

A Statement

By

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There are many diseases that cannot spread unless carried by insects. They are among the most ancient afflictions of mankind, and have played their part in shaping its history. Malaria has influenced the rise and fall of civilizations, epidemics of plague and of yellow fever have again and again decimated populations in the old and the new worlds, while outbreaks of louse-borne typhus have often determined the outcome of military campaigns. Sleeping sickness and a less well-known disease, onchocerciasis, have held back progress on the African continent.

These and a score of other diseases carried by flying and crawling insects have enfeebled whole sections of the human race, depopulated fertile food-producing tracts, and held down man's levels of living particularly in the tropics but also in temperate climates. Despite the strides that have been made in our own day towards the control of many of these scourges, there is scarcely one which does not still represent an actual or potential danger to large numbers of human beings.

Most of these diseases have been known and feared for centuries, but it was not until about 60 years ago that scientists began to suspect the part played by insects as carriers. It was only in the early years of the present century that painstaking research established with certainty the action of many different species of insects such as mosquitoes, tse-tse flies, sandflies, fleas, lice, as well as of ticks and mites in transmitting a great number of pestilences.

In the first flush of enthusiasm following these discoveries it was thought that, once the carrier was

known, any disease would be virtually conquered.

Indeed, in a relatively short time yellow fever was banished from most of the cities of the Americas, the incidence of malaria was reduced particularly in the towns and in the more temperate zones, and certain other diseases were successfully attacked.

Rapid progress, however, became possible only after the discovery during the last war of the "residual" insecticides, of which the best known is probably DDT. The special character of these chemicals is that they remain deadly for periods ranging up to several months after application. One of their first triumphs was to strangle the threat of typhus epidemics during and after the war. Next, they proved amazingly effective when correctly used to control malaria, even in the sparsely-settled rural districts. There is scarcely an insect-borne disease against which these new chemicals are not being used today with greater or less effect.

But again disappointment has followed too optimistic hopes. First the common housefly, and now some mosquitoes as well as lice, cockroaches and bed-bugs in certain areas, have shown that, after a few years of exposure to the action of these killers, they can develop resistance which protects them from fatal effects. In the case of the housefly this happens rather quickly, and these chemicals have, therefore, become of little value. With the mosquito, however, the insecticide can be used effectively for several years, during which period an all-out campaign is able to eradicate diseases like malaria so that, if the mosquitoes should, in time, develop

resistance, there is no malaria left for them to carry.

Another and very serious difficulty is that many insect-borne diseases appear to exist more or less permanently among wild animals which thus provide a reservoir of infection that may suddenly spread to start epidemics among domestic animals and human beings.

Yellow fever is known to be firmly entrenched in the jungles among monkeys and other animals; plague smoulders in many places among wild rodents whence it can easily spread to the rats that live with men; the trypanosome that causes sleeping sickness exists permanently in wild game in Africa and is carried to men and cattle by the tse-tse fly. There are many other examples among diseases caused by viruses and "rickettsiae".

It would be a serious mistake to

underestimate these ancient enemies of mankind. It is already clear that the residual insecticides, powerful weapons though they be, do not provide the final answer to the disease-carrying insect. Nor is there at present any prospect of eradicating those diseases that have become permanently established among the domestic and wild animals. There they remain, a constant threat calling for constant watchfulness.

World Health Day this year served, I hope, to make people everywhere realize that, although the insect-borne diseases are being increasingly held in check, they are not yet conquered. To achieve that final victory man will need all his intelligence and resourcefulness. Above all, he will need to act in concert, for this group of diseases constitutes one of the greatest challenges to international health action.

The Unwanted Travellers

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The march of civilization, with ever faster travel by ships and aircraft, has also helped the disease-carrying insects to colonize new territories and launch fresh epidemics. To stamp out the intruders often takes years of tedious struggle.

In his upward progress *homo sapiens* has relatively quickly gained mastery over most living things. The only creatures to resist him, except perhaps for a few of the rodents, have been

the insects. They continue to destroy man's crops and his food reserves, to live on him as parasites and in some cases to act as carriers of the viruses and microbes of disease.

It is only 60 years since the first proofs were obtained of the role played by certain insects in the transmission of disease, and as a result of this knowledge, enormous progress has been made in medicine. The fact