

valescent or in the stage of consecutive fever in which the intra-peritoneal injections were not called for. No admissions in the algide stages of this disease presented themselves whilst I was there. For some time, however, these injections into the peritoneum have been exercising the minds of practitioners here, through quotations from THE LANCET having found their way into the foreign press; and since Dr. B. W. Richardson's first essay in 1854 many authors appear to have written on the subject. The chief difficulty seems to have been the want of directions for the employment of the method. In tapping for dropsy, the volume of ascitic fluid would protect the intestines; but in injecting the peritoneum for other diseases, it would seem necessary, as Dr. Richardson has done, to make a small lancet incision and scratch down to the peritoneum, and then push in a blunt cannula. Such a cannula, blunt at the end, with an eyelet like a catheter at one side, I have left with Dr. Duranty, one of the chief physicians of the cholera hospital established at the Palace of "Pharo," at the entrance of the harbour here; and Dr. Bassano, one of the house-surgeons, and the Doctor himself, have promised to give me careful details of any cases which they may be able to treat by intra-peritoneal injections. All seem anxious to try them, intra-venous injections neither having succeeded in this epidemic, nor being, unless with exceptional apparatus, unattended with risk. The almost sudden influx of fluid by the veins seems to be unfavourable. I also strongly recommended the injection of the subcutaneous cellular tissues with warm water, so as to produce artificial anasarca, for both cases of dropsy and anasarca have been known to recover when attacked by cholera, apparently through the absorption of their effusions. To Dr. B. W. Richardson, it appears, we are indebted for this method, though others may have thought of it independently. Drs. Coney and Purves have recommended vesical injections, but Dr. Richardson, who tried this long ago, did not find the absorption to be satisfactory. Besides, so dangerous is the reabsorption of urine, that the catheter has often to be employed.

The epidemic seems to be passing away. The deaths registered are chiefly of cases admitted long ago in the stage of secondary fever. The admissions seem now to be few.

Dr. Koch has recommended, I hear, the non-watering of the streets, as he believes desiccation kills the "microbia." (?)

All the medical officers, sisters, and attendants, including ladies of rank, the British consulate, chaplains, &c., display the utmost courage and devotion.

I am, Sir, yours truly,

CAMERON MACDOWALL, F.R.C.S. Edin.,

Marseilles, August 1st. Brigade Surgeon, Bombay Army.

P.S.—To show you how extremely difficult it is to introduce any new treatment of disease, I send you a copy of the following telegraphic answer (the original telegram I have had to send to the India Office) to my inquiry—if, since I left Toulon and Marseilles, it has been possible to make any trial of "intra-peritoneal injections" with the apparatus which I left there? The answer was as I expected from what I saw at the hospitals, where no cases in the algide stage were admitted during my stay. It was to this effect: "Not yet. Waiting for favourable case." This I received on Friday from the interne or house-surgeon, Dr. Bassano. I drank Toulon and Marseilles water, and may say that I suffered from diarrhœa before going there. This diarrhœa increased so much at Marseilles that I was obliged to take one-drachm doses of bismuth in mucilage before it yielded on the third day. Like ipecacuanha in acute dysentery, small doses are useless. After burning most of my clothing, I endured a good ten days' quarantine in the north of France before coming to England. In conclusion, I may be permitted to say that this epidemic, which has been monstrously exaggerated in public opinion, is comparatively mild. The statistics of the Pharo Hospital at Marseilles show that considerably more than half the cases recovered. If imported by the transport *Scarthe*, it would appear that the forty days' sea voyage may have attenuated considerably the virus, or else, as I have thought ever since I saw cases in Liverpool, the epidemic coming by sea is less formidable when it arrives than when travelling by land *viâ* Russia &c. To those who blame the sanitary state of Toulon and Marseilles, I would point out the very extraordinary difficulties of draining the places into the tideless Mediterranean. The upper town is built almost entirely on rock, the lower on piles, and water is found at a

few feet. Closed cesspools are excavated under the new houses, which are periodically emptied in the night by steam power; for it must be remembered that even in Paris, and according to very generally approved ideas, no sullage from waterclosets is allowed to enter the drains, which carry into the River Seine only kitchen and surface waters. In the lower town such cesspools or "fossées" are impracticable, and receptacles are carried down at night into each street to be taken away and brought back empty. I believe a system of covered surface drains has been spoken of; but then, as in Marseilles, the docks will become foul, as there is no tide, unless the drains be carried far out to sea. There would be no deficiency of water, for clean streams run down the gutters of almost every street. It is turned on periodically.

OUTBREAK OF CHOLERAIC DIARRHŒA AT CLAYTON-LE-MOORS.

To the Editor of THE LANCET.

SIR,—On Saturday, Sunday, and Monday, the 2nd, 3rd, and 4th inst., between 100 and 150 persons of all ages were taken ill in the above township with vomiting and purging, and at the same time almost as many were attacked in the adjoining parish of Rishton. Having treated eighty-five of these cases myself during the past week, it may be interesting to your readers to report concerning the causes and symptoms of the outbreak, the treatment adopted, its infectious or non-infectious nature, and the conclusions at which I have arrived generally.

