watch the girl, in order to detect imposture, if it existed. The patient was well watched for eight days, and then died. She never asked for food from the nurses, and it was never given to her by them during this time. This girl had attacks of hysterical crying and sobbing, and went off into what was called "a fainting fit". The *post mortem* appearances stated at the inquest were that the organs were healthy; no obstruction in the alimentary canal; a small quantity of semi-gelatinous fluid in the stomach; small intestine empty; half a pound of hard excrement in the large intestine and rectum.

To my mind, these two cases were much alike, and were both cases of hysterical insanity. No one can be considered sane who, without cause, starves so as to endanger health and life. Should cases of "fasting girls" continue to crop up, I think it would be well if the subject were brought under the notice of the Commissioners in Lunacy, as, at their instance, inquiries are at times made into cases where sanity is dubious.

It is quite admitted that the standard of sanity and insanity varies much in different parts of the United Kingdom; but when, as the result of some mental change, a patient acts in such a way as to endanger his own life, or even to become a local nuisance, it would be well at least to make a careful examination into his sanity. Old ladies who keep a house full of cats in town, thinking that they have souls, find it now-a-days scarcely safe to carry out their opinions; and the race of hermits who lived in dirt and discomfort has become almost extinct by the active discharge of duty of the country relieving officers.

In the case of the Welsh girl, eight days of careful watching and the death of the girl clearly prove that even "fasting girls" cannot live on air. I think that there can be little doubt among medical men or others that human life can only exist for a short period (limited to days) without nourishment; and that, if ordinary food be taken into the system, evacuations must follow, though, of course, they may be lessened by the nature and quantity of the food, and the alvine evacuations may be at very considerable intervals. Though it may be interesting to know how long cases may exist with very little food, yet this treatment does not conduce to recovery.

In the present state of our knowledge of the vagaries, the simulations of diseases, and the moral depravity noticed in patients suffering under the hysteric state, I think that no more "fasting girls" should occur. I do not see why many cases of mental disorder should not be treated at home, and by any medical practitioners who choose to treat them; but I certainly think that the necessary physical as well as moral force should be used, and that the treatment which has proved efficacious in asylums should be applied to similar cases when treated outside.

In the JOURNAL for February 9th, I notice that another "fasting girl" is reported from Wales. Surely efforts will be made to prevent her from starving herself to death. If the patient be not rich enough to afford proper home treatment (which, to my mind, would consist principally of at least two good meals a day, and the attendance of a sensible, intelligent, strong-minded woman, who would do all in her power to help the girl to get rid of the idea of making herself notorious and ill), the proper mode to pursue in such a case would be to give notice to the relieving officer, who is bound to call in the medical officer of the union; the mental state of the patient would be inquired into, and the case sent to the county asylum.

3. *Persistent Refusal of Food.*—In this asylum, it is and has been the practice that, in all cases of refusal of food for two full days, it should be administered artificially; of course, in feeble cases, one does not wait so long. I quote the following from Dr. Clouston of Edinburgh, my predecessor in office, under whom I acted as assistant for several years:—"Forcible Feeding" (*Lancet*, November 30th, 1872): "Hundreds of patients are fed with the stomach-pump in our asylums every year, and no bad result follows to them; but quite the contrary; in a prolonged case, I have scarcely known anyone who did not take to the stomach-pump. I have myself so fed thirty patients in the last ten years, all of whose lives were probably saved by this means; ten of whom recovered, and a large number of whom gained weight during its use; one to the extent of a stone. I am sure that a thousand patients are allowed to die by the gradual process of starvation, because they are not fed in time with good full meals regularly given by the stomach-pump, for one who is injured by using it." Dr. Clouston mentions that Dr. Maclaren of Carlisle suggested to him the use of a stomach-tube made of India-rubber, like the French flexible catheters, which, he considered, would completely obviate any risk of injury even in clumsy hands. Shortly after that date, I got tubes made of this material, and have used them since and found them most satisfactory. During the last five years, thirty-five cases have been fed in this asylum; one of them for a continuous period of two years and one month. I may mention that this patient was

phthisical, and ultimately died of phthisis. She took her food herself for five months prior to her death.

