stocking. This difficulty is got over by the use of cork soles. I directed my patient to get half a dozen, which she finds sufficient. A pair must only be worn one day unchanged; at night, they are placed in the boracic jar, and are put aside the next day to dry. If these directions be accurately carried out, the evil smell is perfectly destroyed.

The boracic acid solution is an excellent application to the painful skin in these cases. When the tender skin of the soles is washed with it, a sensation of coolness succeeds the feeling of heat and tension which are the usual accompaniments of the eczematous condition associated with the smell, and the skin becomes harder and loses its abnormal redness.

The bacteric fluid would seem to act as a direct irritant to the skin. My patient assures me that, if she wears stockings which have been dried without being disinfected, irritation is speedily felt; and that the cork soles, if worn a second day without having been purified, act in a similar way.

TRACHEOTOMY IN CROUP.*

By W. J. TYSON, M.B., F.R.C.S.,
Medical Officer to the Folkestone Infirmary.

HAVING had the opportunity of performing tracheotomy three times in October and November of last year, and also of assisting my friend Dr. Thomas Eastes in two other cases about the same time, I thought that a short paper thereon, mentioning some of the difficulties that were met with, as well as other points connected with the operation, might be of interest, or at any rate give rise to some discussion. The following are notes of my three cases.

CASE 1. Catarrhal Croup: Tracheotomy: Recovery.—E. B., aged 5 years, a delicate child, was first seen on Thursday, October 2nd, of last year, suffering with a well-marked attack of measles, the rash being fully out. At seven the next evening the breathing became troublesome, and several convulsions took place. At half-past nine I saw him for the second time; the child was then in great distress, rolling from one side of the bed to the other, exhibiting great sinking of the chest-wall at each inspiration, lividity of lips, and making a loud croupy noise. Tracheotomy was done at half-past ten the same evening, Dr. Eastes kindly assisting me. The difficulties met with in the operation were the opening of the trachea before it was sufficiently bared, and the not hooking back of all veins as they appeared in the wound; consequently much hæmorrhage took place, but this was ultimately stopped by changing the tube for a larger one, and by applying external pressure. The child was left at 11.30, breathing comfortably at 44 respirations per minute, and with a pulse of 128. The next morning, October 4th, the patient was doing well; he had passed a quiet night. The urine contained no albumen. A piece of flannel, soaked in a warm weak carbolic acid lotion, was ordered to be placed over the mouth of the tube every quarter of an hour. The tube was taken out the next day at eight in the evening, forty-six hours after the operation. He now breathed partially through the mouth and nose, and partly through the tracheal wound; but the latter rapidly closed. I may say that, for ten hours previously to the withdrawal of the tube, some air was passing through the nostrils. On November 9th, he spoke audibly for the first time, and on November 25th the skin-wound was entirely healed. He is at this present time perfectly well.

CASE 2. Membranous Croup: Tracheotomy: Death.—R. K., aged 4½ years, a strong, healthy boy, was taken ill on Friday evening, October 24th; he continued so Saturday and Sunday, when I saw him for the first time, at 11 A.M. He had now all the symptoms of severe laryngeal obstruction. Four hours later, the symptoms not having abated, tracheotomy was done. Drs. Bowles and Eastes were present, and kindly assisted during the operation. Here, as in the former case, great hæmorrhage occurred, and before the tube was introduced the child was nearly moribund; but, with artificial respiration, the breathing became, compared with what it had been before the operation, natural. The bleeding was stopped by keeping up external manipulation; and the tracheotomy-tube was changed for one of a larger size. No membrane was seen before, but several pieces were coughed through the tube during the operation. The warm moist flannel was used here as before over the mouth of the tube. The child passed a good night. On the morning of the 27th, two little white patches, of the size of a pea, were seen on each tonsil. At noon the same day the child began to be restless, and from this time went rapidly downhill; at 10.30 P.M. some retraction of the chest-wall was noticed at each inspiration. He died the next morning at 4.30, 36 hours after the operation. The father

told me that the boy had passed a most struggling night, but he did not think it necessary to send for me! When I saw him, the inner tube was completely choked with the mucus, and the tape of the outer tube unfastened. Throughout the case, I was quite unable to make the parents realise the vital importance of constant attendance to the tracheotomy-tube. The *post mortem* inspection made in the afternoon of the same day, showed that the epiglottidean folds were edematous, and that pieces of false membrane extended from just above the true cords down the trachea into the smallest bronchi. There was considerable injection of the trachea where the extremity of the tube came in contact with its anterior walls. The lungs were not consolidated.

