likely to be the results of the operations. Each foot could be placed immediately, without difficulty, with the plantar surface at a right angle with the back of the leg. The internal border of the foot still presented, although to a far less degree than before the operation, a certain

A, is the Left Astragalus, with a piece of the external Malleolus, B, loosely attached to it; C, the portion of the Scaphoid of the same side; while D represents the Astragalus of the right side, which was removed entire, and without injury.

concavity, more in the left than the right foot, suggesting the possibility that this might be caused by some alteration in form or new deposit in or about the calcaneo-cuboid joint, which would not yield sufficiently. This was, as I have said, much less conspicuous in the right foot, where the internal border could be brought to nearly a straight line from the ball of the great toe to the heel. The same principle of dressing, the same precautions and general treatment, were rigidly pursued throughout the whole progress of the case. No pus was formed; the deep cavity in which the astragalus had rested was slowly filled up by new tissue. The sutures caused no irritation, and held well until the twelfth day, when three were removed from each foot, and, on the fourteenth day, the remaining two. On the thirty-eighth day, it was reported that the wounds were perfectly healed. No constitutional irritation had existed; the child had seemed to be cheerful, slept well, and taken its food naturally. No tendency to inflammation was observed along the line of the tendinous sheaths in the front of the leg, as might have been expected; and the only pain of which the patient complained was in the immediate neighbourhood of the wound during the dressings, when it was necessary to remove the feet from the splints.

On the sixty-first day (July 17th), I began to apply to each foot Mr. Barwell's system of treating talipes; and, by means of elastic bands carefully adjusted, I have sought to imitate the action of the peroneus longus and peroneus brevis muscles, and very slowly and cautiously to abduct the foot and keep the external border well raised. There is at the present time (August 1st) considerable flexing movement in the ankles. The boy can bear just to rest his weight on the feet when slightly assisted, and he slides and creeps about the ward in a half sitting posture very happily. I intend very shortly to have him supplied with a pair of Dr. Sayre's club-foot shoes, which will allow him to walk about, while the same action of the elastic bands can be preserved. This has been done (September 30th). The boy has worn the shoes for nearly a month, and he walks very well without any help.

The only case which I have found recorded in which any of the tarsal bones have been removed so as to assist in correcting the malposition which exists in talipes, is one performed by the late Mr. Solly, and re-

ferred to in Mr. Adams's work on *Club-Foot*, in which Mr. Solly removed the cuboid bone, under the idea that this was the key-stone of the arch of which the deformity consisted, and, that being removed, the curled foot might be, as it were, unfolded into a more natural form. But, I believe, the result was not satisfactory; and I hardly think the plan adopted attacked the true centre of the deformity; for talipes varus is, in its very nature, an exaggerated condition of adduction and excessive rotation inwards and upwards of that portion of the foot which is anterior to the medio-tarsal joints. At this articulation, a partial dislocation occurs, which, when all other efforts to correct it have failed, may be got rid of, in exceptional cases like the present, by excision of the astragalus, as a justifiable operation.

I have had two objects in view in relating this case to day: the one has been to obtain the opinion and sanction of so distinguished a surgical tribunal, as I now address, to the procedure itself, under certain limited conditions; and the other has been to place on record another instance of the triumphs of antiseptic surgery in the management of operations in the neighbourhood of joints. For I am convinced that whoever will watch, without prejudice, the progress of such a case as this, from the date of the operation until the healing process be fully completed—the entire absence of suppuration, the freedom from constitutional distress, the perfect closure of deep wounds in the most satisfactory manner—must admit that by no other method than by the absolute avoidance of septicity dare we attempt to treat so formidable an operation.

THE EMPLOYMENT OF THE LICHEN CINEREUS TERRESTRIS (OF RAY) AS A PREVENTIVE AGAINST HYDROPHOBIA AND RABIES.

By C. LEESON PRINCE, M.R.C.S., Uckfield.

