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CATALOGUE

OF THE

EXHIBIT OF ECONOMIC ENTOMOLOGY

AT THE

LEWIS AND CLARK CENTENNIAL EXPOSITION,
PORTLAND, OREGON, 1905.

COMPILED UNDER THE DIRECTION OF THE ENTOMOLOGIST

BY

ROLLA P. CURRIE.

WASHINGTON:
GOVERNMENT PRINTING OFFICE,
1905.
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LETTER OF TRANSMITTAL.

United States Department of Agriculture,
Bureau of Entomology,
Washington, D. C., April 11, 1905.

Sir: I have the honor to transmit herewith the copy for a catalogue of the exhibit of economic entomology made by the Bureau of Entomology at the Lewis and Clark Centennial Exposition held at Portland, Oreg., during the present year. It has been compiled, under my direction, by Mr. Rolla P. Currie, assistant in the Bureau of Entomology, and I recommend its publication as Bulletin No. 53 of this Bureau.

Respectfully,

L. O. Howard,
Entomologist.

Hon. James Wilson,
Secretary of Agriculture.

(2)
INTRODUCTION.

The following catalogue of the exhibit of economic entomology made by the Bureau of Entomology, U. S. Department of Agriculture, at the Lewis and Clark Centennial Exposition, will, it is believed, increase the usefulness of the exhibit by furnishing the visitor, in a convenient form for future reference, much of the data contained on the labels, and by supplying him with references to published articles from which additional information can be gained.

The catalogue has been compiled from Bulletins Nos. 47 and 48 of this Bureau and includes all portions of each of these bulletins, revised and corrected, which relate to the exhibits installed at Portland.

Owing to the fact that less space was available for the exhibit by the Bureau of Entomology at Portland than at St. Louis, it has been necessary to reduce the size of the exhibits considerably, and this has in most part been accomplished by leaving out insects which affect strictly eastern or southern crops. In other respects, however, the exhibit is very similar to that made at St. Louis, and includes all those features which proved of especial interest there. Care has been taken to retain such insects as are of especial importance on the Pacific coast and those which affect important Pacific coast industries, such as fruit raising and lumbering.

Persons desiring further information than can be gained from this catalogue, or from conversation with the attendant in charge of the exhibit, are requested to address the writer at the U. S. Department of Agriculture, Washington, D. C.

L. O. Howard,
Entomologist.

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\[a\] Catalogue of the Exhibit of Economic Entomology at the Louisiana Purchase Exposition, St. Louis, Mo., 1904; by E. S. G. Titus and F. C. Pratt.

\[b\] Catalogue of Exhibits of Insect Enemies of Forests and Forest Products at the Louisiana Purchase Exposition, St. Louis, Mo., 1904; by A. D. Hopkins.
CONTENTS.

ORDER OF CASES IN EXHIBIT.

Insects injurious to orange and lemon (4 cases) ........................................ 7
The San Jose scale ......................................................................................... 12
Insects injurious to apple (6 cases) .............................................................. 12
Insects injurious to peach ........................................................................... 19
Insects injurious to pear and plum ............................................................... 20, 21
Insects injurious to grape (2 cases) .............................................................. 21
Insects injurious to strawberry .................................................................... 24
Insects injurious to blackberry and raspberry ............................................. 26
Insects injurious to currant and gooseberry ............................................... 28
Insects injurious to grasses and alfalfa (2 cases) ....................................... 29, 31
Insects injurious to clover (4 cases) ............................................................. 32
Insects injurious to small grains (wheat, oats, rye, barley, etc.) (3 cases) ... 38
Insects injurious to hop .................................................................................. 41
The Mexican cotton boll weevil .................................................................... 42
The cotton bollworm; corn-ear worm ........................................................... 42
Insects injurious to sugar beet (4 cases) ....................................................... 43
Insects injurious to beans and peas (2 cases) ............................................. 47
Insects injurious to crucifers (cabbage, cauliflower, cress, mustard, etc.) (2 cases) .................................................................................................................. 50
Insects injurious to potato ............................................................................. 54
Insects injurious to sweet potato and tomato ............................................. 56, 57
Insects injurious to asparagus ..................................................................... 57
Insects injurious to cucurbits (melon, cucumber, squash, pumpkin, etc.) ... 59
Insects injurious to stored products (2 cases) ............................................ 60
Household insects ......................................................................................... 64
Insects which may spread disease .................................................................. 65
Insects which directly injure or annoy human beings ................................... 66
Insects injurious to domestic animals ......................................................... 68
Insects injurious to forests in the northwestern and northeastern United States (24 cases) .......................................................................................... 70
Insects injurious to forests in general (24 cases) ........................................ 83

SPECIAL EXHIBITS.

Enlarged models of insects, and of insects and injured plants ................... 103
Enlarged models of the parasite causing malaria (aestivo-autumnal fever) ... 106
Photographs of insect damage to forests ................................................... 106
Living insects ................................................................................................. 107

INDEX TO INSECTS EXHIBITED.

Systematic names ........................................................................................... 109
Common names ............................................................................................... 118
CATALOGUE OF THE EXHIBIT OF ECONOMIC ENTOMOLOGY AT THE LEWIS AND CLARK CENTENNIAL EXPOSITION.

INSECTS INJURIOUS TO ORANGE AND LEMON.

For general articles relating to insects affecting these fruits see Hubbard, 1885, and Insects Affecting the Orange, U. S. Dept. Agric.; Marlatt, Scale Insects and Mites of Citrus Fruits, Farmers' Bul. 172, 1903.

THE APPLE TWIG-BEETLE.
Stephanoderes hispidulus Lec.
(Formerly Hypothemus eruditus auct.)
Exhibit: Adult and work.

THE OAK AMBROSIA BEETLE.
Xyleborus affinis Eichh.
Exhibit: Adult, work, and figure.

THE PAN-AMERICAN PLATYPUS.
Platypus compositus Say.
Exhibit: Adult, work, and figure.

FULLER'S ROSE BEETLE.
Aramigus fuller Horn.
Exhibit: Adult.

THE COFFEE-BEAN WEEVIL.
Arceurus fasciculatus DeG.
For partial life history and general account see Chittenden, Bul. 8, n. s., Div. Ent., U. S. Dept. Agric., pp. 36-38, 1897.
Exhibit: Adult and work.

THE ORANGE CHRYSOBOTHRIS.
Chrysobothris chryscela Ill.
Exhibit: Adult.

EPITRAGUS TOMENTOSUS Lec.
Exhibit: Adult.

PACHNÆUS DISTANS Horn.
Exhibit: Adult.
ORANGE LEAF-NOTCHER.

Artipus floridanus Horn.

Exhibit: Adult and work.

THE ORANGE SAWYER.

Elaphidion inermé Newm.

For general account see Chittenden, Bul. 18, n. s., Div. Ent., U. S. Dept. Agric., p. 41, 1898.

Exhibit: Adult and work.

LEPTOSTYLUS BIUSTUS Lec.

Exhibit: Adult and work.

THE ORANGE DOG; HOG CATERPILLAR.

Papilio thoas Linn.

(Formerly P. cresphontes.)

For brief account of larva see Lintner, 9th Rpt. State Ent. N. Y., pp. 336-337, 1893.

Exhibit: Eggs, larva, chrysalis, adult, and figure.

ORANGE LEAF-ROLLER.

Platynota rosirana Walk.

Exhibit: Eggs, pupa, and adult.

THE SADDLE-BACK CATERPILLAR.

Sibine stimulea Clem.

(Formerly Empretia.)


Exhibit: Pupa, adult, and figure.

THE COMMON BAGWORM.

Thyridopteryx ephemeraformis Steph.


Exhibit: Larva, cocoon, adult, and figure.

THE STINGING CATERPILLAR.

Megalopyge opercularis S. & A.


Exhibit: Cocoon and adult.

THE SKIFF CATERPILLAR.

Prolimacodes scapha Harr.

(Larva feeds on leaves.)

Exhibit: Adult.

THE ORANGE CASE-BEARER.

Eurycyttarus confederate, Grt.

(Larvae feed upon lichens on tree trunk, occasionally gnawing fruit; formerly Psyche.)

Exhibit: Cases on twig.

THE TWO-SPOTTED RED SPIDER.

Tetranychus mytilaspidis Riley.


Exhibit: Figure.
THE ORANGE WHITE SPOT.
*Tetanychoides californica* Bks.
For description see Banks, Journ. N. Y. Ent. Soc., Vol. XII, p. 54, pl. II, fig. 1, 1904.
Exhibit: Work and figure.

THE ORANGE FRUIT MITE.
*Tenunipalpus californicus* Bks.
For description see Banks, Journ. N. Y. Ent. Soc., Vol. XII, p. 55, pl. II, fig. 2, 1904.
Exhibit: Work and figure.

RUST MITE OF THE ORANGE; THE SILVER MITE OF THE LEMON.
*Eriophyes oleivorus* Ashm.
(Formerly *Phytoptus*.)
Exhibit: Figure.

THE TWO-STRIPED WALKING-STICK.
*Anisomorphe buprestoides* Stål.
Exhibit: Nymph and adult.

THE ANGULAR-WINGED KATYDID.
*Microcentrum retinerve* Burm.
Exhibit: Eggs, adult, and parasitized eggs.

NORTHERN MOLE CRICKET.
*Gryllotalpa borealis* Burm.
Exhibit: Nymph and adult.

THE LUBBER GRASSHOPPER.
*Dictyophorus reticulatus* Thunb.
Exhibit: Nymph and adult.

THE COTTON STAINER.
*Dysdercus suturellus* H.-Schf.
For short accounts see Howard, Farmers' Bul. 47, U. S. Dept. Agric., pp. 30-31, 1897; Insect Book, p. 308, fig. 201 and pl. 31, fig. 15, 1901.
Exhibit: Nymph, adult, and figure.

EUTHOCTHA GALEATOR Fab.
Exhibit: Adult.

THE SOUTHERN LEAF-FOOTED PLANT-BUG.
*Leptoglossus phyllopus* Linn.
Exhibit: Adult.

EUSCHISTUS SERVUS Say.
Exhibit: Adult.

NEZARA HILARIS Say.
Exhibit: Adult.

WHITE FLY; MEALY WING.
*Aleyrodès citri* R. & H.
For general account see Marlatt, Farmers' Bul. 172, U. S. Dept. Agric., pp. 36-38, 1903.
Exhibit: Adult, work and figure.
ORANGE APHIS; COTTON APHIS.

*Aphis gossypii* Glover.

(Curls leaves and stops young growth; usually well controlled by parasites and other enemies.)

58-61, 1903.

Exhibit: Eggs, adult, work, figure, and the enemies *Baccha clavata* Fab., *Hemero-
obius* sp., *Chrysopa plurabunda* Fitch, and a hymenopterous parasite.

**COTTONY CUSHION SCALE; FLUTED SCALE.**

*Cercopycha* maski Mask.  

(Food plants: Acacia, cypress, grasses, lemon, orange, pine, rose.)


Exhibit: Infested twig.

**THE DESTRUCTIVE MEALY-BUG.**

*Pseudococcus citri* Risso.

(Formerly *Dactylopius destructor*.)


Exhibit: Infested leaves.

**THE LONG-SPINED MEALY-BUG.**

*Pseudococcus longispinus* Targ.

(Formerly *Dactylopius spp.*)


Exhibit: Infested leaves.

**THE FLORIDA WAX-Scale.**

*Ceroplastes floridensis* Comst.

(Food plants: Citrus, fig, myrtle, oleander.)


Exhibit: Infested leaves.

**THE BARNACLE SCALE.**

*Ceroplastes cirripediformis* Comst.

(Food plants: Myrtle, orange, persimmon, quince.)

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., p. 150, 1903.

Exhibit: Infested leaves.

**THE SOFT SCALE.**

*Coccus hesperidum* Linn.

(Food plants: Laurel, lemon, myrtle, oleander, orange, etc.; formerly *Lecanium.*)


Exhibit: Infested twig.

**THE HEMISPHERICAL SCALE.**

*Saissetia hemisphærica* Targ.

(Food plants: Oleander, orange, peach, etc.; formerly *Lecanium.*)


Exhibit: Infested twig.
THE BLACK SCALE.
*Saissetia oleae* Bern.


Exhibit: Infested twig.

THE OLEANDER SCALE.
*Aspidiotus hederæ* Vall.


Exhibit: Infested twig.

THE ORANGE CHIONASPI.  
*Chionaspis citri* Comst.


Exhibit: Infested twig.

THE RED SCALE OF CALIFORNIA.
*Chrysomphalus aurantii* Mask.


Exhibit: Infested twig.

THE CIRCULAR SCALE.  
*Chrysomphalus ficus* Ashm.


Exhibit: Infested twig.

THE PURPLE SCALE.
*Lepidosaphes beckii* Newm.


Exhibit: Infested twig.

GLOVER’S SCALE; LONG SCALE.  
*Lepidosaphes gloveri* Pack.


Exhibit: Infested twig.
THE CHAFF SCALE.
Parlatoria pergandiæ Comst.

(Food plants: Japonica, lemon, orange.)


Exhibit: Infested twigs.

THE SAN JOSE SCALE.

Aspidiotus perrniciosus Comst.

(Food plants: Almond, apple, apricot, birch, black walnut, black currant, catalpa, chestnut, crab-apple, crab-grass, cherry, grape, hickory, oak, peach, pear, persimmon, plum, poplar, prune, Rocky Mountain cherry, rose, silver maple, willow, and many other plants.)


Exhibit: Infested twig, fruit, figures, and enemies: Pentilia missella Lec., adult and figure; Chilocorus similis Rossi, larva, pupa, adult, and figure; parasite, Aphelinus diaspidis How., adult and figure.

INSECTS INJURIOUS TO APPLE.


INJURING THE ROOTS.

THE WOOLLY APPLE APHIS.
Schizoneura lanigera Hausm.

For general account see Marlatt, Cir. 20, Div. Ent., U. S. Dept. Agric., 1897.

Exhibit: Work, figure, parasite, Aphelinus mali Hal., and enemy, Scymnus cervicalis Muls.

INJURING THE TRUNK.

FLAT-HEADED APPLE-TREE BORER.
Chrysobothris femorata Fab.

For general account see Chittenden, Cir. 32, Div. Ent., U. S. Dept. Agric., pp. 9–12, 1898.

Exhibit: Adult, work, and figure.

ROUND-HEADED APPLE-TREE BORER.
Saperda candida Fab.

For general account see Chittenden, Cir. 32, Div. Ent., U. S. Dept. Agric., pp. 1–8, 1898.

Exhibit: Adult, work, and figure.

APPLE-WOOD STAINER; PIN-BORER.

Pterocyclon mali Fitch.

(Formerly Monarthrum.)

For general account of this and an allied species, M. fasciatum Say, see Hubbard, Bul. 7, n. s., Div. Ent., U. S. Dept. Agric., p. 26–28, 1897.

Exhibit: Adult and figure.
INJURING THE BRANCHES.

THE APPLE-TREE PRUNER.
*Elaphidion villosum* Fab.


Exhibit: Adult, work, and figure.

THE NEW YORK WEEVIL.
*Ithycerus noveboracensis* Först.


Exhibit: Adult and work.

THE APPLE TWIG-BORER.
*Amphicerus bicaudalus* Say.

For general account see Marlatt, Farmers' Bul. 70, U. S. Dept. Agric., pp. 11-13, fig., 1898.

Exhibit: Adult, work, and figure.

THE APPLE TWIG-BEETLE.
*Stephanoderes hispidulus* Lee. (Formerly *Hypothenemus.*)

Exhibit: Adult and work.

PEAR-BLIGHT BEETLE; SHOT-BORER.
*Xyleborus pyri* Peck.

(Formerly considered *X. dispar.*)

Exhibit: Adult and work.

THE COSMOPOLITAN AMBROSIA BEETLE.
*Xyleborus saxeseni* Ratz.

(Formerly *X. xylographus.*)

Exhibit: Adult.

FRUIT-TREE BARK BEETLE; THE SHOT-HOLE BORER.
*Scolytus rugulosus* Ratz.

For general account see Chittenden, Cir. 29, Div. Ent., U. S. Dept. Agric., 1898.

Exhibit: Adult and figure.

THE BUFFALO TREE-HOPPER.
*Ceresa bubalus* Fab.

For general account see Marlatt, Cir. 23, Div. Ent., U. S. Dept. Agric., 1897.

Exhibit: Adult, work, and figure.

THE PERIODICAL CICADA.
*Tibicen septendecim* Linn.

For life history and general article see Marlatt, Bul. 14, n. s., Div. Ent., U. S. Dept. Agric., 1898.

Exhibit: Pupa, pupa skins, and adult.

THE SAN JOSE SCALE.
*Aspidiotus perniciosus* Comst.

(Food plants: Almond, apple, apricot, birch, black walnut, black currant, catalpa, chestnut, crab-apple, crab-grass, cherry, grape, hickory, oak, peach, pear, persimmon,
plum, poplar, prune, Rocky Mountain cherry, rose, silver maple, willow, and many other plants.)


Exhibit: Infested twig.

**PUTNAM'S SCALE; CRANBERRY SCALE.**

*Aspidiotus ancyclus* Putn.

(Food plants: Apple, apricot, box elder, cottonwood, cranberry, elm, hemlock, maple, oak, peach, pear, plum, etc.)


Exhibit: Infested twig.

**THE CHERRY SCALE; FORBES' SCALE.**

*Aspidiotus forbesi* Johns.

(Food plants: Apple, cherry, currant, honey locust, peach, pear, plum, walnut, etc.)


Exhibit: Infested twig.

**THE GREEDY SCALE.**

*Aspidiotus rapax* Comst.

(Food plants: Cottonwood, maple, olive, pear, quince, apple, etc.)


Exhibit: Infested twig.

**THE EUROPEAN FRUIT-SCALE.**

*Aspidiotus ostreæformis* Curt.

(Food plants: Apple, cherry, maple, oak, peach, pear, etc.)


Exhibit: Infested twig.

**THE SCURFY SCALE.**

*Chionaspis furfura* Fitch.

(Food plants: Apple, cherry, currant, elm, pear, etc.)


Exhibit: Infested twig.

**OYSTER-SHELL SCALE.**

*Lepidosaphes ulmi* Linn.

(Attacks principally apple, currant, *Cornus*, cottonwood, lilac, pear, sassafras, etc. Formerly *Mytilaspis pomorum* Bouc'h.)


Exhibit: Infested twig.

**THE BLACK SCALE.**

*Saissetia oleæ* Bern.

(Food plants: Apple, apricot, olive, orange, pear, plum, rose; formerly *Lecanium.*)


Exhibit: Infested twig.
INJURING THE LEAVES.

PISTOL CASE-BEARER.

Coleophora malicorella Riley.

(Feeds on leaves and buds.)
EXHIBIT: Cocoon, adult, work, and figure.

EYE-SPOTTED BUD-MOTH.

Tmetocera ocellana Schiff.

(Feeds on buds and young leaves.)
EXHIBIT: Pupa, adult, and work.

APPLE-TREE BUCCULATRIX.

Bucculatrix pomifoliella Clem.

EXHIBIT: Cocoon, adult, and figure.

THE RESPLENDENT SHIELD-BEARER.

Coptodisca splendoriferella Clem.

EXHIBIT: Cocoon, adult, work, and figure.

CHAPIN'S APPLE-LEAF SEWER.

Ancylis nubeculana Clem.

EXHIBIT: Pupa, adult, work, and figure.

THE OBLIQUE-BANDED LEAF-ROLLER.

Archips rosaceana Harr.

(Formerly Cacocia.)
EXHIBIT: Pupa, adult, work, and figure.

THE LESSER APPLE LEAF-FOLDER.

Acleris minuta Rob.

(Formerly Teras.)
For general account see J. B. Smith, Farmers' Bul. 178, U. S. Dept. Agric., pp. 12-17, 1903. 
EXHIBIT: Pupa and adult.

THE LEAF CRUMPLER.

Mineola indiginella Zell.

EXHIBIT: Cocoon, pupa, adult, and figure.

THE APPLE-LEAF SKELETONIZER.

Canarsia hammondi Riley.

EXHIBIT: Pupa, adult, and work.

APPLE-TREE TENT-CATERPILLAR.

Malacosoma americana Fab.

(Formerly Clisiocampa.)
For life history and bibliography see Felt, 14th Rpt. St. Ent., N. Y., pp. 177-190, 1898. 
EXHIBIT: Eggs, larva, cocoon, pupa, adult, and work, and the parasites Pimpla conquistor Say, and Ichneumon lotus Brullé.
THE LIME-TREE WINTER-MOTH.
Erannis tiliaria Harr.
(Formerly Hibernia.)
Exhibit: Pupa, adult, and figure.

THE ELM SPANWORM.
Ennomos subsignarius Hbn.
Exhibit: Eggs, larva, pupa, and work.

THE APPLE LEAF-MINER.
Tischeria malifoliella Clem.
Exhibit: Adult and work.

THE SPRING CANKER-WORM.
Paleacrita vernata Peck.
For general account see Coquillett, Cir. 9, Div. Ent., U. S. Dept. Agric., pp. 1-3, 1895.
Exhibit: Larva, adult, and figure.

THE FALL CANKER-WORM.
Alsophila pometaria Harr.
(Formerly Anisopteryx.)
For general account see Coquillett, Cir. 9, Div. Ent., U. S. Dept. Agric., pp. 3-4, 1895.
Exhibit: Eggs, larva, cocoon, adult, and figure.

THE WHITE-MARKED TUSSOCK-CATERPILLAR.
Hemerocampa leucostigma S. & A.
(Larvae feed extensively upon fruit and shade trees and often damage shrubs and vines; formerly Orgyia.)
Exhibit: Egg-masses, larva, and adult.

THE FALL WEBWORM.
Hyphantria cunea Dru.
Exhibit: Larva, pupa, adult, and work.

THE COMMON BAGWORM.
Thyridopteryx ephemeraformis Steph.
Exhibit: Cocoons and figure.

IO MOTH.
Automeris io Fab.
For general account see Lugger, 4th Rpt. State Ent. Minn., pp. 126-129, fig. 130, and pl. 16, fig. 129, 1899.
Exhibit: Adult.
THE BROWN-TAIL MOTH.

_Euproctis chrysorrhoea_ Linn.


Exhibit: Larva, adult, and figure.

THE GYPSY MOTH.

_Porthetria dispar_ Linn.

(Formerly _Ocneria._)


Exhibit: Larva, adult, and figure.

THE CLIMBING CUTWORM.

_Euxoa scandens_ Riley.

(Formerly _Carneades._)


Exhibit: Adult.

THE CECROPIA MOTH.

_Samia cecropia_ Linn.


Exhibit: Larva, cocoon, and adult.

APPLE APHIS.

_Aphis pomi_ Linn.


THE IMBRICATED SNOUT-BEETLE.

_Epicerys imbricatus_ Say.


Exhibit: Adult.

SYNETA ALBIDA Lee.

For brief notice see Riley and Howard, Insect Life, Vol. IV, p. 396, 1892.

Exhibit: Adult and work.

RED-LEGGED FLEA-BEETLE.

_Crepidodera rufipes_ Linn.

For general article see Insect Life, Vol. V, pp. 334-342, 1893.

Exhibit: Adult.

THE APPLE-LEAF FLEA-WEEVIL.

_Orchestes pallicornis_ Say.


Exhibit: Adult.
INJURING THE FRUIT.

TEN-SPOTTED XANTHONIA.

Xanthonia decemnotata Say.

Exhibit: Adult and work.

THE INDIAN EUPHORIA.

Euphoria inda Linn.


Exhibit: Adult and work.

JUNE BEETLE; FIG EATER.

Allorrhina nitida Linn.


Exhibit: Adult.

CODLING MOAT; APPLE WORM.

Carpocapsa pomonella Linn.


Exhibit: Full life history (larva, pupa, cocoons, and adult) and parasites: Pompla annulipes Brulle and P. conquistador Say. Enemies: Chauliognathus pennsylvanicus DeG. and Telephorus bilineatus Say.

THE GREEN FRUIT-WORMS.

The following three species of Xylina are commonly known as green fruit-worms. For general account see Slingerland, Bul. 123, Cornell Univ. Agr. Expt. Sta., 1896.

Xylina antennata Walk.

Exhibit: Adult and figure.

Xylina grotei Riley.

Exhibit: Adult and figure.

Xylina laticinerea Grote.

Exhibit: Adult and figure.

ILLUSTRATION SHOWING WORK OF A TORTRICID ON APPLE.

(The larva mines in, and feeds beneath, the skin of the fruit.)

THE PLUM CURCULIO.

Conotrachelus nenuphar Hbst.

For general account and bibliography see Lintner. 7th Rpt. N. Y. St. Ent., pp. 288-296, 1891.

Exhibit: Adult and figure.

THE APPLE CURCULIO.

Anthonomus quadrigibbus Say.

For general account see Gillette, Bul. 11, Iowa Agric. Expt. Sta., pp. 492-494, 1890.

Exhibit: Adult and figure.

THE APPLE-FRUIT MAGGOT.

Rhagoletis pomonella Walsh.

(Formerly Trypetta.)


Exhibit: Puparium, adult, and figure.
INSECTS INJURIOUS TO PEACH.


THE NATIVE PEACH BARK-BEETLE.

*Phloeophthorus liminaris* Harr.

(Formerly *Phloeotribus.*)
For general account see Lintner, 9th Rpt. N. Y. St. Ent., pp. 365–368, 1893.
**Exhibit:** Adult and work.

THE FRUIT-TREE BARK-BEETLE.

*Scolytus rugulosus* Ratz.
For general account see Chittenden, Cir. 29, Div. Ent., U. S. Dept. Agric., 1898.
**Exhibit:** Adult, work, figure, and the parasite *Cheiropachys colon* Linn.

THE PEACH BORER.

*Sanninoidea exitiosa* Say.
(Formerly *Sannina.*)
For general account see Marlatt, Cir. 17, Div. Ent., U. S. Dept. Agric., 1896.
**Exhibit:** Pupa, cocoon, adult, and figure.

THE PERIODICAL CICADA.

*Tibicen septendecim* Linn.
(Injures, by deposition of eggs in the twigs, almost all fruit, shade, and forest trees.)
For life history and general article see Marlatt, Bul. 14, n. s., Div. Ent., U. S. Dept. Agric., 1898.
**Exhibit:** Pupa, adult, and enemy *Sphecius speciosus* Dru.

THE BLUE-SPANGLED PEACH-MOTH.

*Haploa lecontei* Boisd.
(Formerly *Callimorpha.*)
For general account see Saunders, Insects Injurious to Fruits, 2d edit., pp. 197–199, 1900.
**Exhibit:** Adult.

THE PEACH-TWIG MOTH.

*Anarsia lineatella* Zell.
For general article with bibliography see Marlatt, Bul. 10, n. s., Div. Ent., U. S. Dept. Agric., 1898.
**Exhibit:** Pupa, adult, work, and figure.

THE INDIAN FRUIT-FLY.

*Ceratitis capitata* Wied.
**Exhibit:** Pupa, adult, and figure.

THE PEACH SCALE.

*Eulecanium persice* Fab.
(Food plants: Peach, plum, quince, etc.; formerly *Lecanium.*)
**Exhibit:** Infested twig.

PUTNAM’S SCALE; CRANBERRY SCALE.

*Aspidiotus ancyclus* Putn.
(Food plants: Apple, apricot, box-elder, cottonwood, cranberry, elm, hemlock, maple, oak, peach, pear, plum, etc.)
**Exhibit:** Infested twig.
THE SAN JOSE SCALE.
Aspidiotus perniciosus Comst.

(Food plants: Almond, apple, apricot, birch, black walnut, black currant, catalpa, chestnut, crab-apple, crab-grass, cherry, grape, hickory, oak, peach, pear, persimmon, plum, poplar, prunus, Rocky Mountain cherry, rose, silver maple, willow, and many other plants.)

Exhibit: Infested twig.

THE CHERRY LEAF-BEETLE.
Galeruella caricollis Lee.

Exhibit: Adult.

THE CHERRY-FRUIT MAGGOT.
Rhagoletis cingulata Loew.

Exhibit: Adult.

INSECTS INJURIOUS TO PEAR.
(Many of the insects injuring the apple will be found attacking the pear.)

THE FRUIT-TREE BARK-BEETLE.
Scolytus rugulosus Ratz.

For general account see Chittenden, Cir. 29, Div. Ent., U. S. Dept. Agric., 1898.
Exhibit: Adult, work, and figure.

PEAR-BLIGHT BEETLE; SHOT-BORER.
Xyleborus pyri Peck.

(Formerly X. dispar.)
Exhibit: Adult, work, and figure.

THE PEAR BLISTER MITE.
Eriophyes pyri Pagenst.

For detailed account see Slingerland, Bul. 61, Cornell Univ. Agr. Exp. Sta., p. 317-328, figs., 1893.
Exhibit: Work and figure.

THE PEAR PSYLLA.
Psylla pyri Linn.

(Formerly P. pyricola.)
Exhibit: Adult and figure.

THE PEAR SLUG.
Eriocampoides limacina Retz.

(Formerly Eriocampa cerasi.)
For general account see Marlatt, Cir. 28, Div. Ent., U. S. Dept. Agric., 1897.
Exhibit: Adult, work, and figure.
THE SCURFY SCALE.

*Chionaspis furfura* Fitch.

(Food plants: Apple, cherry, currant, elm, pear, etc.)


Exhibit: Infested twig.

SINUATE PEAR-BORER.

*Acryla sinuatus* Ol.


Exhibit: Adult and figure.

INSECTS INJURIOUS TO PLUM.

THE PLUM CURCULIO.

*Conotrachelus nenuphar* Hbst.

For general account and bibliography see Lintner, 7th Rpt. N. Y. St. Ent., pp. 288-296, 1891.


THE PLUM GOUGER.

*Anthonomus scutellaris* Lec.

(Formerly *Coccotorus prunicida* Walsh.)


Exhibit: Adult, work, and figure.

THE HOP APHIS.

*Phorodon humuli* Schr.

(Attacks hop and plum.)

For full life history see Riley, Cir. 2, Div. Ent., U. S. Dept. Agric., 1891.

Exhibit: Adult and work.

FORBES' SCALE; CHERRY SCALE.

*Aspidiotus forbesi* Johns.


Exhibit: Infested twig.

INSECTS INJURIOUS TO GRAPE.

THE TILE-HORNED PRIONUS.

*Prionus imbricornis* Linn.


Exhibit: Adult.

THE GRAPEVINE ROOT-BORER.

*Memythrus polistiformis* Harr.

(Formerly *Schiapetera*.)


Exhibit: Figures.
INJURING LEAVES AND ROOTS.

**GRAPE PHYLLOXERA.**

*Phylloxera vastatrix* Planch.

For general article see Marlatt, Farmers' Bul. 70, U. S. Dept. Agric., pp. 4–9, figs., 1898.

Exhibit: Work and figure.

INJURING THE STEMS AND BRANCHES.