In all cases except two I traced potted meat from one pork butcher. It was made from beef, pork, and pig's head, and those who had partaken largely were affected most.

The symptoms were the same in all, with varying degrees of intensity. They were vomiting and purging, pains in the stomach, and, in the worst cases, collapse after a few hours. The vomited matters were first those of the contents of the stomach partially digested, but afterwards of a yellowish or bile-stained watery fluid; whilst the dejecta varied from a brownish to a yellow fluid, and in some cases green, with very foul odour. The tongue was moist, and covered with a white or brownish-white fur, but red at the edges and tip. There were feverish symptoms in the mild cases, but reduction of temperature and coldness of the extremities in the worst.

As regards treatment. In the case of all the adults I prescribed six draughts of an effervescing mixture with half a drachm of a 1-in-20 solution of carbolic acid, fifteen minims of the solution of morphia, and twenty minims of the aromatic spirit of ammonia; one to be given every two hours. In the majority of cases this mixture answered well, but in some of the worst it did not stop either the vomiting or the purging, and it seemed to have a tendency to increase the collapse, no doubt from the depressing action of the morphia upon the respiratory and circulatory centres. In the mild cases sleep was induced with one or two doses, but in the worst the morphia was not retained in sufficient quantity in this form to act as a soporific. In some cases morphia in pill of the strength of one-sixth of a grain answered well in checking the vomiting and inducing sleep, but not in others. In addition to medicine I also ordered brandy and soda-water and milk and soda-water to quench the great thirst which all complained of, and a hot linseed and mustard poultice over the whole of the abdomen. When the above-mentioned effervescing mixture failed, I gave five to ten grains of bismuth, half a drachm of solution of carbolic acid, five to eight grains of hydrate of chloral, five to eight minims of tincture of belladonna, half a drachm to a drachm of glycerine, and water to one ounce, every two, three or four hours, with excellent effect. Many rejected and vomited the soda-water and milk, but all could take and retain water, and particularly port wine and water, better than any other fluid. In cases where there was no vomiting, but only diarrhœa and pain, with feverish symptoms and foul tongue, the following mixture cured in a few hours: three drachms of compound spirit of ammonia, half an ounce or six drachms of solution of carbolic acid (1 in 20), a drachm to a drachm and a half of chloral hydrate, a drachm to a drachm and a half of tincture of belladonna, six drachms of syrup of red poppy, to six ounces of water, half an ounce to be taken every second or third hour. With this mixture also I treated most of the young children

affected; of course in reduced doses, and with bismuth in place of ammonia in cases of severe vomiting. I found that suppositories of belladonna and lead acetate greatly relieved the straining at stool when the diarrhoea was abating. Of the stimulants used, I found port wine to agree the best. I believe that in carbolic acid, bismuth, chloral, and belladonna we have an excellent remedy for cases of this kind. I would never in any case give more than half or three-quarters of a grain of morphia either in pill or solution, and am now determined to give the most decided preference to chloral and belladonna, and to discard morphia altogether in the treatment of those severe cases where there is great depression and a tendency to collapse. If carbolic acid, bismuth, chloral, and belladonna prove more efficacious in relieving the vomiting than morphia—as in the worst cases in my hands they certainly did—I think they should rather be used; moreover, there is not the same danger attending the use of them in a system weakened by large losses of fluid as there is in this disease. Again, chloral, whether or not by transformation or chemical change in the blood, has proved of acknowledged efficacy in relaxing muscular spasm anywhere—as, for instance, in convulsions; and hence, I think, its good effects in vomiting and diarrhoea, by exerting a sedative effect upon the diaphragm and the muscular coat of the intestines, and this without much depression of the vascular system. Not so with morphia, in its temporary or evanescent stimulant, and very much more marked depressant, action upon the vascular and respiratory centres. Many of the alleged symptoms of stimulation by morphia I believe to be due to passive congestion of the cerebrum from depression of the circulation, not stimulation. Any depression of the circulation which may result from chloral in the above mixtures is amply compensated for by the belladonna they contain. In some cases of diarrhoea only, the ordinary sulphuric acid and opium mixture, with carbolic acid, answered well, but not so well as ammonia and opium with the same, the reason being, I think, that ammonia, besides being a powerful stimulant, supports the circulation when weakened by losses, by preventing coagulation, whilst acids favour it and have no stimulant properties. I had opportunities of observing the greater and more rapid improvement with carbolic acid than without it in the above mixtures, and am of opinion that it should form a constant ingredient in all diarrhoea mixtures. Of the eighty-five cases, two died collapsed—one, a young collier of twenty-six years, and the other a debilitated man of fifty-one. In both I injected ether subcutaneously to the amount of a drachm or so, but with little or no effect.

