

## The Bacteriology of Diseases Common to Armies in the Field.

Dr. R. Tanner Hewlett, Professor of General Pathology and Bacteriology in King's College, London, lectured on the above subject at the Royal Institute of Public Health, 37, Russell Square, W.C., on Wednesday, June 9th, at 6 p.m. The lecture was illustrated by lantern slides. Dr. Hewlett described the most common diseases of armies in the field as under:—

### ENTERIC.

The bacillus of enteric fever may be conveyed by what are known as typhoid carriers—for example, nursing orderlies contracting the disease so slightly as not to report sick. Within the human body the bacillus may live for ten weeks. Outside the human host its life is believed to be short.

The dissemination of the disease is due mainly to contamination of water. In the Spanish-American War it was thought that the common house fly, which infests infected matter, and afterwards contaminates food, was responsible for much infection. Field hospitals in which typhoid carriers are to be found, are also sources of infection, and dust, in hot countries, where contaminated matter quickly dries, and is blown about in this form, is another means of infection.

In addition to genuine typhoid, there is a disease closely resembling it known as paratyphoid, but due to a different bacillus, and several epidemics have been due to its agency.

### DYSENTERY.

The second disease on the list of great importance to armies in the field is dysentery. The word is rather a clinical than a scientific term, and dysentery, which takes different forms, is caused by at least two, and perhaps several micro-organisms, the principal of which is the *amœba coli*, which also causes liver abscesses.

Another form which may occur in armies in the field and is more common than amoebic dysentery, is bacillary dysentery, a disease which caused 100,000 deaths in Japan in one year. This bacillus, which has been isolated, belongs to the same group as the typhoid bacillus; there are several varieties, but the organism is confined to the bowel, and does not invade the blood as is the case with the typhoid bacillus.

### DIARRHŒA.

The next disease to be considered, of general occurrence, is diarrhœa in its various forms. In this connection Dr. Hewlett did not refer to irritative diarrhœa, but to the infective

variety caused by micro-organisms. Organisms similar to those which occasion the diarrhœa of children, and which have been isolated. The bacillus of dysentery may also set up diarrhœa.

### CHOLERA.

Cholera is only likely to occur in certain localities, notably India, but it may be met with in any countries in which it has been introduced.

The cholera microbe is curved in form, it is confined to the bowel, and does not wander into the blood or tissues. It is disseminated by water, milk, and flies, and lastly by cholera carriers, for the organism remains in the bowel of persons who have suffered, and recovered, from cholera for a considerable time.

### ACUTE PNEUMONIA.

Among the diseases affecting armies in the field, respiratory affections were mentioned. Acute pneumonia is particularly liable to arise in armies in the field. It is caused by an organism of which anyone may be a carrier. It is to a slight extent infective, and in the United States of America, where a Commission was appointed to investigate the cause, the Commission reported that the more cases there were the more there would be. They made a strong recommendation that disinfection should be practised, and in addition to disinfection of sputa, etc., disinfection of the room occupied by the patient.

### MALARIA.

In addition to the above diseases, which may be said to be universal, and may be met with in any campaign, there are also diseases met with in certain localities.

As has been shown, the first four diseases mentioned are largely disseminated by water, and it is of great importance that water consumed by an army in the field should be free from infection by them. This is difficult to attain in campaigns, as the water is almost certain to be polluted, and purification is not easy.

Chemical methods have been suggested. As an example of one which may be carried out on a small scale, Dr. Hewlett mentioned that every man may be required to carry little tablets of bi-sulphate of soda. If these are added to water in the proportion of 15 grains to the pint, in half an hour the bacilli contained in it will be destroyed. There is only a slight taste of soda, and if saccharine and lemon flavouring are incorporated in the tablets a refreshing as well as wholesome drink will be the result. Tablets are also recommended, by which iodine is generated, but, as two sets have to be used, one to generate the iodine and the other to destroy it, these are more complicated.

Another chemical method of disinfection is

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