THE EXTERMINATION OF ANOPHELES: SOME MORE SUGGESTIONS
(Classics Revisited)

O EXTERMÍNIO DE ANOPHELES: ALGUMAS SUGESTÕES
(clássicos revisitados)

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Originaly Published in British Medical Journal
January 13; 1(2037): 107–108, 1900

Sir, this subject is evidently exciting so much interest that I trust you will allow me space to touch on some points connected with it. While it may be possible to diminish or even exterminate Anopheles in places where their breeding pools are comparatively few, the task may be impossible or much more difficult where the breeding places are numerous. For instance, in Freetown, Sierra Leone, owing to the hilly nature of the place, the pools seem to be few enough to be manageable; but Drs. Strachan and Fielding-Ould report that in Lagos, a perfectly flat area with a high subsoil water, the pools are innumerable. Dr. Strachan thinks that the Anopheles there can be managed, but only by persistently filling up its depressions and constantly using paraffin-both troublesome and costly measures when adopted on a large scale; but Dr. Fielding-Ould is less sanguine, and, it must be confessed, with some reason. The question is, cannot we devise simpler methods of dealing with the insects in such places?

Two such methods suggest themselves; though before we admit that either is practicable, we must make further investigations. The first depends on the question, How do the insects carry on the species from one rainy season to the next ? In many places which are nearly flooded during the rains, the country is an arid desert during the dry season perhaps without a pool suitable for Anopheles within several square miles. Are we to imagine that the insects then breed only in such pools as do remain (wells, cisterns, pools in beds of streams), to spread over the country when the first rains fall; or that the eggs lie dormant in the bed of dried-up puddles; or that the adult Anopheles " hibernate " all the time in dwellings,woods, etc.? These are most interesting questions which urgently requires investigation, because, if the Ilects adopt the first course, it may be possible to attack then. With great effect during this season-that is, when they are forced to breed in the few places which the dry season allowia, nem. The other method I refer to depends on the discovery ot what may be called the ideal culicicide, if such a thing exist.

It should be some substance which kills larvae without injuring higher animals, which is cheap, and which dissolves Eo slowly that it will render a depression in the ground uninhabitable for larvae for a long time. I have suggested tar, because I have seldom found larvae in tarred vessels, and Dr. Fielding-Ould reports favourably on it as the result of one experiment. Another substance, lime, is suggested in a very I aterestiDg manner by a note in the BRITISH MEDICAL JOURNAL of December gth, I899, on Dr. Grellet's recent observations. Dr. Grellet states that malaria disappeared from Chatillon-sur-Loing as the result of an extensive application of lime to the soil for agricultural purposes, and gives other instances to show that this substance is inimical to the disease. There can be little doubt that it acts by preventing the breeding of Anopheles in surface puddles, that is, if his observations are correct. The use of such substances, if effective, would probably be far cheaper and easier than drainage, dumping or oil. In the search for the ideal culicicide we are encouragea localities where there must be suitable pools, but where we may assume there is some constituent of

the soil which is objectionable to them; very little often suffices to determine the propagation of insects.

To save my critics trouble, I should like to point out that I have never expresEed the opinion that it is possible to exterminate Anopheles throughout the world in a few months. I have only suggested that it may be possible to diminish or suppress them in some localities, especially in Eome towns, cantonments, and plantations where the conditions are favourable. Even .with such a limited application as this the question is still sub judice.-I am, etc.

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