

MOSQUITOES AND MALARIAL FEVER IN PALESTINE.

THE question of the propagation of malarial fevers by mosquitoes is one that has excited a great deal of interest during recent years, and investigations which have been made at Sierra Leone, and other places where fevers are prevalent, show that there is little doubt that the germs of fever can be conveyed to the human body by the bite of the *Anopheles* mosquito, and that, in the districts where this species is found, the inhabitants are specially liable to suffer from attacks of fever. At the same time, it would probably be going too far to say that the *Anopheles* is altogether responsible for the spread of fever, as there are probably other causes, quite independent of the mosquito, to which the disease may be due.

Any information upon the subject is of value, both to residents and travellers in countries where malarial fever is present, and we have read with great interest a paper by Dr. John Cropper, which was published in the "Journal of Hygiene" for January, 1902, on "the Geographical Distribution of *Anopheles* and Malarial Fever in Palestine." Dr. Cropper, who has resided for some time in Palestine, and is well acquainted with the country, made a tour through the northern districts in the summer of 1900, when he carefully investigated the presence of *Anopheles*, and at the same time noted the condition of each place visited from the fever point of view. The route taken was from Beirût along the sea coast to Haifa, and thence south to Khudeirah. He then crossed to Safed, in the Jordan Valley, and proceeded north to Baniyas and Rasheiya el-Wady.

The result of Dr. Cropper's study of this question in these districts does not seem to be conclusive that the presence of fever is altogether due to the *Anopheles*, but he established the point that malaria is prevalent in places where *Anopheles* represents the majority of the mosquitoes present in native dwellings, and that the fever occurs only sporadically, or not at all, in places where an unsuccessful search was made for *Anopheles*. He also has shown that a great measure of protection is afforded by the use of mosquito netting to sleep under. This is a precaution which should never be neglected by travellers when visiting Palestine during the more unhealthy months of the year.

Dr. Cropper considers that the malarial fever is not conveyed by drinking water, and he mentions that he drank the water in every place visited when there seemed to be no danger of contamination from surface drainage. This rather differs from the views of some others, but he seems to have proved the truth of the statement, so far as his own party was concerned. He also throws some doubt on the usually accepted idea that turning up the soil leads to an outbreak of fever. But this has been so often demonstrated that it is not possible to regard his conclusion without considerable misgivings. Another of his observations is of much interest. At Khudeirah, a very unhealthy place, large numbers of *Eucalyptus* trees had been planted, with the object of diminishing the malaria, and as regards these he observes:—"In my opinion it is plain that the *Eucalyptus* trees have not done the slightest good, and perhaps only harm. Had half the money spent on planting these been used in carrying out hydraulic works the place could not fail to be healthier." Again, he says:—"Our tent was pitched for 12 days under the *Eucalyptus* trees, *Eucalyptus rostrata* and *resinifera*, the climate being unsuitable for *Eucalyptus globulus*. Mosquitoes, almost entirely *Anopheles maculipennis* and *Anopheles superpictus*, with very few *Culex*, were common, and could nearly always be found in our tent, the dark navy-blue lining of which formed a shelter, as did the dry herbage under the *Eucalyptus*, where they were always to be found." It would be interesting to know whether in other places, where the *Eucalyptus* has been planted as a guard against malaria, it has proved equally ineffective. Possibly the *Eucalyptus globulus* may be of more use than the species named by Dr. Cropper.

It is to be hoped that he may have an opportunity of continuing his investigations later, and arriving at some definite conclusion. Any research into the causes and means of prevention of malarial fever is very valuable.

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