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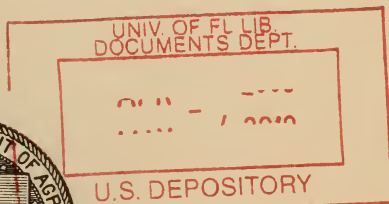
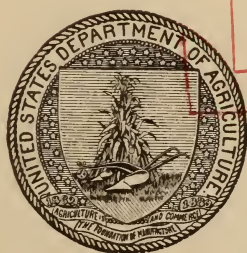
BUREAU OF ENTOMOLOGY—BULLETIN No. 95.

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

PAPERS ON CEREAL AND FORAGE INSECTS

CONTENTS AND INDEX.

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BUREAU OF ENTOMOLOGY—BULLETIN No. 95.

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

PAPERS ON CEREAL AND FORAGE INSECTS.

I. THE TIMOTHY STEM-BORER, A NEW TIMOTHY INSECT.

By W. J. PHILLIPS, *Entomological Assistant.*

II. THE MAIZE BILLBUG.

By E. O. G. KELLY, *Entomological Assistant.*

III. CHINCH-BUG INVESTIGATIONS WEST OF THE MISSISSIPPI RIVER.

By E. O. G. KELLY, *Entomological Assistant,*

AND

T. H. PARKS, *Entomological Assistant.*

IV. THE SO-CALLED "CURLEW BUG."

By F. M. WEBSTER, *In Charge of Cereal and Forage Insect Investigations.*

V. THE FALSE WIREWORMS OF THE PACIFIC NORTHWEST.

By JAMES A. HYSLOP, *Agent and Expert.*

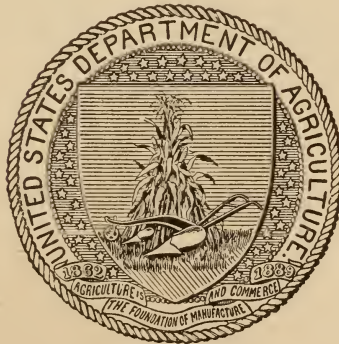
VI. THE LEGUME POD MOTH.

THE LEGUME POD MAGGOT.

By JAMES A. HYSLOP, *Agent and Expert.*

VII. THE ALFALFA LOOPER IN THE PACIFIC NORTHWEST.

By JAMES A. HYSLOP, *Agent and Expert.*



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### CEREAL AND FORAGE INSECT INVESTIGATIONS.

F. M. WEBSTER, *in charge.*

GEO. I. REEVES, W. J. PHILLIPS, C. N. AINSLIE, E. O. G. KELLY, T. D. URBAHNS,  
H. M. RUSSELL, GEO. G. AINSLIE, J. A. HYSLOP, W. R. WALTON, J. T. MONELL,  
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E. J. VOSLER, R. N. WILSON, VERNON KING, PHILIP B. MILES, E. H. GIBSON,  
L. P. ROCKWOOD, *entomological assistants.*  
NETTIE S. KLOPFER, ELLEN DASHIELL, *preparators.*  
CHAS. PETTY, *collaborator.*

## LETTER OF TRANSMITTAL.

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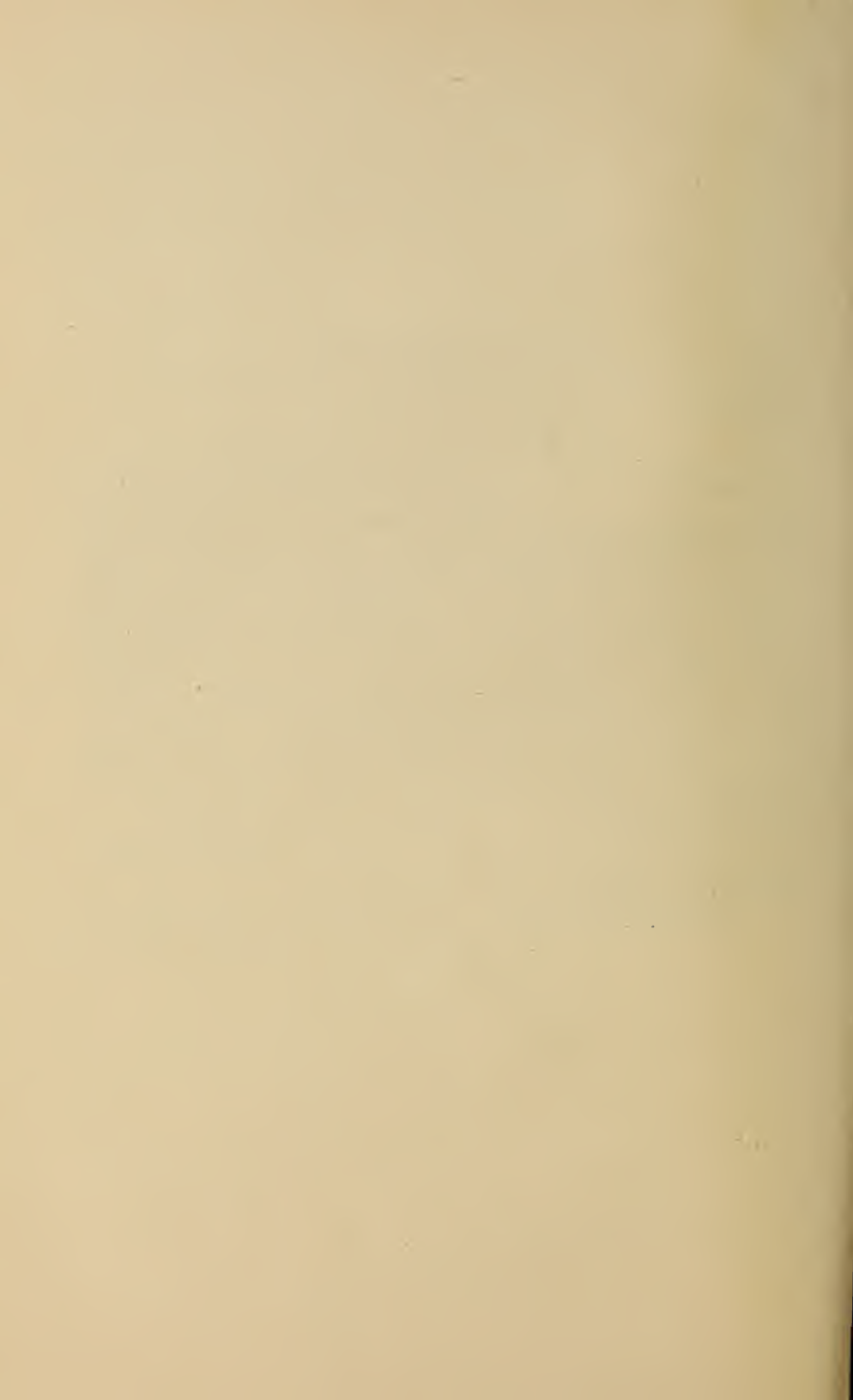
U. S. DEPARTMENT OF AGRICULTURE,  
BUREAU OF ENTOMOLOGY,  
*Washington, D. C., December 11, 1912.*

