

could not have come from the washing of clothes of cholera-patients, but must have partly been derived from multiplication, yet he forgets that, as he himself has shown, the meat-broth in which the bacilli grow must not be too dilute. It would have been interesting if Koch had estimated the strength of the nutritive material in the water-tank. But what chiefly contradicts the doctrines of the contagionists is the simultaneous disappearance of the cholera on land and the cholera bacillus on the water-tank. If it were really true that every case of cholera, the first as well as the last in the epidemic, had the same infective material in its intestinal discharge, and that the epidemic only ceased because the susceptibility of man had passed away, then the bacillus would continue to exist in the tank, always supposing that there was sufficient pabulum for it. And thus it is most probable that the bacillus gets into the tank from man, and not *vice versa*. While Koch was in Calcutta the English physicians there imbued him with their views on cholera and drinking-water. The English had been brought up on the drinking-water theory of typhoid fever and cholera, and could only lay it aside with difficulty. But a few of those English physicians who had studied wide-spread epidemics had renounced their original ideas. Dr. Bryden (the chief of the Statistical Department), Dr. J. M. Cunningham (the sanitary commissioner), Dr. John Macpherson (the Inspector-General of the Bengal Army), Dr. Lewis, and Dr. Douglas Cunningham were all disbelievers in the drinking-water theory. Koch was further strengthened in his views, in opposition to the few Englishmen just named, from the fact that after Fort William in Calcutta was supplied with pure water no more cases of cholera occurred there, although it had been formerly ravaged by the disease. The gentlemen in Calcutta had not, however, told Koch the whole truth. For it was a fact that cholera had begun to decrease in Fort William since 1863, and yet the fresh water supply was introduced as late as March 25, 1873. Moreover, it was not true that the only improvement then effected was a change in the water supply, for many other changes were carried out, the fortress being made a model of cleanliness. Alterations in the drainage of the soil were effected in and around the foundations of the building, which before this was nothing more than a morass during the rainy season; so that, inasmuch

as the nature of the soil, as well as the drinking water, was changed, the case of Fort William affords an argument as much in favor of the localists as it does for the contagionists. I may here call to mind an episode which was much commented on at the time, and which is perhaps of the nature of an experiment. Macnamara writes, in his work on cholera: "In connection with this position I may narrate a case which happened in another part of the country, but for which the facts can be vouched. Some dejecta from a case of cholera found their way into a jug of drinking-water, and the mixture was exposed the heat of the sun for the day. Early the next morning a small quantity of this water was drunk by nineteen individuals. Nothing was noticed, either in the appearance or taste of the water, by those who had partaken of it. All remained well during the first day. On the following morning one man was seized with cholera as he awoke; the others remained well till the second day had passed, when two more cases of cholera occurred, and the day after that two other cases were observed. The rest of the party remained well till sunset of the third day, when again two were seized with illness. These were the last cases, and the other fourteen persons continued to enjoy immunity from diarrhoea, cholera, or any disturbance of health." This case is, etiological, not worth much. Where was the original case from which the infection was supposed to have come? Was it not possible for the nineteen persons to have been brought under the same circumstances as those under which the original case had become affected? Were the nineteen in a place which was as a rule free from cholera, and could they only be affected through the drinking-water? Several cases in India are known to me where guests at a banquet having drunk no water were yet the victims of cholera. For instance, at a baptismal feast which a sergeant gave, a gallon and a half (six litres and three-quarters) of rum was supplied. Twelve persons, including the man and his wife, sat down to the banquet, and on the following evening the whole of the group, except the baby, which still lives in Calcutta, were in their graves. At this feat there was no question of a mixture of anything with the stools of cholera.

When I ask myself how it is that men usually astute can place such implicit reliance on the drinking-water theory, which entails