quieted the breathing. Normal respiration seems to be simply a reflex act without volition, but, on the slightest anormal excitement or impediment, it becomes a voluntary act. Opium thus given seems to bring back the act of respiration to its simple reflex condition, by relieving or removing that painful sensation which excites volition for relief. The second objection is the fear of narcotism and of death whilst narcotised; but in neither of these cases did the opiate obscure the clearness of the mind, though it relieved the distress of body: indeed, by relieving this physical agony, it left the mind so far undisturbed. In both these cases, small doses were given, and repeated at short intervals, from the relief they afforded. A large dose at once might be hazardous.

Since writing this, I have referred to Hufeland's *Treatise on Opium*, in which he eulogises its virtues under the same circumstances, and I do not doubt that many employ it; but as, on the other hand, many are deterred, from the fear of increasing the dyspnœa, or of producing fatal narcotism, and as the number of those who die from phthisis is so great, I have the less hesitation in making this communication, though it may have no novelty; for we often need to be reminded of what is old, as well as to be taught what is new; and the very purpose of our JOURNAL is to communicate freely amongst ourselves those minor matters which we often make the subject of medical talk when we meet.

CONVULSIONS IN A CHILD, FROM AN OVERDOSE OF BRANDY.

By T. OGIER WARD, M.D., Kensington.

As the following case presents some peculiarities not often met with in practice, I think it is worth recording in the pages of the JOURNAL.

CASE. March 5th, 1 P.M, I was sent for in haste to see a child, aged 2½ years, in convulsions, which, however, had ceased when I reached the house. I found him wrapped in a blanket, in his mother's lap, having just been taken out of a hot bath, which had speedily relieved him. I was told that his mother, thinking that, having chilblains, he would be better for an aperient, had given him a powder from a chemist's the night previous, which had acted so frequently that she had given him some brandy and arrowroot; that he had vomited twice, and then was seized with convulsions of a tonic kind, with opisthotonos, and jerking of the arms and legs, and twitching of the right side of his face. The spasms having been relieved by a hot bath, he became drowsy, in which state I found him. His skin was warm and moist, from the bath, his feet previously having been very cold; his head, large for his age, was not hot; and his cheeks were paler than usual. He opened and shut his eyes in a drowsy state, and the pupils were natural; his hands were not clenched, nor his teeth set; nor had he bitten his tongue, which was quite clean and moist; nor was the saliva frothy. From the pallor, the size of the head, the violent action of the bowels, the absence of any symptoms of worms, and the improbability of there being any infectious disease impending, I thought I had to treat a case of convulsions from exhaustion, particularly as the pulse was rather low, and he had cut all his teeth; and therefore I ordered a spirit lotion to be applied to the head if it became hot, and a mixture of liquor ammoniæ acetatis, to keep up the action of the skin.

I saw him again at 5 P.M., when I was told that, after eating some bread and butter, he had had another fit similar to the former, which had again been relieved by the hot bath. His appearance and manner were now quite changed; his skin was hot; pulse 150; face flushed; eyes bright, pupils contracted; and he was highly excited, chattering nonsense incessantly, asking for water, which, when offered, he did not take, but rather turned from in disgust, and for bread and butter, of which he took a mouthful, but let half fall out again, though he still was rational when spoken to. Thinking this reaction required a more powerful check than a spirit lotion, I ordered a leech to each temple, and the hair to be cut off the crown of the head.

At 9½ P.M., I saw him again, when he was sleeping quietly, and all excitement and heat of skin removed, his pulse only being still higher than natural (110). I was informed that, as soon as the leeches had filled themselves, the flush disappeared from his face, and he went to sleep. Since then he had taken some food, and had fallen asleep. The bowels continued to act, the stools consisting of green mucus, with thready flakes of coagulated milk or lymph; but there were no worms. His recovery from the fits continued complete, though the bowels continued for some days to be so irritable that he passed bloody stools, for which he had appropriate treatment.

