

produced a large chancre, which was re-inoculable, as was proved on other subjects. It grew to a diameter of more than half an inch, and produced some swelling and inflammatory redness. A new, but smaller, chancre formed itself in the neighbourhood, probably by spontaneous inoculation from the abundant secretion of the first ulcer. One of the axillary glands swelled and became painful; but the inflammation was resolved without suppurating. The chancres were only treated by water-dressing, and healed up in about three months. No constitutional symptom was observed during her stay in the hospital, or for one year and a-half afterwards, during which time she was frequently examined by myself; but, at that time, she contracted in a natural way a new chancre on the genitals, which proved infecting, and produced roseola and other constitutional symptoms.

This case concludes, in my opinion, the series of facts which prove the common origin of the infecting and non-infecting sore. It is, indeed, the missing link to complete my deductions.

We know now, that an infecting chancre, and even a mucous tubercle under certain circumstances, can produce a soft, non-infecting ulcer, which, after this, must be considered as a local symptom arising from true syphilitic poison. But there still remain questions enough unsolved, with regard to the nature of the syphilitic poison, and especially concerning the non-infecting chancre. Will this, as commonly asserted, always be propagated only as a local symptom? or can it re-assume the lost property of infecting the system? We know, as yet, very little about that. Some few circumstances seem to point at the possibility of this process.

In the numerous methodic inoculations made during the process of syphilisation, as it for many years has been practised in Christiania, it has been remarked that the artificial ulcers produce almost the same effect of rendering the organism refractory to local reaction against the virus and of curing the disease, whether they have been derived from infecting or from non-infecting chancres. Moreover, the indurated swelling of the lymphatic glands, to which I have already alluded, is a very common symptom following these inoculations, and seems to prove that the virus really is absorbed or affects the organism. But further experiments will probably throw more light on this question.

ALCOHOLIC SPIRITS. The revenue for the last year from home-made spirits, £10,176,731, shows an increase of £484,216, and the number of gallons consumed as beverage in the United Kingdom, 20,369,844, an increase of 946,398. Those who take alarm at an increased sale of intoxicating liquors must remember that, notwithstanding the increase of population, the quantity consumed is now very considerably less than it was some years ago before the duties were raised. The consumption in 1852 was nine-tenths of a gallon per head of population, but the present consumption is little more than six-tenths of a gallon per head, and yet there is an increase of nearly £4,000,000 in the revenue. Of wine the consumption has risen in the same period from '23 of a gallon per head to '38, and of beer from '6 of a barrel to '7. These facts show the tendency towards the substitution of milder stimulants for ardent spirits. Comparing still the years 1852 and 1864, the consumption of beer in England will be found to have increased nearly 12 per cent.—viz., from '85 of a barrel per head to '95; in Scotland, 60 per cent.—viz., from '20 of a barrel to '32; in Ireland, 122 per cent.—viz., from '09 of a barrel to '20.

Original Communications.

NOTES ON CHOLERA.

By R. W. WATKINS, F.R.C.S., Towcester.

[Read at the Annual Meeting of the South Midland Branch, 1859.]

SINCE the last general epidemic of cholera in this country, it has often struck me that the subject has attracted very little attention in our medical literature, and in the transactions of the different Medical Societies. After the epidemic of 1849, the subject was very freely discussed, and various theories of the origin, the nature, and the propagation of the disease were advanced, and different and sometimes very opposite principles of treatment were advocated by men who had opportunities of observation. In the early part of the year 1854, the valuable Report of the Cholera Committee of the College of Physicians, drawn up by Dr. Baly and Dr. Gull, was published; and it is certainly the most complete collection of facts observed in previous epidemics, and of conclusions deducible from those facts, which we at present possess. The writers since that date, though comparatively few in number, have for the most part contented themselves with recording facts and observations, instead of enunciating theories and controverting or defending opinions. Some advantage has already resulted from this; and, although the Report on Treatment by the Medical Council of the Board of Health disappoints our expectations, and has not added very much to our knowledge of that important part of the subject, still the valuable series of facts collected by Dr. Snow on the influence of pure or impure water on the spread of the disease, by Dr. William Budd on the infectious nature of the disease and its propagation by means of the alvine discharges, and the valuable clinical observations by Dr. Lindsay at the Edinburgh Cholera Hospital, are certainly very important contributions to a true knowledge of the disease. The profession now seem tacitly agreed that it is only by a careful and dispassionate record of facts and observations in various localities, and among different classes of people, that a more correct knowledge of the disease and of its treatment is to be obtained. Actuated by these feelings, I have been induced to offer my humble contribution to the treasury, in the hope that, though its intrinsic value may be small, it will not be absolutely worthless.