**COTTONY MAPLE SCALE.**

*Pulvinaria innumerablis* Rathv.


Exhibit: Infested twig.

**THE GRAPE SCALE.**

*Aspidiotus uve* Comst.


Exhibit: Infested twig.

**THE APPLE TWIG-BORER.**

*Amphicerus bicaudatus* Say.

For general account see Marlatt, Farmers' Bul. 70, U. S. Dept. Agric., pp. 11–13, figure, 1898.

Exhibit: Adult and figure.

**RED-SHOULDERED TWIG-BORER.**

*Sinoxylon basilare* Say.

* For general account see Lugger, 5th Rpt. St. Ent. Minn., pp. 70–72, 1899.

Exhibit: Adult and figure.

**THE SNOWY TREE-CRICKET.**

*Ecanthus niveus* DeG.


Exhibit: Adult and figure.

**OECAIANTHUS LATIPENNIS** Riley.

For brief article see Lugger, 3d Rpt. St. Ent. Minn., p. 273, 1898.

Exhibit: Adult.

**GRAPE-VINE ROOT-WORM.**

*Fidia viticida* Walsh.

For life history and bibliography see Felt, Bul. 72, N. Y. St. Museum, 1903, 55 pp., with colored plate.

Exhibit: Adult and figure.

**GRAPE-VINE FIDIA.**

*Fidia longipes* Mels.

Exhibit: Adult.

INJURING THE LEAVES.

**ACHEMON SPHINX.**

*Pholus achemon* Dru.

(Formerly *Philampelus.*) For general account see Lugger, 4th Rpt. State Ent. Minn., pp. 38–40, 1899.

Exhibit: Larva and adult.
GRAPE-VINE HOG-CATERPILLAR.
Ampelophaga myron Cram.

Exhibit: Larva and adult.

ABBOT'S SPHINX.
Sphecodina abbotii Swaine.

(Formerly Thyreus.)
For general account see Lugger, 4th Rpt. St. Ent. Minn., pp. 32-33, 1899.
Exhibit: Larva and adult.

LARGE BEAUTIFUL WOOD NYMPH.
Euthisanotia grata Fab.

(Formerly Eudryas.)
Exhibit: Larva and adult.

SMALL BEAUTIFUL WOOD NYMPH.
Euthisanotia unio Hübni.

Exhibit: Larva and adult.

EIGHT-SPOTTED FORESTER.
Alypia octomaculata Fab.

Exhibit: Larva and adult.

SOCIAL GRAPE CATERPILLAR.
Harrisina americana Guer.

(Formerly Procris.)
Exhibit: Adult and figure.

GRAPE LEAF-FOLDER.
Desmia funeralis Hübni.

For general account see Marlatt, Farmers' Bul. 70, U. S. Dept. Agric., pp. 16-17, 1898.
Exhibit: Larva, adult, and work.

GRAPE-VINE PLUME-MOTH.
Oecryptitis periselidactylus Fitch.

For general article see Lugger, 4th Rpt. St. Ent. Minn., pp. 221-222, 1899; for bibliography and article see Lintner, 12th Rpt. St. Ent. N. Y., pp. 218-222, 1897.
Exhibit: Larva and adult.

GRAPE-VINE SAW-FLY.
Blennocampa pygmnea Say.

For general articles see Harris, Insects Injurious to Vegetation, pp. 522-525; Beach, Lowe, and Stewart, Bul. 170, N. Y. Agric. Expt. Sta., p. 417, 1899.
Exhibit: Adult and figure.

GRAPE-VINE FLEA-BEETLE.
Haltica chalybea Il.
THE GRAPE-VINE COLASPI.  
*Colaspis brunnea* Fab.

For general article see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 13-14, 1903.

Exhibit: Adult.

THE VARIED ANOMALA.  
*Anomala varians* Burm.

Exhibit: Adult.

THE GRAPE-VINE LEAF-HOPPER.  
*Typhlocyba comes* Say.


Exhibit: Adult and figure.

THE WAVED SHARPSHOOTER.  
*Oncometopia undata* Fab.

(Formerly *Proconia*.)


Exhibit: Adult.

INJURING THE FRUIT.

THE GRAPE-SEED WORM.  
*Evoxysoma vitis* Saunders.

(Formerly *Isosoma*.)

For general account see Saunders, Insects Injurious to Fruits, 2d ed., pp. 296–297, 1900.

Exhibit: Adult.

THE GRAPE FRUIT-MOTH.  
*Polychrosis botrana* Schiff.

(Formerly *Eudemis*.)

For general article see Marlatt, Farmers' Bul. 70, U. S. Dept. Agric., pp. 20–22, 1898.

Exhibit: Adult and figure.

THE GRAPE SEED-WEEVIL.  
*Crapoini nascula* Say.


Exhibit: Adult and figure.

INSECTS INJURIOUS TO STRAWBERRY.


INJURING THE ROOTS AND CROWN.

THE STRAWBERRY CROWN-GIRDLER.  
*Otiorhynchus ovatus* Linn.

For brief bibliography and account see Lintner, 10th Rpt. St. Ent. N. Y., pp. 416–419, 1895.

Exhibit: Adult.

THE STRAWBERRY CROWN-BORER.  
*Tylochore fragarize* Riley.


Exhibit: Adult, work, and figure.
STRAWBERRY CROWN MOTH.

_Ægeria rutilans_ Hy. Edw.

(Formerly _Sesia_.)


**Exhibit:** Adult, pupa, and work.

THE SPOTTED STRAWBERRY LEAF-BEETLE.

_Typephorus canellus_ Fab.


**Exhibit:** Adult.

INJURING THE ROOTS.

WHITE GRUB; JUNE BEETLE.

_Lachnosterna arcuata_ Sm.


**Exhibit:** Adult and figure.

THE STRAWBERRY ROOT-BORER.

_Graphops nebulosus_ Lec.

For brief notice see Garman, Bul. 31, Ky. Agric. Exp. Sta., p. 23, 1890.

**Exhibit:** Adult.

INJURING THE LEAVES.

THE STRAWBERRY FALSE-WORM.

_Harpiphorus maculatus_ Nort.

For general account see Harrington, Insect Life, Vol. II, pp. 227–228, 1890.

**Exhibit:** Larva, pupa, adult, work, and figure.

THE STRAWBERRY LEAF-CHAFER.

_Diplotaxis frondicola_ Say.


**Exhibit:** Adult and work.

THE STRAWBERRY FLEA-BEETLE.

_Haltica ignita_ Ill.


**Exhibit:** Adult.

THE ROSE LEAF-BEETLE.

_Nodonota puncticollis_ Say.


**Exhibit:** Adult.

THE DUSKY PLANT-BUG.

_Calocoris rapidus_ Say.

For short account see Lugger, 1st Rpt. St. Ent. Minn., p. 65, 1900.

**Exhibit:** Adult.

RASPBERRY LEAF-ROLLER.

_Exartema permundana_ Clem.


**Exhibit:** Adult.
THE STRAWBERRY LEAF-ROLLER.
*Ancylis comptana* Fröhl.
(Formerly *Phoxopteris*.)
For general account see Smith, Bul. 149, N. J. Agric. Expt. Sta., pp. 3-12, 1901.
Exhibit: Larva, pupa, adult, and figure.

THE SMEARED DAGGER.
*Apatela oblitina* S. & A.
(Formerly *Acronycta.*)
Exhibit: Larva, adult, and figure.

INJURING THE BUDS AND STEMS.

THE STRAWBERRY WEEVIL.
*Anthonomus signatus* Say.
(Lays eggs in buds and severs stems.)
For general account see Chittenden, Cir. 21, Div. Ent., U. S. Dept. Agric., 1897.
Exhibit: Adult, work, figure, and the parasites *Calyptus tibiator* Cr. and *Cadolaceus incertus* Ashm.

INSECTS INJURIOUS TO BLACKBERRY AND RASPBERRY.

INJURING THE ROOTS.

THE RASPBERRY ROOT-BORER.
*Bembecia marginata* Harr.
Exhibit: Larva and adult.

INJURING THE STEMS.

BLACKBERRY GALL-MAKER.
*Diastrophus turgidus* Bass.
(Formerly *D. nebulosus* O. S.)
For brief article see Saunders, Insects Injurious to Fruits, 2d ed., pp. 318-319, 1900.
Exhibit: Adult and figure.

RASPBERRY CANE-BORER.
*Oberea bimaculata* Ol.
For bibliography and general account see Lintner, 5th Rpt. N. Y. St. Ent., pp. 231-233, 1889.
Exhibit: Adult and work.

THE SNOWY TREE-CRICKET.
*Ecatthus niveus* DeG.
Exhibit: Adult, work, and figure.

RED-NECKED CANE-BORER.
*Agrilus ruficollis* Fab.
Exhibit: Adult, work, and figure.
INJURING THE LEAVES.

THE RASPBERRY SAWFLY.

*Monophadnoides rubi* Harris.

(Formerly *Monophadmus*.)
Exhibit: Larva, adult, and work.

**RASPBERRY LEAF-ROLLER.**

*Exartema permundana* Clem.

Exhibit: Adult.

**THE FALL WEBWORM.**

*Hyphantria cunea* Dru.

(Feeds on leaves of various trees, shrubs, and vines.)
Exhibit: Adult and figure.

**THE SMEARED DAGGER.**

*Apatela oblinita* S. & A.

(Formerly *Acronycta*.)
Exhibit: Larva and adult.

**STRAWBERRY LEAF-ROLLER.**

*Ancylis comptana* Fröh.

(Formerly *Phoxopteris*.)
Exhibit: Pupa and adult.

**THE FOUR-MARKED LEAF-BEETLE.**

*Cryptocephalus quadrimaculatus* Say.

Exhibit: Adult.

**THE HOODED PLANT-BUG.**

*Euthoctha galeator* Fab.

Exhibit: Eggs, nymph, and adult.

INJURING THE FRUIT.

**RASPBERRY SPAN-WORM.**

*Synchlora srata* Fab.

(Formerly *S. glacaria*.)
For bibliography and general account see Lintner, 8th Rpt. St. Ent. N. Y., pp. 129–133, 1896.
Exhibit: Pupa, adult, and figure.

**THE LITTLE NEGRO BUG.**

*Corimelena pulicaria* Germ.

For general account see Lintner, 8th Rpt. St. Ent. N. Y., pp. 213–214, 1893.
Exhibit: Adult and figure.
INSECTS INJURIOUS TO CURRANT AND GOOSEBERRY.

For general article on insects affecting currant and gooseberry see Piper and Doane, Bul. 36, Washington Agr. Expt. Sta., 1898.

INJURING THE STEMS.

THE TERRAPIN SCALE.

_Eulecanium nigrofasciatum_ Perg.

(Food plants: Apple, birch, linden, maple, peach, plum, sycamore; formerly _Lecanium_.)


Exhibit: Infested twig.

THE NATIVE CURRANT STEM-BORER.

_Psenocerus supernotatus_ Say.

For general account see Lugger, 5th Rpt. State Entom. of Minnesota, pp. 121-122, 1899.

Exhibit: Adult and work.

CURRANT CLEARWING MOATH; IMPORTED CURRANT-BORER.

_Egeria tipuliformis_ Clerck.


Exhibit: Adult and work.

PUTNAM'S SCALE; CRANBERRY SCALE.

_Aspidiotos ancyclus_ Putn.

(Food plants: Apple, apricot, box-elder, cottonwood, cranberry, elm, hemlock, maple, oak, peach, pear, plum, etc.)


Exhibit: Infested twig.

THE SAN JOSE SCALE.

_Aspidiotos perniciosus_ Comst.

(Food plants: Almond, apple, apricot, birch, black walnut, black currant, catalpa, chestnut, crab-apple, crab-grass, cherry, grape, hickory, oak, peach, pear, persimmon, plum, poplar, prune, Rocky Mountain cherry, rose, silver maple, willow, and many other plants.)


Exhibit: Infested twig.

THE BLACK GOOSEBERRY BORER.

_Xylocrius agassizii_ Lec.


Exhibit: Adult and figure.

INJURING THE LEAVES.

GOOSEBERRY SPANWORM.

_Cymatophora ribecaria_ Fitch.

(Formerly _Eujichia_.)


Exhibit: Eggs, larva, pupa, adult, and figure.
IMPORTED CURRANT WORM.

Pteronus ribesii Scop.

(Formerly Nematus ventricosus.)
Exhibit: Adult, figure, and an enemy, Podisus placidus Uhl.

THE NATIVE CURRANT WORM.

Pristiphora grossulariae Walsh.
Exhibit: Adult and figure.

THE CRANBERRY LOOPER.

Xanthotype crocataria Fab.
Exhibit: Larva and adult.

POLYGONIA PROGNE Cram.

(Formerly Grapta.)
Exhibit: Larva, chrysalis, and adult.

INJURING THE FRUIT.

GOOSEBERRY FRUIT-WORM.

Zophodia grossulariae Pack.
Exhibit: Pupa and adult.

INSECTS INJURIOUS TO GRASSES.

APANTESIS NAIS Dru.

(Formerly Arctia.)
Exhibit: Adult.

GRANULATED CUTWORM.

Feltia annexa Fr.
Exhibit: Adult and figure.

HOMOPTERA EDUSA Dru.
-Exhibit: Larva, pupa, and adult.

NORTHERN GRASS WORM.

Drasteria erechtea Cram.
For general account see Slingerland, Insect Life, Vol. V, pp. 87-88, 1892.
Exhibit: Larva, pupa, adult, and work.

THE ARMY WORM.

Heliophila unipuncta Harv.
(Formerly Leucania.)
For bibliography and life history see Lintner, 12th Rpt., St. Ent. N. Y., pp. 190-214, 1896.
Exhibit: Larva, pupa, adult, and figure.
THE SALT-MARSH CATERPILLAR.

*Estigmene acrea* Dru.

(Formerly *Leucarctia.* )
Exhibit: Larva and adult.

FALL ARMY WORM.

*Laphygma frugiperda* S. & A.

Exhibit: Larva, pupa, adult, and figure.

THE ISABELLA TIGER MOTH.

*Isia isabella* S. & A. (Formerly *Pyrrharctia.* )
Exhibit: Larva, cocoon, adult, and figure.

THE VAGABOND CRAMBUS.

*Crambus vulgivagellus* Clem.

Exhibit: Eggs, adult, work, figure, and parasite *Lampronotus frigida* Cr.

THE SPOTTED CUTWORM.

*Noctua c-nigrum* Linn.

For general account and life history see Chittenden, Bul. 27, n. s., Div. Ent., U. S. Dept. Agric., pp. 54-58, 1901.
Exhibit: Pupa and adult.

WHITE GRUB; MAY BEETLE.

*Lachnosterna fusca* Fröh.

Exhibit: Adult.

WHITE GRUB; JUNE BEETLE.

*Lachnosterna arcuata* Smith.

Exhibit: Adult and figure.

THE DISTENDED MAY BEETLE.

*Lachnosterna farcta* Lee.

Exhibit: Adult.

THE BLUE-GRASS BILL-BUG.

*Sphenophorus parvulus* Gyll.

For article see Forbes, 16th Rpt. St. Ent. Ill., pp. 63, 65, 1894.
Exhibit: Adult.

THE LESSER LOCUST.

*Melanoplus atlanis* Riley.

Exhibit: Adult.
THE CAROLINA LOCUST.
Dissosteira carolina Linn.
Exhibit: Nymph and adult.

THE TIMOTHY PLANT-BUG.
Oncognathus binotatus Fab.
For general account see Howard, Insect Life, Vol. V, pp. 90–92, 1892.
Exhibit: Adult.

THE GREATER WHEAT-STEM MAGGOT.
Meromyza americana Fitch.
For general article see Webster, Bul. 42, Div. Ent., U.S. Dept. Agric., pp. 43–51, 1903.
Exhibit: Adult and figure.

LEATHER JACKET; MEADOW WORM.
Tipula bicornis Loew.
For general account see Forbes, 16th Rpt. St. Ent. Ill., pp. 78–83, 1890.
Exhibit: Adult and figure.

INSECTS INJURIOUS TO ALFALFA.

THE VARIEGATED CUTWORM.
Peridroma saucia Hbn.
Exhibit: Larva and adult.

THE FALL ARMY WORM.
Laphygma frugiperda S. & A.
Exhibit: Larva and adult.

THE ALFALFA WEBWORM.
Loxostege commixtalis Walk.
(Formerly L. cereralis Zell.)
For account of Loxostege sp. attacking alfalfa see Insect Life, Vol. VI, p. 36, 1893.
Exhibit: Adult.

THE TWO-STRIPED LOCUST.
Melanoplus bivittatus Say.
For bibliography and general account see Scudder, Proc. U. S. N. M., Vol. XX, pp. 363–368, pl. 24, fig. 5, 1897.
Exhibit: Adult and figure.

THE DIFFERENTIAL LOCUST.
Melanoplus differentialis Thos.
Exhibit: Adult and figure.
THE ROCKY-MOUNTAIN LOCUST.
   Melanoplus spretus Thos.

For bibliography and general account see Scudder, Proc. U. S. N. M., Vol. XX, pp. 184-190, pl. 12, fig. 8, 1897.
Exhibit: Adult.

THE AMERICAN LOCUST.
   Schistocerca americana Dru.

Exhibit: Adult.

THE CLOVER-SEED CHALCIS-FLY.
   Bruchophagus funebris How.

Exhibit: Adult and work.

INSECTS INJURIOUS TO CLOVER.


INJURING THE ROOTS.

THE CLOVER ROOT-BORER.
   Hylastinus trifolii Müll.
(Formerly Hylastes.)

Exhibit: Adult, work, figure, and enemy, Telephorus bilineatus Say.

INJURING THE STEM.

THE CLOVER STEM-BORER.
   Languria mozardi Latr.

Exhibit: Adult.

INJURING THE LEAVES.

THE CLOVER MITE.
   Bryobia pratensis Garm.

Exhibit: Figure.

CLOVER ALEYRODES.
   Aleyrodes sp.

Exhibit: Adult and work.

THE WHEAT THRIPS.
   Thrips tritici Fitch.

For citations to literature see Lintner, 11th Rpt. N. Y. St. Ent., pp. 247-250, 1896.
Exhibit: Figure.

THE CLOVER-LEAF WEEVIL.
   Phytonomus punctatus Fab.

For general account see Lintner, 1st Rpt. St. Ent. N. Y., pp. 247-253, 1883; Sanderson. Insects injurious to staple crops, pp. 177-179, 1902.
Exhibit: Larva, cocoon, adult, work, figure, and enemy, Collops 4-maculatus Fab.
THE GRAPE-VINE COLASPI S.
Colaspis brunnea Fab.
For general article see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 13-14, 1903.
Exhibit: Adult.

THE 12-SPOTTED CUCUMBER BEETLE.
Diabrotica duodecimpariata Ol.
Exhibit: Adult, figure, and parasite, Celatoria diabroticae.

WESTERN CORN ROOT-WORM.
Diabrotica longicornis Say.
For general account see Forbes, 12th Rpt. St. Ent. Ill., pp. 10-31, figs. 1-5, 1883.
Exhibit: Adult.

THE IMBRICATED SNOUT-BEETLE.
Epicerus imbricatus Say.
For general account see Chittenden, Yearbook, U. S. Dept. Agric., 1898, pp. 249-250.
Exhibit: Adult.

THE GIBBOUS JUNE-BEETLE.
Lachnosterna gibbosa Burm.
For general account of white grubs see Forbes, 18th Rpt. St. Ent. Ill., pp. 109-144, 1894.
Exhibit: Adult.

THE FLAVESCENT CLOVER WEEVIL.
Sitones flavescens Marsh.
Exhibit: Adult.

GRAPHORHINUS VADOSUS Say.
For brief account see Webster, Amer. Nat., Vol. XVI, p. 746, 1882.
Exhibit: Adult.

THE ASH-GRAY BLISTER BEETLE.
Macrobasis unicolor Kby.
For general account see Chittenden, Yearbook, U. S. Dept. Agric., 1898, pp. 249-250.
Exhibit: Adult.

FOUR-LINED PLANT-BUG.
Pecilocapsus lineatus Fab.
Exhibit: Adult.

THE TARNISHED PLANT-BUG.
Lygus pratensis Linn.
Exhibit: Adult.

THE CLOVER-LEAF MIDGE.
Dasymycra trifolii Loew.
(Formerly Cecidomyia.)
Exhibit: Cocoon, adult, and work.
THE RED-BANDED LEAF-ROLLER.

_Eulia triferana_ Walk.

(Formerly _Lophoderus_.)
Exhibit: Pupa and adult.

THE RUSTY-BROWN TORTRIX.

_Platynota falcifera_ Clem.

Exhibit: Eggs, pupa, and adult.

THE SULPHUR-COLORED TORTRIX.

_Epagoge sulfurana_ Clem.

(Formerly _Tortrix_ and _Dichelia_.)
Exhibit: Pupa, adult, and work.

COELOSTATHMA DISCOFLECTANA Clem.

(Formerly _Amphisa_.)
Exhibit: Pupa and adult.

THE FALL ARMY WORM.

_Laphygma frugiperda_ S. & A.

Exhibit: Adult.

ANAPHORA POPEANELLA Clem.

For general account see Riley and Howard, Insect Life, Vol. III, pp. 27-28, 1890.
Exhibit: Adult.

THE OBLIQUE-BANDED LEAF-ROLLER.

_Archip rosaccana_ Harr.

(Formerly _Caccecia_.)
Exhibit: Pupa and adult.

THE GARDEN WEBWORM.

_Loxostege similalis_ Guen.

Exhibit: Adult and work.

ARISTOTELIA ROSEOSUFFUSELLA Clem.

(Formerly _Gelechia_.)
For brief reference to food plant see Murtfeldt, Bul. 23, Div. Ent., U. S. Dept. Agric., p. 54, 1891.
Exhibit: Pupa and adult.

ECTROPIS CREPUSULARIA D. and S.

(Has been placed in genera _Cymatophora, Cleora, _and _Boarmia_.)
Exhibit: Adult.

DRASTERIA ERECHTEA Cram.

For general account see Slingerland, Insect Life, Vol. V, pp. 87-88, 1892.
Exhibit: Larva, cocoon, pupa, and adult.
THE CHICKWEED GEOMETER.

_Hxmatopsis grataria_ Fab.

For brief notice see Forbes, 14th Rpt. St. Ent. Ill., p. 74, 1885.

_Exhibit:_ Adult.

**IO MOTH.**

_Automeris io_ Fab.

For general account see Lugger, 4th Rpt. State Ent. Minn., pp. 126–129, fig. 130, and pl. 16, fig. 129, 1899.

_Exhibit:_ Larva, cocoon, and adult.

**CATOPYRRHA DISSIMILARIA** _Hbn._

(Formerly _Aspilutes._)

_Exhibit:_ Adult.

**THE GREEN CLOVER WORM.**

_Plathypena scabra_ Fab.

(Formerly _Hypena._)


_Exhibit:_ Larva, pupa, and adult.

**THE SMALL WHITE BRISTLY CUTWORM.**

_Mamestra renigera_ Steph.

For short account see Forbes, 16th Rpt. St. Ent. Ill., pp. 95–96, 1890.

_Exhibit:_ Larva, pupa, and adult.

**THE CLOVER CUTWORM.**

_Mamestra trifolii_ Rott.


_Exhibit:_ Larva and adult.

**ARMY WORM.**

_Heliophila unipuncta_ Harv.

(Formerly _Leucania._)

For bibliography and life history see Lintner, 12th Rpt. N. Y. St. Ent., pp. 190–214, 1896.

_Exhibit:_ Larva, pupa, and adult.

**THE VARIEGATED CUTWORM.**

_Peridroma saucia_ Hübn.


_Exhibit:_ Larva, adult, and figure.

**THE COMMELINA OWLET MOTH.**

_Prodenia commelinix_ S. & A.

For life history and general account see Chittenden, Bul. 27, n. s., Div. Ent., U. S. Dept. Agric., pp. 59–64, Pl. IV, fig. 1, 1901.

_Exhibit:_ Larva, pupa, and adult.

**THE DARK-SIDED CUTWORM.**

_Euxoa messoria_ Harr.

(Formerly _Carneades._)


_Exhibit:_ Larva and adult.

**THE SMEARED DAGGER.**

_Apatela oblinita_ S. & A.

(Formerly _Acronycta._)


_Exhibit:_ Larva, cocoon, and adult.
THE BRONZED CUTWORM.

Nephelodes minians Guen.


EXHIBIT: Larva and adult.

THE CABBAGE LOOPER.

Autographa brassicae Riley.

(Formerly Plusia.)


EXHIBIT: Larva, adult, and figure.

THE NAIS TIGER-MOTH.

Apantesis nais Dru.

(Formerly Arctia.)


EXHIBIT: Adult.

ZEBRA CATERPILLAR.

Mamestra pieta Harr.


EXHIBIT: Larva and adult.

THE ISABELLA TIGER-MOTH.

Isia isabella S. & A.

(Formerly Pyrrharctia.)


EXHIBIT: Larva and adult.

THE NORTHERN CLOUDY-WING.

Thorybes pylades Scud.

(Formerly Eudamus.)

EXHIBIT: Adult.

THE COMYNTAS BUTTERFLY.

Everes comyntas Godt.

(Formerly Lyceena.)

For brief account see Lintner, 4th Rpt. N. Y. St. Ent., p. 137, 1888.

EXHIBIT: Adult.

THE AMERICAN COPPER.

Hecedes hypophlebas Bd.

(Formerly Chrysophanus.)

EXHIBIT: Adult.

LEMONIAS EDITHA Bd.

(Formerly Melitasa.)

EXHIBIT: Figure.

SOUTHERN DOG-FACE BUTTERFLY.

Zerene cesonia Stall.

(Formerly Colias.)


EXHIBIT: Adult.

THE ORANGE SULPHUR.

Eurymus eurytheme Bd.

(Formerly Colias.)

For brief account see French, 7th Rpt. St. Ent. Ill., pp. 147-148, 1878.

EXHIBIT: Larva and adult.
THE YELLOW BUTTERFLY.
Eurymus philodice Godt.
(Formerly Colias.)
Exhibit: Adult.

THE CLOUDLESS SULPHUR.
Callidryas cubale Linn.
For brief account see French, 7th Rpt. St. Ent. Ill., pp. 147-148, 1878.
Exhibit: Larva, pupa, and adult.

THE BLACK-BORDERED YELLOW.
Eurema nicippe Cram.
(Formerly Terias.)
For brief account see French, 7th Rpt. St. Ent. Ill., p. 148, 1878.
Exhibit: Larva, pupa, and adult.

THE LITTLE SULPHUR.
Eurema euterpe Men.
(Formerly Terias lisa.)
For brief account see French, 7th Rpt. St. Ent. Ill., p. 148, 1878.
Exhibit: Adult.

OLETHREUTES INSTRUTANA Clem.
Exhibit: Adult.

THE CLOVER-HAY WORM.
Hypsopogia costalis Fab.
(Formerly Asopia and Pyralis.)
Exhibit: Larva and adult.

THE MEAL SNOUT-MOTH.
Pyralis farinalis Linn.
Exhibit: Larva, pupa, cocoon, and adult.

THE CLOVER APHIS.
Macrosiphum trifolii Perg.
(Attacks dandelion, oats, red clover, strawberry, wheat, etc.)
Exhibit: Figure.

THE TWO-STRIPED LOCUST.
Melanoplus bivittatus Say.
Exhibit: Adult and figure.

THE LESSER LOCUST.
Melanoplus atlantis Riley.
Exhibit: Adult.
THE DIFFERENTIAL LOCUST.

_Melanoplus differentialis_ Thos.


Exhibit: Adult.

RED-LEGGED LOCUST.

_Melanoplus femur-rubrum_ DeG.


Exhibit: Adult.

THE ROCKY-MOUNTAIN LOCUST.

_Melanoplus spretus_ Thos.

For bibliography and general accounts see Scudder, Proc. U. S. N. M., Vol. XX, pp. 184-190, pl. 12, fig. 8, 1897; Riley, Bul. 25, Div. Ent., U. S. Dept. Agric., pp. 9-26, 1891.

Exhibit: Adult.

INJURING THE FLOWERS AND SEEDS.

THE CLOVER-FLOWER MIDGE.

_Dasyneura leguminicola_ Lint

(Formerly _Cecidomyia_.)


Exhibit: Cocoon, adult, and figure.

THE CLOVER-SEED CHALCIS-FLY.

_Bruchophagus funebris_ How.


Exhibit: Adult and work.

THE CLOVER-SEED WORM.

_Enarmonia interstictana_ Clem.

(Formerly _Grapholitha_.)

For bibliography and general account see Lintner, 11th Rept. St. Ent. N. Y., pp. 152-157, 1896.

Exhibit: Pupa, adult, and work.

INSECTS INJURIOUS TO SMALL GRAINS.


THE LESSER LOCUST.

_Melanoplus atlantis_ Riley.


Exhibit: Nymph and adult.

THE RED-LEGGED LOCUST.

_Melanoplus femur-rubrum_ DeG.


Exhibit: Nymph and adult.
THE ROCKY MOUNTAIN LOCUST.
Glenoplus specius Thos.

For bibliography and general account see Scudder, Proc. U. S. N. M., Vol. XX, pp. 184-190, pl. 12, fig. 8, 1897; Riley, Bul. 25, Div. Ent., U. S. Dept. Agric., pp. 9-26, 1891.
Exhibit: Nymph, adult, and figure.

THE WESTERN CRICKET.
Anabrus purpurascens Uh1.

Exhibit: Adult.

THE CLEAR-WINGED LOCUST.
Camnula atrorx Scudd.

Exhibit: Adult.

THE ARMY WORM.
Heliophila unipuncta Harv.

(Formerly Leucania.)
For bibliography and life history see Lintner, 12th Rept. St. Ent. N. Y., pp. 190-214, 1896.
Exhibit: Larva, pupa, adult, and figure.

FALL ARMY WORM.
Laphygma frugiperda S. & A.

Exhibit: Larva, pupa, and adult.

STALK BORER.
Papaipema nilela Guen.

(Bores in stems of various plants.)
For general account see Bird, Can. Ent., Vol. XXX, pp. 127-128, 1898
Exhibit: Larva, pupa, adult, and work.

WHEAT-HEAD ARMY WORM.
Heliophila albilinea Hbn.

For general account see Riley, 9th Rept. St. Ent. Mo., pp. 50-57, 1877.
Exhibit: Pupa, adult, figure, and parasites: Anomalon apicale Cress., Tachina anonyma Riley.

NUTTALL'S BLISTER BEETLE.
Cantharis nuttalli Say.

For short article see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., p. 27, 1903.
Exhibit: Adult.

THE CLAY-COLORED BILL-BUG.
Sphenophorus sequalis Lee

(Treated as S. ochreus Lec. by authors.)
For articles on bill-bugs see Forbes, 16th Rept. St. Ent. Ill., pp. 58-74, 1890; Webster, Insect Life, Vol. 11, pp. 132-134, 1889.
Exhibit: Adult.