Among these cases, four were hysterical cases in girls; three of them recovered, and the fourth was removed to another asylum; and three were youths in a somewhat similar state, produced by sexual causes (the latter were all discharged recovered): the principal feature of their cases being silly emotional excitement, alternating with a trance-like or cataleptic-like state, in which the patient would lie for hours, taking no notice of what went on around, and apparently unconscious of pain or discomfort, and refusal of food for considerable periods.

Considerable numbers of girls in the hysteric state, who had refused food at home, when they were brought here, and the means and manner of giving it were explained to them, have at once given in and taken their food. I always make a point of taking such patients to see another fed with the pump, if one is being fed in the house at the time.

I believe that in certain cases persistent refusal of food may be caused by disease, or by the sequelæ of former diseases. I reported in the *Journal of Mental Science* (January 1875) two cases of melancholia presenting similar mental manifestations to each other, evidently the result of visceral lesion. Great depression, suicidal longings, abdominal discomfort, and refusal of food, were the chief symptoms. Both died above sixty years of age. In one, a stricture of the large intestine was found; in the other, occlusion of the bile-duct.

In conclusion, I admit that there are three apertures by which food can be introduced into the alimentary canal (I refer to the nose, mouth, and anus), independently of the will of the patient, and a variety of instruments are available. Under any but extraordinary circumstances, I certainly prefer the use of the natural entrance, with the stomach-pump and soft tube as appliances. I however admit that rare cases may arise where the other methods may present advantages, almost solely where cut-throat or disease of the œsophagus exists. Dr. Brown-Séquard, in the *Lancet* of January 26th, 1878, records cases where nutritive enemata were employed for periods of three, six, and eight days. Two were cases of hysterical spasm of the œsophagus, and recovered. A case of severe cut-throat was treated in this asylum in 1874, and recovered. The patient was sustained entirely by enemata for twenty-one days, and only lost 1.6 lb. in weight. The case, in full, was reported by Dr. Macleod of this asylum in the *Journal of Mental Science* for July 1875.

ON THE TREATMENT OF UPWARD DISPLACEMENT OF THE ARMS IN HEAD-LAST DELIVERY.

By GEORGE ROPER, M.D., M.R.C.P.,

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WHOEVER has had much experience in complex labours must have observed that in head-last deliveries, the upward displacement of the arms constitutes a great difficulty in the completion of delivery—a difficulty exceedingly perplexing to the operator, very painful to the mother, and often making the difference between life and death to the child. Smellie had observed this difficulty, for he says, "If one of the child's arms, instead of being placed along the side of the head, is turned in between the face and sacrum, or between the hind head and os pubis, the same difficulty of extracting occurs as in a large head or a narrow pelvis" (McClintock's edition, New Sydenham Society, vol. 1, p. 309). This upward displacement of the arms is at times attributable to the unskilful procedure of the operator, who, from eagerness to expedite delivery, for the purpose of saving the life of the child, brings about this very difficulty, which to a fatal degree retards delivery. Such an accident, however, frequently occurs independently of unskilful treatment. I believe it unavoidably occurs in breech-cases, and in cases of podalic version, when the child is of an unusually large size, rendering the case one of disproportion; so that we have a large child with a large head *plus* the arms upwardly displaced jammed in the pelvic brim.

The upward displacement to which I refer is one of such degree, that the arms are so entirely extended above the head, after the trunk is born, that only the anterior folds of the axillæ can be felt, tightly stretched, and it is simply impossible, without injury to the child, to get down an arm. My chief object in remarking on this difficulty is to call attention to a very simple contrivance by which it is to be prevented. It consists in passing a noose of narrow tape round the wrist of the child. In presentations of the upper extremity, when an arm can easily be secured, this can be done at once. In the severe forms of breech-presentations, as where the legs are extended on the thighs, or where podalic version is to be effected in head-presentations, the

tape must then be passed up on the fingers of the operator, and placed on the child's wrist *in utero*. This, of course, is not so easy as when the arm is down in the vagina. For snaring an arm *in utero*, I pass the tape through a tube of flexible metal; the arm is thus more easily caught; and when the noose is securely fixed round the wrist of the child, the arm can be brought down by traction on the tape at any period of the labour. When one arm is thus brought down, the other can easily be secured. The tape must always be sufficiently long that a portion of it hangs down externally after the presenting hand has gone up. Whenever delivery is to terminate head-last, it is always well to adopt this contrivance.

