worn off the old condition of matters was restored.

II.—CASE IN WHICH HYOSCINE WAS GIVEN AS A SUBSTITUTE FOR MORPHIA, THAT DRUG BEING INADMISSIBLE.

William S—, aged twenty-four, formerly a sailor, who had acquired the opium habit, was admitted under the care of Dr. Hughlings Jackson for neuralgia of the arm, which appeared to commence in the cicatrix of an old injury in the thumb. Removal of the cicatrix produced no relief; antipyrin, bromides, and chloral had no effect on the pain, and opium was inadmissible. Hyoscine was therefore given subcutaneously, at first in a dose of $\frac{1}{100}$ gr.; later $\frac{1}{50}$ gr. was required. This was sufficient during several weeks to procure four or five hours' sleep every night.

III.—IN THE STATUS EPILEPTICUS.

Minnie F—, aged sixteen, admitted under the care of Dr. Hughlings Jackson suffering from left hemiplegia and epileptic fits, which always commenced on the left side, both being probably due to a cortical lesion. One evening she had a succession of such fits, with no appreciable interval. After she had been in this condition for three hours, $\frac{1}{15}$ gr. of apomorphine was administered subcutaneously. This produced copious emesis, but the convulsions continued unchecked, and as there was no improvement at the end of three quarters of an hour, $\frac{1}{100}$ gr. of hyoscine was injected. The convulsions at once became less violent, and ceased altogether within five minutes. It is difficult to judge how far the result was due solely to the hyoscine, but its apparent effect was sufficiently striking to suggest its trial in such cases in future.

IV.—CASES ILLUSTRATING THE OCCASIONAL UNPLEASANT EFFECTS FOLLOWING THE USE OF HYOSCINE.

Case 1.—James H—, aged fourteen years and a half, admitted under the care of Dr. Gowers for epilepsy. Hyoscine was given by the mouth in doses which had been increased until he was taking $\frac{1}{3}$ gr. three times a day. No effect was produced on his fits, but he became strange in his behaviour. He looked bright and rational, but was very restless, trying to leave the ward, and wander he knew not where, saying he heard two voices, one advising a good course, and the other an evil one. His pupils were widely dilated, and his accommodation was paralysed. He returned to his usual condition when the effects of the hyoscine had worn off.

Case 2.—Henry H—, aged thirty-three, admitted under the care of Dr. Gowers, suffering from a condition of spastic paraplegia, due to myelitis. Hyoscine was given in the hope of lessening the rigidity, in doses of $\frac{1}{50}$ gr. subcutaneously every night, increased afterwards to $\frac{1}{25}$ gr. After three of the larger doses there was excessive dryness of the mouth, dimness of sight, and delirium with double consciousness. No effect was produced on the muscular spasm.

We have also had the opportunity of observing its effects (usually negative) on a number of other chronic nervous diseases, but as they were mostly isolated cases they are passed over for the present. In our hands the drug never failed to act as a prompt and powerful sedative in cases of mental excitement, and in none of these cases were there any unpleasant after effects. This agrees with the much larger series of observations published in the *Berlin. Klin. Wochenschr.* by Dornbluth (No. 9, 1888) and Eugen Key (No. 50, 1888). They found it "a certain, rapid, and effective sedative, especially in cases in which there was much violence and excitement." In cases of ex-

citement a large dose is more easily borne, and $\frac{1}{100}$ gr. appears to be a safe initial hypodermic dose for an adult. If no effect is produced in half an hour, a second dose of $\frac{1}{50}$ gr. may be given. In other cases of chronic nervous disease a smaller dose is prudent, $\frac{1}{500}$ gr. being given at first and gradually increased. When given by the mouth, at least double the dose given above is required to produce the same effect.

ON THE EXTENSION OF THE FŒTUS DURING THE SECOND STAGE OF LABOUR.

