U. S. DEPARTMENT OF AGRICULTURE, DIVISION OF ENTOMOLOGY; BULLETIN NO. 19, 23: SOME INSECTS INJURIOUS TO GARDEN AND ORCHARD CROPS: A SERIES OF ARTICLES DEALING WITH INSECTS OF THIS CLASS Published @ 2017 Trieste Publishing Pty Ltd

#### ISBN 9780649499250

U. S. Department of Agriculture, Division of Entomology; Bulletin No. 19, 23: Some Insects Injurious to Garden and Orchard Crops: A Series of Articles Dealing with Insects of This Class by F. H. Chittenden

Except for use in any review, the reproduction or utilisation of this work in whole or in part in any form by any electronic, mechanical or other means, now known or hereafter invented, including xerography, photocopying and recording, or in any information storage or retrieval system, is forbidden without the permission of the publisher, Trieste Publishing Pty Ltd, PO Box 1576 Collingwood, Victoria 3066 Australia.

All rights reserved.

Edited by Trieste Publishing Pty Ltd. Cover @ 2017

This book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, re-sold, hired out, or otherwise circulated without the publisher's prior consent in any form or binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

www.triestepublishing.com

## F. H. CHITTENDEN

U. S. DEPARTMENT OF AGRICULTURE, DIVISION OF ENTOMOLOGY; BULLETIN NO. 19, 23: SOME INSECTS INJURIOUS TO GARDEN AND ORCHARD CROPS: A SERIES OF ARTICLES DEALING WITH INSECTS OF THIS CLASS



#### BULLETIN No. 19, NEW SERIES.

# U. S. DEPARTMENT OF AGRICULTURE, DIVISION OF ENTOMOLOGY.

### SOME INSECTS

## INJURIOUS TO GARDEN AND ORCHARD CROPS.

A SERIES OF ARTICLES DEALING WITH INSECTS
OF THIS CLASS.

PREPARED UNDER THE DIRECTION OF THE ENTOMOLOGIST.

F. H. CHITTENDEN,
ASSISTANT ENTONOLOGIST.



WASHINGTON: GOVERNMENT PRINTING OFFICE. 1899. 

#### LETTER OF TRANSMITTAL

U. S. DEPARTMENT OF AGRICULTURE, DIVISION OF ENTOMOLOGY, Washington, D. C., January 21, 1899.

SIB: I have the honor to transmit herewith manuscript of a bulletin containing certain articles upon insects injurious to garden and orchard crops, which has been prepared by F. H. Chittenden, of this office. The articles all concern insects of very considerable economic importance and derive an especial value from the fact that they are, with few exceptions, based upon original observations made in the vicinity of Washington. The worker on economic entomology will find very many hitherto unreported facts concerning the life histories of the species treated, and the vegetable grower and orchardist will find many valuable practical points based upon this more intimate knowledge of the life histories of the insects. Seventeen of the twenty figures are here published for the first time.

I recommend the publication of this manuscript as Bulletin No. 19, New Series.

Respectfully.

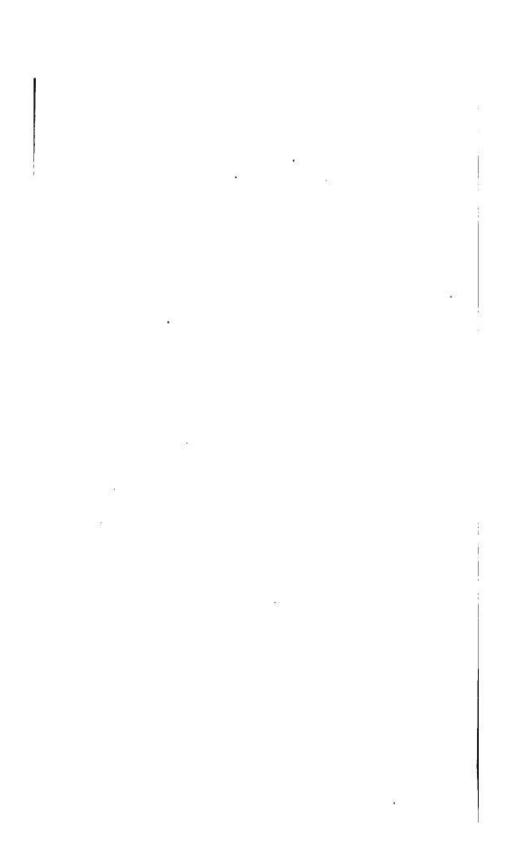
L. O. HOWARD, Entomologist.