CASE 3. Chronic Laryngitis: Tracheotomy: Death.—C. B., aged 4 years, was stated by his mother to have had a cough for some months; at times his breathing had been very short. A fortnight previous to my seeing him, he caught measles. On Sunday evening, November 23rd, I was sent for, and then found him with severe laryngeal obstructive symptoms. The next morning I saw him at 9.15 A.M. His countenance was now of a dull leaden hue, he was cold and semi-conscious, his pulse was 160, and the laryngeal symptoms had become intensified since the previous evening. Tracheotomy was done an hour later. The trachea was not cut until quite cleared; and the veins, which were most turgid, were carefully held aside by small hair-pin retractors. Practically no blood was lost, and the operation, compared with the previous two, was most agreeably easy. The child soon regained its natural colour. The urine contained albumen. The next morning, the 25th, pulse was 150; respirations 40. No membrane could be seen through the throat; the tonsils were enlarged. At 10.45 the same evening I was suddenly called down, but before my arrival the boy was dead. The nurse, on account of the restlessness of the child, had taken out the inner tube, and in so doing must have slipped the outer one from the trachea, for I found it lying outside and upon the trachea. The tape was not unfastened. The *post mortem* examination was made the next day at noon. No false membrane was seen anywhere. The rima glottidis was closed, and its edges were much thickened. At the posterior aspect of the upper lobe of the right lung there was consolidation of liver consistence and colour. The bronchial tubes were red and contained a frothy reddish fluid.

REMARKS.—The first case, I think, was doubtless one of catarrhal croup, associated with a considerable amount of spasm, for the symptoms developed most rapidly and as quickly disappeared. No membrane was seen at any stage of the case. The second was a typical case of membranous croup of the asthenic type; and the third was probably of a chronic nature, in which an acute attack had supervened. The immediate cause of death must be considered to have been the accident of the outer tube being expelled, either during a severe fit of coughing or whilst the inner tube was being changed. Too much "play" had been allowed to the tube. There are two points in this last case to which I wish to draw attention, for they are of some practical import. It is generally believed that, at the end of twenty-four hours, the parts external to the trachea, and the lips of the tracheal wound, are so glued together that there is no difficulty in getting in a tube at any time after this date. I believe this not to be universally true; for, on examining carefully the condition of the trachea soon after death in this last case, I found the edges of the wound in the trachea almost in contact, and an ordinary round tube could only be introduced with some amount of difficulty. There is another fact which is more important than this, viz., the swelling which takes place in the tissues between the windpipe and the skin, thus augmenting considerably the distance of the trachea from the surface. This swelling is partly due to inflammatory material thrown out, as well as to emphysema. The practical outcome of this is that, although one may allow a fair amount of play to the tube immediately after the operation, very soon the tube becomes more or less tight, and, unless the shield of the tube is kept in close contact with the skin-wound, the risk is run either during a severe coughing fit, or in the careless changing of the inner tube, of permitting the outer tube to escape from its proper seat. This fact applies with still greater force to the infrathyroid operation. In the case referred to, the tracheal wound was quite an inch and a half from the surface, and when the shield of the tube was pressed firmly against the wound, the inferior extremity of the tube only just entered the windpipe. As regards any subsequent introduction of the tube, Hilton's pilot overcomes both these difficulties, for the extremity of it is more or less conical; and, as it also possesses a handle, there is no need of virtually shortening the tube, as one really does when introducing an ordinary Fuller bivalve tube by applying two fingers to the shield end in order to render the inferior extremity small for introduction. As regards the operation itself, one reads continually that it should be done slowly and carefully, and the trachea not be opened until its rings are clearly visible. Yet this is not usually done. I have seen the operation performed several times, certainly by young operators, and in the large