A PERUSAL of the five fatal cases of hydrophobia, reported some time ago by Dr. Elder of Nottingham, in the *BRITISH MEDICAL JOURNAL*, determined me to make more strict inquiries than hitherto respecting a secret remedy for hydrophobia and rabies, which has for several generations been in the possession of the family of a person formerly living in this neighbourhood. I accordingly paid a visit to the present incumbent (whom I will call C.), in the hope of eliciting something which might lead to a discovery of the name of the plant employed. The result of my visit was, that I might buy the receipt for £100. In the *Daily Telegraph* of December 25th, appeared a letter from Mr. Pryce of Peithyll, in which he mentioned a remedy; and I entertain very little doubt of its being the identical medicine which has been administered in such cases in this neighbourhood for many years, with perfect success. Mr. Pryce's receipt is as follows (the quantity to be given to a dog): "R Turpeth mineral (hydrargyri oxydum sulphuricum) ten grains, to be given (as an emetic) for three mornings running between slices of bread and butter. R Ground liverwort, a handful; garlic and rice, of each one drachm; to be boiled for an hour in half a pint of water, then strained, and add of Venice treacle two drachms. It may be given in the dog's food or in half a pint of milk, etc." Having thus obtained a clue to the name of the plants, I referred to an old botanical dictionary, for the purpose of ascertaining whether any such valuable medical property had ever been ascribed to the aforesaid plants. In Dodoen's *Herbal*, it says of rue, that "That the juyce of rue is good against the bitings and stings of scorpions, bees, wasps, hornets, and mad dogs". Of garlic, it says, "It is laid with great profit to the bitings of mad dogs, and upon the bitings and stings of venomous beasts". With regard to the lichen, no mention is made of its efficacy in the cure or prevention of hydrophobia. In Miller's *Dictionary*, published in 1759, I ascertained that the lichen was in great repute nearly two hundred years ago, as a preventive against this disease; and reference was made, for an account of its success, to vol. xx of the *Transactions* of the Royal Society. As I have these volumes in my library, I at once found Mr. George Dampier's communication (about the year 1685). He says that the herb "is a sort of Jew's ear, which grows on the ground as close as may be to it, being flat on it: the moss and grass growth up about and amongst it. To use it, you must dry it in an oven, by the fire, or in the sun, then powder it and pass it through a fine sieve; the which, mixed with the like quantity of fine beaten and powdered pepper, is the composition. When given to a dog, the dog must first be blooded and then washt well all over, the dog being kept from meat a convenient while before; then mix it well in a convenient

quantity of milk or broth, warm. If it be for cattle, it must also be blooded and well washed, and given with a drenching-horn; and the dose may be proportioned to the bigness or strength of the creature that is to take it. To a man or woman, it must be given after blood-letting, and well washing the face and hands, or place that may be bitten. A man or woman may take it in warm milk, beer, ale, broth, or how he best likes it, fasting two or three several mornings to make sure. Therefore, when you know anything to be bitten, or suspect it to be so, use the remedy as soon as may be after, and then, when given in time, it prevents all signs of madness at all, which hath made some indiscreet people say, *it did no good; they believe it would have done well enough without it*; but my uncle hath fully confuted that mistake several times, by not drenching a dog of small worth, in a gentleman's cry of dogs, which hath died mad, and not one of the rest sick, but have followed their master's game rather better than before; and, indeed, being ingeniously given, 'tis a most *Noble and Infallible* medicine".

At the conclusion of Mr. Dampier's letter is the following remark by Dr. Hans Sloane. "The simple or herb mentioned is not jew's-ear, but the *Lichen Cinerus Terrestris*, described by Mr. Ray. It grows commonly in barren places all over England. The weight of one single dose of this simple and the pepper mixed, communicated to me by Mr. Southwell, with Mr. Dampier's leave, is near four scruples." Dampier's powder was afterwards, on the proposal of Sir Hans Sloane, when he was president of the Royal College of Physicians, introduced into the *London Pharmacopoeia* of 1720, under the name of *Pulvis Antilyssus*.

The directions given for the administration of the above medicine correspond very closely with those given by C. Moreover, when application is made for the remedy, the messenger is usually detained two hours, in order to give C. time to go into the fields to procure the herb and prepare the dose. Under these circumstances, I am desirous of calling the attention of the profession to this probable remedy, which must have been neglected or forgotten by them for several generations. The invariable charge for the bottle of mixture has been thirty shillings, which, I think, clearly proves that the public are satisfied with their *quid pro quo*. It may, perhaps, be interesting to append brief notes of the following cases illustrative of the success of the medicine supplied by C. All these persons were bitten by dogs undoubtedly mad. Eight of these cases occurred to my personal knowledge, and I can vouch for the correctness of the facts connected with the others.

CASE I.—Two men servants of Mr. F. at Uckfield were bitten by a mad dog which came in the stable where they were at work.

CASE II.—Two men were bitten by a mad dog which came into the inn where they were drinking.

CASE III.—Two servants of Mr. H. were bitten by his dog, which was supposed to have been bitten by the dog who bit the men in Case II.

CASE IV.—Three children, and my own dog, were bitten at Uckfield, and by the same dog on the same day three more persons were bitten at Maresfield. I attended these six cases, and made a *post mortem* examination of the mad dog, when the usual appearances presented themselves. I was not aware that my dog had been bitten until symptoms of rabies commenced, when he was immediately killed.

CASE V.—Mr. K. of Buxted was bitten by his own dog, which immediately afterwards ran off, and, four miles from his home, bit a Mr. G., who was shooting in the neighbourhood of Mayfield. The dog was killed near Tunbridge Wells the same evening.

CASE VI.—In a farmyard, a woman and boy were milking cows; a mad dog came up to them and bit the boy in the hand and the woman in the arm.

CASE VII.—A Mr. H., of Beddington Park Lodge, Surrey, was bitten by a mad dog, and a short time afterwards became very unwell and melancholy; he was persuaded to take the medicine, and he immediately recovered his usual health and spirits.