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RECENT observations by German obstetricians have shown that during the second stage of labour the advance of the foetal head takes place by extension of the foetal trunk, and consequent elongation of the long axis of the foetus; not by the pressure of the uterus on the foetal breech, driving it down, but by the pressure of the uterus around the foetus, straightening it out. These observations have not yet found their way into English text-books, nor, so far as we know, have they been confirmed in this country. We have therefore thought it worth while to test their accuracy. Litzmann¹ noticed that during a pain the fundus uteri reached higher than during relaxation; and observed seventeen cases in which, up to the time at which the head was distending the perineum, the fundus uteri occupied the same position with respect to the umbilicus as at the beginning of labour. He suggested that this might be part of the normal mechanism of labour; but, in the paper quoted from, did not speak as if satisfied that it was so. Schröder and Stratz² ascertained that the measurement between the breech and the vertex with the spine flexed is less than that with the spine extended, by, on the average, more than two inches; and that there may be more than four inches difference between the measurements. Therefore if, in labour, extension of the trunk take place, the head may advance to this extent while the breech remains stationary. They have shown by measurement that this extension takes place: that the distance between the breech and the vertex of the foetus increases during the passage of the head through the pelvic cavity by an amount such as extension of the trunk would produce. They point out that the flexed attitude of the foetus before labour is not due to compression by the uterine wall, for the child is usually freely movable in the uterine cavity; and when the child lies in an abnormal position the shape of the uterus is altered in correspondence to that of the child. They explain the extension during the second stage of labour by saying that the body becomes extended, because the contraction ring is drawn up over it, and the foetal trunk can only pass through this by becoming extended. Hence there is a time during which the head advances, while the breech remains stationary. Hoffheinz³ has made observations in the Königsberg Clinic to test this point. He measured in 100 cases the distance between the upper border of the symphysis pubis and the fundus uteri. He found that the distance between these points was actually a little longer when the head was distending the perineum than when it was in the pelvic brim. He measured also the distance between the fundus uteri and the most advanced point of the foetal head, and found that during the second stage of labour this distance was increased by upwards of four inches; an increase more than can be accounted for, according to the measurements of Schröder and Stratz, by extension of the spine. He believes that during the birth of the head the breech ceases to be in contact with the fundus, and the feet take its place. He explains the extension of the spine by the contraction of the uterus in all its dimensions, the resistance to the advance of the child causing the contracting uterine body to pull up the cervix

¹ Arch. für Gyn., Band x., S. 409.

² Die Schwangere und Kreissende Uterus, Bonn, 1886, S. 78.

³ Zeitschrift für Geb. und Gyn., Band xv., S. 432.

uteri; and this resistance, together with the extension of the child, causes the body of the uterus to be pushed higher up at the time when resistance is greatest—that is, when the perineum is on the stretch. His observations were made in the intervals of pains. During the pains he thinks the uterus is pushed up still higher; in this respect following Litzmann.

In this communication we record measurements made in the General Lying-in Hospital to verify the statements of the writers above quoted. All the measurements were made, with callipers, from the upper border of the symphysis pubis to the fundus uteri, during the intervals of pains. The first measurement was taken when the presenting part was engaging the brim, the second when distending the perineum:—

No.	Presentation.	Parity.	Height of fundus, head or breech in brim.	Height of fundus, head or breech on perineum.
1	4th, cranial	1	11 inches	11 inches
2	1st, "	1	11 $\frac{1}{2}$ "	11 $\frac{1}{2}$ "
3	1st, "	1	10 $\frac{1}{2}$ "	10 $\frac{1}{2}$ "
4	1st, "	1	10 $\frac{1}{4}$ "	10 $\frac{1}{4}$ "
5	1st, "	1	11 "	10 $\frac{3}{4}$ "
6	2nd, "	1	11 "	11 "
7	1st, "	1	12 $\frac{1}{2}$ "	12 $\frac{1}{2}$ "
8	3rd, ending 2nd cr.	1	11 $\frac{1}{2}$ "	11 $\frac{1}{2}$ "
9	1st, cranial	1	11 "	11 "
10	4th, ending 1st cr.	3	10 "	10 "
11	1st, cranial	1	9 "	9 " (8 mos.)
12	3rd, ending 2nd cr.	7	10 "	10 "
13	1st, cranial	1	10 $\frac{1}{2}$ "	10 $\frac{1}{2}$ "
14	1st, "	4	7 $\frac{1}{2}$ "	7 $\frac{1}{2}$ " (7 mos.)
15	2nd, "	3	10 $\frac{1}{2}$ "	10 $\frac{1}{2}$ "
16	1st, "	1	10 "	10 "
17	1st, "	7	10 "	10 "
18	1st, "	1	10 $\frac{1}{2}$ "	10 $\frac{1}{2}$ "
19	3rd, ending 2nd cr.	1	10 $\frac{1}{4}$ "	10 $\frac{1}{4}$ "
20	1st, cranial	12	10 $\frac{1}{2}$ "	10 "
21	1st, breech	1	10 $\frac{1}{2}$ "	10 $\frac{1}{4}$ "
22	1st, "	1	10 $\frac{1}{2}$ "	10 "

It will be seen that in no case was the difference greater than half an inch. In all but three of the twenty cases of vertex presentation there was no difference at all. Of those three exceptions, in No. 20 the measurement was half an inch less when on the perineum; in No. 5, a quarter of an inch; and in No. 4, an eighth of an inch.

Measurements were also taken in two cases of breech presentation. In No. 21 the distance between the two points was a quarter of an inch less when on the perineum; in No. 22 it was half an inch less. A few cases were also measured during a pain, the head distending the perineum; in these there was an increase in the measurement varying from an eighth to a quarter of an inch.