THE GERMAN GRAIN-APHIS.
Macrosiphum cerealis Kalt.

(Attacks barley, chess, meadow, orchard, and velvet grass, oats, rye, and wheat, feeding on ears, racemes, and other parts of plant.)
Exhibit: Figure.

**THE ENGLISH GRAIN-APHIS.**

*Macrosiphum granaria* Buck.

(Formerly *Nectarophora* and *Aphis.* Attacks green foxtail, meadow, and orchard grass, oats, red-clover, red top, rye, wheat, and wild rye.)
Exhibit: Figure and work; parasite, *Lysiphlebus testaceipes* Cress. (figure); and enemies, *Anatis 15-punctata* Ol.; *Coccinella sanguinea* Linn.; *Hippodamia parenthesis* Say; *Podabrus tomentosus* Say; *Sphcerophoria cylindrica* Say; *Syrphus americanus* Wied.

**THE EUROPEAN GRAIN-APHIS.**

*Siphocoryne avenae* Fab.

(Formerly *Nectarophora* and *Aphis.* Attacks apple, burdock, celery, choke-cherry, dogwood, grasses, oats, rye, wheat, and other plants.)
Exhibit: Figure.

**THE CHINCH BUG.**

*Blissus leucopterus* Say.

(Injures cane, corn, oats, rye, wheat, etc.)
Exhibit: Eggs, nymph, adult, and figure.

**THE GRAIN LEAF-HOPPER.**

*Diedrocephalus flaviceps* Riley.

For account of *D. mollipes* see Osborn & Ball, Bul. 34, Iowa Agric. Expt. Sta., p. 614, 1897.
Exhibit: Adult.

**THE DESTRUCTIVE LEAF-HOPPER.**

*Cecadula exitiosa* Uhl.

Exhibit: Adult.

**THE WHEAT SAWFLY.**

*Dolerus arvensis* Say.

For general account see Riley and Marlatt, Insect Life, Vol. IV, pp. 171-172, 1891.
Exhibit: Adult and figure.

**THE GRASS SAWFLY.**

*Pachynematus extensicornis* Nort.

(Formerly *Nematus marylondicus.*)
For article under *N. marylondicus* see Riley and Marlatt, Insect Life, Vol. IV, pp. 174-177, 1891.
Exhibit: Adult and figure.

**THE WESTERN GRAIN SAWFLY.**

*ephus occidentalis* Marl.

For short article see Riley and Howard, Insect Life, Vol. II, p. 286, 1890.
Exhibit: Adult, work, and figure.
JOINT-WORMS.

GREATER WHEAT-STRAW WORM.
Isosoma grande Riley.
Exhibit: Adult and figure.

BARLEY-STRAW WORM.
Isosoma hordei Harr.
Exhibit: Adult, work, and figure.

THE WHEAT JOINT-WORM.
Isosoma tritici Riley.
Exhibit: Adult, work, and figure.

THE HAIRY-FACED JOINT-WORM.
Isosoma hirtifrons How.
Exhibit: Adult and figure.

THE HESSIAN FLY.
Mayetiola destructor Say.
(Formerly Cecidomyia.)
Exhibit: Puparia, adult, work, figures, and map.

THE GREATER WHEAT-STEM MAGGOT.
Meromyza americana Fitch.
For general article see Webster, Bul. 42, Div. Ent., U. S. Dept. Agric., pp. 43-51, 1903.
Exhibit: Adult, work, and figure.

THE AMERICAN FRIT-FLY.
Oscinis soror Macq.
Exhibit: Adult, work, and figure.

THE LESSER WHEAT-STRAW MAGGOT.
Oscinis carbonaria Loew.
Exhibit: Adult.

CHLOROPS PROXIMA Say.
Exhibit: Adult and work.

INSECTS INJURIOUS TO HOPS.

THE HOP APHIS.
Phorodon humuli Schr.
(Attacks hop and plum.)
For full life history see Riley, Cir. 2, Div. Ent., U. S. Dept. Agric., 1891.
Exhibit: Adult, work, and figures, with two enemies: Chrysopa sp. and Adalia bipunctata Linn.
THE COMMA BUTTERFLY.
*Polygonia comma* Harr.

(Formerly *Grapta.*)

**EXHIBIT:** Larva and adult.

THE SEMICOLON BUTTERFLY.
*Polygonia interrogationis* Fab.


**EXHIBIT:** Larva and adult.

THE HOP GRUB.
*Gortyna immanis* Guen.


**EXHIBIT:** Pupa, adult, and work.

THE HOP SNOUT-MOTH.
*Hypena humuli* Harr.


**EXHIBIT:** Larva, pupa, and adult.

THE VARIEGATED CUTWORM.
*Peridroma saucia* Hbn.


**EXHIBIT:** Larva and adult.

THE MEXICAN COTTON BOLL WEEVIL.
MEXICAN COTTON BOLL WEEVIL.
*Anthonomus grandis* Boh.

(Breeds in and destroys bolls.)

**EXHIBIT:** Life history (larve, pupa, adults, injured cotton bolls, with stages present in bolls, and uninjured bolls); illustrations and map showing distribution in United States.

THE COTTON BOLLWORM; CORN-EAR WORM.

COTTON BOLLWORM; CORN-EAR WORM.
*Heliothis obsoleta* Fab.

(Formerly *H. armiger.* *H. obscura* by error. Larve feed on bolls of cotton, ears of corn, tobacco buds, beans, and in tomatoes; also cut off young plants of various garden crops.)

**EXHIBIT:** Larva, pupa, adult, work in cotton bolls, and illustrations of different stages, and work on various plants. parasite exhibited: *Arachytas pilinodris* v. d. W.; adult, pupa, and figure. Enemies exhibited: *Calosoma lignahre* Lec., *C. sayi* Dej., *C. scrutator* Fab., *Polistes annularis* Linn., and *P. rubiginosus* Lep.
INSECTS INJURIOUS TO SUGAR BEET.


**RED-LEGGED LOCUST.**

*Melanoplus femur-rubrum* DeG.


**THE DIFFERENTIAL LOCUST.**

*Melanoplus differentialis* Thos.


**THE ROCKY-MOUNTAIN LOCUST.**

*Melanoplus spreitus* Thos.

For bibliography and general account see Scudder, Proc. U. S. N. M., Vol. XX, pp. 184-190, pl. 12, fig. 8, 1897; Riley, Bul. 25, Div. Ent., U. S. Dept. Agric., pp. 9-26, 1891.

**THE TWO STRIPED LOCUST.**

*Melanoplus bivittatus* Say.

For bibliography and general account see Scudder, Proc. U. S. N. M., Vol. XX, pp. 363-368, pl. 24, fig. 5, 1897.

**THE LESSER LOCUST.**

*Melanoplus atlantis* Riley.


**THE CAROLINA LOCUST.**

*Dissosteira carolina* Linn.


**THE BEET LEAF-MINER.**

*Pegomya vicina*, Lint.

**THE BEET CHLOROPS.**

*Chlorops assimilis* Macq.

**THE COMMON ARMY WORM.**

*Heliophila unipuncta* Harr.

(Formerly *Leucania.*)

For bibliography and life history see Lintner, 12th Rept. St. Ent. N. Y., pp. 190-214, 1896.

**THE EXHIBIT:**

- Adult and figure.
THE VARIEGATED CUTWORM.
*Peridroma saucia* Hübn.


**Exhibit:** Larva, adult, and figure.

THE PURSLANE CATERPILLAR.
*Copidryas gloveri* G. & R.

**Exhibit:** Larva and adult.

FALL ARMY WORM.
*Laphygma frugiperda* S. & A.


**Exhibit:** Larva, adult, and figure.

THE WHITE-LINED SPHINX.
*Deilephila lineata* Fab.

**Exhibit:** Adult and figure.

THE BEET ARMY WORM.
*Caradrina exigua* Hbn.


**Exhibit:** Adult and figure.

THE ZEBRA CATERPILLAR.
*Mamestra picta* Harr.

For bibliography and general life history see Felt, 14th Rpt. N. Y. St. Ent., pp. 201–207, 1898.

**Exhibit:** Larva and adult.

GARDEN WEBWORM.
*Loxostege similalis* Guen.


**Exhibit:** Cocoon, adult, and figure.

THE SUGAR-BEET WEBWORM.
*Loxostege sticticalis* Linn.


**Exhibit:** Cocoon, pupa, adult, and figure.

THE ISABELLA TIGER MoTH.
*Isia isabella* S. & A.

(Formerly *Pyrrharctia.*) For general account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 44–45, 1903.

**Exhibit:** Larva, adult, and figure.

THE CLOVER CUTWORM.
*Mamestra trifolii* Rott.


**Exhibit:** Larva, adult, and parasites *Ophion purgatum* Say and *Euphorocera claripennis* Macq.
THE CABBAGE LOOPER.
_Autographa brassicae_ Riley.

Exhibit: Larva, adult, and parasite _Limneria tibiator_ Cr.

**THE GARDEN FLEA-HOPPER**
_Halticus uhleri_ Giard.

Exhibit: Adult and figure.

**THE TARNISHED PLANT-BUG.**
_Lygus pratensis_ Linn.

For general account see Riley, Rpt. U. S. Dept. Agric. i. 1884, pp. 312-315, 1885.
Exhibit: Adult and figure.

**THE SANDY GROUND BUG.**
_Emblethis arenarius_ Linn.

Exhibit: Adult.

**PURSLANE BUG.**
_Geocoris bullatus_ Say.

Exhibit: Adult.

**THE MILITARY BUG.**
_Hadronema militaris_ Uhl.

Exhibit: Adult.

**CLOUDED PIGWEED BUG.**
_Sphragisticus nebulosus_ Fall.

Exhibit: Adult.

**THE BROWN LEAF-HOPPER.**
_Agallia sanguinolenta_ Prov.

Exhibit: Adult.

**THE CHINCH-BUG.**
_Blissus leucopterus_ Say.

For general article and life history see Webster, Bul. 15, n. s., Div. Ent., U. S. Dept. Agric., 82 pp. 1898.
Exhibit: Eggs, nymph, adult, and figure.

**THE FALSE CHINCH-BUG.**
_Nysius angustatus_ Uhl.

(Attacks many garden crops.)
Exhibit: Adult and figure.

**HOODED PLANT-BUG.**
_Euthochta galeator_ Fab.

Exhibit: Eggs, nymph, and adult.

**THE IMBRICATED SNOUT-BEETLE.**
_Epicerus imbricatus_ Say.

Exhibit: Adult and figure.
THE GIBBOUS JUNE BEETLE.  
*Lachnosterna gibbosa* Burm.  
For general account of white grubs see Forbes, 18th Rpt. St. Ent. Ill., pp. 109–144, 1894.  
**Exhibit:** Adult and figure.

THE 12-SPOTTED CUCUMBER BEETLE.  
*Diabrotica duodecimpunctata* Ol.  
**Exhibit:** Adult, figures, and parasite *Celatoria diabrotica*.

**MONOCREPIDIUS VESPERTINUS** Fab.  
**Exhibit:** Adult and figure.

PENCILED SNOUT-BEETLE.  
*Centrus penicillus* Hbst.  
**Exhibit:** Adult.

**THE GREATER SUGAR-BEET LEAF-BEETLE.**  
*Monoxia puncticollis* Say.  
**Exhibit:** Adult and figure.

**THE LESSER SUGAR-BEET LEAF-BEETLE.**  
*Monoxia consputa* Lec.  
**Exhibit:** Adult and figure.

**THE GRAPE-VINE COLASPIS.**  
*Colaspis brunnea* Fab.  
**Exhibit:** Adult and figure.

**WHITE GRUB; MAY BEETLE.**  
*Lachnosterna fusca* Fröh.  
**Exhibit:** Adult and figure.

**THE CONVEX FLEA-BEETLE.**  
*Psylliodes convexior* Lec.  
**Exhibit:** Adult.

**THE PALE-STRIPED FLEA-BEETLE.**  
*Systena blanda* Mels.  
**Exhibit:** Adult and figure.

**THE SPINACH FLEA-BEETLE.**  
*Disonycha xanthomelan* Dalm.  
**Exhibit:** Adult, figure, and parasite *Hyphostena barbata* Coq.

**THE WAVY-NECKED FLEA-BEETLE.**  
*Disonycha crenicollis* Say.  
**Exhibit:** Adult.
THE TRIANGULAR FLEA-BEETLE.
Disonycha triangularis Say.

Exhibit: Adult.

THE CUCUMBER FLEA-BEETLE.
Epitrix cucumeris Harr.

Exhibit: Adult and figure.

THE TOOTHED FLEA-BEETLE.
Chatoecnema denticulata Illig.

Exhibit: Adult.

THE ASH-GRAY BLISTER BEETLE.
Macrobasis unicolor Kby.

For short article see Chittenden, Yearbook, U. S. Dept. Agric. f. 1898, pp. 249–250, 1899.
Exhibit: Adult.

THE SPOTTED BLISTER BEETLE.
Epicauta maculata Say.

Exhibit: Adult and figure.

THE GRAY BLISTER BEETLE.
Epicauta cinerea Först.

For brief account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., p. 25, 1903.
Exhibit: Adult and figure.

BLACK BLISTER BEETLE.
Epicauta pennsylvanica DeG.

For brief account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., p. 25, 1903.
Exhibit: Adult and figure.

THE STRIPED BLISTER BEETLE.
Epicauta vittata Fab.

Exhibit: Adult and figure.

NUTTALL'S BLISTER BEETLE.
Cantharis nuttalli Say.

For short article see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., p. 27, 1903.
Exhibit: Adult and figure.

INSECTS INJURIOUS TO BEANS AND PEAS.

THE LIMA-BEAN STEM-BORER.
Monoptilota nubilella Hulst.

(Bores in stalks of Lima beans.)
Exhibit: Larva, cocoon, adult, work, and figure.
SMALLER CORN STALK-BORER.

_Elasmostalpus lignosellus_ Zell.


Exhibit: Larva, adult, and figure.

NUTTALL'S BLISTER BEETLE.

_Cantharis nuttalli_ Say.

For short article see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., p. 27, 1903.

Exhibit: Adult and figure.

THE ASH-GRAY BLISTER BEETLE.

_Macrobasis unicolor_ Kby.

For short article see Chittenden, Yearbook, U. S. Dept. Agric. f. 1898, pp. 249-250, 1899.

Exhibit: Adult.

THE BEAN LEAF-BEETLE.

_Cerotoma trifurcata_ Först.

(Formerly _C. cominea_ Fab.)

For general account see Chittenden, Yearbook, U. S. Dept. Agric. f. 1898, pp. 253-254, 1899.

Exhibit: Adult and figure.

THE BEAN LADYBIRD.

_Epilachna corrupta_ Muls.


Exhibit: Adult and figure.

THE 12-SPOTTED CUCUMBER BEETLE.

_Diabrotica duodecimpunctata_ OI.


Exhibit: Adult.

THE IMBRICATED SNOUT-BEETLE.

_Epicerus imbricatus_ Say.


Exhibit: Adult.

THE BANDED FLEA-BEETLE.

_Systena teniata_ Say.

For short account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., p. 17, 1903.

Exhibit: Adult.

THE PALE-STRIPED FLEA-BEETLE.

_Systena blanda_ Mel.

For general article see Chittenden, Bul. 23, n. s., Div. Ent., U. S. Dept. Agric., pp. 22-23, 1900; Bul. 43, p. 16, 1903.

Exhibit: Adult and figure.

THE LEAF-MINING LOCUST BEETLE.

_Odontota dorsalis_ Thunb.

(Lives on locust, but attacks beans and other leguminous plants.)


Exhibit: Adult and figure.
THE DISTENDED MAY BEETLE.

*Laschnosterna farcta* Lec.


Exhibit: Adult.

THE GARDEN FLEA-HOPPER.

*Hallicus uhleri* Giard.


Exhibit: Adult and figure.

THE DINGY CUTWORM.

*Feltia subgothica* Haw.

For brief account see Chittenden, Yearbook, U. S. Dept. Agric. f. 1898, p. 257, 1899.

Exhibit: Adult.

SALT-MARSH CATERPILLAR.

*Estigmene acrca* Dru.

(Formerly *Leucareia*.)

For short account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 43–44, fig. 41, 1903.

Exhibit: Adult.

YELLOW-BEAR CATERPILLAR.

*Diacrisia virginica* Fab.

(Formerly *Spilosoma*.)

For general account see Lugger, 4th Rpt. State Ent. Minn., pp. 79–81, fig. 78, 1899.

Exhibit: Adult and figure.

THE BEAN CUTWORM.

*Ogdoconta cinera* Guen.

(Feeds on buds and leaves.)


Exhibit: Adult and figure.

THE ROLLER WORM.

*Eudamus proteus* Linn.

(Feeds on buds and leaves.)


Exhibit: Larva, chrysalis, adult, and figure.

COMMON BEAN WEEVIL.

*Bruchus obtectus* Say.

For general account and life history see Chittenden, Yearbook, U. S. Dept. Agric. f. 1898, pp. 239–242, 1899.

Exhibit: Adult, work, and figure.

THE PEA WEEVIL.

*Bruchus pisorum* Linn.

For general account and life history see Chittenden, Yearbook, U. S. Dept. Agric. f. 1898, pp. 234–239, 1899.

Exhibit: Adult, work, and figure.
THE COWPEA WEEVIL.

*Bruchus chinensis* Linn.

For general account and life history see Chittenden, Yearbook, U. S. Dept. Agric. f. 1898, pp. 242-245, 1899.

Exhibit: Adult and figure.

FOUR-SPOTTED BEAN-WEEVIL.

*Bruchus quadrimaculatus* Boh.

For general account and life history see Chittenden, Yearbook, U. S. Dept. Agric. f. 1898, pp. 245-247, 1899.

Exhibit: Adult and figure.

THE LENTIL WEEVIL.

*Bruchus lentis* Boh.

For brief account see Chittenden, Yearbook, U. S. Dept. Agric. f. 1898, p. 248, 1899.

Exhibit: Adult.

EUROPEAN BEAN-WEEVIL.

*Bruchus rufimanus* Boh.


Exhibit: Adult.

THE MEXICAN BEAN-WEEVIL.

*Spermophagus pectoralis* Shp.

For brief account see Chittenden, Yearbook, U. S. Dept. Agric. f. 1898, p. 248, 1899.

Exhibit: Adult and figure.

THE GRAY HAIR-STREAK.

*Uranotes melinus* Hbn.

(Works in pods of peas and beans, and in silk corn. Formerly *Thecla.*)


Exhibit: Larva, pupa, adult, and figure.

BOLLWORM; CORN-EAR WORM.

*Heliothis obsoleta* Fab.

(See special case for full life history with illustrations.)


Exhibit: Larva, adult, work, and figure.

THE IMPORTED PEA-MOTH.

*Semasia nigricana* Steph.


Exhibit: Adult and figure.

INSECTS INJURIOUS TO CRUCIFERS.

IMPORTED CABBAGE-WORM.

*Pontia rapae* Sch.

(Formerly *Pieris.*)


Exhibit: Larva, chrysalis, and adult.
THE LARGE CABBAGE BUTTERFLY.

*Pontia monuste* Linn.


THE POT-HERB BUTTERFLY.

*Pontia oleracea* Boisd.


THE SOUTHERN CABBAGE WORM.

*Pontia protodice* Boisd.


GARDEN WEBWORM.

*Loxostege similalis* Guen.


GRANULATED CUTWORM.

*Feltia annexa* Tr.


THE STRIPED CUTWORM.

*Feltia subgothica* Haw.


SHAGREENED CUTWORM.

*Feltia malefida* Guen.


THE VARIEGATED CUTWORM.

*Peridroma saucia* Hbn.

For general bibliography and life history see Chittenden, Bul. 29, n. s., Div. Ent., U. S. Dept. Agric., pp., 46-64, 1902. Exhibit: Larva, adult, and figure.

THE BLACK CUTWORM.

*Agritis ypsilon* Rott.


THE SPECKLED CUTWORM.

*Mamestra subjuncta* G. & R.

THE GLASSY CUTWORM.
Hadena devastatrix Brace.
Exhibit: Adult.

THE W-MARKED CUTWORM.
Noctua clandestina Harr.
Exhibit: Larva and adult.

FALL ARMY WORM.
Laphygma frugiperda S. & A.
Exhibit: Larva, pupa, cocoon, adult, and figure.

THE CROSS-STRIPED CABBAGE WORM.
Evergestis rimosalis Guen.
(Formerly Pionea.)
Exhibit: Larva, pupa, cocoon, adult, and figure.

THE SALT-MARSH CATERPILLAR.
Estigmene acrea Dru.
(Formerly Leucarctia.)
Exhibit: Larva, cocoon, and adult.

THE CABBAGE LOOPER.
Autographa brassicae Riley.
(Formerly Plusia.)
Exhibit: Larva, cocoon, pupa, and adult.

THE DIAMOND-BACK MOTH.
Plutella maculipennis Curtis.
(Formerly P. cruciferarum.)
For general account see Lugger, 1st Rpt. St. Ent. Minn., p. 79, Pl. VI, 1896.
Exhibit: Larva, cocoon, adult, and work.

HARLEQUIN CABBAGE BUG.
Marganta histrionica Hahn.
(Feeds on cruciferous plants of all kinds.)
Exhibit: Eggs, nymph, and adult.

THE TARNISHED PLANT-BUG.
Lygus pratensis Linn.
Exhibit: Adult.

THE EGG-PLANT FLEA-BEETLE.
Epitrix fuscula Cr.
Exhibit: Adult and figure.
THE RED TURNIP BEETLE.

*Entomoscelis adonidis* Pallas.


**EXHIBIT:** Figure.

WESTERN CABBAGE FLEA-BEETLE.

*Phyllotreta albionica* Lec.

**EXHIBIT:** Adult.

HORSE-RADISH FLEA-BEETLE.

*Phyllotreta armoracix* Koch.


**EXHIBIT:** Adult.

THE WESTERN FLEA-BEETLE.

*Phyllotreta pusilla* Horn.

For general account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 18-19, 1903.

**EXHIBIT:** Adult and figure.

THE STRIPED FLEA-BEETLE.

*Phyllotreta vittata* Fab.


**EXHIBIT:** Adult.

WAVY-STRIPED FLEA-BEETLE.

*Phyllotreta sinuata* Steph.

(Formerly *P. zimmermani.*)


**EXHIBIT:** Adult.

THE CAULIFLOWER PYRALID.

*Pachyzancla bipunctalis* Fab.

(Formerly *Botis repetitalis.*)


**EXHIBIT:** Pupa and adult.

THE ZEBRA CATERPILLAR.

*Mamestra picta* Harr.

For bibliography and general life history see Felt, 14th Rpt. N. Y. St. Ent., pp. 201-207, 1898.

**EXHIBIT:** Larva, pupa, and adult.

THE CABBAGE MAGGOT.

*Pegomya brassicex* Bouché.

(Formerly *Anthomyia.*)


**EXHIBIT:** Adult.

THE CABBAGE APHIS.

*Aphis brassicex* Linn.


**EXHIBIT:** Adult and work.
IMPORTED CABBAGE WEBWORM.

_Hellula undalis_ Fab.


Exhibit: Larva, pupa, adult, and figure.

THE CABBAGE CURCULIO.

_Ceutorhynchus rapae_ Gyll.


Exhibit: Adult and figure.

THE IMPORTED CABBAGE LEAF-MINER.

_Scaptomyza graminum_ Fall.

(Formerly _Oscinis brassicae._)


Exhibit: Adult.

INSECTS INJURIOUS TO POTATO.

THE RINGED MILLIPEDE.

_Cambala annulata_ Say.

Exhibit: Figure.

THE SHORT-WINGED MOLE-CRICKET.

_Scapteriscus abbreviatus_ Scudd.


Exhibit: Adult.

POTATO-TUBER WORM; TOBACCO SPLIT-WORM.

_Phthorimaea operculella_ Zell.

(Formerly _Lita_ and _Gelechia solanella._ Works in stems and tubers.)


Exhibit: Adult and figure.

THE POTATO-STALK WEEVIL.

_Trichobaris trinotata_ Say.


Exhibit: Adult and work.

STALK BORER.

_Papaipema nitela_ Guen.

(Formerly _Gortyna_ and _Hydrococcia._ Bores in stems of various plants.)

For general account see Bird, Can. Ent., Vol. XXX, pp. 127-128, 1898.

Exhibit: Adult.

THE LITTLE GREEN TORTOISE BEETLE.

_Cassida pallidula_ Boh.

(Formerly _C. texana._)


Exhibit: Adult.
THE GOLDEN TORTOISE BEETLE.
_Coptocycla bicolor_ Fab.
(Formerly _C. aurichalcea_.)
For general account see Sanderson, Bul. 59, Md. Agr. Expt. Sta., pp. 139-140, 1899.
Exhibit: Adult.

COLORADO POTATO BEETLE.
_Leptinotarsa decemlineata_ Say.
(Formerly _Doryphora_.)

BOGUS POTATO BEETLE.
_Leptinotarsa juncta_ Germ.
(This species exhibited merely on account of similarity to preceding species. It feeds on wild _Solanum_ [Solatium spp.].)
Exhibit: Adult.

THREE-LINED POTATO BEETLE.
_Lema trilineata_ Ol.
Exhibit: Adult and figure.

THE WHITE BLISTER BEETLE.
_Macrobasis albida_ Say.
Exhibit: Adult.

THE ASH-GRAY BLISTER BEETLE.
_Macrobasis unicolor_ Kby.
For general account see Chittenden, Yearbook, U. S. Dept. Agric. f. 1898, pp. 249-250, 1899.
Exhibit: Adult.

THE STRIPED BLISTER BEETLE.
_Epicauta vittata_ Fab.
Exhibit: Adult.

BLACK BLISTER BEETLE.
_Epicauta pennsylvanica_ DeG.
For brief account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric. p. 25, 1903.
Exhibit: Adult.

THE CROW BLISTER BEETLE.
_Epicauta corvina_ Lee.
Exhibit: Adult.

THE GRAY BLISTER BEETLE.
_Epicauta cinerea_ Först.
Exhibit: Adult.
THE SPOTTED BLISTER BEETLE.

*Epicauta maculata* Say.


**EXHIBIT:** Adult and figure.

THE EGG-PLANT FLEA-BEETLE.

*Epitrix fuscula* Cr.


**EXHIBIT:** Adult.

INSECTS INJURIOUS TO SWEET POTATOES.

For general bulletin see Sanderson, Sweet Potato Insects, Bul. 59, Md. Agric. Expt. Sta., 1900.

SWEET-POTATO ROOT-BORER.

*Cylas formicarius* Fab.

**EXHIBIT:** Adult and work.

SWEET-POTATO HAWK-MOTH.

*Phlegethontius convolvuli* Linn.

**EXHIBIT:** Adult.

THE SWEET-POTATO PLUME-MOTH.

*Pterophorus monodactylus* Linn.

**EXHIBIT:** Adult.

LARGER SWEET-POTATO SAWFLY.

*Schizocerus privatus* Nort.

For general account see Marlatt, Insect Life, Vol. V, pp. 24–27, fig. 6, 1892.

**EXHIBIT:** Adult and figure.

SWEET-POTATO FLEA-BEETLE.

*Chsetocnema confinis* Cr.

**EXHIBIT:** Adult.

THE CUCUMBER FLEA-BEETLE.

*Epitrix cucumeris* Harr.


**EXHIBIT:** Adult.

THE MOTTLED TORTOISE BEETLE.

*Coptocyda signifera* Hbst.

(Formerly *C. guttata*.)

**EXHIBIT:** Adult.

BLACK-LEGGED TORTOISE BEETLE.

*Cassida nigripes* Ol.

**EXHIBIT:** Adult and work.

TWO-STRIPED TORTOISE BEETLE.

*Cassida bivittata* Say

**EXHIBIT:** Adult.
THE GREEN TORTOISE BEETLE.

*Physonota unipunctata* Say.


Exhibit: Adult.

THE ARGUS TORTOISE BEETLE.

*Chelymorpha argus* Licht.

(Also called *C. cassidea*.)

Exhibit: Adult.

INSECTS INJURIOUS TO TOMATO.

NORTHERN TOBACCO WORM; TOMATO WORM.

*Phlegethontius quinquemaculata* Haw.

(Formerly *Protoparce celeus*.)

For general account see Howard, Farmers’ Bul. 120, U. S. Dept. Agric., pp. 10–14, 1900.

Exhibit: Larva and adult.

SOUTHERN TOBACCO WORM; HORNBLOWER.

*Phlegethontius sexta* Joh.

(Formerly *Protoparce carolina*.)


Exhibit: Larva and adult.

THE STALK BORER.

*Papaipema nitela* Guen.


Exhibit: Pupa and adult.

THE COMMELINA OWLET-MOTH.

*Prodenia commelinse* S. & A.

For life history and general account see Chittenden, Bull. 27, n. s., Div. Ent., U. S. Dept. Agric., pp. 59–64, Pl. IV, fig. 1, 1901.

Exhibit: Larva and adult.

CORN-EAR WORM; COTTON BOLLWORM.

*Heliothis obsoleta* Fab.

(Feeds also on tobacco and tomato; formerly *H. armiger* Hbn.)

For life history and general account see Quaintance and Brues, Bul. 50, Bur. Ent., U. S. Dept. Agric., 1905; also Quaintance and Bischoff, Farmers’ Bul. 212, 1905.

Exhibit: Larva and adult.

INSECTS INJURIOUS TO ASPARAGUS.

For general article on asparagus insects see Chittenden, Bul. 10, n. s., pp. 54–62, 1898.

THE ASPARAGUS MINER.

*Agromyza simplex* Loew.


Exhibit: Adult.

LOPIIDEA MEDIA Say.

Exhibit: Adult.
THE LESSER LOCUST.
*Melanoplus atlantis* Riley.


Exhibit: Adult.

THE TWO-STRIPED LOCUST.
*Melanoplus bivittatus* Say.


Exhibit: Adult and figure.

RED-LEGGED LOCUST.
*Melanoplus femur-rubrum* DeG.


Exhibit: Adult.

MELANOPUS PROPINQUUS Scudd.

For original description see Scudder, Proc. U. S. N. M., Vol. XX, pp. 285–286, pl. 18, fig. 9, 1897.

Exhibit: Adult.

TWELVE-SPOTTED ASPARAGUS BEETLE.
*Crioceris duodecimpunctata* Linn.

For detailed account see Chittenden, Yearbook, U. S. Dept. Agric., 1896, pp. 349–352, 1897.

Exhibit: Adult, figure, and adult of enemy, *Podisus spinosus* Dall.

THE ASPARAGUS BEETLE.
*Crioceris asparagi* Linn.


Exhibit: Larva, adult, figure, and enemy *Stiretrus anchorago* Fab.

THE TWELVE-SPOTTED CUCUMBER BEETLE.
*Diabrotica duodecimpunctata* Oi.


Exhibit: Adult and figure.