During the autumn of 1854, when cholera prevailed very generally in this kingdom, it visited for the first time the small rural town of Towcester, and with great severity. Out of 2,700 inhabitants, there were about 120 cases of cholera, and probably nearly 600 cases of diarrhoea. No fewer than 106 cases of cholera, and nearly 400 cases of diarrhoea, simple or choleraic, were under my charge, and were treated by myself and my assistants; and I now propose to call your attention to the more important facts which presented themselves to our notice, classing my observations under three heads:

1. The localities in which the epidemic prevailed;
2. The nature and sources of infection;
3. The treatment.

1. It will be necessary to premise a brief description of the town. It consists of one main street nearly a mile long; a second street branching from it; and a number of alleys and courts, principally connected with the main street, and at right angles with it. A small river runs along the whole of the eastern side of the town, at a distance varying from

100 to 200 yards. A small brook, tributary to it, crosses the main street rather below its middle; and another small brook crosses it nearly at the south end; the ground between the two brooks, and for about fifty yards to the north of the former, being so flat that floods have been occasionally known to run down the main street from one brook to the other. If a line were drawn across the town about fifty yards to the north of the first brook, it would divide it into two nearly equal portions. One, as I have stated, nearly flat, and at no point more than five or six feet above the ordinary water-level, is occupied principally by the cottages of shoemakers and labourers, and the houses of small tradesmen and mechanics. The other half rises from ten to twenty or twenty-five feet above the water-level, and is occupied principally by a better class of houses, the residences of private families and tradesmen; but there are also several cottages interspersed in courts, backyards, etc.

Of the 106 cases of cholera which happened in my practice, seventy-four occurred in the lower half of the town—viz., eight in the main street, and sixty-six in the alleys and back lanes; and thirty-two in the upper half, only one being in the main street, and eight in the side street, the other twenty-three in the different courts connected with them. The workhouse, situated in the upper part of the town, escaped. There was not a single case of cholera or diarrhoea within its walls, although there were several within fifty yards of it.

As regards the *Drainage* of the town, the only portion of it worthy of the name was that in the upper part of the main street, where there were excellent brick sewers; in the side street, very imperfect flat stone drains carried off the refuse waters; but, in the lower part of the main street, the flat stone drains were nearly on a level, and were frequently blocked up, large barrowfuls of black mud being removed at intervals by men employed to open them; while in the alleys, the drains, which had been laid at different times by the proprietors of the different cottages, were very imperfect and irregular, emitting most offensive smells in warm weather, and in two instances were higher than the floors of the cottages near which they were placed. In one of these latter, I prognosticated, as soon as the epidemic commenced, that this house would certainly not escape; and, within a month of that time, five of the nine inmates were dead. It is certainly a remarkable fact, that this part of the town was not peculiarly liable to typhus or other endemics.

The *Water-supply* was, in the lower part of the town, exceedingly good, though rather distant from many of the cottages. An analysis by an experienced chemist revealed neither organic nor inorganic impurity, and but a small portion of harmless saline ingredients. The water from the workhouse-well was, on the contrary, very impure, and, when first drawn, offensive to the smell, but not to the taste. An analysis (of which I much regret that I cannot obtain a copy of the report) proved that it contained a large quantity of organic impurities; and the chemist expressed his opinion that no one could use it for any length of time without serious detriment to health. Unfortunately for his hypothesis, the workhouse inmates were at the time, and continue at present, the most healthy in the town, though the water still emits an offensive smell when drawn.*

2. As to the *Sources of the Infection*, there is no

doubt whatever that the first three cases originated in the town, without any external communication. Indeed, there was no case of cholera, to our knowledge, within fifty miles of the town. These three cases occurred on three successive days, in distant parts of the town, and we could trace no communication, direct or indirect, with each other. It is not possible that the water used by the second patient could have been contaminated by the discharges of the first; and, although I cannot affirm as much of the third, which was situated lower down on the same brook, still it could only have been to her in common with hundreds of others who did not suffer.

