

white deposit, which prevents further chemical action of the water on the lead beneath. Still, as lead is an accumulative poison, which affects some persons strongly in the smallest quantities, and as the slightest degree of lead-contamination of water must be baneful to health, there can be no doubt that slate cisterns are to be recommended.*

It is true that we must still be, to some extent, at the mercy of the water companies. But let each man be roused to deal with that which is within his own control. The master of every household may protect himself and his family from such dangers as are liable to arise within his dwelling, and are none the less real because they are usually unrecognised—dangers which creep in at the cistern, and nestle in the dust which lies on the surface of the uncovered water.

There is no wish to play the alarmist, and there is really no ground for alarm. Cholera, choleraic diarrhoea, and enteric fever lose half their terrors, and more than half their dangers, when we have ascertained how they originate. Nothing can be more satisfactory than the knowledge that you may defy cholera so long as certain baneful particles are not introduced into your system. But this knowledge will afford poor consolation if it be found that from faulty cisterns you are liable to eat and drink the poison, and so obtain the disorder from any individual affected with it.†

Although atmospheric conditions alone cannot generate cholera unless the specific exciting poison be present, and although the converse of this may also be true, still it cannot be doubted that even when no epidemic is abroad the water we drink may contain impurities prejudicial to health. And if, under ordinary circumstances, the majority of those who drink the tainted water escape unhurt, it only shows that some persons are made ill more readily than others.

Whether or not the cholera is coming should matter little. The man who would avoid panic must deliberately close every probable opening for attack. Forewarned he will be forearmed. And if the cholera do not come, he will at all events be defended from other minor diseases which are always at hand. Let us hope that his house is supplied by the water company from uncontaminated fountains bursting out in the chalk, or welling up in the gravel. Then let him not abuse this inestimable blessing of pure water by receiving it into ill-constructed cisterns, by allowing it to stagnate from neglect, or by omitting to cover and protect it from dust and dirt.

November, 1871.

COD-LIVER OIL IN WHOOPING-COUGH.

By J. PRESTWICH, L.R.C.P. &c.

FROM time to time we see various methods of treating whooping-cough advocated; but no remedy can be prescribed with certainty until the pathology of the disease is more perfectly known. In this paper it is not my intention to discuss the many theories of pathologists or to promulgate any new theory of my own, but simply to report a few cases selected from more than thirty in my own practice, in order to show the value of cod-liver oil in this peculiar complaint, so fatal to infant life, or, if not fatal, so distressing to children and parents. The action of any remedy which produces benefit equal to that which I have experienced with this valuable agent ought to be widely circulated amongst the profession. The improvement following the use of cod-liver oil in my own practice has been such that for some time I have considered it as a specific for whooping-cough. As is well known, the spasmodic attacks of this complaint are almost always preceded for some days by in-

* Some natural waters are prevented from attacking lead by the salts they hold in solution. The more nearly pure, or the more free from saline matter, the water is, the more intense the chemical action. (Vide Guyton-Moreau, *Annales de Chimie*, lxxi., 197; Christison on Poisons, 2nd edit., pp. 458-61; Taylor on Poisons, 2nd edit., pp. 506-7; and Taylor's *Medical Jurisprudence*, 1865, pp. 240-43).

† "It cannot be too distinctly understood that the person who contracts cholera in this country is *ipso facto* demonstrated with almost absolute certainty to have been exposed to excremental pollution. Excrement-sodden earth, excrement-reeking air, excrement-tainted water—these are for us the causes of cholera." (Vide "Ninth Report of the Sanitary State of the People of England," by John Simon, Esq., F.R.S., Medical Officer of the Privy Council.)

flammatory or catarrhal symptoms. During this stage it has been my usual practice to treat all cases as ordinary attacks of catarrh, and afterwards to administer the oil. A fact worthy of notice is, that the majority of children had considerable enlargement of the concatenate glands; and the consequent reduction in the size of these glands may account to some extent for the benefit derived. It is also a remarkable circumstance that not one death has occurred where the oil has been administered and has been retained on the stomach.

CASE 1.—E. G.—, aged nine months; male; a poor anæmic child, first seen Oct. 29th, 1869. Had had cough for ten days, with distinct whoop; paroxysms every hour, both night and day; was feverish; tongue furred and dry; pulse quick; respiration frequent, evidencing bronchitis. After pursuing the ordinary treatment until Nov. 13th, without any abatement of the cough, and the child being weak and emaciated, I ordered cod-liver oil, half a fluid drachm, four times a day. On the 14th, as he could not retain the ordinary oil, he was ordered Fox's "palatable cod-liver oil," one fluid drachm, every four hours. On Dec. 7th he was convalescent.

