

caught in the secretions from the nasopharyngeal space and are swallowed.

Infection by means of drinking-water is a well-established fact and need not be dwelt upon. Occasional immunity is noticeable, but sooner or later finds its explanation. Dr. Underwood, customs medical officer at Kinkiang, China, noticed marked immunity from the disease among the natives in his district, notwithstanding the frequency of typhoid fever among the Europeans located there. He explains this by the fact that the Chinese drink no water while tea is at hand.

According to Billings and Prudden, impure ice may be the means of infection. Dr. Prudden states that there are a considerable number of cases of typhoid fever in which the most painstaking examination of the sanitary surroundings of the victims and their personal contacts fails entirely to account for the occurrence of the disease. Some of these isolated cases of typhoid fever, whose origin is otherwise unaccountable, may well be due to the ingestion of bacilli from sewage contaminated ice.

The Berlin correspondent of the "Medical Press," March 28, 1880, reports a persistent epidemic that played havoc in a garrison artillery barracks from 1873 to 1885. A case of typhoid fever was imported in 1873, and from that date to the close of the epidemic 116 cases occurred. Every possible source of disease was looked into and everything kept in the best possible condition, but the disease baffled all enquiry. The closing of the barracks finally came up for consideration, but previously suspicion fell upon the bed-linen and clothing, because the vast majority of cases were furnished by the men of one battery alone. On close investigation, it was found that the linings of the trousers were, almost without exception, soiled by dry fecal matter. The clothing was submitted to renewed careful treatment by means of chlorine and dry heat, from which time (November 18, 1885) no more cases of disease occurred.

Infection by means of the clinical thermometer in hospital wards, and through nurses who attend a typhoid-fever patient at one moment and presently prepare ice-water without previous disinfection of their hands, is a sure thing, in my opinion, and the possibility of its occurrence should be borne in mind and avoided by all means.

We have all read, or attempted to read and digest, the somewhat lengthy treatises on ground-water, the height of which is calculated according to the depth of well-water. As a matter of fact, ground-water stands in a certain relation to health, and

Pettenkofer has found that typhoid fever is prevalent with low ground-water. The investigations of B. Latham, C.E., extend over a period of eleven years, and show for England the prevalence of typhoid fever *after* low ground-water. On general principles, I should be inclined to hold that contaminated well-water would contain proportionately more germs if the well were nearly dry than if it were quite full.

Concerning individual disposition little is known. Persons between fifteen and thirty years of age are most liable to be taken sick; the disease attacks more men than women, more robust than weakly individuals. It is the exception that one person is attacked more than once. I can, however, recall several such cases. Occasionally entire families are stricken with typhoid fever. In 1878, of a family of eight persons living at 113 Eldridge Street, all were attacked within four months.

In conclusion, I would add a few words on the prophylaxis of typhoid fever. Dr. Vilchur, of St. Petersburg, has found by experiment that boiling water kills the "typhoid" bacillus, and recommends that the stools of patients be treated with boiling water. Such a method is impossible in private practice for obvious reasons; nevertheless, the physician should insist that the stools be treated by some cheap disinfectant, also the soiled wash.

No sleeping apartment should have a wash-basin which communicates with drain-pipes and sewers. The occasional use of germicide solutions in waste-pipes is no safeguard against infection; it is far more advisable to place a large piece of crude potash into the sinks every week or two; the fatty and sticky coating on the interior of waste-pipes is thus dissolved and loosened up and is carried away by a flush of water. Such a procedure would work good results, especially in tenement-houses.

According to our present experience, infection through drinking-water can be avoided by boiling the water before use.

In the tenement-house districts of New York city typhoid fever would have fewer victims if the physician who attends a case would make it his business to ascertain that printed directions distributed by the Board of Health to prevent the spreading of contagious disease were actually read, understood and obeyed.

Many people are willing to carry out sanitary instructions if they are shown how; others neglect to do so because they do not quite understand written instruction, and no one has a better opportunity to make such matters clear than a conscientious attending physician.