SIR: I have the honor to transmit herewith, for publication as Bulletin No. 95, seven papers dealing with cereal and forage insects, and methods for their control. These papers, which were issued separately during the years 1911 and 1912, are as follows: The Timothy Stem-Borer, by W. J. Phillips; The Maize Billbug, by E. O. G. Kelly; Chinch-Bug Investigations West of the Mississippi River, by E. O. G. Kelly and T. H. Parks; The So-Called "Curlew Bug," by F. M. Webster; The False Wireworms of the Pacific Northwest, by James A. Hyslop; The Legume Pod Moth and The Legume Pod Maggot, by James A. Hyslop; The Alfalfa Looper, by James A. Hyslop.

Respectfully,

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

HON. JAMES WILSON,  
*Secretary of Agriculture.*



## PREFACE.

---

The articles included in this bulletin relate to insects more or less destructive to cereal and forage crops in the United States. They represent investigations largely completed during the fiscal year 1911-12.

The timothy stem-borer, the subject of Part I, has not during our observations been especially injurious, but is likely to become so should several favorable conditions result in increased abundance. The maize billbug (Part II) and the so-called "curlew bug" (Part IV) are two very closely related insects, the latter being especially destructive in Virginia and the Carolinas, while the former is occasionally quite injurious in the West. The paper relating to chinch-bug investigations west of the Mississippi River (Part III) is exceedingly timely and serves to make more clear the difference in conditions, as regards the chinch bug, between the country west of the Mississippi River and that lying east of it. Parts V, VI, and VII relate to species more or less destructive in the extreme northwestern portion of the United States, a section of the country somewhat peculiar in that it differs greatly in insect fauna from more southern and eastern sections of the country.

All of these papers relate to insects that the farmer must, to a greater or less extent, encounter and control in a successful carrying out of his business.

F. M. WEBSTER,  
*In Charge of Cereal and Forage Insect Investigations.*





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<sup>1</sup> The seven papers constituting this bulletin were issued in separate form on March 31, April 22, and December 14, 1911, and April 10, April 22, May 31, and October 16, 1912, respectively.

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## ERRATA.

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Page 2, line 18 from bottom, for *this year* read *in 1910*.

Plate I, facing page 8, after line at bottom, insert: *a, Work of larva in bulb of plant; b, larva ascending stem to pupate; c, pupa in cell, the gallery plugged with frass below. Much enlarged. (Original.)*

Page 12, line 19 from bottom, before *corn borer* insert double quotation mark in place of single quotation mark.

Page 15, line 16, for *were* read *was*.

In Plate IV, facing page 24, the cut of figure 1 is upside down.

Page 46, line 16 from bottom, after 4 insert *per cent*.

Page 74, last line, insert superior figure 1 (<sup>1</sup>) before *Bureau*.

Page 76, line 16 from bottom, for *littorale* read *aviculare*.

Page 77, line 12 from bottom, for *littorale* read *aviculare*.

Page 81, line 4, after *monograph* insert comma.

Page 81, line 5 from bottom, before *Dr.* insert *of*.

Page 82, line 5 from bottom, for *littorale* read *aviculare*.

Page 83, line 8, for *littorale* read *aviculare*.

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