to think that the ball would probably pass through that space, and that both ribs were fractured by the force of the explosion alone.

Lancaster, June, 1869.

ON A CASE OF EMPROSTHOTONOS,
RESULTING APPARENTLY FROM COLD,
SUCCESSFULLY TREATED BY THE SUBCUTANEOUS IN-
JECTION OF THE SOLUTION OF THE EXTRACT
OF THE CALABAR BEAN.

By BERNARD DUFFY, M.D., F.R.C.S.I.

MR. J. L. T—, from thirty-five to forty years of age, of spare habit of body, leading a temperate but rather sedentary life, being in Florence on the 17th and 18th of April, when a sharp northerly wind was blowing from the heights of the surrounding Apennines, still covered with snow, and labouring under a cold caught in England some three weeks before, omitted the precaution of wearing an over-coat whilst lounging about the narrow and sunless streets, numerous in the older quarters of the capital of Italy. About midnight on the 19th Mr. T— was seized with sudden spasmodic pain at the lower part of the sternum, shooting backwards, and followed soon after by complete rigidity of the intercostal muscles, so that he felt as if his body were locked in a vice.

I saw him at about half-past eight on the morning of the 20th. He was sitting on the side of his bed, his head and chest so rigidly bent forwards as to prevent his assuming the erect position, his countenance indicative of extreme distress and anxiety, and the respiration short, frequent, and what the French call *saccadé*. On percussing the chest, a tolerably clear sound was emitted, but auscultation showed that little or no air entered the smaller air-cells of the lungs. The heart's action was hurried, but regular, and free from signs indicating organic lesion. Pulse from 90 to 96. On applying the hand to the chest, the intercostal muscles were found permanently contracted into *hard* lumps, also the recti abdominis, thereby greatly increasing the emprosthotonos, the tendinous intersections being quite evident, while the external oblique was as flat and as hard as a deal board; what respiration there was seemed to be carried on exclusively by the diaphragm. A warm bath was ordered, and while it was being got ready mustard sinapisms were applied to the insteps, a draught of camphor julep with mindererus spirit and chlorodyne was given, and a camphor liniment with chloroform and atropia rubbed into the chest.

These remedial measures, including the bath, affording but trifling and temporary relief, and the patient beginning to complain of stiffness about the neck with some difficulty in swallowing, though the frontal facial and masseter muscles were yet free, I resolved to lose no further time; and believing that I had to deal with a case of tetanus produced by cold affecting the afferent nerves, and giving rise to exaggeration of the reflex motor function of the spinal centre, I injected, about noon, under the skin of the neck on the right side, one-third of a grain of the extract of Calabar bean dissolved in eighteen minims of water, as recommended by Mr. Thos. R. Fraser, Assistant Professor of Materia Medica at the University of Edinburgh; the solution being previously neutralised with a solution of the carbonate of soda. This injection was repeated every three hours on that day; and nausea, but no other apparent result, supervening after the fourth dose, the injections were suspended for the night, and until the following morning at nine o'clock, from which time they were used steadily every second hour. Nausea, faintness, and perspiration coming on after the fourth dose, they were discontinued; an evident impression having been made by this time on the muscles engaged. After this the tetanic symptoms gradually yielded, so that on the night of the sixth day the patient was enabled, for the first time since the attack, to resume the recumbent position without an aggravation of the spasms.

Purgatives and enemata were administered without effect

until the 21st, when the bowels acted freely, with great relief to the patient. On the 22nd two blisters, each about ten inches long and over an inch wide, were raised, by means of Messrs. Bullen and Burt's blistering fluid, on either side of the dorsal spinous processes.

On the 21st, about midday, the exhaustion was alarming, and then the patient was seen, in consultation with me, by Signor Burci, the late able Professor of Clinical Surgery at the hospital of Santa Maria Nuova, in this city; and, owing to the rarity of the case, and as a further example of the beneficial result of the use of Calabar bean, he suggested that it should be recorded.

Florence, May, 1869.

THE
WIMBLEDON CAMP AND THE EARTH-CLOSET
SYSTEM.

By JOHN WYATT, Esq.,

SURGEON-MAJOR, COLDSTREAM GUARDS; AND SURGEON TO THE
NATIONAL RIFLE ASSOCIATION.