FALSE BUD-WORM; COTTON BOLLWORM.
*Heliothis obsoleta* Fab.

(Formerly *H. armiger* Hbn. For full life-history exhibit see under cotton and corn.)


Exhibit: Adult.

ZEBRA CATERPILLAR.
*Mamestra picta* Harr.


Exhibit: Larva, adult, and figure.
THE PRETTY CUTWORM.
Mamestra legitima Grt.
For brief account see Howard, Farmers’ Bul. 120, U. S. Dept. Agric., pp. 24-25, fig. 20, 1900.
Exhibit: Larva, adult, and figure.

CRANBERRY SPANWORM.
Cleora pampinaria Guen.
For general account see Smith, Farmers’ Bul. 178, pp. 19-21, 1903.
Exhibit: Larva, pupa, and adult.

THE RED-BANDED LEAF-ROLLER.
Eulia triferana Walk.
(Formerly Lophoderus.)
Exhibit: Larva, pupa, and adult.

THE SULPHUR-COLORED TORTRIX.
Epagoge sulfur eana Clem.
(Formerly Dichelia.)
Exhibit: Pupa and adult.

INSECTS INJURIOUS TO CUCURBITS.

SQUASH-VINE BORER.
Melittia satyriniformis Hbn.
(Formerly Ageria cucurbitae and M. ceto.)
Exhibit: Larva, pupa, cocoon, adult, and figure.

PICKLE WORM.
Diaphania nitidalis Cram.
(Formerly Eucliptis and Margaronia.)
Exhibit: Pupa, cocoon, adult, and figure.

MELON CATERPILLAR.
Diaphania hyalinata Linn.
(Formerly Eucliptis and Margaronia.)
Exhibit: Larva, pupa, adult, and figure.

NORTHERN LEAF-FOOTED PLANT-BUG.
Leptoglossus oppositus Say.
Exhibit: Nymph, adult, and figure.

STRIPED CUCUMBER BEETLE.
Diabrotica vittata Fab.
Exhibit: Adult, work, and figure.
TWELVE-SPOTTED CUCUMBER BEETLE.
*Diabrotica duodecimpunctata* Ol.


**Exhibit:** Adult.

THE CUCUMBER FLEA-BEETLE.
*Epitrix cucumeris* Harr.


**Exhibit:** Adult and figure.

THE PUNCTURED FLEA-BEETLE.
*Psylliodes punctulata* Mels.

For brief account see Forbes and Hart, 21st Rpt. St. Ent. Ill., p. 124, 1900.

**Exhibit:** Adult.

THE HORNED SQUASH-BUG.
*Anasa armiger* Say.


**Exhibit:** Eggs, nymph, adult, and figure.

THE COMMON SQUASH-BUG.
*Anasa tristis* DeG.


**Exhibit:** Eggs, nymph, adult, and figure.

THE SQUASH LADYBIRD.
*Epilachna borealis* Fab.


**Exhibit:** Larva, pupa, adult, and work.

INSECTS INJURIOUS TO STORED PRODUCTS.

THE WOLF MOTH.
*Tinea granella* Linn.

For general account see Chittenden, Bul. 8, n. s., Div. Ent., U. S. Dept. Agric., pp. 31-34, 1897.

**Exhibit:** Pupa and adult.

MEDITERRANEAN FLOUR-MOTH.
*Ephesia kuehniella* Zell.

For general account see Chittenden, Farmers’ Bul. 45, U. S. Dept. Agric., pp. 8-9, 1897.

**Exhibit:** Larva, pupa, cocoon, adult, and figure.

DRIED-CURRANT MOTH.
*Ephesia cautella* Wlk.

For short account (under *E. cahiritella*) see Chittenden, Bul. 8, n. s., Div. Ent., U. S. Dept. Agric., pp. 7-9, 1897.

**Exhibit:** Larva, adult, and figure.
THE MEAL SNOUT-MOTH.

*Pyralis farinalis* Linn.

(Formerly *Asopia.*) For short account see Chittenden, Farmers' Bul. 45, U. S. Dept. Agric., pp. 10-11, 1897. 

**Exhibit:** Larva, pupa, cocoon, and adult.

THE INDIAN-MEAL MOTH.

*Plodia interpunctella* Hbn.

(Formerly *Ephestia.*) For general account see Chittenden, Farmers' Bul. 45, U. S. Dept. Agric., pp. 9-10, 1897. 

**Exhibit:** Larva, pupa, adult, work, and figure.

ANGOUMOIS GRAIN MOTH.

*Sitotroga cerealella* O. (Formerly *Gelechia.*) For general account see Chittenden, Farmers' Bul. 45, U. S. Dept. Agric., pp. 6-7, 1897. 

**Exhibit:** Cocoon, adult, work, and figure.

THE FOREIGN GRAIN-BEETLE.

*Cathartus advena* Waltl.


**Exhibit:** Adult, work, and figure.

RED OR SQUARE-NECKED GRAIN-BEETLE.

*Cathartus gemellatus* Duv.

For short account see Chittenden, Farmers' Bul. 45, U. S. Dept. Agric., p. 17, 1897. 

**Exhibit:** Adult and figure.

THE SAW-TOOTHED GRAIN-BEETLE.

*Silvanus surinamensis* Linn.

For short account see Chittenden, Farmers' Bul. 45, U. S. Dept. Agric., pp. 16-17, 1897. 

**Exhibit:** Adult and figure.

THE MERCHANT GRAIN-BEETLE.

*Silvanus mercator* Fauv.

For short account see Chittenden, Bul. 8, n. s., Div. Ent., U. S. Dept. Agric., p. 12, 1897. 

**Exhibit:** Adult.

PHARAXONOTHA KIRSCHII Reitt.


**Exhibit:** Adult.

THE FLAT GRAIN-BEETLE.

*Laelomphleus pusillus* Sch.


**Exhibit:** Adult.

TYPHCEA FUMATA* Linn.

**Exhibit:** Adult and work.

THE BLACK CARPET BEETLE.

*Altigenerus piceus* Ol.


**Exhibit:** Adult.
TROGODERMA TARSAL E Mels.
Exhibit: Adult.

THE CABINET BEETLE.
Anihrenus verbasci Linn.
(Formerly A. varius.)
Exhibit: Adult and work.

THE MEAL SAP-BEETLE.
Carpophilus dimidiatus Fab.
Exhibit: Adult.

THE CORN SAP-BEETLE.
Carpophilus pallipennis Say.
Exhibit: Adult.

THE CADELLE.
Tenebroides mauritanicus Linn.
(Formerly Trogosita.)
For general account see Chittenden, Farmers' Bul. 45, U. S. Dept. Agric., pp. 18-19, 1897.
Exhibit: Larva, adult, work, and figure.

THE DARK MEAL-WORM.
Tenebrio obscurus Fab.
Exhibit: Larva, pupa, adult, and figure.

THE YELLOW MEAL-WORM.
Tenebrio molitor Linn.
Exhibit: Larva, pupa, adult, and figure.

THE WHITE-MARKED SPIDER BEETLE.
Ptilus fur Linn.
Exhibit: Adult.

THE BROWN SPIDER BEETLE.
Ptilus brunneus Dufts.
Exhibit: Adult.

THE DRUG-STORE BEETLE.
Sitodrepa panicea Linn.
(Listed as Anobium in foreign catalogues.)
Exhibit: Adult, work, and figure.
THE CIGARETTE BEETLE.

*Lasioderma testaceum* Dufts.

(Formerly *L. serricorne*.)


Exhibit: Adult and figure.

THE LARGER GRAIN-BORER.

*Dinoderus truncatus* Horn.


Exhibit: Adult.

THE RUST-RED FLOUR-BEETLE.

*Tribolium ferrugineum* Fab.


Exhibit: Adult.

THE CONFUSED FLOUR-BEETLE.

*Tribolium confusum* Duv.


Exhibit: Adult and figure.

THE SLENDER-HORNED FLOUR-BEETLE.

*Echocerus maxillosus* Fab.


Exhibit: Adult and figure.

THE BROAD-HORNED FLOUR-BEETLE.

*Echocerus cornutus* Fab.


Exhibit: Adult and figure.

THE SMALL-EYED FLOUR-BEETLE.

*Palorus ratzeburgi* Wissm.


Exhibit: Adult and figure.

THE DEPRESSED FLOUR-BEETLE.

*Palorus subdepressus* Woll.

Exhibit: Adult.

ALPHITOBIUS PICEUS OL.

Exhibit: Adult.

BROAD-NOSED GRAIN WEEVIL.

*Caulophilus latinasus* Say.


Exhibit: Adult.

THE GRANARY WEEVIL.

*Calandra granaria* Linn.


Exhibit: Adult, work, and figure.
BRACHYTARSUS ALTERNATUS Say.

For life history, notes, and general accounts, see Quaintance, Ent. News, pp. 1–3, plate, 1897.
Exhibit: Adult and figure.

HOUSEHOLD INSECTS.


THE HOUSE CENTIPEDE.

Scutigera forceps Raf.

(While this animal is not an insect, but belongs to the class Myriapoda, it is so regularly associated with the insects that it may appropriately be presented with them. It feeds on flies, moths, roaches, etc.)
For general article see Marlatt, Cir. 48, Div. Ent., U. S. Dept. Agric., 1902.
Exhibit: Figure.

THE SILVER FISH.

Lepisma domestica Pack.

For general article see Marlatt, Cir. 49, Div. Ent., U. S. Dept. Agric., 1902.
Exhibit: Figure.

THE BOOK-LOUSE.

Troctes divinatoria Müller.

(Formerly Psocus and Atropos.)
Exhibit: Figure.

THE WHITE ANT.

Leucotermes flavipes Koll.

(Formerly Termes.)
For general account see Marlatt, Cir. 50, Div. Ent., U. S. Dept. Agric., 1902.
Exhibit: Adult and figure.

THE AMERICAN COCKROACH.

Periplaneta americana Linn.

For general article see Marlatt, Cir. 51, Div. Ent., U. S. Dept. Agric., pp. 1–8, 1902.
Exhibit: Adult and figure.

THE BLACK "BEETLE."

Blatta orientalis Linn.

For general article see Marlatt, Cir. 51, Div. Ent., U. S. Dept. Agric., pp. 9–10, 1902.
Exhibit: Adult and figure.

THE CROTON BUG.

Blattella germanica Linn.

(Formerly Ectobia.)
For general article see Marlatt, Cir. 51, Div. Ent., U. S. Dept. Agric., pp. 10–11, 1902.
Exhibit: Adult.

THE HOUSE CRICKET.

Gryllus domesticus Linn.

Exhibit: Adult.

THE CASE-MAKING CLOTHES MOTH.

Tinea pellionella Linn.

For general article see Marlatt, Cir. 36, Div. Ent., U. S. Dept. Agric., pp. 1–4, 1898.
Exhibit: Adult and figure.
THE CARPET MOTH.
*Trichophaga tapetzella* Linn.
(Formerly *Tinea.*
For general article see Marlatt, Cir. 36, Div. Ent., U. S. Dept. Agric., p. 5, 1898.
Exhibit: Figure.

THE WEBBING CLOTHES MOTH.
*Tinea biselliella* Hum.
(Formerly *Tinea.*
For general article see Marlatt, Cir. 36, Div. Ent., U. S. Dept. Agric., pp. 4-5, 1898.
Exhibit: Adult and figure.

THE RED-LEGGED HAM BEETLE.
*Necrobia rufipes* DeG.
(Formerly *Corynetes.*
Exhibit: Adult and figure.

THE LARDER BEETLE.
*Dermestes lardarius* Linn.
Exhibit: Adult and figure.

THE CARPET BEETLE OR "BUFFALO MOTH."
*Anthrenus scrophulariae* Linn.
For general article see Howard, Cir. 5, Div. Ent., U. S. Dept. Agric., 1894.
Exhibit: Adult and figure.

THE CHEESE OR HAM SKIPPER.
*Piophila casei* Linn.
Exhibit: Adult.

THE FRUIT OR VINEGAR FLY.
*Drosophila amelopilha* Loew.
Exhibit: Adult and figure.

THE LITTLE RED ANT.
*Monomorium pharaonis* Linn.
Exhibit: Adult and figure.

INSECTS WHICH MAY SPREAD DISEASE.

THE YELLOW-FEVER MOSQUITO.
*Stegomyia fasciata* Fab.
(Is the intermediate host for the parasite of yellow fever. Formerly *Culex.*
Exhibit: Adult and figure.

THE MALARIA MOSQUITO.
*Anopheles maculipennis* Meig.
(The most important of the mosquitoes transmitting malaria. Formerly *A. quadrimaculatus.*
Exhibit: Adult and figure.

25916—No. 53—05——5
THE GREEN BOTTLE FLY.

*Lucilia cesar* Linn.

For general article see Howard, Cir. 35, Div. Ent., U. S. Dept. Agric., 1898. Exhibit: Adult and figure.

THE STABLE FLY.

*Stomoxys calcitrans* Linn.


THE HIPPELATES FLY.

*Hippelates flavipes* Loew.

(Facilitates the spread of the disease known as "pink-eye.") Exhibit: Adult and figure.

THE BROWN DUNG FLY.

*Scatophaga furcata* Say.

Exhibit: Adult and figure.

THE SHINING EXCREMENT FLY.

*Morellia micans* Macq.

Exhibit: Adult and figure.

THE LITTLE HOUSE FLY.

*Homatomyia brevis* Rond.

Exhibit: Adult and figure.

THE FRUIT OR VINEGAR FLY.

*Drosophila ampelophila* Loew.

Exhibit: Adult and figure.

THE SCREW-WORM FLY.

*Chrysomyia macellaria* Fab.


THE CATTLE TICK.

*Boophilus annulatus* Say.

(Very common on cattle below the Texas fever line, and known to be responsible for transmission of Texas fever among cattle.) Exhibit: Eggs, adult, and figure.

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INSECTS WHICH DIRECTLY INJURE OR ANNOY HUMAN BEINGS.

THE HOUSE FLY.

*Musca domestica* Linn.

For general article see Howard, Cir. 35, Div. Ent., U. S. Dept. Agric., 1898. Exhibit: Adult and figure.

THE SOUTHERN BUFFALO GNAT.

*Simulium pecuarum* Riley.

THE CAT AND DOG FLEA.
Ctenocephalus canis Curtis.

(Formerly Pulex serraticeps Gerv.)
Exhibit: Figure.

THE BLOOD-SUCKING CONE-NOSE.
Conorhinus sanguisuga Lee.
Exhibit: Egg, nymph, adult, and figure.

THE HOUSE MOSQUITO.
Culex pipiens Linn.
Exhibit: Adult and figure.

THE BEDBUG.
Clinocoris lectularia Linn.
(Formerly Acanthia, Cimex, and Klinophilos.)
For general article see Marlatt, Cir. 47, Div. Ent., U. S. Dept. Agric., 1902.
Exhibit: Nymph, adult, and figure.

THE BLACK "BEETLE."
Blatta orientalis Linn.
For general article see Marlatt, Cir. 51, Div. Ent., U. S. Dept. Agric., pp. 9-10, 1902.
Exhibit: Adult and figure.

THE RED BUG.
Leptus irritans Riley.
Exhibit: Figure.

THE HEAD LOUSE.
Pediculus capitis DeG.
Exhibit: Figure.

THE BODY LOUSE.
Pediculus vestimenti Leach.
Exhibit: Figure.

THE CRAB LOUSE.
Phthirius inguinalis Leach.
Exhibit: Eggs, adult, and figure.
INSECTS INJURIOUS TO DOMESTIC ANIMALS.


THE SOUTHERN BUFFALO Gnat.

Simulium pecuarum Riley.

Exhibit: Adult and figure.

THE TURKEY GNAT.

Simulium meridionale Riley.

Exhibit: Puparium, adult, and figure.

AMERICAN GADFLY.

Tabanus americanus Forst.

Exhibit: Adult.

THE GRAY-STRIPED GREEN-HEAD.

Tabanus lineola Fab.

Exhibit: Adult and figure.

THE BLACK GADFLY.

Tabanus atratus Linn.

Exhibit: Larva, adult, figure, and figure of parasite Phanurus tabanivorus Ashm.

THE GREENHEAD.

Tabanus costalis Wied.

Exhibit: Adult.

TABANUS EXUL O. S.

Exhibit: Adult.

TABANUS PUNCTIFER O. S.

Exhibit: Adult.

TABANUS CINCTUS Fab.

Exhibit: Adult.

MEXICAN GADFLY.

Tabanus mexicanus Linn.

Exhibit: Adult.

THE BLACK-STRIPED GADFLY.

Tabanus nigrovittatus Macq.

Exhibit: Adult.

THE BLACK-STRIPED EAR-FLY.

Chrysops vittatus Wied.

Exhibit: Adult and figure.

CHrysops ATROPOS O. S.

Exhibit: Adult.

CHrysops HILARIS O. S.

Exhibit: Adult.

THE STABLE FLY.

Stomoxys calcitrans Linn.

Exhibit: Adult and figure.


Exhibit: Adult and figure.
THE HORSE BOT-FLY.
Gastrophilus equi Fab.
Exhibit: Eggs, larva, puparia, adult, and figure.

THE "CHIN" FLY.
Gastrophilus nasalis Linn.
Exhibit: Adult.

THE WARBLE FLY.
Hypoderma bovis DeG.

THE OX BOT; OX WARBLE.
Hypoderma lineata Vill.
Exhibit: Larva, adult, and figure.

THE SHEEP BOT FLY; HEAD MAGGOT.
Estrus ovis Linn.
Exhibit: Larva, puparia, adult, and figure.

THE HORN FLY.
Hematobia serrata R. D.
For special article see Riley and Howard, Insect Life, Vol. II, pp. 93-103.
Exhibit: Puparium, adult, and figure.

THE SHEEP TICK.
Melophagus ovinus Linn.
Exhibit: Adult and figure.

THE SCREW-WORM FLY.
Chrysomyia macellaria Fab.
(Formerly Compsomyia.)
Exhibit: Adult and figure.

THE CAT AND DOG FLEA.
Ctenocephalus canis Curtis.
(Formerly Pulex serraticeps Gerv.)
Exhibit: Figure.

THE SUCKING HORSE-LOUSE.
Hematopinus asini Linn.
Exhibit: Figure.

THE SHORT-NOSED OX-LOUSE.
Hematopinus eurysternus Nitsch.
Exhibit: Figure.

THE LONG-NOSED OX-LOUSE.
Hematopinus vituli Linn.
Exhibit: Adult and figure.

THE CATTLE LOUSE.
Trichodectes scalaris Nitsch.
Exhibit: Adult and figure.

THE SHEEP LOUSE.
Trichodectes spheroccephalus Nitsch.
Exhibit: Adult and figure.
FOREST INSECTS.


INSECTS INJURIOUS TO FORESTS IN THE NORTHWESTERN AND NORTHEASTERN UNITED STATES.

NORTHWESTERN STATES.

INJURY BY AMBROSIA BEETLES. ORDER COLEOPTERA, FAMILY SCOLYTIDÆ.

CASE 1.

1. The Western Platypus.

Platypus n. sp.

Excavates long, branching galleries in the sapwood and heartwood of injured, dying, and recently felled Douglas spruce, western hemlock, and giant arborvitae. California to northern Oregon; also reported from Washington.

Exhibit: Adult and work.

2. Western Hemlock Wood-Stainer.

Gnathotrichus sulcatus Lec.

Excavates numerous branching galleries from a central burrow, the broods living in closely joined side chambers; in the sapwood and heartwood of western hemlock, Douglas spruce, giant arborvitae, and lowland fir. California to northern Washington; common in hemlock.

Exhibit: Adult and work.

3. The Western Pine Wood-Stainer.

Gnathotrichus n. sp.

Excavates transverse galleries in the surface of the wood and branching ones deep in the sapwood and heartwood, the broods living in short side chambers; western yellow pine and Douglas spruce. Cascade and Rocky Mountain region, California to northeastern Washington.

Exhibit: Adult and work.

4. The Eastern Pine Wood-Stainer.

Gnathotrichus materiarius Fitch.

Excavates several branching galleries from a single-entrance burrow, the broods living in short side chambers in sapwood and heartwood of injured, dying, and recently felled pine and spruce. Eastern United States and Canada. Very common and injurious.

Exhibit: Adult and work.
5. The Spruce Timber-Beetle.

Trypodendron bivittatus Kirby.

Excavates several branching galleries from a single entrance burrow, the brood developing in short side chambers in the sapwood of injured, drying, and recently felled spruce, pine, hemlock, cedar, fir, and larch. Eastern, northeastern, and western United States, Canada, and British Columbia to Alaska; very injurious.

Exhibit: Adult and work.

6. The Birch Timber-Beetle.

Trypodendron n. sp.

Excavates branching galleries from an entrance burrow and the broods develop in short side chambers in sapwood and heartwood of paper birch. Kootenai, Idaho, and northwestern Maine; also other birches in Maine.

Exhibit: Adult and work.


Xyleborus saxeseni Ratz.

Excavates branching galleries and broad brood chambers from an entrance burrow in sapwood and heartwood of Douglas spruce in Oregon, red oak in Maine, apple and hemlock in West Virginia, and oak, beech, maple, lime tree, poplar, pine, spruce, and fruit trees in Europe. Widely distributed in different countries of the world, especially in Europe, North America, and Japan.

Exhibit: Adult and work.

INJURY BY BARK-BEETLES. ORDER COLEOPTERA, FAMILY SCOLYTIDÆ.

CASE 2.

8. The Hairy Cryphalus.

Cryphalus n. sp.

Excavates broad, irregular chambers in dying and dead bark of lowland fir. Port Williams, Wash.

Exhibit: Adult and work.

9. The Western Oak Bark-Beetle.

Pityophthorus pubipennis Lec.

Excavates two transverse galleries from a central entrance burrow in the bark of injured, drying, and recently felled California black oak, Pacific post oak, and possibly other oaks. California to Oregon.

Exhibit: Adult and work.

10. The Densely-punctured Bark-Beetle.

Pityophthorus confinis Lec.

Excavates a large central chamber and several radiating primary galleries, with very deep egg cavities, in living bark of injured, drying, and recently felled western yellow pine. Northern California, eastern Washington, and western Idaho.

Exhibit: Adult and work.

11. The Lodgepole Pine Bark-Beetle.

Pityophthorus n. sp.


Exhibit: Adult and work.

12. The Knobcone Pine Bark-Beetle.

Pityophthorus n. sp.

Excavates several radiating galleries from a large central chamber in living bark on branches of injured and drying knobcone pine and western yellow pine. Berkeley, Cal., and Albany, Oreg.

Exhibit: Work.

_Pityophorus puncticollis_ Lec.

Excavates small, radiating, curved galleries from a large central chamber in twigs and branches of dying and felled Monterey pine, shore pine, western yellow pine, knobcone pine, Sitka spruce, and mountain or silver pine. Middle California to northern Washington.

Exhibit: Adult and work.


_Pityophorus nitidulus_ Mann.


Exhibit: Adult and work.

15. The Jeffrey Pine Twig-Beetle.

_Pityophthorus_ n. sp.

Excavates small central chambers and long longitudinal galleries in living bark of twigs and branches on living, injured, dying, and recently felled Jeffrey pine and western yellow pine. Mount Shasta, California, to Albany, Oreg., and Moscow Mountains, Idaho.

Exhibit: Adult and work.

16. The Smaller Fir Bark-Beetle.

_Pityophthorus_ n. sp.

Excavates transverse galleries from a central chamber in the bark of dying lowland fir and mountain or silver pine. Kootenai, Idaho.

Exhibit: Adult and work.

CASE 3.

17. The Mountain Pine Wood-Engraver.

_Pityogenes_ n. sp.

Excavates large central chambers and numerous curved primary galleries in the bark and surface of wood of injured, dying, and recently felled mountain or silver pine and lowland fir. Kootenai, Idaho.

Exhibit: Adult and work.

18. The Yellow Pine Wood-Engraver

_Pityogenes carinulatus_ Lec.

Excavates numerous radiating galleries from a large central chamber in living bark and surface of wood of injured, dying, and recently felled western yellow pine and Jeffrey pine. California to eastern Washington, western Idaho, and Colorado.

Exhibit: Adult and work.

19. The Western Fir Bark-Beetle.

_Tomicus_ n. sp.

Excavates several radiating, curved, transverse galleries from a small central chamber in the bark and surface of wood of injured, declining, or dying lowland fir, and white fir. Mount Shasta, California, and Moscow Mountains, Idaho. Common.

Exhibit: Adult and work.

20. The Smaller Sugar Pine Tomicus.

_Tomicus latidens_ Lee.

Excavates two or three longitudinal galleries from a small central chamber in living bark of branches of dying and recently felled sugar pine. Grants Pass, Oregon; also California to Colorado.

Exhibit: Adult and work.
21. The Sitka Spruce Tomicus.  
*Tomicus concinns* Mann.

Excavates irregular central chambers, and three or four short curved galleries, in partly living bark of injured, dying, and recently felled Monterey pine, shore pine, and Sitka spruce. Coast region, middle California to Alaska.  
**EXHIBIT:** Adult and work.

22. The Oregon Tomicus.  
*Tomicus oregoni* Eichh.

Excavates two or three longitudinal galleries from a small central chamber in the bark of living, injured, dying, and recently felled western yellow pine, lodgepole pine, silver pine, and probably other pines in the Northwest. Destructive to the western yellow pine in western Idaho.  
**EXHIBIT:** Adult and work.

23. The Western Five-Spined Tomicus.  
*Tomicus confusus* Lee.

Excavates one to three long longitudinal galleries from a medium-sized central chamber in the living bark of injured, dying, and recently felled western yellow pine. Mount Shasta, California, and Grants Pass, Oregon; also recorded from southern California and Arizona.  
**EXHIBIT:** Adult and work.  

**CASE 4.**

24. The Silver Pine Tomicus.  
*Tomicus* n. sp.

Excavates very long, straight, longitudinal, and transverse curved galleries from a large central chamber in the bark of living, injured, dying, and recently felled mountain or silver pine and sugar pine. Grants Pass, Oregon, and Kootenai, Idaho. Common and evidently a destructive species.  
**EXHIBIT:** Adult and work.

25. The Four-Spined Tomicus.  
*Tomicus integer* Eichh.

Excavates several longitudinal primary galleries from a large central chamber in living bark of western yellow pine and lodgepole pine. Eastern Washington; also recorded from California, Washington, and Colorado.  
**EXHIBIT:** Adult and work.  

**CASE 5.**

*Carphoborus* n. sp.

Excavates several long, curved, longitudinal galleries in the surface of the wood from a deep central chamber in injured or dying sugar pine, western yellow pine, Douglas spruce, and Sitka spruce. Grants Pass, St. Helen, and Ahlers, Oregon; also middle California.  
**EXHIBIT:** Adult and work.

27. The Western Cedar Bark-Beetle.  
*Phleosinus punctatus* Lee.

Excavates a single straight longitudinal or curved subtransverse gallery from a basal chamber in the living bark and surface of wood of injured, dying, and recently felled giant arborvitae, incense cedar, and Port Orford cedar. California to northern and eastern Washington and Rocky Mountain region. Common.  
**EXHIBIT:** Adult and work.

28. The Sitka Spruce Dolurgus.  
*Dolurgus pacificus* Mann.

Excavates irregular, confused galleries in dying and dead bark of dead and felled Sitka spruce. Southern and central Oregon.  
**EXHIBIT:** Adult and work.
CASE 6.

29. The Redwood Bark-Beetle.

*Philacosinus sequoix* Hopk.

Excavates a long, straight, longitudinal gallery from a basal chamber in living bark of injured, declining, and recently felled redwood and giant arborvitae. California to northern Washington. Very common in redwood. 

**EXHIBIT:** Adult and work.

CASE 7.

30. The Western Pine-Destroyer.

*Dendroctonus brevicomis* Lec.

Excavates long, winding galleries through the bark of living and injured western yellow pine and sugar pine. Cascade and Rocky Mountain region, New Mexico to British Columbia. Closely allied with the destructive pine bark-beetle of the East and capable of great destruction of the largest and best timber.

**EXHIBIT:** Adult and work.

CASE 8.

31. The Dark-Red Turpentine-Beetle.

*Dendroctonus valens* Lec.

The largest North American bark-beetle. Excavates very broad and long primary galleries, the broods developing in broad side chambers in the bark of living, injured, dying, and recently felled western yellow pine, lodgepole pine, and doubtless most of the other western pines. California to British Columbia and eastward to Kansas and northern Michigan. A variety extends into the eastern United States. Common and injurious, but not necessarily destructive to living timber.

**EXHIBIT:** Adult and work.

32. The Mountain Pine Dendroctonus.

*Dendroctonus* n. sp.

A medium-sized black bark-beetle, excavating very long, winding galleries in the bark of living, injured or declining, and recently felled mountain or silver pine and sugar pine. Northern California to Washington eastward to Idaho and Montana. Very common and capable of great destruction of the best timber.

**EXHIBIT:** Adult and work.

CASES 9 AND 10.

33. The Douglas Spruce Dendroctonus.

*Dendroctonus* n. sp.

(*Dendroctonus similis* in Bul. 21, n. s., Division of Entomology.)

A large, reddish bark-beetle, excavating long longitudinal, slightly curved primary galleries in the bark of living, injured, and recently felled Douglas spruce and western larch. New Mexico to British Columbia, Pacific coast and eastward through the mountain regions. Very common and capable of destroying much valuable timber.

**EXHIBIT:** Adult and work.

CASE 10.

34. The Western Pine Hylurgops.

*Hylurgops subcostulatus* Mann.


**EXHIBIT:** Adult and work.

35. The Sitka Spruce Hylurgops.

*Hylurgops rugipennis* Mann.

Excavates a short, curved, longitudinal and subtransverse gallery from an entrance in the living bark of injured, dying, and recently felled Sitka spruce and shore pine. Coast region, California to Washington and Alaska.

**EXHIBIT:** Adult and work.
CASE 11.

36. The Fir Wood-Engraver.

_Hylesinus_ n. sp.

Excavates a small central chamber at one side of the junction of two short transverse, slightly curved egg galleries, which are deeply grooved in the surface of the wood; the larvae also groove or engrave the surface of the wood in an ornamental manner. Infests the lowland fir and Douglas spruce. Port Williams and Port Angeles, Wash. Common.

EXHIBIT: Adult and work.

37. The Larger Fir-Tree Bark-Beetle.

_Hylesinus granulatus_ Loc.

Excavates one or two transverse galleries from a central burrow in the bark and surface of wood near the base of dying lowland fir. Port Williams, Wash.; also recorded from California.

EXHIBIT: Adult and work.

38. The Grand Fir Bark-Beetle.

_Hylesinus_ n. sp.

Excavates two separate, transverse galleries from a central entrance burrow in the bark and surface of wood of recently felled lowland, or grand, fir. Port Angeles and Port Williams, Wash.

EXHIBIT: Work.


_Hylesinus sericeus_ Mann.