In order to guard against any mistake, nearly all the cases were measured two or three times. These measurements, taken with those quoted from other writers, justify the assertion that whether the head or the breech be the presenting part, extension of the foetal spine is a constant and essential part of the mechanism of the second stage of labour.

Harley-street, W.

DIPHTHERIA AND ACUTE LARYNGITIS.

TWO CASES OF TRACHEOTOMY, AND DEATH RESULTING FROM SUCKING THE TUBE IN ONE INSTANCE.

By CHARLES ROBERTS, M.R.C.S., L.S.A.

THE following cases present points of interest from the rarity of the operation having to be performed successively in private practice in so short a time, and also from the melancholy sequel to one of the cases. The following are the facts:—On March 28th last I was asked to see, in consultation with Mr. Barry of West Drayton, a little boy aged six years, the son of Mr. C. J. Moore, surgeon, of Yiewsley, who was at that time away from home. The child was suffering from diphtheria, the first symptoms having showed themselves three days previously. On the 29th the membranous deposit had evidently extended to the larynx, and there was croupy breathing, with some dyspnoea. On the 30th the breathing was fairly good, and there were no urgent symptoms. On the 31st, however, the dyspnoea became more urgent, and it was evident that

unless relief were given suffocation would ensue. Accordingly, at 4 P.M., the child having been placed under chloroform by my assistant, Dr. Charpentier, and assisted in the operation by Mr. Barry, I opened the trachea and inserted the tube, thereby giving immediate relief, and subsequently several hours of refreshing sleep were obtained. In the early part of the following morning difficulty of breathing was again experienced, and on my arrival at 9 A.M. I found the tube almost completely blocked by false membrane. I immediately removed the inner cannula, and the child at once breathed freely. During the day the tube became blocked on several occasions, and the inner cannula had to be repeatedly removed and cleansed. That night Mr. Moore arrived home, and thinking greater freedom to the breathing would be given removed the inner cannula altogether. The outer cannula then became blocked, and in order to give relief he insisted on sucking the tube in spite of remonstrance from Mr. Barry, who was present at the time, and this he continued to do at intervals until the child's death, although I and others added our remonstrance to that of Mr. Barry. The only precaution he took was to wash out his mouth with a solution of permanganate of potash. The child died on April 3rd, three days after the operation, death being due to exhaustion and impeded respiration; the exhaustion was intensified from the fact that during the last four days the muscles of deglutition were paralysed, and he resisted all attempts to introduce nourishment into the stomach by means of a tube, and the only way of supporting him was by means of nutrient and stimulating enemata.

On April 4th Mr. Moore complained of his throat being sore, and on examining it I noticed the commencement of diphtheritic deposit on both tonsils, and in spite of active treatment this rapidly extended until it covered both sides of the fauces, soft palate, and uvula, which latter became greatly cedematous. Mr. Moore, who was in bad health and suffering from a dilated heart, with cedematous swelling of the legs, rapidly became exhausted, and in spite of all nourishment and stimulant that could be given suddenly expired on the evening of April 7th from failure of the heart's action, six days from the date of having first sucked the tube, and three from the first appearance of diphtheritic deposit.

It will be remembered that I performed tracheotomy on Mr. Moore's child at 4 P.M. on March 31st, and on my arriving home at 5.30 I found an urgent message to attend another child, a girl aged eight years (who was suffering from acute laryngitis) as the parents thought it could not live long. On arriving at the house I found that the symptoms which had been relieved three days previously had returned, and that the child was in imminent danger of suffocation; therefore, with the sanction of the parents, Dr. Charpentier placed the child under chloroform, and I opened the trachea and inserted the tube. The symptoms were so urgent that the child ceased to breathe, and after the introduction of the tube artificial respiration had to be resorted to before animation was restored. For a time the child breathed better, but both lungs became congested, and on the night of April 1st she had several convulsive attacks from which she never rallied, but died on April 2nd, two days after the operation.

Remarks.—Both cases show the value of tracheotomy in prolonging life, for without it the children would undoubtedly have died on the day these operations were performed, whereas one survived three and the other two days. In the first case paralysis of the muscles of deglutition was an unfortunate complication, as it cut off all means of supporting the child by nourishment and stimulants; otherwise the case might have had a different result, for the child was strong and healthy and made a gallant fight for life, and towards the end of the case the bronchi were almost if not quite clear of diphtheritic deposit. An annotation appeared in THE LANCET of April 20th on the death of Mr. Moore from sucking the tube, and I quite agree with the advice given: "We cannot too strongly impress on surgeons and nurses to avoid such a method of clearing a blocked tube." I look upon such a procedure as simply suicidal; and immediately I was told in the presence of Mr. Moore what he had done, the remark burst from me "You are a dead man," and unfortunately my prediction proved only too correct. In THE LANCET of April 27th a letter from a correspondent, "W.," appeared justifying Mr. Moore's rash act on the ground that it was analogous to a person "who can swim trying to save a fellow-