I am desirous of recording this little device, because I believe it is not mentioned in any of the English text-books on obstetric practice, nor is it taught in our midwifery schools. I learned it from my friend Mr. F. Gordon Brown, one of my colleagues in the Royal Maternity Charity. He obtained a knowledge of it while attending the lectures of M. Dubois, in Paris, in 1863.

ANTISEPTIC SURGERY.*

By S. MESSENGER BRADLEY, F.R.C.S.,

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ANTISEPTICITY, like Christianity, has more professing believers than sincere disciples; still it is something for a creed to be so generally accepted in this sceptical age, and my object to-night is not to discuss the value or importance of antiseptic surgery, but rather to criticise some of the methods of carrying it out in practice. We are, perhaps, too much in the habit of confusing antiseptic surgery with Lister's name and Lister's method. Mr. Lister neither discovered the true cause of septicity, nor was he the first to suggest carbolic acid as the most convenient agent for preventing it. He has popularised the subject in the minds of surgeons, and invented an ingenious method of dressing. I do not think that more can be justly claimed for the part he has played. Years before he wrote, Pasteur had investigated and ascertained the true cause of putrefaction; and, amongst other writers prior to Lister on the subject, Jules Lemaire, in a considerable work (*De l'Acide Phénique*), insisted upon the fact that putrefaction was caused by bacteria, and that we had in carbolic acid an efficient and convenient means of destroying these organisms, or rendering them innocuous.

Again, the dry earth system of dressing advocated by Mr. Hewson of Philadelphia, the anhydrous dressings ably handled by Mr. Hamilton and others, the terebene scab-dressing recommended by Mr. Waddy, are all scientifically directed to combat or to prevent septicity. These various agents may, and indeed do, act in different ways, as I shall endeavour by-and-by to explain; but all aim at the same object—the prevention of putrefaction. The essential difference between Lister's position and that of other antiseptists lies in this: that he claims for his method an infallible and invariable result.

Lister does not deny that other plans may occasionally succeed; but he does deny to them the certainty of success which he claims for his own. He may be represented not unfairly as saying: "Of course, a patient dressed according to my method may die; he may die of hæmorrhage, or of shock, or of embolism, etc.; but he shall not die of putrefaction or any of its effects, such as septicæmia." Now, gentlemen, the object of this paper briefly is to consider whether Lister's plan is entitled to this unique position.

And here, I think, it becomes necessary for us to discuss a little in detail the true cause and nature of putrefaction; for, though putrefaction does not necessarily include septic poisoning, no form of septic poisoning can occur without previous putrefaction.

There are two theories by which putrefaction is explained: the chemical theory and the germ-theory. The chemical theory is thus described by Neudorfer, from whose recent work, *Die chirurgische Behandlung der Wunden*, I make the following free translation. "Such albuminous bodies as blood, serum, and lymph possess a very unstable chemical constitution, and are only capable of resisting change whilst contained within their proper vessels. As soon as these boundaries are passed, they undergo molecular change, fermentation, and decomposition. As excitors of these changes, we must regard:—1. All altered albuminous bodies which belong to the animal kingdom, since they have the property of inducing this molecular change and decomposition in unchanged albuminous bodies with which they come in contact; 2. Altered albuminous bodies met with in the vegetable