CASE VIII.—Two men were bitten by a mad dog at the Derby Arms, at Croydon, and one after having a paroxysm took the medicine and was cured. The other refused to take it, and died of hydrophobia.

All the above persons took the mixture from C., and no harm came to them, with the exception of the woman in Case VI and one man in Case VIII. Both these persons died from hydrophobia, both having refused to take the mixture.

CASE IX.—A dog was found to be unwell, and, during the administration of some medicine, a man was severely bitten in his hand, and the wound, to all appearance, soon healed. As the dog, some time afterwards, became the subject of rabies, the person procured some medicine from C., which had a very remarkable effect; for the wounds, which had healed, began to smart very much about two hours after taking the medicine, and to discharge a purulent matter for two or three hours, and then healed again. This person never felt any ill effects from the bite, and is now alive.

THE UTILISATION OF SEWAGE AND THE PREVENTION OF RIVER POLLUTION.

By J. N. STEVENS, Esq., Plymouth.

SEWAGE and the best means of utilising it still form the vexed and anxious questions of the day, and demand a speedy solution of the enigma. How may sewage best be rendered harmless to the public whilst passing from their habitations through the sewers to the outfalls? whether this take place into rivers (which cannot by law be polluted), into the sea, or into tanks for precipitation, settlement, and drying, or whether it be used for the purposes of irrigation. 1. My paper, read before the Health Section of the Social Science Congress, at Plymouth, went to show that the careful construction of the house and main sewers, in reference to their material, size, shape, levels, trapping, and ventilation, with the use of disinfectants and deodorisers, was, in my opinion, calculated to prevent sewer-poisoning. 2. As regards sewage being allowed to run into rivers, the organic and solid matters must be removed by previous subsidence and precipitation, or by downward intermittent filtration through the soil, properly prepared for it, as at Merthyr Tydfil. This, being repeated several times, is sufficient of itself to disinfect and deodorise the sewage, whilst the ground receives the fertilising animal and organic matter as it passes through it, and it is retained for the growth of grass, or other cereal crops; and should any small amount of organic matters remain in solution, they will be oxidised in the running water and further taken up and absorbed by aquatic plants. Whenever sewage is employed for the irrigation of farms in the ordinary way, it is incumbent on those using it to deliver the effluent water in such a purified state as the law demands. When it is discharged into the sea, it should be carried into deep water; the mouths of the sewers should never be seen at low water, and any reflux of their contents should be carefully guarded against by valves. When it is received into tanks or reservoirs, it should be conveyed by closed circular pipes, or, if in open conduits, the sewage should be deodorised and disinfected by carbolate of lime, chloride of calcium, or any other cheap disinfectant. When it has reached the tank, the solid organic matters should be precipitated and allowed to subside for the purpose of being thoroughly dried and sold for manure as human guano. The chemicals used for this purpose are numerous, as lime, clay, blood, alum, coal-tar, iron, zinc, and many others. Cream of lime answers the purpose very well if used in sufficient quantity. The A B C process of Sillar, and that of my distinguished townsman, Major-General Scott, are also good precipitants and purifiers of sewage. If all or any of these means be resorted to and carefully applied, and the effluent water be thus deodorised and rendered pure before it passes into rivers, how can these be said to be polluted? and if no stench arise, and the fish be not killed by this admixture, these are still further proofs that the water is rendered innocuous to the community. In conclusion, there can be no doubt that the proper destination of all animal excretion is the soil, from which it will be returned to us as food; but the question here arises, how can this be best accomplished without creating a nuisance, which has often happened by the indiscriminate use of such enormous quantities of sewage that the land has been converted into a loathsome morass, reeking with filth and ordure, thus poisoning the surrounding atmosphere and producing enteric fever and other zymotic diseases. The fact is, the agriculturist who rents the sewage of a large town should take it on his own terms; *i. e.*, he should be allowed to use it only at the proper seasons, and in such quantities as may be required for the adequate fertilisation of the soil and the growth of his crops. Then, when the land is properly levelled and drained, and otherwise prepared for the reception of the sewage, as by the method in use at Merthyr Tydfil already alluded to, I am of opinion that it can be utilised in this way to the great advantage of the farmer and without creating a public nuisance, inasmuch as this plan is a kind of subterranean irrigation, carrying the fertilising elements at once to the roots of the crops for immediate absorption, and at the same time being deodorised and disinfected by the constituents of the soil in its passage through it by slow percolation. The particular means by which this intermittent downward filtration of sewage through the soil is effected, was given in a recent number of our JOURNAL, and to which I must refer any of our readers who may take as lively an interest in this important matter as I do myself. By this process the effluent water may also be considered purified and rendered fit to pass into streams; as, in all ages of the world's history, the great deodorising and disinfecting properties of the earth have been recognised in the burial of the dead.