* Read before a meeting of the East and West Kent Districts of the South Eastern Branch of the British Medical Association.

majority the windpipe was hurriedly opened, or its opening attempted before it was well cleared. I have to thank Dr. Bowles for urgently recommending me to adopt a slower method, and, judging from the last case, and Dr. Eastes's two cases, tracheotomy ought to be comparatively easy if this dissecting method be adopted. The blade of the knife should not be freely used after the skin incision has been made, and all veins should carefully be held aside by small retractors. The constant placing of warm moist flannel over the mouth of the tracheotomy-tube, recommended by Trousseau, and suggested to me by Dr. Bowles, is far preferable to the steam kettle. It not only provides an equable warm breathing atmosphere, but also keeps the inner tube from becoming clogged with mucus, and, as the latter is thrown up, it is lodged upon the flannel and is taken away every time the flannel is changed. It cannot be too often repeated that tracheotomy is done simply to relieve a symptom which, if left alone, ends inevitably in death. Of course this obstructive symptom must be situated in the larynx, and not in the bronchi. Then it matters little, providing this laryngeal obstruction exists, whether the child has so-called diphtheria, membranous croup, catarrhal croup, or a foreign body in the larynx. The two best distinguishable signs between laryngeal and bronchial obstructions are those given by Dr. Buchanan. The first is the degree of loudness of the stridor; this is always great in proportion to the patency of the small tube and obstruction in the larynx. The second and better one is the condition of the chest-wall during respiration; in laryngeal obstruction, the bronchial tubes being free, the chest is sucked in with each inspiration—the greater the obstruction, the greater the retraction; but when the small bronchial tubes are blocked, the reverse condition happens, although not to the same extent, viz., that during inspiration the chest is slightly bulged out. Finally, it is interesting to note the connection of measles with two of the cases; the first had the attack at the time of the operation, the laryngeal inflammation being simply an extension downwards. The third a short time previous to the operation. Dr. Cheadle, in a short paper in the BRITISH MEDICAL JOURNAL for December 20th of last year, noticed the severe laryngeal symptoms accompanying the then prevailing epidemic of measles.

EPILEPSY.

OF late years, medical literature has been enriched by many, and in their way undoubtedly excellent, treatises on epilepsy; but, while every possible circumstance which might prove an exciting cause has been weighed and scrutinised, and while the scalpel and microscope have done excellent service in the field of practical pathology, no therapeutic course promising a permanent cure has been, to my knowledge at least, prescribed. Many remedial agents have been proposed, but with dubious prospective advantages, or merely palliative in their operation. In submitting the following remarks, I desire to indicate a method by which, I have good reason to believe, we can not only check the disease for a time, but entirely prevent it from recurring. It is, briefly, to continue the administration of bromide of potassium for a period of at least three months after the subsidence of the paroxysmal symptoms, and a brisk purgative occasionally. I append the leading facts of one case, which I believe to be in point.

E. D., aged 26, an intelligent young woman, who had been subject to epileptic seizures from her infancy, entered my service in the quality of general servant. One day, about a fortnight after her arrival, and on her return from shopping, she informed me that she had had an epileptic fit, and had fallen in the street: a fact to which the condition of her attire bore corroborative testimony. The same evening, she paid a visit to her father, returning about 10 P.M. A little later, she had a slight seizure in the kitchen. She was conveyed, partially unconscious, to bed, when a more violent and unmistakably epileptic fit supervened. I ordered sinapisms to the inside of the ankles and the back of the neck, and gave her, directly that she could swallow, two ounces of *mistura alba*. Next morning, all traces of the nervous derangement had disappeared. I then prescribed five grains of bromide of potassium with one ounce of infusion of gentian, to be taken thrice daily, with a brisk purgative occasionally at night. This treatment was persevered in for a period of nine months, the dose of bromide being gradually increased to half a drachm. It is now eighteen months since she has had a fit.