On the fourth day, four cases of cholera and several of diarrhoea occurred in different parts of the town, principally in the alleys and lanes; and the epidemic from that day appeared to become general.

We had not a single case, during the two months in which the epidemic prevailed, of infection from direct personal contact. Not one of the medical attendants, ministers of religion, house-to-house visitors, or relieving officers, suffered with cholera or choleraic diarrhoea; and in one instance only was there an attack of simple diarrhoea. The nurses, on the contrary, and particularly those engaged in washing the clothes, suffered severely. Not only did scarcely one of them escape in the early part of the epidemic, but so many of them died, that we had great difficulty in obtaining nurses even at high rates of remuneration, and were eventually obliged to obtain six experienced cholera nurses from Leeds. It is also remarkable, that the only cases which, coming under treatment in the first or second stage, passed into cholera in spite of treatment, were those of the nurses. Every other case, which was treated in the first stage, was checked before it became decided cholera. Observing the intensity of the infection produced by the soiled linen, we directed the attendants to soak it, immediately on its removal, in cold water, to which a small quantity of chloride of lime had been added; and afterwards to wash it in cold water only; while in some very bad cases, which had proved fatal, the whole of the linen and bedding was destroyed.

In several of the villages round Towcester, diarrhoea was very prevalent, but in three only did cholera appear. In one of these—Silverstone—it was at first rumoured that it had been communicated from Towcester, but, on careful inquiry, we found it was not so. Many of the people at Silverstone had frequent, almost daily, communication with the town, without taking the disease. The family in which it first appeared had been there frequently in the early part of the epidemic; but an interval of ten days had elapsed since the last visit, and the person first attacked was a child who had never left home. No clothes or linen had been conveyed from Towcester to the house. Although my unfortunate colleague, the surgeon of this village, died of cholera, there is in his case no evidence of direct contagion. Diarrhoea had appeared among his children, who had never been in communication with any choleraic case before he was himself attacked; and he was suffering from great physical exhaustion and mental depression at the time of his attack. In the other two villages, I did not hear even a rumour of contagion from Towcester, and there were in each but two or three isolated cases.

Where cholera occurred in the better drained portion of the town, it could almost invariably be attributed to an overflowing or very offensive cesspool near the house; and there were in each of these cases two, three, or more members of the family attacked.

* Ineffectual efforts were made to empty the well, which is more than seventy feet deep, and has a constant overflow; but more than £100 having been spent in vain, the reservoir was reduced to about thirty feet, by casting in gravel. The water, however, is still offensive, and it is necessary to use a large open grating over the well.

The evidence of direct local infection was in some of these cases unquestionable.

The result of my observations is, that there is certainly no infection from the cutaneous exudations or the pulmonary exhalations of the affected; but that the alvine discharges are highly infectious, and that extreme care should be taken to receive them, at their first discharge, into some disinfecting medium; by which means, I believe, the propagation of the disease may be effectually checked.

I would strongly recommend those who are anxious for further information on this important subject to read the admirable series of letters by our talented associate, Dr. William Budd, in the JOURNAL, in 1854 and 1855.

[To be continued.]

ON MUSTARD HOT BATHS IN THE COLLAPSE OF ASIATIC CHOLERA.

By JOSEPH BULLAR, M.D., Physician to the Royal South Hants Infirmary, Southampton.

In the collapse of cholera, the one object is to produce warmth of surface with rapidity. If the skin can be made to resume its vascularity and heat, the patient has a good chance of life. If not, he dies.

The following case, in which our two common remedies to produce reaction, hot water and mustard, were used together over a large surface, is worth serious consideration.

James Allen, aged 42, engaged on the Netley Railroad, and lodging at Northam, a suburb of Southampton, was suddenly seized, whilst in bed at 3 A.M. on October 15th, with a feeling as if his stomach was blown up, followed by profuse purging of watery stools and vomiting, continuing every few minutes. He went to his work; but, as he became very ill, a gentleman living near the line sent him in a cart to the Infirmary in Southampton.

