

**U. S. DEPARTMENT OF AGRICULTURE,  
BUREAU OF ENTOMOLOGY - BULLETIN  
NO. 78:  
ECONOMIC LOSS TO THE PEOPLE OF THE  
UNITED STATES THROUGH INSECTS THAT  
CARRY DISEASE**

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**L. O. HOWARD**

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U. S. DEPARTMENT OF AGRICULTURE,  
BUREAU OF ENTOMOLOGY—BULLETIN No. 78 (Revised).

L. O. HOWARD, Entomologist and Chief of Bureau.

ECONOMIC LOSS TO THE PEOPLE OF THE  
UNITED STATES THROUGH INSECTS  
THAT CARRY DISEASE.

BY

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*Entomologist and Chief of Bureau.*

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J. E. Q.  
1910

## LETTER OF TRANSMITTAL.

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U. S. DEPARTMENT OF AGRICULTURE,  
BUREAU OF ENTOMOLOGY,  
*Washington, D. C., April 20, 1909.*

SIR: I have the honor to recommend for publication as Bulletin 78, revised, of this Bureau the accompanying slightly revised copy of the original edition of this bulletin, entitled "Economic Loss to the People of the United States Through Insects that Carry Disease," the supply of which is now almost exhausted.

The United States is just awakening to a knowledge of the disastrous results following a lack of appreciation of the danger arising from the unchecked development of mosquitoes and the typhoid fly, and it is hoped that this bulletin will not only emphasize this danger, but will also lend support to movements, both local and widespread, toward the destruction (often so easy) of these carriers of disease.

Respectfully,

L. O. HOWARD,  
*Entomologist and Chief of Bureau.*

HON. JAMES WILSON,  
*Secretary of Agriculture.*

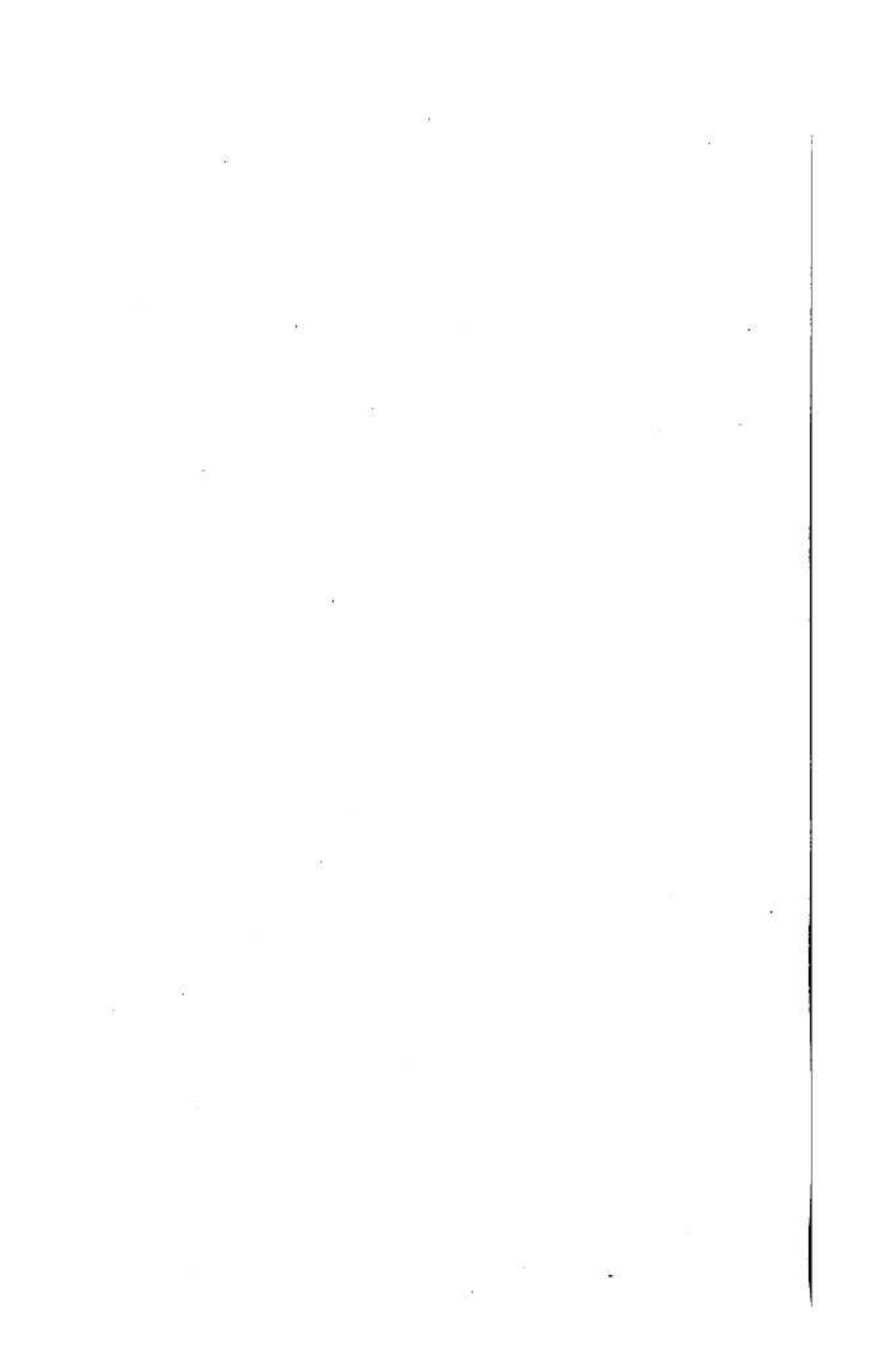




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## ECONOMIC LOSS TO THE PEOPLE OF THE UNITED STATES THROUGH INSECTS THAT CARRY DISEASE.

### INTRODUCTION.

It has been definitely proven and is now generally accepted that malaria in its different forms is disseminated among the individuals of the human species by the mosquitoes of the genus *Anopheles*, and that the malarial organism gains entrance to the human system, so far as known, only by the bite of mosquitoes of this genus. It has been proven with equal definiteness and has also become generally accepted that yellow fever is disseminated by the bite of a mosquito known as *Stegomyia calopus* (possibly by the bites of other mosquitoes of the same genus), and, so far as has been discovered, this disease is disseminated only in this way. Further, it has been scientifically demonstrated that the common house fly is an active agent in the dissemination of typhoid fever, Asiatic cholera, and other intestinal diseases by carrying the causative organisms of these diseases from the excreta of patients to the food supply of healthy individuals; and that certain species of fleas are the active agents in the conveyance of bubonic plague. Moreover, the tropical disease known as filariasis is transmitted by a species of mosquito. Furthermore, it is known that the so-called "spotted fever" of the northern Rocky Mountain region is carried by a species of tick; and it has been demonstrated that certain blood diseases may be carried by several species of biting insects. The purulent ophthalmia of the Nile basin is carried by the house fly. A similar disease on the Fiji Islands is conveyed by the same insect. Pink eye in the southern United States is carried by minute flies of the genus *Hippelates*. The house fly has been shown to be a minor factor in the spread of tuberculosis. The bedbug has been connected with the dissemination of several diseases. Certain biting flies carry the sleeping sickness in Africa. A number of dangerous diseases of domestic animals are conveyed by insects. The literature of the whole subject has grown enormously during the past few years, and the economic loss to the human species through these insects is tremendous. At the same time, this loss is entirely unnecessary; the diseases in question can be controlled, and the suppression of the conveying insects, so absolutely vital with certain of these diseases and so important in the others, can be brought about.