

## Medical Matters.

### THE ETIOLOGY OF PLAGUE.



An interesting lecture on the "Etiology of the Plague" was delivered at the opening lecture of a post-graduate course at the Royal Infirmary, Glasgow, last week, by Major George Lamb, M.D.I.M.S., a graduate of the school and the chief of the Royal Commission on Plague. This Commission was constituted of three officers of the Indian Medical Service and two assistant bacteriologists from the Lister Institute, with several native doctors of India. It has presented its report to an Advisory Committee in London, composed of representatives of the Royal Society, the Lister Institute, and the India Office. Major Lamb first summarised the main conclusions drawn from the available literature on the subject of Plague before the Commission began its real work, viz. :—(1) Plague, except in the pneumonic form, is not particularly infectious or contagious, and man to man plays no important part in the spread of the disease in India; (2) the infection of plague is in the houses and huts, and may remain there for some time; (3) plague, when once started, exhibits a most marked seasonal prevalence; (4) epidemic plague is associated with, and generally preceded by, an epizootic amongst rats. This epizootic amongst rats is by far the most important cause of the epidemic spread of plague.

Starting from this standpoint the lecturer next discussed the possible means of the spread of plague from rat to rat and from rat to man. He demonstrated from experimental and statistical evidence that in nature alimentary infection did not take place either in the case of the rat or in the case of man. He also stated that all the facts pointed to the infection of plague finding an entrance to the body through the cutaneous surface. In this connection he showed that infection from the soil through cracks or abrasions could play no part in the epidermological spread of plague. The lecturer then explained the part which suctorial insects, especially the flea, plays in plague epizootics and epidemics leading up to the conclusion that the rat flea is mainly, if not wholly, responsible for the spread of plague from rat to rat and from rat to man.

This theory was supported by the following proofs :—Plague can be easily transmitted from rat to rat in the laboratory by means of rat fleas, all other means of transmission being rigorously

excluded. In cabins or go-downs specially constructed for the purpose healthy guinea-pigs can be kept in close contact with plague-infected animals for an indefinite period without contracting the disease if fleas are excluded. If, however, a natural supply of fleas is present, the epizootic, once started, passes with great rapidity through the healthy animals. Further, it is possible to infect animals which are allowed to run about on the floors or placed in cages two inches from the floors of infected go-downs; but it is never possible to infect them if the cages are suspended two feet from the floor, a height to which the rat flea cannot jump. A great number of experiments have also been made in plague-infected houses, which experiments all point conclusively to the rat flea being the carrier of the infection in these houses. Animals placed in cages protected from fleas by gauze netting never contract the disease when left for days in infected houses, while control animals not so protected often die of plague. If the animals are surrounded by a layer of sticky material, such as "tanglefoot," they never contract the disease, but fleas with plague bacilli in their stomachs are caught on the "tanglefoot." It still remains to be decided how the flea transmits the infection, as well as the cause of the seasonal prevalence of plague. Major Lamb, in conclusion, drew attention to the fact that the breed of rat in Great Britain is the brown Norwegian rat. This was, he said, the explanation why the plague has never taken hold in any part of Great Britain. We had not got the rats which live with the people of India, of which they make pets. Though the brown rat takes the plague and dies it does not matter so long as it does not die in the houses where people live. The flea responsible for the spread of the disease has only once been seen in the British Isles, and that was in Plymouth.

### YELLOW FEVER.

Two scientific missions, one French the other American, have recently been investigating the causes of yellow fever, the former in Brazil the latter in Cuba. Almost simultaneously, the members of both missions arrived at the conclusion that the disease was conveyed from one human being to another by a mosquito—*Stegomyia fasciata*. It is still an open question whether yellow fever is of African, or tropical American origin. It bears a certain resemblance to hæmoglobinuria (colloquially named black-water fever) so dreaded by Europeans in Africa. At present yellow fever in Africa is mainly confined to French possessions on the West Coast, but there its effects on civilisation and commerce are very marked.

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