THE best method of deodorising and disinfecting the excreta of such an encampment as that of Wimbledon has formed the subject of several communications which have lately appeared in THE LANCET, and particularly with reference to the efficiency of the dry-earth conservancy, all of which I have had the advantage of carefully perusing and reflecting on; for the whole question involves a very anxious consideration for myself, as the responsible medical officer of the National Rifle Association. Last year was the first on which the Council determined to adopt Moule's system of earth-closets, and, with the exception of two days, nothing could have been more efficient than the working of them, although on account of the unprecedented amount of diarrhoea, they were in unusual demand. It has been attempted to be proved by one writer that the dry earth is not a disinfectant, though it may be a deodoriser; and the comparison of the rattle-snake without the warning of the rattle being none the less a venomous reptile, has been quoted to prove that deodorisation of dry earth does not necessarily imply neutralisation of the pernicious products. No doubt an open enemy is more desirable than a concealed one; but perhaps, after perusing the report on the dry-earth conservancy system in the Madras Presidency, a more favourable notion will be entertained of its applicability, especially for encampments, barracks, gaols, &c., where many people are congregated in a more or less confined space. I have always been strongly of opinion that if the dry-earth system be *efficiently* worked it is capable of proving both a deodoriser and a disinfectant of human excreta.

Let us compare results, and especially a little in detail, by the light of the Indian Report recently received. In the Madras Presidency the application of the dry-earth system extended over a period of four years. It was proved that pure clay possesses large deodorising powers, seven pounds being equal to seventeen pounds of the best earth found near Madras, and that two pounds were capable of absorbing one pound of water or urine; and the conditions necessary for the efficient working of the system were dryness, immediate application, and sufficiency in quantity. There was a difficulty about the urinals, owing to the enormous quantity of earth necessary to be used for complete deodorisation; and in wet weather means must be resorted to for drying the earth.

The essential condition of success in the Madras report is stated to be, that the earth should be as dry as possible, and that it should be stored in a roofed building to prevent the contact of rain; that all ordure should be completely deodorised before it is buried, when it can no longer undergo putrefactive fermentation, or disengage any of those noxious gases which are perceptible to the senses and injurious to the health of those exposed to their influence. The objection to the earth system is represented to be—the great cost of procuring earth for daily use, and of its removal, while, on the score of economy, that by sewers is preferable; but when a good system of drainage and water supply are deficient, the system of dry-earth sewage is doubtless the best means available for thorough amalgamation with the ex-

creta. It is well known that if the acidity of the urine can be maintained, decomposition will not result, and as M'Dougall's disinfecting powder contains carbolic acid, in association with sulphurous acid, lime, and magnesia, the results are very favourable; but the coal-tar acids have higher disinfecting powers. Chloride of lime, one of the strongest of the class of deodorisers, reacts only on the gases of existing putrefaction, but has no influence on the future. Carbolic acid has scarcely any action on fetid gases, but it attacks the cause which produces them, and at the same time combines with the organic matter in such a way that it never reacquires its tendency to putrefy; it acts by destroying vitality, and the use of it tends to remove the objection to the deposit of sewage in pits, not only by arresting decomposition, and rendering it incapable of taking on any further action of that nature, but by admitting of its immediate disposal on grass land, soldiers' quarters, or farm lands. It is undoubted that earth and feculent matter may be kept in a dry state for long periods without putrefactive changes setting in; but if water gains access to it decomposition occurs. Buried in pits, and covered over, it is free from smell at the expiration of six months; and it may be considered as certain that dry earth has the power to render decomposition in excrementitious matters dormant, and to keep latrines and urinals inodorous. But certain conditions are necessary for its effectual action, these being, as before stated—1, dryness; 2, application in sufficient quantity; 3, immediate application; 4, reduction to powder; 5, selection of a suitable earth.

The quantity necessary to deodorise the daily evacuations of a healthy adult is about two pounds and a half, and about six pounds and three quarters for the daily urinary excreta, assuming it to be about thirty ounces in the twenty-four hours; but coal-tar should always be applied to the utensils used. This large quantity of earth for the deodorisation of urinals must always impose a great difficulty to its application, therefore it is recommended that they should be treated by M'Dougall's disinfecting powder only. It is calculated that the cost of latrines alone, without urinals, is about £300 per annum for a regiment of 1000 men, and if employed for urinals it would be £120 more. When the excreta are buried in the earth, the mass is liable to give out offensive vapours in damp weather, and when a small quantity of the deodorised and buried excreta is taken up, and diffused in water, it is found to teem with various forms of organic life—the forms which some writers have included amongst the causes of Asiatic cholera.

