usually, as we have seen him, mixes the paste himself, in the proportion of about two of caustic potash to three of lime, previously powdered and preserved in stoppered bottles; we have observed he mixes these by means of spirits of wine. A hole is next cut in the centre of three or four thicknesses of adhesive plaster, placed over the varicose enlargement, and a spot the size of a threepenny piece exposed; then, with a bone spatula, or one of asbestos, a very small portion of the paste is let into the hole of the plasters, and allowed to remain on about twenty minutes, followed by a large poultice, placed subsequent to an entire sponging of all the limb, so as to free it from the potash and remnants of plaster; eight or ten such eschars are generally sufficient to obliterate the veins in ordinary cases. Mr. Skey believes that the cause of the disease is usually a *remora* in the venous circulation, due to want of power to propel the blood, and that this condition of the system must not be lost sight of if we propose to eradicate the original disease effectually. He accordingly orders usually such medicine and diet as may assist the treatment; bark, in form of the liq. cinchonæ, iron in other cases, opium when necessary, wine, porter, and animal food. Mr. Skey is not much in favour of purgatives, and is quite a disbeliever in what is called "improving the secretions", or clearing out the portal system. But, in a very large number of cases, not much under sixty or seventy, he states he has found this method of treatment of varicose veins by the potash and lime quite sufficient for all purposes. He believes it safer than the method by ligature, which we have also seen recently adopted with very fair success by Mr. Stanley in other cases, by Mr. Erichsen at University College Hospital, and by various other surgeons. The chief point in the treatment by the ligature is to get fully beneath the vein; if the vein be transfixed, we shall have phlebitis of a bad kind at once supervening. K.

Original Communications.

ON THE USE OF SMALL DOSES OF OPIUM IN THE ACT OF DYING FROM PHTHISIS.

By Joseph Bullar, M.D., Physician to the Royal South Hants Infirmary.

The treatment of the dying is not made a subject of systematic instruction, though it is one for which the assistance of our art is eagerly sought. The following cases illustrate the advantages of opium in alleviating the distressing dyspnœa, and in producing "euthanasia", in those dying by the lungs.

Case. At half-past 9 p.m., I saw Mr. ——, aged 40 years, *in articulo mortis*, from phthisis. Since 6 p.m. his breathing had become very laborious; his hands were cold; his face was covered with cold sweats, and livid. Raised by pillows in a semi-recumbent posture, he was restless, anxious, tossing his arms about, and moving from side to side; and he had the rapid, failing pulse of death. He said, with his usual firm voice, "If you do not relieve my breathing, I shall die;" with a painful expression of distress and agony. I gave him immediately ten drops of Battley's liquor opii sedativus, in a teaspoonful of water; in a few minutes he asked for more, as he felt somewhat relieved; but he thought he was taking spirits. At intervals of about ten minutes, more or less, he requested the dose to be repeated, until he had taken, in the course of an hour and a half, at least a drachm; and he gradually became quiet and tranquil, breathing short and quickly, but without distress; and he said more than once he was free from pain, and peaceful. His pulse gradually became weaker, and at 12 it was imperceptible, but his heart acted. He lay still, but when he spoke he showed that his mind was quite clear. At 2 he raised his arms several times, and dropping them, exclaimed he was dying; and, in answer to a question, he said he was in no pain, but peaceful. After this he did not speak, but lay quietly; and died about half-past 9 in the morning, a deeper inspiration or two being the only indications of change before he ceased breathing.

In this case, the opium relieved the agony from dyspnœa, without producing narcotism, or any diminution of the clearness of his mind.

I felt no hesitation in giving opium in this case, as not long before I had been suddenly called to a member of our profession in the same condition. He had for several weeks been confined to his bed in the last stage of phthisis, and was reduced to such a state of suffering, from extreme emaciation and debility, that he had been anxious to die. About 1 o'clock p.m., he was suddenly seized with the dyspnœa which precedes death, and I reached his house half an hour afterwards. He was sitting up in bed, supported, with the face of death, and in the utmost anguish from dyspnœa. He begged me to give him a dose of Battley; but the difficulty of breathing was so extreme, and suffocation seemed so near, that I hesitated, for fear the opiate should stop respiration altogether and at once. I tried a small quantity of brandy and water, but this he said burned him, and he again begged for opium. I gave him fifteen drops of Battley's sedative solution, in a small quantity of water, and repeated the dose at intervals of a quarter of an hour, until he had taken three. He found immediate relief, and in a short time was able to lie down with his shoulders raised. He retained his consciousness during the afternoon and evening, and his family read prayers to him. Our mutual friend Dr. Harvey, who kindly sat up with him until he died, gave him a fourth dose in the evening.

On examination, both lungs were extensively tuberculated, with large and numerous cavities in each. The lower lobe of the left lung was alone fit for respiration.

Both these patients were *in articulo mortis*, dying by the lungs of suffocation; and in both the painfully laborious breathing, and the horrible anxiety and distress from such intense physical suffering, were rapidly relieved by small opiates frequently repeated, calming both body and mind, without any loss of consciousness. Both were in the prime of life, and had lived active, useful, and unselfish lives; and both were, in the best sense, good men, and in both that peaceful state of mind which is the result of such lives was evident as soon as the opiate quieted the extreme bodily distress which previously had been predominant. The opium thus changed a scene of hopeless and distressing agony into one of calmness and peace. To sit by as a passive spectator under such circumstances, believing that nothing can be done, or attempting to relieve by stimulants which rather aggravate the sufferings by increasing action without giving power, is a painful position for those practising the healing art; but the power of alleviating not only this last distress of the dying, but also of the relatives around, is as encouraging.

The relief thus immediately obtained may be through the pneumogastric nerve. In the act of death in phthisis, the accumulation of muco-purulent secretion in the bronchial tubes is the cause of suffocation, and the channel of this painful sensation must be the pneumogastric nerve. As this nerve is also distributed to the stomach, the opium can act immediately upon it, and, by diminishing its sensibility, may relieve the patient from the distressing sensation of suffocation, although it does not remove or diminish the cause. This is in accordance with Dr. Marshall Hall's view, who termed the pneumogastric the internal excito-motory nerve of respiration, and believed that the presence of carbonic acid gas in the lung was the stimulus to respiration through this nerve, and that the immediately accelerated breathing of animals confined in an atmosphere of carbonic acid gas was a proof of this.

There are two popular objections against opium in these circumstances which certainly did not hold in these cases. The first is, that opium may hasten suffocation; but in these instances it removed the feeling of suffocation, and

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,