Of the infectious nature of the complaint there is but slight evidence in one case, that of a little boy who was continually in the room where one of the worst cases was being nursed, and followed the nurse when the dejecta were being removed. He was taken ill with symptoms similar to those of the others, but with three or four doses of the bismuth, carbolic acid, chloral and belladonna mixture, he was well in twelve hours. All the cases under treatment recovered. Unfortunately none of the meat or stew was examined, as when the cause had been determined all had either been eaten or otherwise disposed of. It seems unreasonable to believe that in two days meat should so far decompose as to cause such terrible sickness, and I am afraid the actual cause must remain a mystery.

A propos of the subject of diarrhoea and choleraic diarrhoea, with the allied one of cholera itself, it occurs to me to speak of Koch's cholera bacillus. It is, I think, quite within the bounds of probability that the bacilli will yet be found in the intestines of patients who have died of diseases other than cholera which have a debilitating action upon the lining membrane of the bowels; and I am of Dr. Roche's opinion that any amount of the bacilli may be swallowed without any evil consequences arising, provided they are well washed.

Finally, I should like to state that, in my opinion, all cases of the nature of those described in this outbreak which present symptoms of a mild character with no depression of vital power should be treated with morphia and carbolic acid combined with ammonia; but that those which present symptoms of collapse should be treated with chloral and belladonna combined with bismuth and carbolic acid; whilst the treatment with ammonia, chloral, and belladonna with carbolic acid should be reserved for those very mild cases which are characterised by diarrhoea with feverish symptoms and nausea, but no vomiting.—I am, Sir, yours truly,

C. R. ILLINGWORTH, M.D. Ed.

Clayton-le-Moors, Aug. 12th, 1884.

CHOLERA: ITS ETIOLOGY AND TREATMENT.

To the Editor of THE LANCET.

SIR,—The cholera is making sad havoc in France, and may any day break out in this country. There are many young medical men who will be perplexed as to its treatment. In 1848 and 1849 many different modes of treatment were tried; and, notwithstanding all the researches that have been made since, there is no fixed plan of treatment adopted by the profession. Many eminent medical men have placed their valuable lives in danger, and worked hard to find a remedy, but the only means known of preventing the disease and checking it are those adopted by Sir William Hunter and his staff in Egypt—isolation and cleanliness, pure air, good water, and especially early medical attendance and good nursing. We have been taught by sad experience that impure water and filth favour all epidemic, endemic, and contagious diseases, and increase their virulence. During the epidemic of 1849 I was requested to take charge of those suffering from cholera and diarrhoea in the townships of Westhoughton, Over Hulton, and Lostock. These townships were very free from stagnant and filthy water, and although I was kept busy night and day for six weeks I had only two deaths from cholera, whereas in the adjoining township of Hindley the water-supply was very deficient, and a brook which received the sewage from houses on both sides passed through the village. The disease in this village was very virulent, and many deaths took place; isolated cases occurred near this spot. A committee sat here day and night to supply blankets, food, and other necessaries. Five medical men were stationed in the village. Isolated cases of death took place in the immediate neighbourhood of the village; other cases were treated successfully in the more healthy parts of the township, where pure air, good water, and proper attention could be had. I found the most favourable symptom was the return of bile in the motions, and I adopted with success the calomel and opium treatment in doses of two grains to one grain or two grains to half a grain for an adult, together with a saline mixture, properly prepared sago gruel and brandy, toast water, coffee or cocoa, or milk-and-water, in equal parts, boiled and allowed to cool. Hygiene is too much neglected. The food and drink are quite as important, and require as much attention, as the medicine, as is also the immediate removal of all discharges. I believe I was instrumental in saving many lives by advice as to preparing and administering food and drink. I am convinced that good nursing is quite as necessary in cholera as medicine. I have seen patients almost pulseless for hours, the legs and arms cold and blue with violent cramp, who, after many hours' rubbing with warm flannels and the administration of gruel and brandy in small quantities, have recovered; some are now living who were in that state in 1849. "*Sed tunc quoque unicum in fritione præsidium est; quæ si calorem in cutem evocavit, potest alicui medicinæ locum facere*" (Celsus). It has been stated that many of the deaths which take place at Toulon are from the subsequent fever. No doubt some of those cases are attributable to giving opium without the calomel, thus checking the natural secretions from the liver. The acid treatment recommended by the College of Physicians of Dublin was used in many cases in 1849 by some of my colleagues, but was abandoned, and the treatment I adopted resorted to with greater success. Celsus said, "*Si post suppressam choleram febricula manet, alvum duci necessarium est; tum cibus vinoque utendum est.*" Dr. Koch deserves our best thanks for the exertion he has made to discover the cholera germ; but, after all, the only remedies against its spread are cleanliness and temperance, and the clean and healthy state of a country or district or house is the greatest safeguard, the most economical, and the best remedy against cholera.

I am, Sir, yours truly,

Bolton, July 22nd, 1884.

JOHNSON MARTIN.

"PHYSIOLOGY OF THE FEET."

To the Editor of THE LANCET.

SIR,—Mr. Allen's regret for representing an opinion of mine on what *should be* as a statement of that which *is*, has not prevented him from pointing out objections to "letting the heel down gradually from the toe," while the words used in my paper were that the foot should reach the ground