Upon reconsideration of the probable cause of the fits, there did not appear to be any connected with the condition of the child himself that would satisfactorily account for them. Though the head was large, and he had cut all his teeth, he had never shown any tendency to head affection. He had received no blow, nor hurt, nor fall. Not having quitted the house for some time, he could have taken no infection. He had not suffered from indigestion, as he did not vomit till after the symptoms appeared; and therefore both the fits and the vomiting originated in the same cause, which could not have been the action of the medicine, as the fits, in all probability, would have recurred with the continuance and aggravation of the diarrhœa on the subsequent days; nor would the symptoms have subsided on the application of the leeches, as they must have increased the debility. Again, the attack itself presented some peculiarities that distinguish it from ordinary convulsions. There was no decided stupor, like that which succeeds an epileptic attack, but a sleepy state; nor were the hands clenched, or the mouth closed. The delirium, also, after the second fit, is an unusual circumstance, and occurred too soon to be the result of secondary inflammation, though evidently caused by excessive arterial action; and its immediate subsidence upon the leeching was out of character with its preceding violence. Proceeding thus on the principle of exclusion, I became convinced that the entire symptoms depended upon some transient cause, which could only be the brandy that had been given in the arrowroot. I therefore inquired its quantity, and learned that it was about a tablespoonful—a reply that cleared up all the obscurities of the case at once, while it showed the extreme susceptibility of the child's nervous system to the influence of alcohol, although it was diluted with a basinful of arrow-root, which was all digested before the symptoms appeared, as none of it was rejected by the vomiting, which brought up only a little clear fluid.

REMARKS. Besides the idiosyncrasy of the little patient, there are some points of physiological interest in this case. It is generally understood that the primary effect of alcohol is stimulant, except when taken pure and in great excess, when it acts as a direct sedative poison, probably from its mixing rapidly with the blood, which it carbonises in excess, at the same time that it has the property of diminishing its decarbonisation in the lungs. In the case before us, the first effect was sedative, followed by reaction, which was perhaps induced by the hot bath, but was repressed by the leeching. It is worth noticing, that the only case of convulsions mentioned by Dr. Christison (*On Poisons*, p. 798) as produced by alcohol occurred in a boy, and were of the same character. May we then conclude that drunkenness in infants and children takes the form of convulsions? Perhaps parish surgeons may be able to answer this question. What, again, would be the effect of a hot bath upon an adult, comatose or dead drunk, in causing reaction? and would cupping or leeching the temples, or a general bleeding, immediately relieve the patient?

The fact that none of the brandy was rejected by either of the two acts of vomiting seems conclusive that the alcohol affected the nervous system secondarily through the circulation, after absorption by the stomach and bowels,

and not by reflex action from the direct impression of the spirit on the nerves of the stomach.

Another question presents itself, Whether the brandy would have had so powerful an effect if the diarrhœa had not been present? which fact also explains the rapid digestion and absorption of the arrow-root.

Again; Had the brandy any influence in augmenting the action of the aperient powder (of which the child's elder sister took the larger portion, without any unusual effect), so as to produce a state of dysentery requiring special treatment for its cure, the child being in perfect health at the time?

The last and most interesting question to the patient and his parents is, Whether the symptoms indicate any tendency to head affection, or a peculiar susceptibility to the influence of alcohol?

PROLONGED USE OF CHLOROFORM IN A CASE OF INFANTILE CONVULSIONS.

By W. C. WILLIAMSON, M.R.C.S.Eng., F.R.S., Professor of Anatomy and Physiology in Owen's College, and Surgeon to the Manchester Institution for Diseases of the Ear.

IN Number 1554 of the *Lancet* for 1853, I published the notes of a case in which continuous convulsions in an infant, a few weeks old, were successfully treated by keeping the patient under the influence of chloroform for nearly three days without interruption. As such cases are not of very common occurrence, and as we yet need more accurate information respecting the form of disease to which this treatment is applicable, I think the following notes may also be worth recording.

CASE. On Dec. 19th, 1855, I was summoned to Stockport, where I found the infant of Mrs. P. suffering from fearful convulsions. The lady had been confined on the 14th of the previous October. Owing to subsequent illness, she was compelled to wean the child, then a very healthy one, within ten or twelve days of its birth. It continued well until December 14th, when aphthæ appeared in its mouth, but disappeared in two or three days. On the same day the first convulsions occurred, two taking place in the evening and two more during the subsequent night. On the 15th, there were several others. The child was free from them on the 16th, but they returned with increased severity on the 17th, the longest interval on that day being but three quarters of an hour. The child was under the professional care of my friend Mr. Graham.