Hon. James Wilson, Secretary of Agriculture.

25 \* \*\* \* .

# CONTENTS.

	Page.
PREPACE	9
THE SQUASH LADYBIRD; ITS LITERATURE AND BIOLOGY (illustrated)	11
LIFE HISTORY OF THE COMMON SQUASH BUG (Anasa tristic DeG.) (illustrated).	20
THE HORNED SQUASH BUG (Anasa armigera Say) (Illustrated)	28
(Moditia satyriniformis Hbn.) (illustrated)	34
NOTES ON THE PICKLE WORM AND MELON CATERPILLAR	41
The pickle worm (Margaronia nitidalis Cram.)	41
The melon caterpillar (Margaronia hyalinata Linn.)	42
LEAF-FOOTED PLANT-BUGS WHICH ATTACK CUCCRBITS (illustrated)	44
The Northern leaf-footed plant-bug (Leptoglossus oppositus Say)	44
The banded leaf-footed plant-bug (Leptogloseus phyllopus Linn.) NOTES ON THE STRIPED CUCUMBER BESTEE (Diabrotics cittata Fab.) (illus-	46
trated)	48
A NEW WEBWORM ENEMY OF CABBAGE AND OTHER CRUCIFEROUS PLANTS	
(illustrated)	51
Notes on the Garden Flua-hopper (Hallicus skleri Giard) (illustrated)	57
THE IMBRICATED SNOUT-BEETLE (Epicerus imbricatus Say) (illustrated)	62
THE BROWN FRUIT-CHAPER (Euphoria inda Linn.) (illustrated)	67
BIOLOGIC NOTES ON THE MAY BEETLE (Lacknosterna arcuata Sm.) (illustrated).	74
The arouate May beetle (Lachnosterna arouata 8m.)	75
Insect enemies of white grubs	. 79
THE SPINACH FLEA-BEETLE (Disonycha ranthomelana Dalm.) (illustrated)	80
BIOLOGIC AND OTHER NOTES ON THE FLEA-BENTLES WHICE ATTACK SOLANACE-	
OUS PLANTS (illustrated)	85
The tobacco flea-beetle (Epitrix parcula Fab.),	85
The eggplant flea-beetle (Epitrix fuscula Cr.)	
The cucumber fiea-beetle (Epitric oncursorie Harr.)	89
Other species of Epitrix	90
THE CHERRY LEAY-BERTLE (Galerucella caricollis Lec.)	
NOTES ON THE PLUM AND ROSE LEAF-BRETLES	93
The plum leaf-beetle (Nadonota tristic Ol.)	93
The rose leaf-beetle (Nodonota puncticallis Say)	95
NOTES ON THE FRUIT-TREE BARK-BEETLE AND OTHER BORERS APPECTING	
FRUIT TREES	96
The fruit-tree bark-beetle (Scolytus rugulosus Ratz.)	96
The banded hickory borer (Chion cinctus Dru.)	97
The grape cane-borer (Amphicerus bicaudatus Say)	98
The eye-spotted apple-twig borer (Oberes occilate Hald.)	98



## ILLUSTRATIONS.

		Page.
Fig.	1. Epilackus borealis: larva, pupa, beetle, and egg	11
	2. Work of Epilachna borealis	14
	8. Egg of Anaea trietia.	22
	4. Nymphs of Anasa tristis	23
	5. Ansea trieffe: adult sexual characters, etc	24
	6. Anasa armigera: different stages	32
	7. Melittia satyriniformis: eggs and immature larve	35
	8. Melittic satyriniformis: moth, larva, pupa, etc	
	9. Leptoglossus oppositus: adult	
	10. Leptoglossus phyllopus: adult	46
	11. Egg of Diabrotics vittate and sculpture	48
	12. Hellula undalis: moth, larva, and papa	54
	13. Halticus uhleri: sexes, etc	60
	14. Epicarus imbricatus: beetle, young larvee, and eggs	62
	15. Euphoria inda: beetle and preparatory stages	68
	16. Lacknosterna arcuata: beetle and preparatory stages	74
	17. Lacknosterna arcuata: sexual characters	75
	18. Lacknosterna fueca: sexual characters	75
	19. Disonycha zanthomelana: beetle and preparatory stages	
	20. Epitriz cucumeria: adult beetle	1 72 -