Excavates one short, longitudinal gallery from the entrance burrow and small side cavity in living bark of injured, dying, and recently felled shore pine. Newport and Seaside, Oreg. Common. Also recorded from California and Alaska.

EXHIBIT: Adult and work.

40. The Ash-Tree Bark-Beetle.

_Hylesinus aculeatus_ Say.

Excavates two long, transverse galleries, from a central entrance burrow and side cavity in the living bark of injured, dying, and recently felled ash. Atlantic to Pacific coast. Common. Specimens from Oregon ash, St. Helen, Oreg.

EXHIBIT: Adult and work.

41. The White-Alder Bark-Beetle.

_Hylesinus aspericollis_ Lec.

Excavates a moderately long, longitudinal gallery from a basal entrance burrow in the bark of living, injured, dying, and recently felled white alder. Newport, Detroit, and Astoria, Oreg., and Seattle, Wash.; also recorded from California. A destructive enemy, causing the death of large trees.

EXHIBIT: Adult and work.

42. The Western Hemlock Bark-Beetle.

_Hylesinus_ n. sp.

Excavates one or two transverse galleries from a central burrow in bark and surface of wood of living, injured, and recently felled western hemlock, causing "gum spot" defects in the wood of living trees, and may cause the death of the best timber. Newport, Oreg., and Port Angeles, Wash.

EXHIBIT: Adult and work.

CASE 12.

43. The Douglas Spruce Hylesinus.

_Hylesinus nebulosus_ Lec.

Excavates two short, straight, longitudinal galleries from a central entrance burrow in the living bark of injured, dying, and recently felled Douglas spruce. California to British Columbia, and eastward to Idaho and Colorado. Very common.

EXHIBIT: Adult and work.
44. The Single Spine Scolytus.

*Scolytus unispinosus* Lec.

Excavates two short, straight, longitudinal galleries from an entrance burrow in living bark of injured, dying, and recently felled Douglas spruce and western larch. Pacific coast, Cascade and Rocky Mountain region. Common.

**Exhibit:** Adult and work.

45. The Fir-Branch Scolytus.

*Scolytus* n. sp.

Excavates two short, longitudinal galleries from a central burrow and side cavity in living bark of the branches of recently felled lowland fir. Cascade Mountains near Grants Pass, Oregon.

**Exhibit:** Work.

46. The Smaller Fir-Tree Scolytus.

*Scolytus* n. sp.

Excavates two transverse or oblique, slightly curved galleries from a central entrance burrow and side cavity in the bark and surface of wood of injured and dying lowland fir. Kootenai, Idaho.

**Exhibit:** Adult and work.

**CASE 13.**

47. The California White Fir Scolytus.

*Scolytus preceps* Lec.

Excavates two nearly straight, transverse galleries from a central entrance burrow and basal cavity in living bark and surface of wood of California white fir. Mount Shasta, California, and lowland fir, Sand Point, Idaho. Closely allied in character and habits to No. 48.

**Exhibit:** Adult and work.

48. The Fir Tree Destroyer.

*Scolytus subscaber* Lec.

Excavates two long, nearly straight, transverse galleries from a central entrance burrow and central or side cavity in bark of living, injured, and declining lowland fir, white fir, and doubtless other species of fir. California to British Columbia, eastern Washington, and western and northern Idaho. The healed-over wounds in living trees cause serious defects and rapid decay of the heartwood.

**Exhibit:** Adult and work.

**BARK AND WOOD-BORING GRUBS. ORDER COLEOPTERA, FAMILIES BUPRESTIDÆ AND CERAMBYCIDÆ.**

**CASE 14 AND PART OF CASE 15.**

49. The Douglas Spruce Bark-Borer.

*Asemum nitidum* Lec.

A round-headed bark-boring grub, boring transverse and winding galleries in the bark of living, injured, and declining Douglas spruce and western hemlock. Cascade Mountains, near Detroit, Oreg., St. Helen, Oreg., and Port Williams, Wash. A very common and destructive enemy of the Douglas spruce. The healed-over wounds in the wood cause serious defects, and the trees die from successive attacks.

**Exhibit:** Adult and work.

50. The White-Pine Sawyer.

*Monohammus scutellatus* Say.

A large, whitish, round-headed bark-and wood boring grub, excavating burrows through the sapwood and deep into the heartwood of fire-scorched, declining, dying, dead, and recently felled mountain or silver pine. Kootenai, Idaho, and white pine in eastern and northern United States. Common and destructive.

**Exhibit:** Adult and work.
51. The Ponderous Sawyer.

_Ergates spiculatus_ Lec.

An exceedingly large, round-headed, bark and wood boring grub, excavating large and deep burrows in the sapwood and heartwood of dead and felled western yellow pine; destructive to the wood of timber that has been dead or felled one or more years. Southern Oregon.

**Exhibit:** Adult and work.

52. The Western Cedar Bark-Borer.

_Hylotrupes amethystinus_ Lec.

A medium-sized bark and wood boring grub, excavating long, winding burrows in the living bark and surface of the wood and boring into the sapwood of injured, dying, and recently felled giant arborvitae and incense cedar. Northern California to Washington.

**Exhibit:** Work.

53. The Bronze Birch-Borer.

_Agrilus anxius_ Gory.

A long, flat-headed, slender wood-boring grub, excavating long, winding burrows in the bark and surface of the wood of living and injured birch, aspen, and cottonwood trees in northern Idaho, northern Maine, and mountains of West Virginia; also recorded from northern Michigan, New York, Pennsylvania, Virginia, Quebec, and Ontario. A destructive enemy of the birches, aspen, and cottonwood.

**Exhibit:** Adult and work.

**INJURY BY GALL INSECTS. ORDER HYMENOPTERA.**

**PART OF CASE 15.**

54. Bird’s-eye Pine.

_Chaelcidid?_

A common condition of the wood of the western yellow pine, evidently caused by a minute four-winged gnat, fragments of which were found in pitch galls in the bark of the main stem of young living pine. The formation of corky wood cells around the accumulation of pitch in the wound produces in the subsequent layers of wood the wavy and so-called bird’s-eye effect in the wood of larger trees. Insects found in specimen at Albany, Oreg. Specimen of wood from Grants Pass, Oreg.

**Exhibit:** Work.

55. The Oak-Twig Ormyrus.

_Ormyrus sp._

A minute four-winged gnat breeding in small gall-like cavities in the living bark on the branches and twigs of the Pacific post oak in western Oregon, causing the small and large oak trees to present a dying appearance, due to the great number of dying twigs and dead leaves. The healed-over wounds produce deformed branches and defective wood.

**Exhibit:** Work.

**INJURY BY BARK AND WOOD-BORING GRUBS. ORDER COLEOPTERA, FAMILY BUPRESTIDÆ.**

**CASE 16.**

56. The Western Hemlock Bark-Borer.

_Melanophila dranomondi_ Kirby.

A medium-sized, flat-headed, bark-boring grub, excavating shallow, winding burrows through the inner layers of bark of living, injured, and recently felled western hemlock and Douglas spruce; California to northern and eastern Washington and western Idaho, and in the noble fir near Detroit, Oreg. A very common and destructive enemy, killing the largest and best trees; or causing serious “gum spot” defects in the wood of living ones.

**Exhibit:** Adult and work.
INJURY BY BARK-WEEVILS. ORDER COLEOPTERA, FAMILY CURCULIONIDÆ.
PART OF CASE 17.
57. The Sugar Pine Bark-Weevil.

Pissodes sp.

Adult snout-beetle deposits eggs in the outer bark of young living and injured sugar pine, producing small whitish grubs which mine through the inner bark and change to the adult in oval cavities excavated in the surface of the wood, causing the death or abnormal development of the trees. Grants Pass, Oreg.

EXHIBIT: Work.

58. The Douglas Spruce Twig-Weevil.

Curculionid.

A small snout-beetle which deposits eggs in cavities in the bark of the small central shoots and terminal twigs of young, living Douglas spruce. The small whitish grubs mine through the inner bark and enter the pith to change to the adult, killing the twigs and causing a deformed development of the tree. St. Helen, Oreg.

EXHIBIT: Work.

59. The Pine Fungus-Gall Weevil.

Curculionid.

A small snout-beetle breeding in the bark and wood of a common fungus gall on the shore pine and western yellow pine, causing the death of the branches and young trees. Newport, Oreg., and Moscow Mountains, Idaho.

EXHIBIT: Work.

INJURY TO DEAD WOOD AND BARK BY POWDER-POST BEETLES. ORDER COLEOPTERA, FAMILY PTINIDÆ.
PART OF CASE 17.
60. The Pine Wood Perforator.

Ptitid ?
Small white grubs burrow through the dead wood of western yellow pine logs, causing rapid decay. Grants Pass, Oreg.

EXHIBIT: Work.

61. The Giant Arborvitæ Ptitid.

Ptitid.
Small white grubs boring in the dead heartwood of living giant arborvitæ, contributing to the rapid decay of the heartwood. Port Angeles, Wash.

EXHIBIT: Work.

62. The Giant Arborvitæ Dryophilus.

Dryophilus sp.
A small whitish grub and brownish beetle, breeding in the outer bark of the giant arborvitæ. Its work is very common. Detroit, Oreg., and Port Angeles, Wash. "Represents a European family and genus heretofore unrecorded from North America." (Schwarz.)

EXHIBIT: Work.

INJURY TO TWIGS BY BARK MAGGOTS. ORDER DIPTERA, FAMILY CECIDOMYIIDÆ.
PART OF CASE 17.
63. The Pine Twig-Maggot.

Cecidomyiid.
Minute reddish maggot, living in the bark of terminal twigs of the western yellow pine, causing the leaves to turn yellow and die. Moscow Mountains, Idaho. Common.

EXHIBIT: Work.
INJURY BY GALL INSECTS. ORDER HEMIPTERA, FAMILY APHIDIDÆ.

CASE 18.

64. The Sitka Spruce Gall-Aphis.

_Chermes sibiricus_ ?

A minute insect forming cone-like galls on the terminal twigs of the Sitka spruce at Newport, Oreg. Very common and injurious to young trees.

_EXHIBIT: Work._

65. The Engelmann Spruce Gall-Aphis.

_Chermes sibiricus _? var.

Same habit as 64, but probably a variety or different species. Common on Engelmann spruce at Sand Point, Idaho.

_EXHIBIT: Work._

INJURY BY CICADA. ORDER HEMIPTERA, FAMILY CICADIDÆ.

CASE 18.

66. Small Western Cicada.

_Cicada sp._

Injuring twigs of Douglas spruce, St. Helen, Oreg.

_EXHIBIT: Adult and work._

INJURY BY TWIG-MINER. ORDER LEPIDOPTERA, FAMILY TORRICIDÆ.

CASE 18.


_Tortricid._

A caterpillar of a moth with similar habits to that of the pine moth of Nantucket, excavating burrows through the pith of the terminal twigs and shoots of young western yellow pine. Moscow Mountains, Idaho, where it was common and quite injurious.

_EXHIBIT: Work._

NORTHEASTERN STATES.

INJURY BY BARK AND TWIG-BEETLES. ORDER COLEOPTERA, FAMILY SCOLYTIDÆ.

CASE 19.

68. The Balsam Fir Cryphalus.

_Cryphalus n. sp._

Excavates irregular, broad, elongate egg chambers to one side of the entrance burrow in the bark and surface of wood, the larval galleries radiating in all directions and deeply grooved in the surface of the wood of the branches of dying and dead balsam fir. Shores and islands of Parmacheene Lake and Rump Mountain, Maine.

_EXHIBIT: Work._

69. The Spruce Cryphalus.

_Cryphalus n. sp._

Excavates broad transverse egg chambers in the bark and surface of wood; the larval galleries but slightly grooved in the surface of the wood of dying and dead red spruce and balsam fir. Islands and shores of Parmacheene Lake and near Portland, Me. Common in bark of small dying and dead red spruce.

_EXHIBIT: Adult and work._
70. The Minute Oak Bark-Beetle.

_Pityophthorus minutissimus_ Zimm.

Excavates two straight transverse galleries from a central entrance burrow and elongate longitudinal chamber in the bark and surface of wood of branches on living, dying, and felled trees, rarely in the thicker bark on the main trunk, of red oak, southern Maine, and other oaks in the eastern United States.

_EXHIBIT:_ Adult and work.

71. The Minute Birch Bark-Beetle.

_Pityophthorus_ n. sp.

Excavates galleries like that of the minute oak bark-beetle (70) in the living and dying bark of branches of the paper birch. Southern Massachusetts.

_EXHIBIT:_ Adult and work.


_Pityophthorus_ n. sp.

Excavates several long winding galleries from a central chamber in the bark; deeply grooved in the surface of the wood of small dying and broken branches of white pine. Camp Caribou, Maine.

_EXHIBIT:_ Adult and work.

73. The Minute Spruce-Twig Wood-Engraver.

_Pityophthorus_ n. sp.

Excavates a large central chamber and several curved galleries in the bark and deeply grooved in the surface of the wood of small branches of felled red spruce. Shores of Barkers Lake, Maine, and West Virginia.

_EXHIBIT:_ Work.

74. The Spruce Wood-Engraver.

_Pityophthorus cariniceps_ Lee.

Excavates many short, radiating, curved galleries from a large central chamber in the bark and surface of the wood of twigs and branches of dying trees and main stem of young dying red spruce. Western Maine to Morgantown, W. Va., and Detroit, Mich.

_EXHIBIT:_ Adult and work.

75. The Black Spruce Wood-Engraver.

_Pityophthorus_ n. sp.

Excavates short longitudinal galleries from the entrance burrow in the bark and surface of wood of small dying black spruce. Shores of Parmacheene Lake, northwestern Maine; Peakes Island, in Casco Bay, Maine, and Adirondacks, New York.

_EXHIBIT:_ Adult and work.

76. The White Pine Wood-Engraver.

_Pityogenes_ n. sp.

Excavates numerous short, radiating, curved egg galleries from a large central chamber in the bark and surface of wood of large and small branches and small dying white pine. Northern Maine to West Virginia. Common. Heretofore recognized as _Pityophthorus sparsus_ Lee.

_EXHIBIT:_ Adult and work.

CASE 20.

77. The Small Red Spruce Bark-Beetle.

_Dryocetes_ n. sp.

Excavates three or four short, curved galleries from a small central cavity in the bark and surface of the wood of injured, dying, and recently felled red, white, and black spruce, Maine to northern New York, and the red spruce in the mountains of West Virginia. Common.

_EXHIBIT:_ Adult and work.
78. The American Spruce Bark-Beetle.

*Dryocetes* n. sp.
Excavates short, irregular galleries in the living bark of injured, dying, and recently felled red, white, and black spruce in Maine, spruce and pine in West Virginia; also in spruce and pine in Europe. Widely distributed in Europe and eastern North America.
Exhibit: Adult and work.

79. The Birch Bark-Beetle.

*Dryocetes* n. sp.
Exhibit: Adult and work.

80. The Balsam Fir Bark-Beetle.

*Tomicus balsameus* Lee.
Excavates several radiating, curved, transverse galleries from a small central chamber in the living and dying bark of injured and dying balsam fir and red and black spruce. Western Maine; also recorded from northern Michigan and New York.
Exhibit: Adult and work.

81. The White Spruce Bark-Beetle.

*Tomicus* n. sp.
Excavates several long, radiating, longitudinal egg galleries from a large central chamber in the living bark of recently felled white spruce. Near Camp Caribou, northwestern Maine.
Exhibit: Adult and work.

82. The Hudson Bay Tomicus.

*Tomicus* n. sp.
Excavates one or two longitudinal primary galleries from a central burrow and small central chambers in the living bark of recently felled white and red spruce. Northwestern Maine; also recorded from Canada and British Columbia.
Exhibit: Adult and work.

CASE 21.

83. The Spruce Bark-Beetle.

*Polygraphus rufipennis* Kirby.
Excavates three or four short, curved egg galleries from a large central chamber in the surface of the inner bark, through the bark and slightly grooving the surface of the wood of injured, declining, dying, and recently felled black, red, and white spruce, and rare in balsam fir. Very common throughout the northern and Appalachian spruce regions.
Exhibit: Adult and work.

84. The Cedar Bark-Beetle.

*Pheidocinus dentatus* Lec.
Excavates a single short longitudinal egg gallery from the entrance burrow and basal chambers in the bark and surface of wood of injured and dying red juniper and arborvita. Eastern and northwestern United States and Canada. Common.
Exhibit: Adult and work.

86. The Parmacheene Bark-Beetle.

*Xylochinus* n. sp.
Excavates short, irregular egg galleries in the dead bark of small red spruce and balsam fir. Islands of Parmacheene Lake, Maine.
Exhibit: Work.
87. The Red Spruce Scolytus.

Scolytus n. sp.

Excavates two longitudinal egg galleries from a central entrance burrow and small lateral cavity in the living bark of branches of dying and recently felled red spruce. Northwestern Maine and Peak's Island, near Portland, Me.

Exhibit: Adult and work.

CASE 22.

88. The Minute Spruce Bark-Beetle.

Crypturgus atomus Lee.

Enters the galleries of other bark-beetles, from which it excavates numerous very small, irregular galleries through the inner bark of dying and dead black and red spruce and white pine. Northwestern Maine.

Exhibit: Adult and work.

89. The Spruce-Destroying Beetle.

Dendroctonus picea·perda Hopk.

Excavates long, longitudinal egg galleries from a basal entrance burrow in the bark, and grooving the wood of living and injured red and white spruce trees. Very destructive to the largest and best timber. Northern Maine to New York and New Brunswick. This is the great enemy of the red and white spruce of the northeastern spruce region, having caused the death and loss of a vast amount of timber. For methods of preventing losses, see Bulletin 28, n. s., Division of Entomology, U. S. Department of Agriculture.

Exhibit: Adult and work.

ENEMIES OF BARK-BEETLES. BIRDS AND INSECTS.

PART OF CASE 23.

90. Work of woodpeckers in spruce bark, when infested with the spruce-destroying beetle.

These birds are exceedingly beneficial in destroying the greatest enemy of the spruce.

Exhibit: Work.

91. The Cloudy Bark-Beetle Destroyer.

Thanasimus nobilis Kl.

The adults feed on the adults of the spruce-destroying and other bark-beetles, and its young or larve prey upon their developing broods. Very beneficial. The specimen of bark shows the pupa case of the Clerid in an egg gallery of the spruce-destroying beetle.

Exhibit: Adult and work.

92. Polyporus volvatus Peck.

A fungus growing from entrance and exit burrows of the spruce-destroying beetle in the bark and the spruce-timber beetle in the wood, and from those of other bark and wood boring insects in dying and recently dead spruce trees killed by the spruce-destroying beetle in the Northeast and the fir-destroying Scolytus in the Northwest. The presence of this fungus usually indicates the destructive work of insects.

Exhibit: Work.

93. Parasitic Enemy of the Spruce-Destroying Beetle.

Bracon simplex Cress.

The adult deposits eggs in the bark with the developing brood of the bark-beetle; the young maggot-like larve feed upon and kill the young. Very common and beneficial. Maine to West Virginia. Also attacks numerous other bark-infesting insects. The bark specimen shows the cocoon in which the matured larva develops to the adult.

Exhibit: Adult and work.
INJURY BY BARK AND WOOD BORING-GRUBS. ORDER COLEOPTERA, FAMILIES BUPRESTIDÆ, CERAMBYCIDÆ, AND MELANDEGYIDÆ.

CASE 24.

94. Buprestid.
Work of flat-headed bark and wood miner in wood of dying balsam fir.
Exhibit: Work.

95. The Destructive Spruce-Wood Borer.
_Tetropium cinnamopterum_ Kirby.
A slender, round-headed bark and wood boring grub which excavates winding burrows through the inner bark and surface of the wood, then enters the sapwood and changes to the adult. Infests slightly injured, declining, and recently felled red, black, and white spruce. Maine to West Virginia. Common, and very destructive to the wood of dying trees, and may also cause the death of slightly injured ones.
Exhibit: Adult and work.

96. The Cedar Tree Borer.
_Hylotrupes ligneus_ Fab.
A slender, whitish, bark and wood boring grub, excavating winding burrows in the bark and surface of the wood of living arborvitae, causing the death of the trees and serious defects in the wood of living ones. Common in northwestern Maine.
Exhibit: Adult and work.

97. The Blazed-Tree Borer.
_Serropalpus barbatus_ Schall.
A slender, whitish, wood-boring grub, which enters at wounds on living trees and bores deep into the sapwood and heartwood, causing a rapid decay of the infested parts. Common in “blazed” wounds on balsam fir and spruce trees along the trails in northwestern Maine.
Exhibit: Work.

98. The Mountain Ash Borer.
_Saperda_ sp.
A destructive enemy of the mountain ash, boring in the healthy wood of the main stem. Northwestern Maine.
Exhibit: Work.

INSECT ENEMIES OF FORESTS IN GENERAL.

INJURING THE FOLIAGE.

CATERPILLARS OF BUTTERFLIES AND MOTHS. ORDER LEPIDOPTERA.

CASE 25.

99. The Violet-Tip Butterfly.
_Polygonia interrogationis_ Fab.
Larvae on elm.
Exhibit: Adults, larva.

100. The Mourning-Cloak Butterfly.
_Euvanessa antiopa_ Linn.
Larvae on foliage of elm, willow, and poplar, sometimes defoliating trees.
Exhibit: Adults, larvae and pupa.

101. The Viceroy Butterfly.
_Basilarchia archippus_ Cram.
Larvae on willow and poplar.
Exhibit: Adult.
102. **The Buff-Tipped Butterfly.**
*Liménitis bredowii* Hbn.

Larvae on oak in California.
Exhibit: Adult.

103. **The Common Hackberry Butterfly.**
*Chlorippa celtis* Bd. & Lec.

Larvae on hackberry.
Exhibit: Adult, pupa.

104. **The Pine Butterfly.**
*Neophasia menapia* Feld.

Larvae defoliate pine in the Pacific States.
Exhibit: Adults.

105. **The Locust Leaf Folder.**
*Epargyreus (Eudamus) tityrus* Fab.

Larvae on locust.
Exhibit: Adults, larva, pupa, cocoon.

106. **The Walnut Sphinx.**
*Cressonio juglandis* S. & A.

Larvae on hickory and walnut.
Exhibit: Adults.

107. **The Pine Sphinx.**
*Lapara coniferarum* S. & A.

Larvae on pine in the Eastern States.
Exhibit: Adults, larva.

108. **The Catalpa Sphinx.**
*Ceratomia catalpae* Bd.

The larvae feed upon and frequently defoliate catalpa wherever this tree is native.
Exhibit: Adult, larva.

109. **The Wavy Ash Sphinx.**
*Ceratomia undulosa* Walk.

Larvae on ash.
Exhibit: Adult, larva.

110. **The Ash Sphinx.**
*Sphinx (Hyloicus) kalmiae* S. & A.

Larvae on ash in the Eastern States.
Exhibit: Adult.

111. **The Four-Horned Sphinx.**
*Ceratomia amyntor* Hbn.

Larvae on elm.
Exhibit: Adults, larva.

112. **The Western Cottonwood Sphinx.**
*Pachysphinx modesta* var. *occidentalis* Hy. Edw.

Larvae on cottonwood in the Western States.
Exhibit: Adult.

113. **The Polyphemus Moth.**
*Telea polyphemus* Cram.

The large green larvae occur on maple, oak, birch, and a variety of other forest trees.
Exhibit: Adult.
114. The Hickory Horned Devil.

*Citheronia regalis* Hbn.

Larvae on hickory and walnut.

Exhibit: Adults, larva.

115. The Imperial Moth.

*Basilona imperialis* Dru.

The larvae feed upon pine and many other species of coniferous and deciduous trees.

Exhibit: Adults, larva, pupa.

116. The Orange-Striped Oak Worm.

*Anisota senatoria* Hübn.

The larvae defoliate oak in the Eastern States.

Exhibit: Adults, larva, pupa.

CASE 27.

117. The Spiny Oak Worm

*Anisota stigma* Hbn.

Larvae in large colonies on oak, sometimes defoliating trees. Eastern States.

Exhibit: Adults, larva, pupa.

118. The Green-Striped Maple Worm.

*Anisota rubicunda* Fab.

Larvae in colonies on maple, sometimes defoliating trees. Eastern States.

Exhibit: Adults, eggs, larva, pupa.

119. The Buck Moth.

*Hemileuca maia* Dru.

The black spiny larvae feed in colonies on oak. Eastern States.

Exhibit: Adults.

120. The Pale Tussock Caterpillar.

*Halisidota tessellaris* Harr.

The pale-yellow, black tufted larvae feed on elm, sycamore, maple, walnut, oak, etc.

Exhibit: Adults.

121. The Pine Tussock Caterpillar.

*Euschausia argentata* Pack.

The larvae feed in colonies on pine, cedar, Douglas spruce, etc. Northwestern States.

Exhibit: Adults, pupae, cocoon, work.

122. The Hickory Tussock Caterpillar.

*Halisidota carye* Harr.

The white wooly caterpillars, tufted with black, feed in large colonies on hickory, walnut, elm, and other forest trees, sometimes becoming very destructive. Eastern States.

Exhibit: Adults, cocoons.

123. The Oak Tussock Caterpillar.

*Halisidota maculata* Harr.

The orange and black tufted larvae on oak, elm, alder, etc. Northern States.

Exhibit: Adults.
124. The Fall Webworm.  
*Hyphantria textor* Harr.  
Larvae construct large tents on most species of deciduous forest trees. At times very destructive.  
Exhibit: Adults, larva, pupa.

125. The American Dagger-Moth.  
*Apatela americana* Harr.  
The larvae occur on maple, elm, and a variety of other forest trees.  
Exhibit: Adults, larva.

126. The Smeared Dagger-Moth.  
*Apatela oblitata* S. & A.  
Larvae occur on nearly all varieties of deciduous trees.  
Exhibit: Adults, larva.

CASE 28.

127. The Underwing Moths.  
Genus *Catocala*.  
The large gray larvae of these moths, of which there are many species in the United States, are nocturnal in habit, and conceal themselves during the day in the crevices of the bark on tree trunks and limbs. They devour the foliage of oak, hickory, walnut, poplar, birch, and other species of forest trees.  

128. The Semi-Looping Maple Worm.  
*Homoptera lunata* Dru.  
The slender green larvae occur on maple, willow, etc.  
Exhibit: Adults, larva, pupa.

129. The California Phryganidia.  
*Phryganidia californica* Pack.  
Larvae on oak, sometimes defoliating trees in California.  
Exhibit: Adults, larva.

130. The Poplar Tent-Maker.  
Larvae construct small tents on aspen, cottonwood, and willow. Eastern States.  
Exhibit: Adults, larva.

131. The Black Hickory Caterpillar.  
*Datana integerrima* G. & R.  
Larvae in colonies on hickory and walnut, sometimes defoliating the trees. Eastern States.  
Exhibit: Adult, larva, pupae.

132. The Yellow-Necked Apple-Tree Caterpillar.  
*Datana ministra* Dru.  
Larvae in colonies on birch, oak, and other forest trees, as well as on apple. Eastern States.  
Exhibit: Adults, eggs, larva, pupa.

133. The Striped Hickory Caterpillar.  
*Datana angusii* G. & R.  
Larvae in colonies on hickory and oak. Eastern States.  
Exhibit: Adults.
134. The Green Oak Caterpillar.

_**Nadata gibbosa** S. & A._

Larvae on oak, maple, and other forest trees.

**EXHIBIT:** Adult, larvae.

135. The Rosy Hyparpax.

_Hyparpax aurora_ S. & A.

Larvae on oak in Eastern States.

**EXHIBIT:** Adults.

CASE 29.


_Symmerista albifrons_ S. & A.

Larvae on oak, sometimes defoliating trees in the Eastern States.

**EXHIBIT:** Adults, larva, pupa.

137. The Rusty Tussock-Moth.

_Notolophus antiqua_ Linn.

Larvae on most species of deciduous forest trees in America and Europe.

**EXHIBIT:** Adults.

138. The California Tussock-Moth.

_Hemerocampa vetusta_ Bd.

Larvae on various species of deciduous forest trees in California.

**EXHIBIT:** Adults, larva.

139. The White-Marked Tussock-Moth.

_Hemerocampa leucostigma_ S. & A.

Larvae sometimes defoliate elm, maple, and other deciduous forest trees in the Eastern States.

**EXHIBIT:** Adults, egg-mass, larva, cocoon.

140. The Dark Tussock-Moth.

_Olene achatina_ S. & A.

Larvae on various deciduous forest trees in the Eastern States.

**EXHIBIT:** Adult.

141. The Brown-Tail Moth.

_Euproctis chrysorrhoea_ Linn.

Introduced from Europe and destructive to deciduous forest trees in Massachusetts and New Hampshire.

**EXHIBIT:** Adults.

142. The Gypsy Moth.

_Porthetria dispar_ Linn.

Introduced from Europe and very destructive to nearly all deciduous and a few coniferous forest trees in Massachusetts. It has recently become established in portions of the city of Providence, Rhode Island.

**EXHIBIT:** Adults, larve.

143. The Forest Tent-Caterpillar.

_Malacosoma (Clisiocampa) disstria_ Hbn.

Larvae at times very destructive to maple, oak, aspen, cottonwood, gum, and nearly all other deciduous forest trees throughout the United States.

**EXHIBIT:** Adults, eggs, larvae, pupa, cocoons.
144. The Tufted Tent-Caterpillar.

*Malacosoma* (*Clisiocampa*) *constriucta* Stretch.

Larvae on oak in California.
Exhibit: Adults, eggs, larvae.

145. The American Tent-Caterpillar.

*Malacosoma* (*Clisiocampa*) *americana* Fab.

Larvae principally destructive to fruit trees, but also to wild cherry and a few other forest trees in the Eastern States.
Exhibit: Adults, eggs.

146. The Rocky Mountain Tent-Caterpillar.

*Malacosoma* (*Clisiocampa*) *fragilis* Stretch.

Larvae feed on deciduous forest trees generally, and are at times very destructive. Rocky Mountain States.
Exhibit: Adults, eggs, larvae.

147. The Northwestern Tent-Caterpillar.

*Malacosoma* (*Clisiocampa*) *phurialis* Dyar.

Larvae on most species of deciduous forest trees in the Northwestern States.
Exhibit: Adults, larva, cocoon.

148. The Californian Tent-Caterpillar.

*Malacosoma* (*Clisiocampa*) *californica* Pack.

Larvae on oak in California.
Exhibit: Adults, larva.

149. The Spring Canker-Worm.

*Paleacrita* *vernata* Harr.

The larvae feed upon the surface of the leaves of various forest and shade trees, especially upon elm in the Eastern States.
Exhibit: Adults, pupa.

CASE 30.

150. The Cherry-Leaf Webworm.

*Calocalpe* *undulata* Linn.

The larvae live in webs on the terminal shoots of black cherry.
Exhibit: Adults, work.

151. The Western Oak Span-Worm.

*Therina* *somniaria* Hulst.