CASE 2.—M. H.—, female, aged eight months, was seen Nov. 20th, 1869. Whooping-cough came on every two hours during the night, and nearly as often in the day. Vomiting occurred after each paroxysm. Tongue clean. She was ordered to take a fluid drachm of Fox's cod-liver oil every four hours. On Dec. 6th she was nearly well. The patient was not seen afterwards.

CASE 3 (which deserves special attention).—G. S.—, male, aged four years. Had had cough for nine months, which came on every hour in the night, and six or eight times in the day, the paroxysms being severe, with scanty expectoration. He was thin, pale, and emaciated. Lobelia and chloral hydrate with syrup of white poppies was prescribed until Nov. 25th, with very little improvement, the paroxysms being as frequent as before. Two drachms of Fox's cod-liver oil were administered every four hours. On Dec. 5th the cough was almost gone, and there was no whoop; he was fuller in body, and was improving rapidly. On the 20th the patient was convalescent.

The above are three specimen cases taken from a list of thirty-three to whom Fox's "palatable" cod-liver oil was given because of its singularly easy retention on the stomach. Some patients did not experience the same marked improvement as those reported, but all obtained decided relief. Now the question arises—Is the improvement to be attributed solely to the beneficial action of cod-liver oil, or has Fox's preparation a peculiar influence over the disease, besides its suitability to the palate? I shall be glad to have the opinion of other practitioners on this point.

Oldham, Aug. 21st, 1871.

NOTE ON THE DIGESTION OF MINERAL SUBSTANCES.

By RICHARD V. TUSON, F.C.S.,

PROFESSOR OF CHEMISTRY IN THE ROYAL VETERINARY COLLEGE.

PHYSIOLOGISTS and chemists have hitherto entertained the belief that the principal if not the sole function of the pepsin and acid contained in the gastric juice is to render soluble the albuminoid constituents of food, and thus prepare them for the subsequent process of absorption.

Conceiving, however, that it would be extremely interesting to study the effect, if any, of the solvent constituents of the gastric juice upon mineral substances, especially those employed as medicines, I have set myself the task of investigating this subject. The inquiry is yet but in its infancy; nevertheless the results already obtained are sufficiently positive and striking to induce me to "claim date" by placing on record the following experiments:—

Experiment 1.—A mixture of calomel* and distilled water containing 2 per cent of hydrochloric acid.

Experiment 2.—A mixture of calomel, pepsin,† and distilled water.

Experiment 3.—A mixture of calomel, pepsin, and distilled water containing 2 per cent. of hydrochloric acid.

* The calomel employed in all the experiments was previously tested as to its purity.

† Pepsina porci, prepared by Messrs. Bullock and Reynolds.

These mixtures were placed in glass vessels, and kept at 38° c. (100·2° F.), i.e., at about the temperature of the body, for twenty-four hours, during which time they were occasionally stirred or shaken. They were then thrown on to filters of Swedish paper, and the filtrates saturated with hydrosulphuric acid. The filtrates from Experiments 1 and 2 remained unaltered. The filtrate from Experiment 3 yielded a precipitate of sulphide of mercury.

The results of these experiments therefore show that neither dilute hydrochloric acid (2 per cent.) nor pepsin alone is capable of dissolving calomel, but that when these agents are mixed they do effect its solution, and consequently that the digestion of calomel, so far as its solution in artificial gastric juice is concerned, is brought about under the same conditions as that of the albuminoids.

The importance of this observation will become apparent when it is borne in mind that it offers an additional explanation to those already published of the manner in which calomel enters the circulation in order that it may exercise the many therapeutic actions with which it is accredited. Whether or not oxide of antimony, sulphide of antimony, and other so-called insoluble remedies, are dissolved by pepsin and dilute acid is a problem which remains to be solved. The influence of different acids, the chemical composition and characters of the dissolved mineral, and its behaviour when subjected to dialysis, also the action, if any, of peptones on inorganic bodies, have likewise to be determined; but these matters, together with many others, will form the subject of future communications.

Royal Veterinary College, Camden-town, Nov. 27th, 1871.

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.

ST. BARTHOLOMEW'S HOSPITAL.

TWO CASES OF SEVERE COMPOUND FRACTURE OF THE LEG IN WOMEN OVER SEVENTY YEARS OF AGE; RECOVERY WITHOUT AMPUTATION.

WE are indebted for the notes of the following cases to Mr. Alban Doran, house-surgeon.

(Under the care of Mr. HOLDEN.)

