THE PHYSIOLOGICAL AND CHEMICAL ACTIONS OF ALCOHOL.

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I DESIRE to make a few remarks upon Mr. Lucas's paper on the Physiological and Chemical Actions of Alcohol, which appeared in the JOURNAL for November 14th. Passing over such statements as that, because alcohol "flushes the face" and "reddens the ears", this is evidence of stimulation, and that it "warms the body generally", I come at once to the main point he wishes to inculcate. He says:—"The double action of alcohol as a stimulant and narcotic is against reason." I would ask, Whose reason? It may be against Mr. Lucas's reason; but this is because his reason has not become adapted to the facts. In another place, he says that, "to adopt Dr. Anstie's theory, and to say that alcohol is a stimulant in small doses and a narcotic in large, is to assert an apparent contradiction". This, however, is not much to the point, since an apparent frequently turns out not to be a real contradiction; nor is Mr. Lucas any nearer the truth when he says that "it is only natural to infer that, if a small dose stimulate, a large dose must stimulate to a still greater extent", since the most natural inference frequently turns out to be the wrong one. To adopt an illustration of which I have availed myself elsewhere, let me imagine that a person sees a boy's kite falling to the ground, and that, although he is conversant with the general properties of matter, he is thoroughly unacquainted with the special properties of the kite. He will know that it is falling to the ground by the force of gravity, and it is only natural for him to think that, if he will pull the string attached, this will increase the downward tendency and accelerate the fall. But this natural conclusion may turn out to be the wrong conclusion, since it is quite possible that the kite will make a turn and begin to ascend. He pulls somewhat more strongly, and may find that the kite, instead of descending, continues to ascend more steadily and quicker than before; and now the natural conclusion is, that the more he pulls the more rapidly will the kite ascend. Once more, the natural inference is the wrong one. The kite makes another turn, and begins to descend. It is quite unnecessary for me to enter upon an explanation of these facts; my main object is to show that, in the case of the kite, the most opposite effects are produced by slight quantitative variations of one and the same cause; namely, the pull on the string attached. If I say, then, that a small pull in a certain direction on the string attached to a kite will make it ascend, while a strong pull in the same direction will make it descend, are these statements contradictory? Not at all. They are mere expressions of observed facts which cannot be denied, and yet they involve as much of a contradiction as the statements that a small dose of alcohol stimulates, while a large dose narcotises. If Mr. Lucas had said that alcohol always tends to stimulate, instead of saying that it is "a pure stimulant", the only criticism I would have to make respecting the assertion is, that it is one made by others long before him. The pull on the string attached to the kite always tends to draw it to the ground, and this tendency is exerted even when the kite ascends; and it is perfectly possible that the tendency of alcohol is always to stimulate, even when narcotism is produced. The facts can, however, be viewed from another standpoint. It may be said that alcohol always tends to narcotise, and its stimulant action may be regarded as an indirect result of the reaction of the tissues acted upon, just as the pull on the string attached to the kite always tends to draw it to the ground, while its ascent is an indirect result of the reaction of the kite to its environment. To sum up: when the late Dr. Anstie said that alcohol in small doses stimulates, and in large doses produces narcosis, he gave expression to observed facts, the truth of which cannot be doubted, whatever may be our interpretation of them; and, when it is said that alcohol always tends to stimulate, this introduces us to a very plausible hypothesis to account for these facts; while the opposite, though by no means the contradictory, assertion, that it always tends to narcotise, can also be defended as a plausible hypothesis; but the assertion that alcohol is a pure stimulant cannot be defended, and certainly has not been defended by any valid arguments whatever. Mr. Lucas himself speaks of a patient who died utterly exhausted from alcoholic overstimulation; and it is my opinion that he will find in this exhaustion of nervous power a more ready explanation of the narcotic action of alcohol than the complicated one he adopts. His own hypothesis is not only not defended by one single plausible argument, but it is utterly discredited by the experiments of Bernard, who has shown that relatively large quantities of carbonic acid can be injected into the veins of animals without producing any appreciable effect. Mr. Lucas's theory of nervous action, and the diagram illustrative of it, are certainly original; but I do not suppose he will find many who will adopt the one or rest satisfied with the other.