kingdom, such as lint, cotton, charpie, and other surgical appliances; 3. Water, even distilled water, coming into contact with albuminous matter, induces the changes above referred to; 4. Mechanical causes, such as blows, etc.; 5. Dynamic causes, like pain, etc." (Page 154.) Such, shortly, is the chemical theory of putrefaction, concerning which I shall content myself with saying that this explanation is no explanation at all, since the changes referred to by Neudorfer never occur unless there is some means of access for the air. Keep out the air, and these unstable albuminous bodies never do putrefy. They may escape from their boundaries; they do escape every day in simple fractures and other subcutaneous injuries, yet we confidently predict that there will be no putrefaction; for we know that, without a *primum movens*, these fluids are incapable of change. Neudorfer himself admits as much when he speaks of these changes being excited by other albuminous bodies which have themselves already undergone a change. This fact led observers to examine the air, and to inquire whether it was the air itself, or something in the air, which induced the putrefactive change; and ere long it was discovered that, if the air were carefully filtered, putrefaction never occurred. The search for this *tertium quid* led on to the detection and indictment of bacteria as the *vera causa* of putrefaction. This naturally leads me, then, to consider the second theory of which I spoke; viz., the germ-theory of putrefaction. It is true that as yet there is a link missing. We know, from the beautiful experiments of Tyndall, that air optically pure is incapable of producing putrefaction; we know that, wherever there is putrefaction, there are bacteria; but the origin of these organisms, the germs of the bacteria, are beyond our ken, and, from what I know of the matter, are likely to remain so. This, however, no more proves their non-existence than the apparent identity of embryological cells proves their similarity: the facts equally point to the conclusion that our vision, even aided with the microscope, is very limited.

Permit me to dwell for a few moments upon certain points in the life-history of these little organisms. And, first, I would remark that, like the higher animals, they are, a mixed lot; sheep and goats are to be found amongst them. Of them, it may be truly said, "By their fruits shall ye know them"; for, while some are innocuous to the human system, others are lethal, giving rise to various specific diseases. Already the microscope has done much towards branding the various kinds of bacteria; much more, however, remains to be done in this direction.

The important fact for us to bear in mind in connection with the matter in hand is this: that, while some are harmless and others are harmful, all alike are capable of producing putrefactive change. Such tiny things as bacteria are, of course, difficult bodies to study; but we have learnt some important principles of their mode of living: *inter alia*, we know that they multiply exceedingly; we know that they prefer swimming to flying; we know what will kill them and what will keep them alive, and, of course, it is the study of this last fact that has led to the elaboration of antiseptic surgery. Bacteria depend, like we do, for their sustenance upon oxygen; but, like us again, they can only bear a certain quantity; too much kills them, and, for this reason, ozone is a powerful germicide and true antiseptic. I will, with your permission, refer to an experiment with this body, which I made last year in company with Mr. Harrison.

On February 5th, 1876, we took these two bottles, each containing some turnip-water just passing into putrescence; through the one, a stream of ozone was passed; in the other, the air was left untouched. Through each cork, bent tubes were inserted. These bottles are now before you. The fluid through which the ozone was passed is little changed; the fluid in the other is green and thick. I have little doubt that the turbidity of the ozonised solution would have been quite obviated, if, instead of corks, we had used plugs of cotton-wool, and so filtered the air which subsequently found ingress to our bottle. This experiment may, however, be taken as sufficient evidence of the antiseptic properties of ozone, and it is by virtue of their ozone-evolving properties that some agents employed in surgery have antiseptic powers; for example, Dr. Angus Smith informs me that all the essential oils give off ozone, and he has proved that they all possess antiputrescent properties. Of these, he tells me the oil of mustard, the oil of bitter almonds, and the oil of the eucalyptus globulus are the most powerful; and with these I intend to experiment. From recent investigation, indeed, it would appear that the eucalyptus globulus (I mean the tree itself) really merits its character of malaria-killer. May we not fairly infer that this is due to the ozone given off from its fragrant leaves? It has sometimes occurred to me that the sacred groves of Scripture had a similar value; if so, we may readily understand that the heathen's god would avenge the desecration of his temple, when these groves were destroyed, by sweeping as a pestilence over the land. Turpentine owes its antiseptic properties

* Read before the Manchester Medical Society.