Earth is the great assimilator and neutraliser of all decaying organised matter; it incorporates the organic elements with itself, and renders them useful for the nourishment of living vegetation. It is through the medium of the earth that the entire cycle of life and decay is completed. Such are the most important points extracted from the Madras report, which well deserves a careful perusal by all sanitarians.

The difficulties of attempting any other than the dry-earth conservancy system at Wimbledon with any hope of success would be chiefly the very limited space available, and the want of a suitable position for receiving any water-sewage which might be established to bear off the excreta. No doubt that last year the arrangements for carrying out the earth-closet system were not quite so perfect occasionally as could be wished, which will be rectified this year. I have ventured to advise that besides the precautions to secure absolute dryness of the earth used, and frequent application of it, it should also be mixed with a proportion of freshly burnt lime, about one part to four of earth, from which mixture I am induced to anticipate a more perfect sanitary result. I also intend to recommend that M'Dougall's powder should be employed for the use of the urinals.

It is true that diarrhoea of a severe character was very prevalent last year, which I believe was entirely due to the combination of excessive heat and the frequent imbibition of very imprudent beverages; for, in fact, we were approximating to the condition of an encampment in hot climates, where, I believe, diarrhoea is almost universally present at first. Certainly I had no reason to suspect that the closets, when deprived by the earth of their odour (which they occasionally were not, from the excessive use of them,) in any way contributed to the production of disease; and it would not be logical to condemn any system because of an admitted imperfection in any temporary practical details: let

us try again under more favourable circumstances and better surveillance. Dr. Johnson suspects that they were more or less associated as cause and effect. I am not yet of that opinion; but certainly if he has failed in connecting the earth-closet system with the cause of the diarrhoea, he has established a sound and successful theory for practically curing the disease, however produced, by the eliminative treatment, which we found most invaluable and reliable in all cases, but especially in the more severe attacks.

London, June 30th, 1869.

A Mirror OF THE PRACTICE OF MEDICINE AND SURGERY IN THE HOSPITALS OF LONDON.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

LONDON HOSPITAL.

DISEASES OF THE GENITO-URINARY ORGANS.

(Under the care of Mr. MAUNDER.)

FOUR interesting cases of the above class of diseases have lately been submitted to operation by Mr. Maunder.

CASE 1. Intractable stricture.—For years this patient, forty-five years of age, had been the subject of stricture situated near the bulb. Catheterism, rapid dilatation, and internal incision, culminating in the possibility to pass a No. 9 catheter, failed to give relief to the man, who had a frequent desire to micturate, and then passed urine only in drops or in a small stream. Perineal section was now performed, with perfect relief to the symptoms, and the urine flows freely (fifth day from operation) partly by the wound and partly by the meatus.

In commenting on the case, Mr. Maunder said that a very large majority of strictures could be sufficiently relieved by the simple use of the catheter or bougie, and consequently any means which involved a breach of surface was unjustifiable, unless in exceptional cases.

CASE 2. Stricture; complete retention.—This man, sixty years of age, had suffered from stricture for many years, and from complete retention for forty-eight hours, having walked twelve miles to the hospital. Croton oil, a warm bath, and catheterism by the house-surgeon, failed to afford relief. When seen on June the 13th by Mr. Maunder, the bladder was distended above the level of the umbilicus, and the patient was in great pain, and a good deal exhausted, with a dry tongue. The bladder was at once tapped per rectum, with immediate and marked relief to suffering, and about four pints of urine, of offensive odour, and containing some muco-pus, were removed. On the following day the man, though weak, was very pleased with his condition.

CASE 3. Calculus in the urethra.—A child, about two years of age, was admitted June 13th, with retention of urine, which had existed thirty hours. A calculus, impacted in the urethra opposite the root of the scrotum, was removed with some difficulty with a small scoop, and the retention relieved.

CASE 4. Calculus vesicæ.—A very feeble man, aged sixty-eight, had suffered from symptoms of stone during the last two years. He was extremely exhausted, micturating every ten minutes, his urine being loaded with muco-pus, and ammoniacal. He was ordered benzoic acid, and on the 12th inst., having rested in bed four days, Mr. Maunder performed lithotripsy under chloroform. After this the symptoms were somewhat less severe. On the 14th the operation was repeated, and the stone thoroughly broken up, a fair quantity having come away after the first sitting.

With Weiss's new instrument lithotripsy certainly is a most elegant operation, and if carefully performed entails in its application comparatively little risk. In the foregoing case the operator never failed to catch a fragment of the