I saw him at 12.30. He was in the collapsed stage of cholera. His naturally red face was of a purple blue; his surface livid, cold, and shrunken, with the washerwomen's hand. He had rice-water vomiting and purging, was doubled up with abdominal pain, and writhed with cramps in his calves, drawing the strands of his gastrocnemii muscles into rigid cords, which the nurse and porter were rubbing to ease his torture. His pulse was barely perceptible. No urine had been passed since his attack.

No one who had seen the cholera of 1832 and 1849 could mistake the nature of such a case.

Had a slipper-bath been available, I should have used one; but as he had been placed in a house adjoining the Infirmary, and only used occasionally for infectious cases, where were only hip- and foot-baths, I had him seated in a hip-bath half filled with very hot water with three-fourths of a pound of powdered mustard in it, with his feet in a hot-water foot-bath with a quarter of a pound of mustard mixed with it. The water was as hot as the nurse's hands could bear—almost scalding hot. That the water should not be merely warm, but very hot, and renewed by degrees to keep up the heat, is most important; and the medical attendant should superintend this himself. Gradually his face improved in colour; the cramps ceased; he did not vomit; and after half an hour, as he expressed a great wish to get to bed and to pass a stool, he was moved to a close stool, dried, a clean shirt put on, and he was placed in bed, well covered with blankets, and with hot tins to his feet and hands. His pulse, though weak, was now easily felt; and his hands, though still cold, were warmer.

The contrast was striking. When placed in the bath, he was writhing with pain and cramps; when placed in bed, he said he was comfortable, had no

pain, and wanted to sleep. Whilst in the bath, he drank freely of milk and water with lumps of ice in it; and was urged to swallow in the intervals of drinking small lumps of ice. Shortly after being placed in bed, he suddenly ejected a large basinful of milk and water, and was not sick afterwards. An hour after he had been placed in the bath, reaction had so far advanced that there were good hopes, and four hours afterwards he was out of immediate danger. He was ordered to take iced milk in smaller quantities, to swallow ice, and to have broth and tea. He had but one stool of rather a yellowish colour the same evening. No reaction-fever followed; and, except weakness, he was on the second day well.

Having seen, with Dr. Lake, a case of much less severity, in which reaction went on from the time he applied Dr. Chapman's ice-bag to the spine, I had one prepared; and, on his being placed in bed, it was applied; but, as it made him chilly and prevented sleep, it was not persevered in. This coldness from an ice-bag is a proof that reaction has occurred, and that it is not needed.

I had seen a case under Mr. Leonard Lawrence, who had given milk and water freely, on Sydenham's principle of diluting and encouraging vomiting, and also of supplying the blood with absorbable nutriment.

The case of a medical friend, who cured himself in the last epidemic by constantly swallowing ice, related to me by himself, made such an impression, that, as brandy and stimulants had then so obviously failed, I resolved to give ice, if an opportunity occurred.

The indications of treatment in collapse, according to our present knowledge of the pathology of cholera, seem to me to be:

To restore warmth to the cold skin by external heat and stimulants; and the combination of the two in a mustard hot bath is the most powerful.

To give ice and iced drinks internally, as the large abdominal organs are known pathologically to be in a state of congestion; the belly is hot to the patient's sensations, and warm to the touch.

As the rice-water secretion in the stomach is known to be a virulent poison, to dilute it, so as to encourage vomiting.

And, as the most fluid parts of the blood are flowing outwards, to give such diluents as may supply organic materials, such as milk and salts do.

I should have hesitated to give publicity to a single case, if it involved any novelty in principle or in means; but, as such a single case would lead any thoughtful physician who observed it to try the remedy again, it should certainly induce others to do the same. It may not produce reaction where the powers have been profoundly exhausted by long neglected diarrhoea, the obstinacy of which, as well as future fever, may be owing to impure blood from bad air or debauchery; or it may fail in those who seem to have swallowed or breathed such a concentrated dose of the poison that the disease "begins with death"; and it may be of temporary use only to those who subsequently fall into typhoid fever; but in cases such as this, and which were before very common, where the patient was healthy and temperate, with no previous exhausting and neglected long continued diarrhoea, but where death is imminent from collapse, it may save.

It is a single fact, which justifies immediate promulgation by any channel, as the cholera is in Europe; for it occurred in a public institution; relates to a public disease affecting almost exclusively the poor; and is only the wider application of a well known and common remedy, in the action of which we all agree; and, if it has often been used before, has slipped out of memory, and should be restated.