The larvae occur on oak in the Northwestern States, sometimes defoliating trees.
Exhibit: Adults, pupae.

152. The Large Forest Span-Worm.

*Sabulodes* *transversata* Dru.

Larvae occur on maple, poplar, oak, etc.
Exhibit: Adults, larva.

153. The Crinkly Flannel Moth.

*Lagoa* *crispata* Pack.

The larvae, which somewhat resemble the slug caterpillars, feed upon oak, poplar, and a variety of other deciduous trees.
Exhibit: Adults.
154. The Oak Webworm.
Archips (Cacania) ferridana Clem.
Larvae live in colonies on oak, sheltered by a web inclosing leaves and a mass of excrement.
Exhibit: Adults.

155. The Slug Caterpillars.
Family Cochlididae.
These bright-colored slug-like larvae feed very generally on foliage of most deciduous trees.
Exhibit: the following species: Sibine stimulea Clem., adults, larva, cocoon; Euclea delphinii Bd., adult; Euclea indetermina Bd., adult.

THE FALSE CATERPILLARS OR SAWFLIES. FAMILY TENTHREDINIDÆ.

PART OF CASE 30.
156. Abbot's White-Pine Sawfly.
Lophyrus abbotii Leach.
This species, together with several closely allied forms, is at times very destructive to pine.
Exhibit: Adults, larva, cocoons.

157. The Larch Sawfly.
Nematus erichsonii Hartig.
One of the most destructive forest insects; the larva at various times past entirely defoliated the larch throughout the Northeastern States and caused the death of a large proportion of the trees.
Exhibit: Adults.

158. The Large American Sawfly.
Cimbex americana Leach.
Larvae destroy foliage of elm, willow, poplar, and linden.
Exhibit: Adult.

MISCELLANEOUS FOLIAGE INSECTS.

PART OF CASE 30.
159. The Common Walking Stick.
Diapheromera femorata Say.
Young and adults devour foliage of deciduous forest trees.
Exhibit: Adult.

160. Katydid.
Microcentrum laurifolium Linn.
Young and adults feed on foliage of trees.
Exhibit: Adult, eggs.

LEAF-BEETLES. FAMILY SCARABÆIDÆ.

PART OF CASE 31.
161. The Rhinoceros Beetle.
Dynastes tityus Linn.
Larvae mine in decaying stumps; adults destroy foliage of ash.
Exhibit: Adults.

162. The Goldsmith Beetle.
Cotalpa lanigera Linn.
Adults on oak, poplar, and other deciduous trees, sometimes defoliating them.
Exhibit: Adults.
THE LEAF-BEETLES. FAMILY CHRYSomELIĐE.  
PART OF CASE 31.
163. The Imported Elm Leaf-Beetle.  
Galerucella latella Müll.
A very serious enemy to the elm in the Eastern States.  
Exhibit: Adults, work.
164. The Larger Elm Leaf-Beetle.  
Monocesta coryli Say.
Adults and larvae destroy foliage of elm in sections of the Middle West.  
Exhibit: Adults, work.
165. The Striped Willow Leaf-Beetle.  
Melasoma scripta Fab.
Both larvae and adults feed on foliage of poplar and willow, and are at times very destructive to these trees. An especial enemy of the osier willow industry.  
Exhibit: Adults, pupae.
166. The Spotted Willow Leaf-Beetle.  
Melasoma lapponica Linn.
Habits similar to the above, but less abundant and injurious.  
Exhibit: Adults.

INJURING THE FRUIT.

THE WEEVILS. FAMILY CURCULIONIDÉ.  
PART OF CASE 31.
167. The Nut Weevils.  
Genus Balaninus.
There are numerous species, the larvae of which live within acorns and nuts of various sorts.  
Exhibit: Adults of the following species: Balaninus nasieus Say, Balaninus caryæ Horn, Balaninus quecæ Horn.
168. The Walnut Fruit Weevil.  
Conotrachelus juglandis Leç.
The larvae live in green fruit of walnut.  
Exhibit: Adults.

CONE AND NUT WORMS. ORDER LEPIDOPTERA.  
PART OF CASE 31.
169. The Hickory Husk-Worm.  
Grapholitha caryana Fitch.
The larvae live within the immature nuts and husks of the hickory and pecan.  
Exhibit: Adults, work.
170. The Spruce Cone-Worm.  
Dioptcia veniculella Grt.
Larvae attack cones of spruce.  
Exhibit: Adult, work.
171. The Southern Pine Cone-Worm.  
An insect closely allied to the spruce cone-worm which attacks the cone of the Southern longleaf pine.  
Exhibit: Work.
INJURING THE TWIGS AND SMALLER BRANCHES.

THE CICADAS. FAMILY CICADIDÆ.

PART OF CASE 31.

172. The Seventeen-Year Cicada.

*Tibicen septendecim* Linn.

A most destructive species, but owing to the long period required by the young to reach maturity only injurious during certain years.

Exhibit: Adults, pupa, work.

THE SCALE INSECTS. FAMILY COCCIDÆ.

PART OF CASE 31.

173. The Cottony Maple Scale.

*Pulvinaria innumerabilis* Rathv.

Becomes at times very abundant on twigs of maple.

Exhibit: Adult scales on twigs.

174. The Gloomy Maple Scale.

*Aspidiotus tenebricosus* Comst.

At times very abundant on maple. Principally injurious to shade trees in the neighborhood of towns.

Exhibit: Adult scales on bark.

175. The Hickory Soft Scale.

*Lecanium* sp.

At times abundant on hickory and pecan in the Southern States.

Exhibit: Adult scales on twigs.

THE TWIG WEEVILS. FAMILY CURCULIONIDÆ.

PART OF CASE 32.

176. The Western Spruce Weevil.

*Pissodes* sp.

Attacks and kills the terminal shoots of Sitka spruce, causing deformed trees. Northwestern States.

Exhibit: Adults, larvae, work.

177. The White-Pine Weevil.

*Pissodes strobi* Peck.

Attacks and kills the terminal shoots of white pine, spruce, and deodar, causing serious deformity to the tree; also breeds in the bark of the lower portions of the trunk of pine and spruce, hastening the death of injured trees. Eastern States.

Exhibit: Adults, work. Sections of young white pine showing nature of injury to terminal shoots. (Large case.)

ROUND-HEADED BORERS. FAMILY CERAMBYCIDÆ.

PART OF CASE 32.

178. The Oak Pruner.

*Elaphidion villosum* Fab.

The larvae bore in twigs of living oak, hickory, etc., causing them to break and fall.

Exhibit: Adults, work.
179. The Hickory Twig Girdler.
*Oncideres cingulata* Say.

The adult girdles the twigs of oak, hickory, persimmon, and other trees, sometimes so extensively as to cause serious injury.  
Exhibit: Adults, work, figure.

**INJURING THE INNER BARK AND SAPWOOD.**

**THE BARK WEEVILS. FAMILY CURCULIONIDÆ.**

**CASE 33.**

180. The Cypress Weevil.  
*Eudocimus mannerheimii* Boh.

The adults feed on the bark of bald cypress twigs, causing their death, and the larvae mine the inner bark of injured and recently felled trees. Southern States.  
Exhibit: Adult, larva, work.

181. The Pales Weevil.  
*Hylobius pales* Hbst.

The larvae bore into the inner bark of stumps and roots of recently felled, dying, and injured pine. Eastern States.  
Exhibit: Adults.

182. The Pitch-Eating Weevil.  
*Pachylobius picivorus* Germ.

Has habits similar to the pales weevil. Eastern States.  
Exhibit: Adults.

183. The Walnut Weevil.  
*Cryptorhynchus parochus* Hbst.

The larvae mine the inner bark and sapwood of weakened and recently dead walnut.  
Exhibit: Adults, work.

184. The Fir Weevil.  
*Pissodes dubius* Rand.

The larvae mine the inner bark of balsam fir, hastening the death of injured trees. Northern States.  
Exhibit: Adults, larvae, work.

**THE ROUND-HEADED BORERS. FAMILY CERAMBYCIDÆ.**

**CASE 34.**

185. The White-Pine Sawyer.  
*Monohammus scutellalus* Say.

Larvae mine the inner bark and bore deep into the sapwood of white and silver pine, hastening the death of dying trees and injuring saw logs.  
Exhibit: Adults, work.

186. The Common Pine Sawyer.  
*Monohammus confusor* Kirby.

The larvae mine the inner bark and bore large holes into the sapwood of dying trees and saw logs of pine and spruce.  
Exhibit: Adults, larva.

*Ergates spiculatus* Lec.

Larvae bore in dead pine logs, injuring them for timber. Northwestern States.  
Exhibit: Adults, larva, work.
188. The Knob-Horned Pine-Borer.  
*Acanthocinus nodosus* Fab.  
The larvae mine the inner bark of pine stumps and large logs.  
Exhibit: Adults.

189. The Obsolete Pine-Borer.  
*Acanthocinus obsoletus* Ol.  
The larvae mine the inner bark of freshly killed pine.  
Exhibit: Adults.

190. The Small Pine Bark-Borer.  
*Ceratographis pusillus* Kirby.  
Larvae mine the inner bark of dead and dying pine.  
Exhibit: Adults.

*Ascemum nectum* Hald.  
Larvae bore into sapwood of dead pine and spruce logs and stumps. Eastern States.  
Exhibit: Adults.

**CASE 35.**

192. The Poplar Borer.  
*Saperda calcarata* Say.  
Larvae bore in trunks of living aspen, cottonwood, and willow, causing great destruction to these trees.  
Exhibit: Adults, work.

193. The Common Elm-Tree Borer.  
*Saperda tridentata* Ol.  
The larvae mine the bark and sapwood of dead, dying, and healthy elm, often causing great destruction.  
Exhibit: Adults, work.

194. The Poplar Girdler.  
*Saperda concolor* Lec.  
Larvae mine in green bark of aspen and cottonwood saplings, girdling the trunks and causing large swellings; also attack willow.  
Exhibit: Adults, work.

195. The Sugar-Maple Borer.  
*Plagionotus speciosus* Say.  
Larvae mine the inner bark and sapwood of recently dead, dying, and living maple, often causing the death of weakened trees.  
Exhibit: Adults.

196. The Locust Borer.  
*Cyllene robinie* Forst.  
Larvae mine the wood and bark of living locust, causing great damage and destruction.  
Exhibit: Adults, work.

197. The Linden Borer.  
*Saperda vestita* Say.  
Larvae mine the inner bark and bore into the trunk of linden, causing much injury.  
Exhibit: Adults, work.
198. The Chestnut Callidium.
   *Callidium xerenum* Newm.

Larvae mine inner bark of chestnut, hastening, and perhaps causing, death of aged or injured trees.  
Exhibit: Adults, larvae, pupa.

199. The Belted Chion. 
   *Chion cinctus* Dru.

The larvae mine the inner bark and bore into the wood of trunk and branches of dying and recently dead hickory, chestnut, oak, etc.  
Exhibit: Adults, larva, work.

200. The Dusty Oak Borer. 
   *Romaleum atomarium* Dru.

Larvae in stumps and logs of recently dead oak.  
Exhibit: Adults.

201. The Beautiful Hickory Borer. 
   *Goes pulchra* Hald.

Larvae bore in hickory.  
Exhibit: Adults.

   *Goes tigrina* DeG.

Larvae mine the inner bark and sapwood of living hickory and oak.  
Exhibit: Adults.

   *Physocnemum andrew* Hald.

Larvae mine the inner bark and outer sapwood of bald cypress logs. Southern States.  
Exhibit: Adults, larva, work.

204. The Common Hickory Borer. 
   *Saperda discoidea* Fab.

Larvae mine the inner bark of injured, dying, and recently dead hickory.  
Exhibit: Adults.

205. The Blue-Winged Walnut Borer. 
   *Gaurotes cyanipennis* Say.

Larvae infest walnut.  
Exhibit: Adults.

206. The Lichen-like Beetle. 
   *Leptostylus aculiferus* Say.

Larvae mine the inner bark of dying and dead tulip-tree (*Liriodendron*).  
Exhibit: Adults.

207. The Ash-Colored Mulberry Borer. 
   *Hetcemis cinerea* Ol.

Adults feed on the foliage and larvae mine the green bark and sapwood of dying and injured mulberry.  
Exhibit: Adults.

208. The Painted Hickory Borer. 
   *Cyllene pieta* Dru.

Larvae bore in the trunks of dead, dying, and sometimes healthy hickory trees.  
Exhibit: Adults.
209. The Curious Cypress Borer.
*Curius dentatus* Newm.
Larvae mine the smaller branches of young bald cypress.
EXHIBIT: Adults, work.

210. The Banded Ash Borer.
*Neoclytus caprea* Say.
Larvae very injurious to dying trees and saw logs of black ash, boring numerous holes through the wood.
EXHIBIT: Adults, work.

211. The Rigid Cypress Borer.
*Eume rigidum* Say.
Larvae mine inner bark of girdled bald cypress and dying white cedar.
EXHIBIT: Adult, larva, work.

212. The Southern Oak Borer.
*Mallodon dasystomus* Say.
Larvae bore in healthy live oak, hackberry, and hickory trees, greatly injuring them. Southern States.
EXHIBIT: Adults.

213. The Live-Oak Root-Borer.
*Mallodon melanopus* Linn.
Larvae bore into the roots of young oaks, causing dwarfed and worthless trees. Southern States.
EXHIBIT: Adult.

214. The Variable Oak Borer.
*Phymatodes variabilis* Fab.
Larvae mine inner bark of dying and recently dead oak; are also injurious to tan-bark.
EXHIBIT: Adult, work.

215. The Thunderbolt Beetle.
*Arhopalus fulminans* Fab.
Larvae mine the inner bark and sapwood of chestnut and oak.
EXHIBIT: Adults.

216. The Lesser Prionus.
*Orthosoma brunneum* Forst.
Larva in decaying logs and stumps of nearly all forest trees.
EXHIBIT: Adults.

217. The Cottonwood Root-Borer.
*Plectrodera scalator* Fab.
Larvae in roots of aspen and cottonwood.
EXHIBIT: Adults.

218. The Broad-Necked Prionus.
*Prionus laticollis* Dru.
Larvae in roots of oak, aspen, and cottonwood. Sometimes destructive. Also in stumps of pine.
EXHIBIT: Adults.
CASE 38.

219. The Destructive Spruce Wood-Borer.
   *Tetropium cinnaniopterum* Kirby.

Larvae mine green bark and wood of injured and dying spruce, hastening death and promoting decay.
Exhibit: Adults, larvae, work.

220. The Wavy Spruce Borer.
   *Xylotrechus undulatus* Say.

Larvae mine the inner bark and sapwood of Douglas spruce, fir, and hemlock.
Exhibit: Adults.

221. The Canadian Leptura.
   *Leptura canadensis* Fab.

Larvae mine sapwood of dead spruce and hemlock, inducing rapid decay.
Exhibit: Adults.

222. The Red-Headed Clytus.
   *Neoclytus erythrocephalus* Fab.

Larvae mine in dead and dying bark and sapwood of a great variety of forest trees, maple, ash, hickory, sweet gum, bald cypress, etc.
Exhibit: Adults.

223. The Ribbed Pine Borer.
   *Rhagium lineatum* Ol.

Larvae mine the inner bark of dying and dead pine, spruce, and some other conifers.
Exhibit: Adults, larvae, pupa, work.

   *Callidium antennatum* Newm.

Larvae mine inner bark and wood of dying and dead pine, cedar, etc.
Exhibit: Adults, work.

225. The Four-Marked Ash Borer.
   *Eburia quadrigeminata* Say.

Larvae infest ash and hickory.
Exhibit: Adults.

226. The Cedar Borer.
   *Hylotrupes ligneus* Fab.

Larvae mine inner bark and sapwood of white cedar, causing the death of the trees.
Exhibit: Adults, larvae, pupa, work.

227. The Banded Urographis.
   *Urographis fasciatus* Horn.

The larvae mine the inner bark of dead oak, maple, chestnut, sweet gum, hickory, walnut, sourwood, dogwood, and probably nearly all deciduous trees. Eastern States.
Exhibit: Adults.

228. The Rustic Borer.
   *Xylotrechus colonus* Fab.

Larvae mine the inner bark and sapwood of recently cut or dying oak, chestnut, hickory, maple, and other hard woods.
Exhibit: Adults.
THE FLAT-HEADED BORERS. FAMILY BUPRESTIDÆ.

CASE 39.

229. The Bronze Birch Borer.
   *Agrilus anxius* Gory.

The larvae mine the inner bark of living and injured birch, aspen, and cottonwood. Very destructive in the Northern States.
   Exhibit: Adults, work.

230. The Two-Lined Chestnut Borer.
   *Agrilus bilineatus* Web.

The slender larvae mine the inner bark of recently dead, injured, and healthy chestnut and oak. One of the principal causes for the wholesale destruction of chestnut in the Southern States.
   Exhibit: Adults, work.

231. The Eastern Hemlock Bark-Borer.
   *Melanophila falcopttata* Harr.

Larvae mine the inner bark of recently dead and injured hemlock in the Eastern States.
   Exhibit: Adults, work.

232. The Flat-Headed Apple-Tree Borer.
   *Chrysobothris femorata* Fab.

The larvae mine the inner bark of recently dead and injured oak, chestnut, hickory, maple, and some other deciduous forest trees. Eastern States.
   Exhibit: Adults, larvae, pupae, work.

CASE 40.

   *Chrysobothris dentipes* Germ.

Larvae mine the inner bark of recently dead and dying pine.
   Exhibit: Adults.

234. The Flat-Headed Hickory Borer.
   *Dicerca obscura* Fab.

Larvae bore into the trunk and limbs of hickory, maple, and some other deciduous trees.
   Exhibit: Adults.

235. The Western Hemlock Bark-Borer.
   *Melanophila drummondi* Kirby.

The larvae mine the inner bark of dead and healthy western hemlock and Douglas spruce, causing defects in the lumber and killing trees. Northwestern States.
   Exhibit: Adults, larva, pupa, work.

INJURING THE WOOD.

THE FLAT-HEADED BORERS. FAMILY BUPRESTIDÆ.

PART OF CASE 40.

236. The Turpentine Borer.
   *Buprestis apricans* Hbst.

The larvae bore into the solid resinous heartwood of longleaf pine after “boxing” by turpentine workers, so weakening the trunk as to cause it to break and spoiling portions of it for lumber.
   Exhibit: Adult, work.

25916—No. 53—05——7
237. **The Golden Buprestis.**

*Buprestis aurulenta* Linn.

Larvae bore into trunks of dead pines, spruce, fir, and other conifers.

**Exhibit:** Adults.

238. **The Heart-wood Pine Borer.**

*Chalcophora virginiensis* Dru.

Larvae bore into trunks of dead pine and spruce and into heartwood of living trees.

**Exhibit:** Adults, work.

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**THE TIMBER BEETLES. FAMILY SCOLYTIDÆ.**

**PART OF CASE 41.**

240. **The Hickory Timber-Beetle.**

*Xyleborus celsus* Eich.

The adults excavate long branching galleries in dying trees and logs of hickory.

**Exhibit:** Adults, work.

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**THE POWDER-POST BEETLES. FAMILY PTINIDÆ.**

**PART OF CASE 41.**

242. **The Red-Shouldered Ptinid Borer.**

*Sinocylon basilare* Say.

Adult bores short curved galleries in branches of dead hickory, persimmon, and most other deciduous trees; the larvae bore the solid wood.

**Exhibit:** Adults, work.

243. **Powder-Post Beetles.**

Genus *Lyctus*.

**Exhibit:** Work, sections of seasoned ash and hickory showing characteristic injury by the beetles and larvae.

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**THE TIMBER WORMS. FAMILIES BRENTHIDÆ AND LYMEXYLIDÆ.**

**PART OF CASE 41.**

244. **The Northern Brenthis.**

*Eupsalis minutula* Dru.

The larvae excavate extensive galleries in solid wood of recently dead and dying oak, chestnut, beech, elm, bald cypress, and most other species of deciduous forest trees.

**Exhibit:** Adults, work.

245. **The Chestnut Timber Worm.**

*Lymantria sericeum* Harr.

The larvae excavate extensive galleries in the heartwood and sapwood of living and dead chestnut and oak.

**Exhibit:** Adult, work.

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**THE CARPENTER WORMS. ORDER LEPIDOPTERA, FAMILY COSSIDÆ.**

**CASE 42.**

246. **The Leopard Moth.**

*Zeuzera pyrina* Fab.

An introduced species very injurious to forest, shade, and orchard trees in the vicinity of New York City.

**Exhibit:** Adults, larvae, pupa, work.
247. The Oak Carpenter Worm.

*Prionoxystus robinia* Peck.

The larvae mine in living oak and locust, and are sometimes very destructive, especially to aged trees.

Exhibit: Adults, work.

248. The Poplar Carpenter Worm.

*Cossus centerensis* Lint.

The larvae mine in trunks of cottonwood.

Exhibit: Adults.

**THE HORTAILS OR WOOD WASPS. FAMILY UROCEPIDÆ.**

CASE 43.

249. The Pigeon Tremex.

*Tremex columba* Linn.

Larvae mine the sapwood of hickory, oak, poplar, maple, and other deciduous forest trees, hastening the death of those weakened by other causes.

Exhibit: Adults, work.

250. The Pale Tremex.

*Tremex sericeus* Say.

Habits like the pigeon tremex.

Exhibit: Adults.

251. The White-Horned Horntail.

*Urocerus albicornis* Fab.

Attacks spruce, hemlock, and fir.

Exhibit: Adults, larva, pupa, work.

252. The Blue Horntail.

*Paururus cyaneus* Fab.

Attacks spruce and fir.

Exhibit: Adult.

253. The Banded Horntail.

*Urocerus abdominalis* Harr.

Attacks spruce.

Exhibit: Adults.

254. The Yellow-Winged Horntail.

*Urocerus flavipes* Kirby.

Attacks spruce.

Exhibit: Adults.

255. The Small-Pine Horntail.

*Paururus piniola* Ashm.

Larvae in pine.

Exhibit: Adults.

256. The Black-Pine Horntail.

*Paururus hopkinsi* Ashm.

Larvae in pine.

Exhibit: Adults.
PARASITIC ENEMIES. FAMILY ICHNEUMONIDÆ.

PART OF CASE 43.

257. The Lunated Long-Sting.

_Thalesia lunator_ Fab.

There are several quite similar species of these insects, which, by means of the long, thread-like appendage to the body, deposit their eggs within the galleries of the horntail larvae, upon which their own larvae are parasitic.

EXHIBITS: Adults.

INJURING INNER BARK.

THE BARK-BEETLES. FAMILY SCOLYTIDÆ.

CASE 44.


_Dendroctonus ponderosae_ Hopk.

Attacks healthy pine and spruce in the Black Hills of South Dakota and Rocky Mountain region. The adult beetles excavate characteristic galleries in the inner bark of dead, dying, and healthy trees. Their eggs are deposited along the sides of these galleries, and the larve developing from them mine the inner bark. It is estimated that it has been the primary cause of the destruction of 1,000,000,000 feet of western yellow pine (_Pinus ponderosa_) in the Black Hills.

EXHIBIT: Adults, work. Sections of trunks of western yellow pine attacked by beetles showing pitch tubes on surface and marks of galleries in inner bark.

CASE 45.

259. The Destructive Pine Bark-Beetle.

_Dendroctonus frontalis_ Zimm.

Attacks healthy pine and spruce in the Southern States. It is capable of enormous destruction and, though usually held in check by natural causes, has at various times past so increased as to seriously menace the entire stand of pine and spruce in portions of the Southeastern States, notably in West Virginia in 1891-92.

EXHIBIT: Adults, work. Markings on surface of wood of beetle-killed tree; appearance of outer bark of beetle-killed trees; outer bark of tree scaled off by woodpeckers in search of beetles and their larve.

260. The Oregon Tomicus.

_Tomicus oregoni_ Eich.

A secondary enemy of pine, attacking and hastening the death of trees primarily attacked by the pine-destroying beetle.

EXHIBIT: Work. Section of top of western yellow pine, showing galleries of adult beetles in inner bark.

261. The Companion Bark-Beetle.

_Tomicus avulsus_ Eich.

A common species infesting pine in the Southern States. When abundant it attacks and kills healthy trees, but it is especially common as a secondary enemy in company with the destructive bark-beetle _Dendroctonus frontalis_ Zimm.

EXHIBIT: Adults, work.

CASE 46.

262. The Lawson Cypress Bark-Beetle.

_Phloeosinus cypressae_ Hopk.

Attacks transplanted Lawson and Monterey cypress in California. It also attacks redwood.

EXHIBIT: Adults, work.
263. The Hickory Bark-Beetle.

Scolytus quadrispinosus Say.

A common bark-beetle in hickory, frequently causing the death of trees. The adults also do some damage by gnawing the base of small twigs, causing their death.

Exhibit: Adults, work.

CASE 47.

264. The Mountain Pine Dendroctonus.

Dendroctonus n. sp.

Attacks living, injured, and recently felled mountain or silver pine, sugar pine, and lodgepole pine in the Northwestern States. Very common and capable of great destruction to the best timber.

Exhibit: Adults, work.

265. The Arizona Dendroctonus.

Dendroctonus n. sp.

A common bark-beetle in the southern Rocky Mountain region, attacking healthy western yellow pine, and, in company with several closely allied species, causing great destruction of large quantities of the best timber.

Exhibit: Adults, work.

266. The Bald Cypress Bark-Beetle.

Phloeosinus n. sp.

Attacks recently felled and girdled bald cypress in the Southern States.

Exhibit: Adults.

PREDACEOUS AND PARASITIC ENEMIES OF DESTRUCTIVE FOREST INSECTS. THE CLERIDS. FAMILY CLERIDÆ.

CASE 48.

267. The Dubius Clerid.

Thanasimus dubius Fab.

The beetles destroy the adults, and the larvae prey upon the developing broods of many species of bark-beetles in pine and spruce, and are frequently of the greatest benefit in holding in check the more destructive of these.

Exhibit: Adults.

268. The Spider-like Clerid.

Clerus sphegeus Fab.

The adults feed upon the adults and the larvae upon the developing broods of numerous destructive bark-beetles in pine, spruce, and fir. Western States.

Exhibit: Adults.

269. The European Bark-Beetle Destroyer.

Thanasimus formicarius Linn.

Is very destructive to bark-beetles infesting pine and spruce in Europe, and was introduced into America in 1892 to act as a check to the alarming increase of the destructive bark-beetle (Dendroctonus frontalis) in West Virginia.

Exhibit: Adults.

270. The Orange-Banded Clerid.

Clerus ichneumoneus Fab.

The larvae prey upon the developing broods of the hickory bark-beetle (Scolytus quadrispinosus).

Exhibit: Adults.
271. The Hairy Clerid.
Charisessa pilosa Forst.

The larvae prey upon and do much toward preventing the increase of several of the destructive flat-headed borers (Buprestidae) in deciduous trees.

Exhibit: Adults.

THE CLICK BEETLES. FAMILY ELATERIDÆ.

272. The Eyed Elater.
Alaüs oculatus Linn.

As a larva preys upon numerous species of bark and wood boring insects in deciduous trees.

Exhibit: Adults.

273. The Small-Eyed Elater.
Alaüs myops Fab.

As a larva preys upon the larger species of borers in coniferous trees.

Exhibit: Adults, larva.

274. The Four-Winged Parasites.

Order Hymenoptera. Families Ichneumonidæ, Braconidæ, Chalcididæ, etc.

Exhibit: Two larval galleries of the rigid cypress borer (Eme rigidæ), in one of which the insect attained full development, while in the other it was attacked and killed by a parasite, Bracon sp.

Adults and cocoons of several species which attack larvae of butterflies and moths. Adults and cocoons of several species which attack larvae of wood-boring insects.

THE TROGOSITIDS. FAMILY TROGOSITIDÆ.

275. The Green Trogositid.
Trogosita virescens Fab.

A very important enemy of nearly all the larger and more destructive bark-beetles. The adults conceal themselves in the outer bark, and the larvae enter the galleries and prey upon the insects therein.

Exhibit: Adults.

THE COLYDIIDS. FAMILY COLYDIIDÆ.

276. The Tuberculate Colydiid.
Aulonium tuberculatum Lec.

The adults enter the galleries and with the larvae feed upon various species of bark-beetles in all their stages.

Exhibit: Adults.

277. The Line-Marked Colydiid.
Colydium lincola Say.

The adults enter the galleries and their larvae feed upon the developing brood of various species of Ambrosia beetles.

Exhibit: Adults.
SPECIAL EXHIBITS.

ENLARGED MODELS OF INSECTS, AND OF INSECTS AND INJURED PLANTS.

MALARIA MOSQUITO.

*Anopheles maculipennis* Meig.

Enlarged model. This and other species of *Anopheles* are the only known transmitters of human malaria. The parasitic organism causing malaria inhabits the red-blood cells of human beings. It is taken with the blood into the stomach of the mosquito. There it undergoes a sexual development, reproduces, and the offspring are carried with the mosquito poison into the circulation of healthy human beings.

YELLOW FEVER MOSQUITO.

*Stegomyia fasciata* Fab.

Enlarged model. This mosquito transmits yellow fever, and it is now the opinion of the best-posted experts that only through its bite can one contract this disease.

SALT MARSH MOSQUITO.

*Culex sollicitans* Walk.

Enlarged model. This mosquito is not known to carry any disease, but is very annoying at many seaside resorts.

THE HOUSE FLY.

*Musca domestica* Linn.

Enlarged model. The house fly is not merely a nuisance, but also acts as a carrier of many diseases, especially of typhoid fever in the United States.

HESSIAN FLY.

*Mayetiola destructor* Say.

One of the most injurious enemies of wheat in the northern and central States. The larva attacks the stem. The average yearly damage to the wheat industry in this country from this insect is $60,000,000.

Enlarged models of the adult fly, and of an infested stalk of wheat showing the puparium or so-called “flaxseed,” which encloses the pupa stage of the insect.

Two natural-size models, one representing a healthy, unaffected young wheat plant to contrast with the same attacked by the Hessian fly; the other illustrating the effects of the attacks of the Hessian fly.

THE SILKWORM.

*Bombyx (Sericaria) mori* Linn.

Enlarged model of the larva, showing its complete anatomy; the muscles, nerves, tracheae, viscera, the silk apparatus in its whole extent, the silk-secreting gland, and the gland discovered by Auzoux, which secretes a liquid the use of which is most probably to convert the silky matter into insoluble threads. In one of the prolegs may be seen the muscles which move the claws and sucking disks which enable the animal to walk with its true feet in the air.

Enlarged models of the moths, male and female. In each model is shown the atrophy of the digestive tube and the development of the marvelous organs by which the species is perpetuated. (After Auzoux.)
HOP APHIS.

Phorodon humuli Schr.

Unaffected Hop Plant.—A spray of hops, modeled in wax, representing the plant as it appears in vigorous growing condition and free from the attacks of its principal enemy, the hop aphis. This is to call attention to the stronger foliage and the more abundant and larger hops produced by plants from which the hop aphis has been eradicated by the use of proper remedies.