I cite but this one case, not because others are wanting, but that I fear to trespass too much on the valuable space of the JOURNAL, and because it is the best marked of its kind which has come under my notice. Did circumstances permit, I could multiply instances and adduce important collateral arguments tending to establish the truth of the doctrine I have advanced.

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FORTY-EIGHTH ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION.

Held in CAMBRIDGE, Aug. 10th, 11th, 12th, and 13th, 1880.

PROCEEDINGS OF SECTIONS.

SUBJOINED are abstracts of the papers presented to the several Sections at the annual meeting, and of the discussions thereon.

SECTION D.—PUBLIC MEDICINE.

Wednesday, August 11th.

The Chair was taken at 2 P.M. by the President of the Section, H. W. ACLAND, M.D., F.R.S., Regius Professor of Physic in the University of Oxford, who delivered an address, which was published at page 290 of the JOURNAL for August 21st.

DISCUSSION ON THE GENERAL WORKING OF THE PUBLIC HEALTH ADMINISTRATION IN GREAT BRITAIN AND IRELAND.

DR. ALFRED CARPENTER (Croydon) opened the discussion by reading a paper upon the general working of public health administration in Great Britain. The subject was considered from the point of efficiency in connection with centralisation on the one hand, and local self-government on the other. The author argued strongly against compulsion, and thought that it was more important to educate the public on the first principles of sanitary work than to call upon Parliament to pass compulsory clauses; and pointed out that the authorities in Downing Street only held office by the will of the people. He thought it requisite that there should be a controlling, but urged that it should also be an advising, authority. However beneficial to the people it might be to have an autocrat at headquarters, it would be rather awkward if, on the principle of *lucus a non lucendo*, a man of the Peter Taylor stamp should happen to become Minister of Health. The author did not think that present arrangements were satisfactory, and pointed out how much useless work was being performed, and how little was really made of present advantages from the jealousies of individuals as well as of authorities; and that the latter too often showed how not to do the work they had to perform. Dr. Carpenter then argued in favour of authorities being obliged to elect only those men to offices in sanitary work, who had proved their competency to perform the duties they proposed to undertake; that surveyors and inspectors of nuisances should have certificates of competency from some examining body; and that medical officers of health should be called upon to pass an examination in State Medicine; that the latter should restrict themselves to prevention of disease, and not engage in private practice; that the areas supervised by them should be bounded by natural boundaries, and that small areas with artificial boundaries were opposed to the effectual working of disease-prevention; that all matters connected with public health, both of men and of animals, should be entrusted to the medical officer of health, who should have control over the inspectors of nuisances, and have the reports of the medical officers attending upon the poor habitually submitted to him; that he should condense those reports and send them to a county superior, who would be in direct communication with the Minister of Health; that there should be a condensation in one office of all matters bearing upon the health of the people from the Privy Council Office, the Local Government Board, and the Home Office, under one chief, who should be a distinct member of the Government of the day. The author supported his views by some details, which proved that the general working of the public health administration in Great Britain was very defective.

DR. F. T. BOND (Gloucester) was convinced that, in the two addresses which had just been delivered to the Section—those of the President and of Dr. Carpenter—valuable material for discussion would be found. The points which had been suggested in these addresses were numerous as they were interesting. Both the President and Dr. Carpenter had laid considerable stress upon the importance of educating the people on this subject, as such education was an indispensable preliminary to further legislation. There could be no difference of opinion on that; but, when the question came to be asked, how that education was to be bestowed, he was afraid they should find themselves in a practical difficulty. It had been very justly pointed out that a great deal of the work of education must be done by those officials who were engaged in carrying out the work of public health, and very largely by the medical officers of health. The annual reports of these gentlemen, he apprehended, would be a very important educational agency. It was by means of the publication of these reports that per-