CLINICAL MEMORANDA.

SPASM OF THE DIAPHRAGM.

SOME few months ago, a saddler consulted me for what he called "a catch in his breath". He described it as a sudden drawing in of his breath, coming on any time, even waking him out of sleep; lasting a shorter or longer period without giving pain, and going off again, leaving him rather sore. He said, in every other way, he was as well as he could wish to be. I advised him to avoid all work attended with pressure upon the sternum, and gave him a belladonna mixture; and, in a day or two, he said he was well. On November 2nd, he sent for his old mixture, and, on the 4th, he came to see me. On my entering, his respiration was very quick, and at each inspiration there was a noise very like that made by a bellows with its valve out of order. His left hand was pressed against the side, and he was writhing about like one in pain. I let him inhale a little chloroform, which restored normal respiration, and I gave him a mixture, with large doses of bromide of potassium to take between the attacks, as well as one containing spirits of chloroform, belladonna, and camphor, to take when an attack threatened. On the 5th, he came again worse than before. I again administered chloroform, which relieved for a while, but was followed by an attack, in which perspiration stood in drops on his brow, whilst the breathing reminded one of a locomotive engine at full speed. I gave him a full dose of opium, which quieted the disorder down to an occasional sob. At night, I gave him a subcutaneous injection of half a grain of morphia, and repeated it three times the following day, with the effect of keeping off a bad attack, causing remarkable irritation of the skin about the punctures, and no drowsiness. On the 7th, I gave him a morphia-draught to take, if necessary, and two grains of valerianate of zinc every hour. From this time, he improved considerably, having no attack for several days, whilst gradually discontinuing his valerianate of zinc mixture. On the 23rd, it returned, and he is now under treatment, about which I shall be happy to receive suggestions. I looked upon the case as spasm of the diaphragm, and sought for indications to treatment in the communications of the phrenic, seeing that it seemed most probable the irritation was not centric; but I failed to find them. My patient tells me this is the third time he has suffered from these attacks, the first being when he was serving his apprenticeship to the business he follows.

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CASES OF ILLNESS FROM DRINKING MILK TAINTED WITH SEWER-GASES.

THE following cases, lately under my care, are interesting on account of their presumed cause. They occurred in a house of which the water-supply is unexceptionable, the situation most healthy, and the drains had been within the last three years relaid. This was believed to have been most carefully done; but, as will be seen, an old drain had been overlooked. The soil-pipes, etc., are well ventilated. On August 21st, one of the children in the house was seized with rigors, very high temperature, sickness, and abdominal pains; and, after only a few days' illness, was restored to almost her usual health. Within a few days, the infant was attacked with sickness and obstinate diarrhoea. As this continued for a few days in spite of remedies, I suspected that one of the cows might be ill (of which, however, there was no evidence), and requested that some of the milk from one cow should be taken straight to the nursery for the infant's use, so as to prevent any admixture with unwholesome milk; and from that time there was steady recovery. On September 19th, an elder child fell ill with what proved to be enteric fever, and of course a cause was at once sought for. It was then found that a bad smell had been for a long time perceived in the dairy by the servants; that several people had noticed that milk which had been all night in the dairy had an offensive smell. The cause of this was easily discovered. An open grating in the area outside allowed the washings from the dairy-floor to enter a surface-water drain; but this drain had formerly communicated with the house-cesspool, and it was found that the communicating drain had never been properly cut off. The door of the dairy opened into the warmer house, and the window into the area. There was also an opening on the floor-line into the area close to the grating. Sewer-gases, therefore, had free passage into the area, and were sucked through the dairy whenever the door was opened. When we consider—1. That no other cause for the fever could be found; 2. That three children were attacked about the same time with symptoms which this cause might explain; 3. That none of them had been away from home or improperly dieted; and 4. That the infant's