Affected Hop Plant.—A spray of hops, modeled in wax, representing the vine as it appears when attacked by the hop aphis, showing the blackening and discoloration of the leaves and the small and inferior hops, which are also discolored and otherwise unsuitable for market.

Winter Eggs.—Enlarged model of the winter eggs, which are attached by the sexual female to the terminal twigs of the plum, in crevices around the buds.

Stem-Mother.—The stout female aphis shown in this enlarged model hatches from the winter egg and is characterized by shorter legs and honey-tubes. It gives birth, without the intervention of the male, to living young, of which three generations are produced on the plum trees, the last being winged and migrating to the hop.

Winged Migrant.—This enlarged model represents the first winged generation, the third produced on the plum. It instinctively flies to the hop plant and is the progenitor of from five to twelve wingless generations of virgin females, which infest the hop plants until autumn and are the sole forms which depredate on the hop. In autumn the last generation again produces winged females which fly to the plum trees.

Hop-Affecting Stage.—This enlarged model represents the structure and appearance of the five to twelve wingless generations of virgin females which people the hop plant until autumn. These are the progeny of the winged migrants and are the sole forms which injure the hop.

Return Migrant.—This enlarged model represents the last generation produced on the hop, the winged migrant form which in September returns again to the plum and gives birth to three or more young, which are the true sexual females, the first perfect sexual females produced in the cycle up to this point.

Pupa of Return Migrant.—This model represents the pupal stage of the return migrant. The striking features are the wing pads, which with another molt become the ample flight organs seen in the model of the adult.

True Sexual Female.—This enlarged model represents the generation born of the return migrant, which never acquire wings and never leave the plum tree. Maturing in a few days, according to the temperature, they are fertilized by the true winged males which have been subsequently developed on the hops and have come from the hop fields to the plum. Shortly after fertilization the winter eggs, like those with which the cycle started, are deposited.

Young Sexual Female.—This enlarged model represents the newly hatched stage of the only perfectly developed sexual female produced in the life cycle of this insect.

Winged Male.—This enlarged model represents the first and only male generation produced in the life cycle of the hop aphis. This is developed in the autumn and flies from the hop to the plum and fertilizes the true sexual females.

CHINCH BUG.

Blissus leucopterus Say.

The Eggs.—This enlarged model represents the form of the egg and the terminal cap. The eggs are three-hundredths of an inch long, the top being squarely docked and surrounded by four round tubercles near the center. Color from pale whitish to amber.

First Larval Stage.—This stage, represented enlarged in this model, differs from the adult in being more elongate and in having two-jointed tarsi, the head broader and more rounded and the joints of the body subequal. The prevailing color of the whole body is red.

Second Larval Stage.—After the first molt the form represented in this enlarged model is assumed. The red becomes a brilliant vermilion and contrasts with the pale band across the middle of the body, while the head and prothorax are dusky and carious. Two broad marks appear on the mesothorax and the second, fourth, and fifth abdominal sutures, and one at the tip of the abdomen.

Pupa.—The pupa shown in this enlarged model approaches still more nearly the form of the adult, and is not unlike the last larval stage except in being darker and in the appearance of wing pads, which extend almost across the pale basal abdominal joints.
The imago.—The mature insect which is represented enlarged in this model is elongate, blackish, and with numerous hairs, or pubescence. Its length is about three-twentieths of an inch. The outer wings are whitish, with a strong distinctive black spot.

The San Jose Scale.

Aspidiotus perniciosus Comst.

Ten enlarged models are exhibited illustrating the life cycle of this pest, which has caused more damage to the fruit industry and been the object of more legislation than any other insect. Its small size and inconspicuous appearance often leave it undetected until the infested trees are beyond recovery. The scale may be killed by fumigation or spraying.

Enlarged models are exhibited of the first and second larval stages, of the young crawling larva, nearly full-grown larva, male pro-pupa, male pupa, adult male, adult female, and of the half-grown scale, full-grown male scale, and full-grown female scale.

The Asiatic Ladybird.

Chilocorus similis Rossi.

Two enlarged models are exhibited illustrating the adult and the larva of this insect, which was introduced by the U. S. Department of Agriculture from China, where it is the important agent in keeping the San José scale in check.

The Codling Moth.

Carpocapsa pomonella Linn.

Four enlarged models illustrating the life history of this insect, which is the cause of the “wormy apples.” The damage from it in this country is estimated at $11,000,000 annually.

Models are exhibited of the larva and of the adult moth; and also an enlarged section of a piece of bark, cut so as to show a cocoon and pupa of the codling moth beneath it, and an enlarged section of “wormy” apple showing egg, young and mature larva and their work.

The Mexican Cotton Boll Weevil.

Anthonomus grandis Boh.

Enlarged model. This insect is a native of Cuba and Mexico; upwards of ten years ago the weevils crossed the Rio Grande near Brownsville and have now spread over nearly the entire cotton belt of Texas and into the western parishes of Louisiana. Its rapid extension, great destructiveness, and the unusual difficulties in the way of its control have caused grave fears for the future of the cotton industry in the United States. The Federal Government last year appropriated $250,000 for combating this insect.

The Honey Bee.

Apis mellifera Linn.

Enlarged models, showing the insect in six different forms—queen, male, wax-worker, worker, bee with propolis, and the bee with pollen. In these are shown the external and internal characters which distinguish each type. Also a model of a comb in the same proportion, in which are seen the cells for honey, for pollen, and for the eggs to produce queens, drones, and workers, with eggs, larvae, and pupae in different stages of development. (After Auzoux.)

Fluted Scale.

Icerya purchasi Mask.

Model in wax of a twig of orange infested with the fluted scale (Icerya purchasi) copied directly from nature, the actual scales being transferred to the model plant. Illustrates the characteristic appearance of the infested plant.

Model of Noninfested Orange.—The model in wax contrasts with the one representing the characteristic appearance of infested plant.

Illustrations from the publications of the Division of Entomology, representing the different stages of the fluted scale and its principal enemies.
AUSTRALIAN LADYBIRD.

Norius (Vedalia) cardinalis Muls.

(Principal enemy of the fluted scale [Icerya purchasi].)

Enlarged model of the adult of this insect, the introduction of which from Australia has effected what was impossible by any other means—the practical annihilation of the fluted scale in California.

Enlarged models showing structure and characteristic appearance of the larva and pupa.

THE "KISSING BUG."

Reduvius personatus Linn.

Enlarged model of one of the group of true bugs, generally known as "assassin bugs," which of late years have acquired a certain newspaper notoriety through their supposed preference for the human lips.

They feed on other insects, which they pierce with their strong beaks; some species are frequently found in houses, attracted by light, and they may, if they believe themselves in danger, accidentally or in defense, pierce the human skin with their beaks, causing a painful wound, and often blood poisoning through the introduction of the germ of putrefaction.

ORANGE RUST-MITE.

Eriophyes (Phytoptus) oleivorus Ashm.

Wax models of oranges showing work of the orange rust-mite.

ENLARGED MODELS OF THE PARASITE CAUSING MALARIA (ÆSTIVO-AUTUMNAL FEVER).

Plasmodium malariae.

Twenty-nine enlarged models, illustrating the life history of this parasite in the blood of man and in the mosquito (Anopheles).

The models exhibited show: Development of spores in the blood of man; development of "crescent" in the blood of man; development of "gamete" in stomach of mosquito; development and fertilization of "zygote" in stomach of mosquito; development of "zygote" in stomach wall of mosquito; "zygote" filled with "blasts" and ready to burst; free endospores, free blasts, and spermatozoa.

PHOTOGRAPHS OF INSECT DAMAGE TO FORESTS.

Western yellow pine trees killed by the pine-destroying beetle. Black Hills, South Dakota.

Section of shortleaf pine tree killed by the destructive pine bark-beetle. North Carolina.

Trunk of western yellow pine killed by the Arizona Dendroctonus, showing work of beetles. New Mexico.

Western yellow pine tree, showing injury caused by the dark-red turpentine beetle at base. New Mexico.

Monterey pine tree, showing injury of the dark-red turpentine beetle at base. California.

Western hemlock trees killed in 1892 by the hemlock span-worm. State of Washington.

Trunk of hickory tree killed by the hickory bark-beetle, showing growth of white fungus following attack. Detroit, Mich.

Silver pine trees killed by the mountain-pine Dendroctonus. Priest River Forest Reserve, Idaho. (2.)

Bark from trunk of giant arborvite, showing mines of the cedar bark-beetle. State of Washington.


Group of longleaf pine killed by so-called "worm deadening." Eastern Texas. Young Sitka spruce, showing top killed by western spruce-weevil. State of Washington.
Cottonwood tree killed by the bronzed Agrilus, showing the galleries of larvae in trunk. Priest River Forest Reserve, Idaho.
Young chestnut killed by the two-lined chestnut borer. Western North Carolina. Large chestnut, the death of which was hastened by insect injury. Western North Carolina.
Girdled bald cypress tree injured by timber beetles. South Carolina.
Trunk of hickory killed by hickory bark-beetle, showing galleries on surface of wood. Western North Carolina.

LIVING INSECTS.

By means of aquaria, vivaria, and other forms of insect cages, living insects will be on exhibit, subsisting on their natural food and undergoing their usual transformations.

In the aquaria, stages of some of the species of mosquitoes occurring on the Pacific coast will be shown, as also aquatic beetles and bugs and the aquatic larvae of various insects which are terrestrial in the adult state.
INDEX TO SYSTEMATIC NAMES.6

<table>
<thead>
<tr>
<th>Page</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>abbotii (Lophyrus)</td>
<td>89</td>
</tr>
<tr>
<td>abbotii (spodoptera)</td>
<td>29</td>
</tr>
<tr>
<td>abbotii (spodoptera)</td>
<td>51</td>
</tr>
<tr>
<td>acaulis</td>
<td>99</td>
</tr>
<tr>
<td>Academia</td>
<td>67</td>
</tr>
<tr>
<td>Acanthocinus</td>
<td>67</td>
</tr>
<tr>
<td>achatera</td>
<td>87</td>
</tr>
<tr>
<td>achetera</td>
<td>22</td>
</tr>
<tr>
<td>Acleris</td>
<td>15</td>
</tr>
<tr>
<td>acrea</td>
<td>30, 49, 52</td>
</tr>
<tr>
<td>Acridium = Schistocerca</td>
<td>25, 37, 35, 38</td>
</tr>
<tr>
<td>aculeatus</td>
<td>75</td>
</tr>
<tr>
<td>acuiflorus</td>
<td>94</td>
</tr>
<tr>
<td>adalia</td>
<td>17, 41</td>
</tr>
<tr>
<td>adonis</td>
<td>53</td>
</tr>
<tr>
<td>advena</td>
<td>61</td>
</tr>
<tr>
<td>Aegla (see Chenia)</td>
<td>23, 28</td>
</tr>
<tr>
<td>Aegla (see Chenia)</td>
<td>59</td>
</tr>
<tr>
<td>agalluca</td>
<td>39</td>
</tr>
<tr>
<td>acata</td>
<td>27</td>
</tr>
<tr>
<td>aereum</td>
<td>94</td>
</tr>
<tr>
<td>aftinis</td>
<td>7</td>
</tr>
<tr>
<td>Agallia</td>
<td>45</td>
</tr>
<tr>
<td>agassizil</td>
<td>28</td>
</tr>
<tr>
<td>Agrius</td>
<td>21, 26, 77, 97</td>
</tr>
<tr>
<td>Agromyza</td>
<td>57</td>
</tr>
<tr>
<td>Agrotyra</td>
<td>58</td>
</tr>
<tr>
<td>Ailurotes</td>
<td>102</td>
</tr>
<tr>
<td>albicornis</td>
<td>99</td>
</tr>
<tr>
<td>abedia (Macrobasis)</td>
<td>50</td>
</tr>
<tr>
<td>abenia (Gross)</td>
<td>17</td>
</tr>
<tr>
<td>abfrons</td>
<td>87</td>
</tr>
<tr>
<td>abilinea</td>
<td>39</td>
</tr>
<tr>
<td>albionica</td>
<td>53</td>
</tr>
<tr>
<td>Acantha</td>
<td>9, 32</td>
</tr>
<tr>
<td>Allorhina</td>
<td>18</td>
</tr>
<tr>
<td>Alphitobius</td>
<td>63</td>
</tr>
<tr>
<td>Alphosphila</td>
<td>16</td>
</tr>
<tr>
<td>alternatus</td>
<td>64</td>
</tr>
<tr>
<td>Ameles (Ameles)</td>
<td>23</td>
</tr>
<tr>
<td>americana (Apatela)</td>
<td>86</td>
</tr>
<tr>
<td>americana (Cimex)</td>
<td>89</td>
</tr>
<tr>
<td>americana (Harrisia)</td>
<td>25</td>
</tr>
<tr>
<td>americana (Malacocoma)</td>
<td>13, 88</td>
</tr>
<tr>
<td>americana (Meronomy)</td>
<td>31, 41</td>
</tr>
<tr>
<td>americana (Periplaneta)</td>
<td>64</td>
</tr>
<tr>
<td>americana (Schistocerca)</td>
<td>32</td>
</tr>
<tr>
<td>americana (Sympyrus)</td>
<td>40</td>
</tr>
<tr>
<td>americanus (Tabanus)</td>
<td>68</td>
</tr>
<tr>
<td>amethystinus</td>
<td>77</td>
</tr>
<tr>
<td>Ampelophaga</td>
<td>23</td>
</tr>
<tr>
<td>amepolophila</td>
<td>65, 66</td>
</tr>
<tr>
<td>Amphicus</td>
<td>13, 22</td>
</tr>
<tr>
<td>Amphipinus = Coelostathma</td>
<td>34</td>
</tr>
<tr>
<td>amyntor</td>
<td>84</td>
</tr>
<tr>
<td>Anabrus</td>
<td>39</td>
</tr>
<tr>
<td>Anaphora</td>
<td>31</td>
</tr>
<tr>
<td>Anaspis</td>
<td>19</td>
</tr>
<tr>
<td>Anasa</td>
<td>60</td>
</tr>
<tr>
<td>Anatis</td>
<td>17, 40</td>
</tr>
<tr>
<td>anchorea</td>
<td>10</td>
</tr>
<tr>
<td>Anceis</td>
<td>15, 26, 27</td>
</tr>
<tr>
<td>anechas</td>
<td>41</td>
</tr>
<tr>
<td>Anhelina (see Xantho)</td>
<td>26</td>
</tr>
<tr>
<td>anguis</td>
<td>86</td>
</tr>
<tr>
<td>angustatus</td>
<td>45</td>
</tr>
<tr>
<td>Anisomorpha</td>
<td>9</td>
</tr>
<tr>
<td>Anisoprya = Alsophila</td>
<td>16</td>
</tr>
<tr>
<td>Anisota</td>
<td>85</td>
</tr>
<tr>
<td>annexa</td>
<td>29, 31</td>
</tr>
<tr>
<td>annularis</td>
<td>12</td>
</tr>
<tr>
<td>annulata</td>
<td>54</td>
</tr>
<tr>
<td>annulatus</td>
<td>66</td>
</tr>
<tr>
<td>annulipes</td>
<td>18</td>
</tr>
<tr>
<td>Anobiun (see Sitodrewa)</td>
<td>62</td>
</tr>
<tr>
<td>Anomala</td>
<td>24</td>
</tr>
<tr>
<td>Anomalon</td>
<td>39</td>
</tr>
<tr>
<td>anoma</td>
<td>39</td>
</tr>
<tr>
<td>Anopheles</td>
<td>65, 103, 106</td>
</tr>
<tr>
<td>antennata</td>
<td>18</td>
</tr>
<tr>
<td>antennatum</td>
<td>96</td>
</tr>
<tr>
<td>Antonia = Pegomya</td>
<td>53</td>
</tr>
<tr>
<td>Anthrenus</td>
<td>62, 65</td>
</tr>
<tr>
<td>antilopi</td>
<td>83</td>
</tr>
<tr>
<td>antiqua</td>
<td>87</td>
</tr>
<tr>
<td>antilopina</td>
<td>77, 97</td>
</tr>
<tr>
<td>Antonia = Pegomya</td>
<td>11</td>
</tr>
<tr>
<td>Apentise</td>
<td>29, 36</td>
</tr>
<tr>
<td>Apetela</td>
<td>26, 37, 39, 36</td>
</tr>
<tr>
<td>Aphelinus</td>
<td>12</td>
</tr>
<tr>
<td>Aphidius</td>
<td>10, 17, 39</td>
</tr>
<tr>
<td>Aphidius = Macrocephalum, Siphocoryne</td>
<td>40</td>
</tr>
<tr>
<td>apicale</td>
<td>39</td>
</tr>
<tr>
<td>Aphidius = Macrocephalum</td>
<td>21</td>
</tr>
<tr>
<td>apricans</td>
<td>97</td>
</tr>
<tr>
<td>Araecerus</td>
<td>7</td>
</tr>
<tr>
<td>Araunus</td>
<td>7</td>
</tr>
<tr>
<td>Archipus</td>
<td>87</td>
</tr>
<tr>
<td>Archips</td>
<td>15, 34, 39</td>
</tr>
<tr>
<td>Archytas</td>
<td>42</td>
</tr>
<tr>
<td>Arethusa = Apentise</td>
<td>29</td>
</tr>
<tr>
<td>arenata</td>
<td>29, 39, 45</td>
</tr>
<tr>
<td>arenatus</td>
<td>85</td>
</tr>
<tr>
<td>argus</td>
<td>57</td>
</tr>
<tr>
<td>Arhipalus</td>
<td>96</td>
</tr>
<tr>
<td>Aristotelia</td>
<td>42, 50, 57, 58</td>
</tr>
<tr>
<td>armiger = Heliotis obscura</td>
<td>42, 50, 57, 58</td>
</tr>
<tr>
<td>armiger</td>
<td>60</td>
</tr>
<tr>
<td>armoricase</td>
<td>53</td>
</tr>
<tr>
<td>Artipus</td>
<td>87</td>
</tr>
<tr>
<td>arvensis</td>
<td>40</td>
</tr>
<tr>
<td>Asenum</td>
<td>76, 93</td>
</tr>
<tr>
<td>asini</td>
<td>69</td>
</tr>
<tr>
<td>Asopita = Hypsopygia</td>
<td>37</td>
</tr>
<tr>
<td>Asopita = Pyralis</td>
<td>61</td>
</tr>
<tr>
<td>asperagis</td>
<td>58</td>
</tr>
<tr>
<td>aspericollis</td>
<td>75</td>
</tr>
<tr>
<td>Aspidiotus</td>
<td>11, 12, 13, 14, 19, 20, 21, 22, 23, 28, 31, 105</td>
</tr>
<tr>
<td>Aspidiotus = Chrysoplus</td>
<td>11</td>
</tr>
<tr>
<td>Aspidoscelis = Coptocylina</td>
<td>15</td>
</tr>
<tr>
<td>Aspidoscelis = Coptocylina</td>
<td>21</td>
</tr>
<tr>
<td>Aspidoscelis = Coptocylina</td>
<td>35</td>
</tr>
<tr>
<td>assulina</td>
<td>43</td>
</tr>
<tr>
<td>atlanis</td>
<td>30, 37, 38, 43, 58</td>
</tr>
<tr>
<td>atomaria</td>
<td>94</td>
</tr>
<tr>
<td>atina</td>
<td>82</td>
</tr>
<tr>
<td>atratus</td>
<td>68</td>
</tr>
<tr>
<td>atriventris</td>
<td>55</td>
</tr>
<tr>
<td>Atropos = Troctes</td>
<td>64</td>
</tr>
<tr>
<td>atropus</td>
<td>68</td>
</tr>
<tr>
<td>Atrax</td>
<td>31</td>
</tr>
<tr>
<td>Attigenus</td>
<td>61</td>
</tr>
<tr>
<td>Aulonium</td>
<td>102</td>
</tr>
<tr>
<td>aurantii</td>
<td>11</td>
</tr>
<tr>
<td>auricata = Coptocylina bicolor</td>
<td>55</td>
</tr>
</tbody>
</table>

6 Many of the forest insects are species which have not yet been described. The reader will, therefore, find these under the generic name, or in the Index of Common Names.
<table>
<thead>
<tr>
<th>Page</th>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>87</td>
<td>aura</td>
<td>Autographa</td>
</tr>
<tr>
<td>88</td>
<td>aurulentia</td>
<td>Autographa</td>
</tr>
<tr>
<td>88</td>
<td>autographa</td>
<td>Autographa</td>
</tr>
<tr>
<td>36, 45, 52</td>
<td>flavida</td>
<td>Callimorpha</td>
</tr>
<tr>
<td>40</td>
<td>avensus</td>
<td>Avensus</td>
</tr>
<tr>
<td>100</td>
<td>avensus</td>
<td>Avensus</td>
</tr>
<tr>
<td>10</td>
<td>Baccha</td>
<td>Baccha</td>
</tr>
<tr>
<td>90</td>
<td>Balaminus</td>
<td>Balaminus</td>
</tr>
<tr>
<td>81</td>
<td>balsameus</td>
<td>Balsameus</td>
</tr>
<tr>
<td>46</td>
<td>Bartletia</td>
<td>Bartletia</td>
</tr>
<tr>
<td>83</td>
<td>barbatus</td>
<td>Barbatus</td>
</tr>
<tr>
<td>22, 98</td>
<td>basilarchia</td>
<td>Basilarchia</td>
</tr>
<tr>
<td>85</td>
<td>beckii</td>
<td>Beckii</td>
</tr>
<tr>
<td>26</td>
<td>Bembecia</td>
<td>Bembecia</td>
</tr>
<tr>
<td>13, 22</td>
<td>bicaudatus</td>
<td>Bicaudatus</td>
</tr>
<tr>
<td>55</td>
<td>biceilliens</td>
<td>Biceilliens</td>
</tr>
<tr>
<td>65</td>
<td>biustus</td>
<td>Biustus</td>
</tr>
<tr>
<td>56</td>
<td>bivittata</td>
<td>Bivittata</td>
</tr>
<tr>
<td>71</td>
<td>bivittatus (Mélanagophila)</td>
<td>Bivittatus</td>
</tr>
<tr>
<td>3, 37, 43</td>
<td>bivittatus</td>
<td>Bivittatus (Trypodendron)</td>
</tr>
<tr>
<td>55</td>
<td>biuvulurus</td>
<td>Biuvulurus</td>
</tr>
<tr>
<td>46, 48</td>
<td>Blatta</td>
<td>Blatta</td>
</tr>
<tr>
<td>64, 67</td>
<td>Blatella</td>
<td>Blatella</td>
</tr>
<tr>
<td>64</td>
<td>Blennoecampa</td>
<td>Blennoecampa</td>
</tr>
<tr>
<td>23</td>
<td>Blissus</td>
<td>Blissus</td>
</tr>
<tr>
<td>40, 45, 104</td>
<td>Boreas</td>
<td>Boreas</td>
</tr>
<tr>
<td>108</td>
<td>Bombyx</td>
<td>Bombyx</td>
</tr>
<tr>
<td>56</td>
<td>Boophilus</td>
<td>Boophilus</td>
</tr>
<tr>
<td>80</td>
<td>borealis (Epilachna)</td>
<td>Borealis</td>
</tr>
<tr>
<td>9</td>
<td>Botys=`Pachyzancla</td>
<td>Botys</td>
</tr>
<tr>
<td>55</td>
<td>botrana</td>
<td>Botrana</td>
</tr>
<tr>
<td>69</td>
<td>bovis</td>
<td>Bois</td>
</tr>
<tr>
<td>35</td>
<td>Brachelia</td>
<td>Brachelia</td>
</tr>
<tr>
<td>64</td>
<td>Brachytarsus</td>
<td>Brachytarsus</td>
</tr>
<tr>
<td>82</td>
<td>Bracon</td>
<td>Bracon</td>
</tr>
<tr>
<td>102</td>
<td>Bronnidae</td>
<td>Bronnidae</td>
</tr>
<tr>
<td>102</td>
<td>Brevissima</td>
<td>Brevissima</td>
</tr>
<tr>
<td>36, 45, 52</td>
<td>brassica</td>
<td>Brassica (Autographa)</td>
</tr>
<tr>
<td>54</td>
<td>brassica (Oscini)=Scaptomyza graminum</td>
<td>Brassica</td>
</tr>
<tr>
<td>53</td>
<td>brassica (Pegomya)</td>
<td>Brassica</td>
</tr>
<tr>
<td>84</td>
<td>brevicomis</td>
<td>Brevicomis</td>
</tr>
<tr>
<td>66</td>
<td>brevis</td>
<td>Brevis</td>
</tr>
<tr>
<td>32, 38</td>
<td>Bruchopus</td>
<td>Bruchopus</td>
</tr>
<tr>
<td>36</td>
<td>Brunner (Clyrtotalla)</td>
<td>Brunner</td>
</tr>
<tr>
<td>24, 33, 46</td>
<td>Brunner</td>
<td>Brunner</td>
</tr>
<tr>
<td>95</td>
<td>brunneum</td>
<td>Brunneum</td>
</tr>
<tr>
<td>62</td>
<td>Brunella</td>
<td>Brunella</td>
</tr>
<tr>
<td>13</td>
<td>bulbalis</td>
<td>Bulbaliis</td>
</tr>
<tr>
<td>45</td>
<td>Bucelatrich</td>
<td>Bucelatrich</td>
</tr>
<tr>
<td>102</td>
<td>Buprestis (in Abies)</td>
<td>Buprestis</td>
</tr>
<tr>
<td>97, 98</td>
<td>Buchatellus</td>
<td>Buchatellus</td>
</tr>
<tr>
<td>9</td>
<td>Buchatellus</td>
<td>Buchatellus</td>
</tr>
<tr>
<td>15, 34, 89</td>
<td>Caciares</td>
<td>Caciares</td>
</tr>
<tr>
<td>66</td>
<td>ceasar</td>
<td>Ceasar</td>
</tr>
<tr>
<td>36</td>
<td>cecionia</td>
<td>Cecionia</td>
</tr>
<tr>
<td>69</td>
<td>celtis</td>
<td>Celtis</td>
</tr>
<tr>
<td>99</td>
<td>centerensis</td>
<td>Centerensis</td>
</tr>
<tr>
<td>46</td>
<td>Cenizus</td>
<td>Cenizus</td>
</tr>
<tr>
<td>40</td>
<td>Cerapoides</td>
<td>Cerapoides</td>
</tr>
<tr>
<td>20</td>
<td>Cerapis (Pine twig maggot)</td>
<td>Cerapis</td>
</tr>
<tr>
<td>35</td>
<td>Ceratocapsa</td>
<td>Ceratocapsa</td>
</tr>
<tr>
<td>63</td>
<td>Ceratitis</td>
<td>Ceratitis</td>
</tr>
<tr>
<td>80</td>
<td>Cetonia</td>
<td>Cetonia</td>
</tr>
<tr>
<td>84</td>
<td>cereallella</td>
<td>Cereallella</td>
</tr>
<tr>
<td>39</td>
<td>cerealis</td>
<td>Cerealis</td>
</tr>
<tr>
<td>31</td>
<td>cereola</td>
<td>Cereola</td>
</tr>
<tr>
<td>13</td>
<td>Ceresa</td>
<td>Ceresa</td>
</tr>
<tr>
<td>86</td>
<td>cersoagna</td>
<td>Cersoagna</td>
</tr>
<tr>
<td>10</td>
<td>Cerosplastis</td>
<td>Cerosplastis</td>
</tr>
<tr>
<td>49</td>
<td>Ceratoma</td>
<td>Ceratoma</td>
</tr>
<tr>
<td>12</td>
<td>cervicallis</td>
<td>Cervicallis</td>
</tr>
<tr>
<td>59</td>
<td>Celo (Melittia)=satyriiformis</td>
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<td>Cenotyrnchus</td>
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<tr>
<td>77, 78</td>
<td>Chalcodema</td>
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</tr>
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<td>102</td>
<td>Chalcalphorae</td>
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<td>18, 21</td>
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<td>12, 55, 105</td>
<td>Chilocorus</td>
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<td>50</td>
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<td>Chinesis</td>
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<tr>
<td>94</td>
<td>Chion</td>
<td>Chion</td>
</tr>
<tr>
<td>11, 14, 21</td>
<td>Chloromela</td>
<td>Chloromela</td>
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<td>84</td>
<td>Chlorippe</td>
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</tr>
<tr>
<td>41, 43</td>
<td>Chlorops</td>
<td>Chlorops</td>
</tr>
<tr>
<td>7, 12, 97</td>
<td>Chrysobothris</td>
<td>Chrysobothris</td>
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<td>Chrysoscholus</td>
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<td>Chrysomela</td>
<td>Chrysomela</td>
</tr>
<tr>
<td>66, 69</td>
<td>Chrysonima</td>
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</tr>
<tr>
<td>16, 41</td>
<td>Chrysopea</td>
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<td>Chrysophanus = Hedeodes</td>
<td>Page</td>
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<tr>
<td>Chrysops</td>
<td>68</td>
<td></td>
</tr>
<tr>
<td>chrysothoea</td>
<td>17, 87</td>
<td></td>
</tr>
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<td>Cicada</td>
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<td></td>
</tr>
<tr>
<td>Cinch</td>
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<tr>
<td>Clinex = Clinocoris</td>
<td>67</td>
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<tr>
<td>cinctus (Chion)</td>
<td>91</td>
<td></td>
</tr>
<tr>
<td>cinctus (Tabanus)</td>
<td>92</td>
<td></td>
</tr>
<tr>
<td>cinerea (Epicauta)</td>
<td>47, 55</td>
<td></td>
</tr>
<tr>
<td>cinerea (Hetemis)</td>
<td>94</td>
<td></td>
</tr>
<tr>
<td>cinerea</td>
<td>49</td>
<td></td>
</tr>
<tr>
<td>cingnata (Cleptodes)</td>
<td>92</td>
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</tr>
<tr>
<td>cingnata (Philaenus Zett.)</td>
<td>96</td>
<td></td>
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<tr>
<td>cingnata (Rhogetis)</td>
<td>20</td>
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</tr>
<tr>
<td>cinnamomipiper</td>
<td>88, 96</td>
<td></td>
</tr>
<tr>
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<tr>
<td>Citrus</td>
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<td>citri (Aleyrodes)</td>
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<td>52</td>
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<td>Clinocoris</td>
<td>67</td>
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<tr>
<td>Cleptoclynum = Malacosa</td>
<td>18, 87</td>
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<tr>
<td>Cnigrum</td>
<td>30</td>
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<td>Cocinella</td>
<td>17, 10, 55</td>
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<td>Coccocoris = Anthonom</td>
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<td>Coccus</td>
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<td></td>
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<tr>
<td>Coculin</td>
<td>36</td>
<td></td>
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<tr>
<td>Colaps</td>
<td>24, 33, 46</td>
<td></td>
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<td>Coleophora</td>
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<td>Colomegilla = Rhin. Zett.</td>
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<tr>
<td>Compsonyia = Chrysomyia</td>
<td>69, 69</td>
<td></td>
</tr>
<tr>
<td>compota</td>
<td>26, 27</td>
<td></td>
</tr>
<tr>
<td>concinum</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>concis</td>
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<tr>
<td>Conocephalidae</td>
<td>19, 21, 15, 18</td>
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<td>convergenta</td>
<td>17, 55</td>
<td></td>
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<td>cossetalis (Hypopyra)</td>
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<td>Crioceres</td>
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<td>cruciferarum = Rintella maculipennis</td>
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<tr>
<td>Cryphaeus</td>
<td>71, 79</td>
<td></td>
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<td>Cryptopephalus</td>
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<td>Cryptophybus</td>
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<tr>
<td>Crypturgus</td>
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<td>Ctenocephalus</td>
<td>67, 69</td>
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<tr>
<td>cteniceris</td>
<td>47, 56, 60</td>
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<td>Culex</td>
<td>67, 70</td>
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<td>Culex = Stegomyia = Multitarsus uniformis</td>
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<td></td>
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<tr>
<td>Culex</td>
<td>16, 27</td>
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<td>Cuscuta</td>
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<td>Curculio = Pseudopine (Dendroctopus)</td>
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<td>Curculionid (Pine fungus-gall weevil)</td>
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<td></td>
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<tr>
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<tr>
<td>Cyline</td>
<td>93, 94</td>
<td></td>
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<tr>
<td>Cymatophora = Ectrops</td>
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<td>Dactylopius = Pseudococcus</td>
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<tr>
<td>Dasyneura</td>
<td>33, 38</td>
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<td>Datana</td>
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<td>Dendroctonus</td>
<td>74, 82, 101</td>
<td></td>
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<td>dentatus (Curculio)</td>
<td>95</td>
<td></td>
</tr>
<tr>
<td>dentatus (Phloeosinus)</td>
<td>81</td>
<td></td>
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<td>denticulata</td>
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<tr>
<td>dentipes</td>
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<td></td>
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<tr>
<td>Dermatophila</td>
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<td></td>
</tr>
<tr>
<td>Desnia</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>destructor</td>
<td>47, 103</td>
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<td>destructor (Dactylopius) = Pseudococcus citri</td>
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<td>Diabrotica</td>
<td>83, 16, 18, 58, 59, 60</td>
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<td>diabroticae</td>
<td>33, 46</td>
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<td>Diacrisia</td>
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<td>Diaphania</td>
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<td></td>
</tr>
<tr>
<td>Diceras</td>
<td>97</td>
<td></td>
</tr>
<tr>
<td>Discophora = 34, 49</td>
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<td>Dictyophorus</td>
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<tr>
<td>differentialis</td>
<td>31, 8, 26</td>
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<td>dimidiatus</td>
<td>62</td>
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<tr>
<td>Dinoderus</td>
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<tr>
<td>Dioctria</td>
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<td>94</td>
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<td>discopunctana</td>
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<td>72</td>
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<tr>
<td>Disophila</td>
<td>31, 43</td>
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<td>87</td>
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<tr>
<td>distis</td>
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<tr>
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<td>Dolurus</td>
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<tr>
<td>domestica (Pipers)</td>
<td>66, 103</td>
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<td>domestica (Musca)</td>
<td>66, 103</td>
<td></td>
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<tr>
<td>domesticus (Gyllius)</td>
<td>64</td>
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<td>dorsalis</td>
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<td>Docypérthia</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td>Drasiria</td>
<td>29, 31</td>
<td></td>
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<tr>
<td>Drosophila</td>
<td>65, 66</td>
<td></td>
</tr>
<tr>
<td>drummondii</td>
<td>77, 97</td>
<td></td>
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<tr>
<td>Dryococcus = Anisota</td>
<td>86</td>
<td></td>
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<tr>
<td>Dryococcus</td>
<td>80, 81</td>
<td></td>
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<td>78</td>
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<tr>
<td>dubius (Pissodes)</td>
<td>92</td>
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Hadena ........................................ 50
Hadroneura .................................. 45
Hematobia .................................... 69
Hematopinus .................................. 69
Hematometes ................................. 35
Halisidota .................................. 85
(See also Euschausia.)
Haltica ...................................... 23, 25
Halitus ...................................... 45, 49
Hammond ..................................... 15
Haploa ....................................... 19
Harmonia ..................................... 17
Hedycnemus ...................... 21, 22, 23
Harpyphorus ................................. 25
Harrisina .................................... 23
Hedere ..................................... 11
Helaphe .................................... 22, 23, 24, 39
Heliophilus .................................. 58
Heliothis .................................... 42, 50, 57
Helita ........................................ 54
Hemerobius .................................. 16
Hemericampa ................................. 16
Hemileuca ................................... 85
Hemiphasnia ................................. 10
Hecodes ..................................... 36
Hesperidium ................................. 10
Hegeus ....................................... 24
Heterocapsa = Eumanius ............... 68
Hilaris (Chrysalis) ......................... 68
Hilaris (Nezara) ...................... 9, 55
Hillocerus ...................... 17, 40, 45
Hippodamia .................................. 17
Hippodamia ................................. 29, 86
Homoptera .................................. 29, 86
Hopkinsl .................................... 99
Hornellus .................................... 41
Humulii (Hypena) ..................... 42, 21, 41, 104
Hyalina ..................................... 59
Hydrelia = Papajropsa ................. 54
Hystrichosoma = Pyralidus ............ 32
Hylastes ..................................... 32
Hylesinus ................................... 75
Hylostia ...................................... 82
Hylostinia ................................... 82
Hylophora ................................. 77, 83, 96
Hyurgops .................................... 74
Hyqarpax .................................... 87
Hyxypus .................................... 42
Hypona = Plathypena ................. 35
Hyperchiria = Automeris ........... 16, 35
Hyperpyra .................................. 16, 27, 86
Hypaphra .................................... 69
Hypaphlacea ................................ 36
Hypopsena .................................. 46
Hypothemus = Stephanoderes ...... 13
Hypopsygia ................................ 37
Icerya ........................................ 10, 105, 106
Ichneumon .................................. 15
Ichneumonidae .............................. 101
Ichneumonidae = Ichneumonidae .. 102
Ichthyura = Melaphora ............... 46
Ignita ........................................ 25
Imbricatus ............................... 17, 33, 45, 48
Immaculata ................................ 21
Immanis ....................................... 42
Imperialis ................................... 85
Inaequis ..................................... 24
Inequis ....................................... 26
Inclusa ....................................... 86
India .......................................... 19
Inelaterina ................................ 89
Insectula .................................... 13
Inermes ..................................... 37
Inguinalis ................................... 67
Innumerabilis .............................. 22, 91
Invariata ................................... 37
Integer ....................................... 73
Integerrima .................................. 86
Interpunctella .............................. 61
Interrogationis ............................. 42, 83
Intersectiana ............................... 38
Iowa .......................................... 16, 35
Iritans ....................................... 67