The first of these cases is an old woman seventy-four years of age, who has been under Mr. Holden's care. She was admitted with a compound fracture of the tibia and fibula, with a severely lacerated and contused wound just above the inner ankle, through which the upper fragment of the tibia projected to nearly three inches, and considerable ecchymosis of the neighbouring parts. The projecting bone having been replaced, the limb was laid in good position on a back splint, with side splints, of which the inner one was interrupted at the situation of the wound. It was then suspended to a cradle and dressed with dry lint. Some anxiety was caused by the occurrence of sloughing in the ecchymosed tissues on the outer side of the leg opposite the wound. When we saw the patient, two months after the accident, she could bear weight on the limb and walk about the ward. She was in excellent health, and expected in a few days to be relieved of the leather splints which she wore. She has since left the hospital with a good limb.

(Under the care of Mr. WILLETT.)

The second case is that of a woman aged seventy-two, who was admitted, under Mr. Willett's care, with a compound comminuted fracture of the right tibia and fibula close to the ankle-joint. The foot appeared to be much displaced. The extensive comminution of the involved bones was very evident. The wound, about an inch long, was situated a little above the instep over the tibio-fibular

articulation; the hæmorrhage from it was inconsiderable, and pulsation could readily be detected in both the anterior and posterior tibial arteries. The limb was at once placed in a back splint and suspended to a cradle. The wound was simply covered by a piece of dry lint, and side splints were applied. For three weeks she steadily improved; her temperature did not rise above the normal standard; her appetite was good, and she slept well with the occasional aid of a dose of the hydrate of chloral. At the end of the third week the lint was removed from the wound; it appeared quite superficial, and discharged very slightly. The patient has since continued to make uninterrupted progress. The limb is in good position, and bony union has taken place.

REMARKABLE DISTORTION OF A KNEE-JOINT FOLLOWING RHEUMATIC INFLAMMATION.

The following remarkable instance of deformity is also under Mr. Willett's care:—

James M—, aged sixty-three, a labourer, was admitted with a curious deformity of his right knee, the result of chronic disease of a rheumatic character. The tibia is not only dislocated backwards and outwards, but also drawn upwards to such an extent that the external condyle of the femur rests on the inner surface of the shaft of the tibia, just below the inner tuberosity. The leg is so much flexed, adducted, and everted, that, as the patient lies in bed with the left lower extremity extended, the heel lies close to the left ankle. The remarkable position which the right leg occupies is calculated to give to a casual observer the idea that an amputation at the knee-joint has been performed, and that the severed leg, turned on its outer side, had been laid on the bed with its upper end behind the stump. The patient states that he has long been subject to rheumatic attacks, the last of which occurred eleven months ago and finally settled in the right knee. That joint remained swollen for six weeks, and while the swelling was subsiding, early one morning, he suddenly felt the joint give way, and the bones at once fell into much the same position as they occupy at the present time. As the limb is perfectly useless he has entered the hospital with a view to having it removed, and is now awaiting amputation.

UNIVERSITY COLLEGE HOSPITAL.

A CASE OF PHTHISIS FOLLOWING PNEUMONIA OF THE RIGHT LUNG, AND BRONCHITIS OF THE LEFT.

(Under the care of Dr. WILSON FOX.)

In the "Mirror" of the 25th ult. we briefly recorded some clinical observations by Dr. Wilson Fox on the diagnosis and treatment of a patient in whom phthisis appeared to have supervened on pneumonia of the right lung, and on bronchitis of the left. There seemed to be reason to hope that, under careful treatment, his condition might be brought to undergo some improvement. As, however, death ensued three days after our visit, we are enabled now to add an account of the condition which was revealed at the post-mortem examination.

Death occurred, apparently from suffocation, ten minutes after a fit of coughing, in the course of which a large quantity of blood flowed from the mouth and nostrils.

The left lung completely overlapped the heart, which encroached to the right of the sternum; it extended upwards, on the right side, as far as the second cartilage, and was more or less emphysematous throughout, especially at the anterior margin and base. No distinction could be accurately traced between the lobes of the right lung. The bronchi, especially those of the right lung, were filled with frothy fluid; blood-stained mucus was found in those of the left lung, but no clots were found in any of the larger bronchi.

The upper lobe of the right lung was occupied by an extensive cavity, of which the parietes were changed into pigmented fibrous tissue, and completely consolidated. The middle lobe was the only portion of the right lung which contained any remaining lung tissue; it was emphysematous at the upper part, studded with tubercle, and with indurated and caseous granulations, some of which were arranged in racemose groups, interspersed with fibrous