I found the child pale, often livid, considerably emaciated, with a deeply depressed fontanelle, and with contracted clenched fingers. It was unable to take the least food without exciting a convulsion. Under these circumstances we determined upon employing chloroform, the use of which we commenced at 11 o'clock A.M. The convulsions were at once repressed, though they often struggled to overpower the anæsthetic influence that restrained them. A teaspoonful of thin beef-tea was administered every hour, without relaxing the use of the chloroform, as I had found necessary in my case previously recorded.

Dec. 20th. The child took its food well, and the convulsive tendencies were less obvious. We administered the eighth of a grain of quinine three times a day in a little syrup. In the subsequent night the child slept comfortably from 1 to 6 A.M. without the chloroform being needed; and when it awoke, it passed urine freely, which it had not done the previous day. The chloroform was at once resumed. When I saw the child in the forenoon of the 21st, the aphthæ had disappeared, and the child lay slumbering in the position natural to it when in health: the hands, which had hitherto been clenched with the characteristic contracted thumb, being now much less rigid. But the pulse was feeble, and there had been no motion. We gave half a teaspoonful of castor oil, and at intervals a little weak sherry wine and water. We also administered, as food, the preparation of milk originally suggested by my colleague, Professor Frankland, as affording the closest chemical approximation to mother's milk. Two green motions resulted from the use of the oil. At 11 P.M., the use of the chloroform was suspended; the child subsequently passing a good night. It was at times very hungry; after being fed it soon went to sleep again.

Dec. 22nd. The child continued well; the complexion was more natural; and it passed a more healthy motion than we had hitherto seen; but the subsequent midnight brought a change for the worse. The administration of a small quantity of the milk occasioned flatulence and uneasiness.

Dec. 23rd. At 2.30 A.M. a slight convulsion occurred, and another at 4, succeeded by attacks, which increased in frequency and severity up to 6 A.M., when a little chloroform was again employed. Difficulty of deglutition reappeared with the return of the convulsions. These recurred at intervals during the day, but were as constantly repressed by the chloroform, which was applied the moment each convulsive tendency became visible.

Dec. 24th brought with it a recurrence of the events of the previous day; the convulsions invariably supervening whenever food was administered. A carminative mixture, containing a little opiate, was given at intervals, but without doing either good or harm. An attempt was made to obtain a wet nurse; but the good town of Stockport apparently did not contain a superabundance of such helps to suffering infancy. We could not succeed.

Dec. 25th. The convulsions continued. A wet nurse was at length obtained, and her milk, drawn by means of a pump, was administered twice without occasioning any convulsion. The child obviously enjoyed it, and slept well after each meal. Our supply unfortunately again failed us; the child became feeble and very poorly. A little weak brandy and water was given occasionally, and an injection of beef-tea, with a little sherry wine, administered.

Dec. 26th. Convulsive movements continued, but chiefly affecting the face. These the chloroform failed to control. A fresh wet nurse having been obtained, mother's milk was again supplied.

Dec. 27th. Finding no benefit likely to accrue from the interrupted administration of the chloroform, we determined once more to apply it continuously; recommencing its use at 10 A.M, with the intention of continuing it without remission, until the morning of the 28th; but about 2 P.M. the administration of some food was speedily followed by lividity of the face and an appearance of suffocation. The chloroform was at once suspended, though I am disposed wholly to attribute the attack to the food. Unlike what we had observed in the early stages of the affection, a difficulty was now experienced in administering food without an entire suspension of the chloroform for a few moments.

Though the final administration of the chloroform was more limited than we had designed, it proved sufficient, and no more convulsions occurred. The child slept well, and took food (mother's milk) from a spoon very readily. This favourable change proved a permanent one, though even on the 30th the hands continued clenched, and the motions green. Anodyne carminatives soon corrected the latter symptom, and the hands gradually relaxed. The child took the breast in the ordinary way a day or two after, and is now fat and flourishing.

REMARKS. That this case was of the hydrencephaloid type, resulting from the loss of the child's natural food, was indicated by the depressed fontanelle, pallid face, and feeble pulse. Most probably this is the class of infantile convulsions in which the anæsthetic treatment promises to be successful.

The preceding record indicates—1st. That to be successful, the use of the chloroform must be *continuous*, and not *intermitting*. 2nd. That no artificial food should be given; but that a wet nurse should be employed from the commencement of the treatment, drawing the milk with a breast-pump, and administering it in a spoon. I have little doubt but that had a wet nurse been in readiness on Dec. 20th, the recurrence of the convulsions on the 22nd would have been prevented.