Page.

Isabella ...................................... 29, 36, 44
Isa ........................................... 36, 36, 44
Isosoma ....................................... 24, 41
Ithyceus ..................................... 15
Juglandis (Conotrachelus) ........ 90
Juglandis (Cressonia) .......... 84, 84, 84
Juicata ....................................... 55
Kalnie (Sphinx) ......................... 84
Kansanus .................................... 55
Kirschii ...................................... 61
Korscheltia = Lyonchius ........... 67
Kuchniella ................................ 66
Lachnosterna ................. 25, 30, 33, 46, 49
Lemophora .................................. 61
Lepidoptera ...................... 17, 33, 34
Lotus ........................................ 15
Lampronotus ......................... 30, 30, 30
Languria................................. 32
Lanigera (Ophiota) ................. 89
Lanigera (Schizoneura) .......... 12
Lapara ....................................... 84
Laphygma .................................... 30, 31, 34, 39, 44, 52
Laphygma .................................... 98
Lardarius .................................... 65
Lasioderma .................................. 63
Latiferacea ................................. 18
Latissimus .................................. 95
Latidens ..................................... 72
Latinus ....................................... 63
Lathippus ................................... 22
Laurolium .................................. 25
Lebia .......................................... 55
Lecanion = Cocccus .................... 10
Lecanion = Eubelatia ............... 19
Lecanion = Saissetia .......... 10, 11, 14
Lecontei ..................................... 19
Lecturaria ................................... 67
Legitimata ................................... 59
Lepumblachii ...................... 38, 38, 38
Lema .......................................... 55
Lemonias .................................... 35
Lenis ......................................... 30
Leptidospila ............................... 11, 11
Leptisma ..................................... 64
Leptinotarsa .............................. 55
Leptoglossus ......................... 9, 39, 9
Leptostylus .................................. 85
Leptura ....................................... 96
Leptus ......................................... 67
Leucania = Helliphila ............. 29, 35, 39, 45
Leucocetes = Epilagunculus .... 49
Leucopterus ...................... 40, 45, 104
Leucostigma ......................... 16, 87
Leucotermes ......................... 64, 64
Ligneus ....................................... 83, 96
Lignocilia ................................... 48
Linachina .................................... 20
Lima = Procalliodes ................... 8
Linenius ...................................... 8
Limnaris ..................................... 19
Limnesia ...................................... 45
Lina (see Melasoma) ................... 90
Linnea (Delliphiphid) ............ 44
Linnea (Delliphiphid) .......... 69
Linnealta ................................... 19
Linneutia .................................... 96
Linneutia ................................. 35
Linnea (Glycinae) ............... 102
Linnea (Tabanini) .............. 68
Lina (Tereus) = Ereumene ....... 37
Lida = Puthorimae ............. 54
Lionceris .................................... 33
Lingipes .................................... 22
Longispinus ......................... 10
Lophoderus = Eulria ................ 34, 49
Lophyrus ..................................... 89
Lopidea ....................................... 57
Loxostege .............................. 31, 34, 44, 51
Lucilia ....................................... 66
Lugubre ...................................... 42
Luna .......................................... 86
Lunator ....................................... 100
Luteola ...................................... 90
<p>| Lycena = Everes            | 56 |
| Lyctus                      | 98 |
| Lydus                       | 98 |
| Lymexyon                    | 98 |
| Lysiphlebus                 | 40 |
| maccallaria                | 66, 69 |
| Macrobasis                  | 33, 47, 48, 55 |
| Macrosolus = Phlegethonius | 56 |
| Macrosphina                 | 37, 39, 40 |
| maculata (Eufaga)           | 47 |
| maculata (Haldisota)        | 83 |
| maculata (Megilla)          | 55 |
| maculata (Harpiphorus)      | 25 |
| maculipennis (Siphacophila) | 55, 132 |
| maculipennis (Philtela)     | 52 |
| mala                        | 85 |
| Malacosoma                  | 15, 87, 88 |
| malarie                     | 108 |
| malella                     | 51 |
| male (Aphelinus)            | 12 |
| mali (see Aphis pomi)       | 17 |
| mali (Pterocyclon)          | 12 |
| malferella                  | 16 |
| malivarella                 | 15 |
| Mallodon                    | 85 |
| Mamestra                    | 35, 36, 44, 54, 56, 58 |
| maulecheriae                | 92 |
| Marginaria = Diaphania      | 59 |
| margignata (Bembecia)       | 26 |
| marumba                     | 84 |
| Melanotarsus = (Megamasia) = Pachynematida extensicornis | 40 |
| Materiarius                 | 70 |
| mauritianus                 | 62 |
| maxillosus                  | 62 |
| Mayetiola                   | 41, 106 |
| media                       | 57 |
| Megalopyge                  | 8 |
| Melia                        | 55 |
| Melaphora                   | 86 |
| Melanophila                 | 37, 37, 38, 39, 43, 55 |
| melanopus                   | 35 |
| Melasoma                    | 90 |
| melinus                     | 50 |
| Melita= L. lectorum         | 36 |
| Melitta                     | 105, 106 |
| Melophagus                  | 69 |
| Memathys                    | 61 |
| memapia                     | 84 |
| mepias                      | 61 |
| meridionalis                | 61 |
| Meromyza                    | 31, 41 |
| messoria                    | 35 |
| Melanathys                  | 68 |
| micans                      | 66 |
| Microcentrum                | 9, 89 |
| militaris                   | 45 |
| Minchela                    | 15 |
| minians                     | 36 |
| ministra                    | 86 |
| minuta (Acleris)            | 15 |
| minuta (Eupalsa)            | 98 |
| minutissimus                | 80 |
| misella                     | 12 |
| modesta                     | 84 |
| monomera                    | 39 |
| moliter                     | 62 |
| mollipes                    | 60 |
| Monarchtraum = Pterocyclon | 12 |
| Monarthrauliusa             | 90 |
| Monocrepidius               | 46 |
| monolactylus                | 56 |
| Monomachus                  | 76, 92 |
| Monomorium                  | 65 |
| Monophadnoides              | 27 |
| Monophadnus = Monaphadnoides| 27 |
| Monopitola                  | 47 |
| Monophalina                 | 46 |
| monute                      | 51 |
| Morella                     | 66 |
| mort                         | 103 |
| morpheus                    | 32 |
| Murgantia                   | 52 |
| Musca                       | 66, 103 |
| myops                       | 102 |
| myron                       | 23 |
| mytilaspis                  | 8 |
| Mytilus = Lepidophas.       | 11, 14 |
| Nada                        | 87 |
| nalis                       | 29, 36 |
| nais                        | 69 |
| nasicus                     | 90 |
| nebulosus = Diastrophus turgidus | 26 |
| nebulosus (Graphops)        | 25 |
| nebulosus (Haliclymus)      | 75 |
| nebulosus (Phragisticus)    | 45 |
| Neocritid                   | 65 |
| Nectacaphora = Macrosphina  | 40 |
| Necrotelota                 | 93 |
| Nevadus = Pterocyn, Pachynematida | 29, 40 |
| nenuphar                    | 18, 21 |
| Neodicytus                  | 95, 96 |
| Neophila                    | 84 |
| Nepheleodora                | 30, 11, 14 |
| nephridiella                | 56 |
| nigrofusciscaturn            | 28 |
| nigriovittatus              | 68 |
| nitens                      | 57, 47, 54 |
| nitida                      | 66 |
| nitidalis                   | 50 |
| nitidalis (female)          | 66 |
| nitidum                     | 76 |
| nivites                     | 22, 26 |
| Notocrupa                   | 30, 52 |
| nodus                       | 25 |
| nodulosus                   | 93 |
| Notolophus                  | 87 |
| novedromacensis             | 13 |
| nucella                      | 17 |
| novius                      | 106 |
| nubeculana                  | 15 |
| nubilella                   | 47 |
| nubula                       | 47 |
| nutallii                    | 39, 47, 48 |
| Nuxius                      | 45 |
| Oberea                      | 26 |
| oblimita                    | 36, 37, 35, 86 |
| obsequa (Catocala)          | 86 |
| obsequa (Delecia)           | 97 |
| obscurus (Heliolus), erroneously used for H. obscurus (Tenebrio) | 42 |
| obscurus (Tenebrio)         | 62 |
| obsoleta                    | 42, 50, 57, 58 |
| obsoletus                   | 83 |
| occidentalis (Cephus)       | 49 |
| occidentalis (Marumba)      | 84 |
| ocellata                    | 15 |
| ochelura (Spheningophorus) = equilis | 39 |
| Occhleria = Porthethria     | 17 |
| octomaculata                | 23 |
| oculatus                    | 102 |
| Odetota                     | 102 |
| Oecanthus                   | 22, 26 |
| Oeane                        | 95, 102 |
| Oeestrus                    | 69 |
| Oechlus                      | 39 |
| Oelea                       | 11, 14 |
| oleivorus                   | 9, 106 |
| Olene                       | 87 |
| olereca                     | 51 |
| Oletrethrea                 | 37 |
| Oncideres                   | 92 |
| Oncognathus                 | 31 |
| Oncomastix                  | 24 |
| opercularis                 | 8 |
| operculella                 | 54 |
| Ophion                      | 44 |
| opilion                     | 59 |
| Orchestes                   | 17 |
| oregoni                     | 73, 100 |
| Orgyia, (see Notolophus and Hemero- 87 |
| orientalis                  | 64, 67 |
| Ormyrus                     | 77 |
| Orthosoma                   | 95 |</p>
<table>
<thead>
<tr>
<th>Page</th>
<th>Oscinis</th>
<th>41</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Oscinis = Scaptomyza</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>ostrorhynchus</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Otilorhynchus</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>ovatus</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>ovis</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td>Oxyptilus</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Pachnaeus</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Pachylobius</td>
<td>92</td>
</tr>
<tr>
<td></td>
<td>Pachynematous</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Pachynema</td>
<td>84</td>
</tr>
<tr>
<td></td>
<td>Pachyzena</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>Palaearctica</td>
<td>16, 88</td>
</tr>
<tr>
<td></td>
<td>pales</td>
<td>92</td>
</tr>
<tr>
<td></td>
<td>palliiornis</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>pallidula</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>pallipennis</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>palipes</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>Palorus</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td>pampina</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>paniccia</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>Papalipena</td>
<td>39, 54, 57</td>
</tr>
<tr>
<td></td>
<td>Papilio</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>paraparata</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Parataenia</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>parochus</td>
<td>92</td>
</tr>
<tr>
<td></td>
<td>parvalutes</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Papaneura</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>Pansaurus</td>
<td>99</td>
</tr>
<tr>
<td></td>
<td>peaburialis</td>
<td>18, 21</td>
</tr>
<tr>
<td></td>
<td>Penhinta = Oethreutes</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>Pentilla</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>pentelaria</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Peridroma</td>
<td>31, 35, 42, 44, 51</td>
</tr>
<tr>
<td></td>
<td>Periplaneta</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>Periplaneta = Blatta</td>
<td>64, 67</td>
</tr>
<tr>
<td></td>
<td>perexarchus</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>permundana</td>
<td>25, 27</td>
</tr>
<tr>
<td></td>
<td>perniciosus</td>
<td>12, 13, 20, 28, 105</td>
</tr>
<tr>
<td></td>
<td>persicis</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>persiscis</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Phanurus</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>Phaenopsis</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>Phaenaxona</td>
<td>61</td>
</tr>
<tr>
<td></td>
<td>Phalaenops = Phonus</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>phaius</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Philegethonius</td>
<td>56, 57</td>
</tr>
<tr>
<td></td>
<td>Philopterus</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Philestomus = 73, 74, 81, 100, 101</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Philopterus = Philopterus</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Pholus</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Phorodon</td>
<td>21, 41, 101</td>
</tr>
<tr>
<td></td>
<td>Phasopteryx = Anelys</td>
<td>26, 27</td>
</tr>
<tr>
<td></td>
<td>Physargidia</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>Phthirius</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>Phthorima</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>Phyllopus</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Phyllostreta</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>Phylloxera</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Phymatodes</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>Physocream</td>
<td>94</td>
</tr>
<tr>
<td></td>
<td>Physopora</td>
<td>57</td>
</tr>
<tr>
<td></td>
<td>Phytosphenus</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>Phytophthora = Phlopius</td>
<td>9, 106</td>
</tr>
<tr>
<td></td>
<td>Phytophthora = Eriophyes</td>
<td>9, 106</td>
</tr>
<tr>
<td></td>
<td>Phytophthora</td>
<td>82</td>
</tr>
<tr>
<td></td>
<td>Piercea</td>
<td>82</td>
</tr>
<tr>
<td></td>
<td>Piceus (Alphitobius)</td>
<td>61</td>
</tr>
<tr>
<td></td>
<td>Pityocoris</td>
<td>92</td>
</tr>
<tr>
<td></td>
<td>Pityocoris (Cylindroctena)</td>
<td>91</td>
</tr>
<tr>
<td></td>
<td>picipianus</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>picilia</td>
<td>28, 41, 53</td>
</tr>
<tr>
<td></td>
<td>P terribly = Pontia</td>
<td>56, 51</td>
</tr>
<tr>
<td></td>
<td>Ptilium</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>Pilocca</td>
<td>102</td>
</tr>
<tr>
<td></td>
<td>Piloidea</td>
<td>15, 55</td>
</tr>
<tr>
<td></td>
<td>Pinellia</td>
<td>99</td>
</tr>
<tr>
<td></td>
<td>Piona = Evergestis</td>
<td>92</td>
</tr>
<tr>
<td></td>
<td>Piophila</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>pipiens</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>pisornum</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Pissodes</td>
<td>78, 91, 92</td>
</tr>
<tr>
<td></td>
<td>Phytophthora = Pityogynus</td>
<td>71, 72, 73</td>
</tr>
<tr>
<td></td>
<td>Phytophthora = Pityogynus</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td>phalinaeus</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Platygoza</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Platycoptera</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>Plociophorus</td>
<td>88</td>
</tr>
<tr>
<td></td>
<td>Podabrus</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Podius</td>
<td>9, 55, 58</td>
</tr>
<tr>
<td></td>
<td>Polycoccus</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>Polixenes</td>
<td>42, 55</td>
</tr>
<tr>
<td></td>
<td>Pophilium</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Polydora</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Polyphaga</td>
<td>29, 42, 43</td>
</tr>
<tr>
<td></td>
<td>Polyphaga</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>polyphagia</td>
<td>84</td>
</tr>
<tr>
<td></td>
<td>Polyphagia</td>
<td>84</td>
</tr>
<tr>
<td></td>
<td>Pomeartia</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>pomiphila</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Pomiphila</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>pomobella (Carpocapsa)</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>pomobella = Rhagoletes</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>pomonella (Mytilisaspis) = Lepidosaphes ulmi</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>pomonella</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Pontia</td>
<td>50, 51</td>
</tr>
<tr>
<td></td>
<td>popcanella</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Portheatra</td>
<td>17, 87</td>
</tr>
<tr>
<td></td>
<td>Praceps</td>
<td>76</td>
</tr>
<tr>
<td></td>
<td>pratensis (Bryobia)</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>pratensis (Lygus)</td>
<td>33, 45, 52</td>
</tr>
<tr>
<td></td>
<td>Trionoystis</td>
<td>99</td>
</tr>
<tr>
<td></td>
<td>Trionyx</td>
<td>23, 95</td>
</tr>
<tr>
<td></td>
<td>Pristiphora</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>privata</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td>Probonia = Oncometopia</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Pseudorx = Pteris</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Prodenia</td>
<td>3, 37</td>
</tr>
<tr>
<td></td>
<td>Progne</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>Pro drawings</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Propinipus</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Proteus</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Ptilus</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Ptilus</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Ptilocerus</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Ptilodice</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Ptilodice = Phlegethonius</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>Protoparca = Phlegethonius</td>
<td>57</td>
</tr>
<tr>
<td></td>
<td>proxima</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>prunocolea = Autophaga scutellaris</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Psenoceras</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>Pseudococcus</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Psues = Tropes</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>Psylle = Eurytytus</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Psylla</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Pyllodiotes</td>
<td>46, 60</td>
</tr>
<tr>
<td></td>
<td>Pieroclydon</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Pieroclydon</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>Pteronoe</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td>Ptilus (Giant arborviteae)</td>
<td>78</td>
</tr>
<tr>
<td></td>
<td>Ptilus (Pine wood-perforator)</td>
<td>78</td>
</tr>
<tr>
<td></td>
<td>Ptilus</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>pubescens = Xyleborus affinis</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>pubepennis</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td>pulchra</td>
<td>94</td>
</tr>
<tr>
<td></td>
<td>Pulicola = Clerocaphus</td>
<td>67, 105</td>
</tr>
<tr>
<td></td>
<td>Pulicola</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>Pulvinaria</td>
<td>22, 91</td>
</tr>
<tr>
<td></td>
<td>Pumilis</td>
<td>76</td>
</tr>
<tr>
<td></td>
<td>Punctatus (Chloesineus)</td>
<td>73</td>
</tr>
<tr>
<td></td>
<td>Punctatus (Phytonisus)</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>Puncticollis (Monoxia)</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Puncticollis (Nodosota)</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Puncticollis (Pityogynus)</td>
<td>72</td>
</tr>
<tr>
<td></td>
<td>punctifer</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>punctulata</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>punctum</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>Psychodera = Culex = C. pipiens</td>
<td>10, 105, 106</td>
</tr>
<tr>
<td></td>
<td>Psychodera = Culex = C. pipiens</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>Psychodera = Culex = C. pipiens</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>Psychodera = Culex = C. pipiens</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>Psychodera = Culex = C. pipiens</td>
<td>33</td>
</tr>
<tr>
<td>Page</td>
<td>Syneta</td>
<td>17</td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------------------------------------------</td>
<td>----</td>
</tr>
<tr>
<td></td>
<td>Syrphus</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Systena</td>
<td>46, 48</td>
</tr>
<tr>
<td></td>
<td>tabanivorus</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>Tabanus</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>Tachina</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>tachinata</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>tapinocila</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>tarsale</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>Teleta</td>
<td>84</td>
</tr>
<tr>
<td></td>
<td>Telephorus</td>
<td>18, 32</td>
</tr>
<tr>
<td></td>
<td>tenebricosus</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>Tenebroides</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>Tenebrio</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>Teorychus</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Teneutis</td>
<td>46, 48</td>
</tr>
<tr>
<td></td>
<td>Teneutes</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>Teneutes = Leucotermes</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>tessellaris</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td>testaceipes</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>tesiaceum</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>Tetr anchus</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>Tetranychoides</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Tetranychus</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Tetranychus</td>
<td>83, 15</td>
</tr>
<tr>
<td></td>
<td>Tetranychus.</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>Teza = Cassida pallidula</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>textror</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>Thalessa</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Thanasimus</td>
<td>82, 91</td>
</tr>
<tr>
<td></td>
<td>Thecla = Uranothes</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Therina</td>
<td>88</td>
</tr>
<tr>
<td></td>
<td>theo</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Thorybes</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>Thyris</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>Thyris = Sphecodina</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Thyridopteryx</td>
<td>8, 16</td>
</tr>
<tr>
<td></td>
<td>Tibiator (Calyptris)</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>Tibiator (Limneria)</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Tiberic</td>
<td>19, 91</td>
</tr>
<tr>
<td></td>
<td>tigrina</td>
<td>94</td>
</tr>
<tr>
<td></td>
<td>Tilia</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Tineola</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>Tineola = Trichopha, Tineola</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>Tipula</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Tiptedforms</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>Tischeria</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>titirus</td>
<td>84</td>
</tr>
<tr>
<td></td>
<td>tityus</td>
<td>89</td>
</tr>
<tr>
<td></td>
<td>Tortricoides</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Tomentosus (Epitragus)</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Tomentosus (Podabrus)</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Tomicus</td>
<td>75, 75, 81, 100</td>
</tr>
<tr>
<td></td>
<td>Torridic</td>
<td>79</td>
</tr>
<tr>
<td></td>
<td>Torridic, undet., under apple skin</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Torritex = Epagoge</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>transversata</td>
<td>88</td>
</tr>
<tr>
<td></td>
<td>treclecinumpetata</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Trexex</td>
<td>99</td>
</tr>
<tr>
<td></td>
<td>triangularis</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>Triballium</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td>Trichobaris</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>Trichodes</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td>Trichophaga</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>tridentata</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>tridens</td>
<td>34, 59</td>
</tr>
<tr>
<td></td>
<td>trifoli (Dastrynca)</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>trifoli (Hylastinus)</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>trifoli (Macrocephum)</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>trifoli (Mannesta)</td>
<td>35, 41</td>
</tr>
<tr>
<td></td>
<td>trifolli</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>trilatina</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>trinata</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>Trogex = Lysiphlebus</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Trogoderma</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>Trogosita</td>
<td>102</td>
</tr>
<tr>
<td></td>
<td>Trogosita = Tenebroides</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>trincatus</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td>Trypeta = Rhagoletis</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Trypodendron</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td>tuberculatum</td>
<td>102</td>
</tr>
<tr>
<td></td>
<td>turgidus</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>Tyloderma</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Typhlocybex</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Typhoea</td>
<td>61</td>
</tr>
<tr>
<td></td>
<td>Typophorus</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>uhleri</td>
<td>45, 49</td>
</tr>
<tr>
<td></td>
<td>ulmi</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>undalis</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>undata</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>undulata</td>
<td>88</td>
</tr>
<tr>
<td></td>
<td>undulatus</td>
<td>96</td>
</tr>
<tr>
<td></td>
<td>undulosa</td>
<td>84</td>
</tr>
<tr>
<td></td>
<td>unicolor</td>
<td>33, 47, 48, 55</td>
</tr>
<tr>
<td></td>
<td>unijuga</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>unipuncta</td>
<td>29, 35, 39, 43</td>
</tr>
<tr>
<td></td>
<td>unipunctata</td>
<td>57</td>
</tr>
<tr>
<td></td>
<td>unispinosus</td>
<td>76</td>
</tr>
<tr>
<td></td>
<td>Uranoites</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Urocerus</td>
<td>99</td>
</tr>
<tr>
<td></td>
<td>Urographis</td>
<td>96</td>
</tr>
<tr>
<td></td>
<td>uve.</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>vadusus</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>valensis</td>
<td>74</td>
</tr>
<tr>
<td></td>
<td>Vanessa = Euvanessa</td>
<td>85</td>
</tr>
<tr>
<td></td>
<td>variabilis</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>varius</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>verracius = Anthrenus verbasci</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>vaxatix</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Vedalia = Novius</td>
<td>106</td>
</tr>
<tr>
<td></td>
<td>ventricus (Xerinus) = Pteronus rhedi</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>verbasci</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>vernata</td>
<td>16, 88</td>
</tr>
<tr>
<td></td>
<td>vespertinum</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>vestimenti</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>vestita</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>vetusta</td>
<td>87</td>
</tr>
<tr>
<td></td>
<td>vidna</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>vidua</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>villosum</td>
<td>13, 91</td>
</tr>
<tr>
<td></td>
<td>virescens</td>
<td>102</td>
</tr>
<tr>
<td></td>
<td>virginica (Diacrisia)</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>virginica (Tetracha)</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>virginicasis</td>
<td>98</td>
</tr>
<tr>
<td></td>
<td>vitiicida</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>viticida = Typhlocyba comes</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>vitis</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>vitata (Dibrofica)</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>vitata (Epicauta)</td>
<td>47, 55</td>
</tr>
<tr>
<td></td>
<td>vitata (Phyllostreta)</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>vitatus</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>vituli</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td>vitusta</td>
<td>87</td>
</tr>
<tr>
<td></td>
<td>volvatus</td>
<td>82</td>
</tr>
<tr>
<td></td>
<td>vulgivagellus</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>xanthomelcena</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>Xanthonia</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Xanthotype</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>Xyleborus</td>
<td>7, 13, 20, 71</td>
</tr>
<tr>
<td></td>
<td>Xylinia</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Xylochirinus</td>
<td>81</td>
</tr>
<tr>
<td></td>
<td>Xylochirinus</td>
<td>81</td>
</tr>
<tr>
<td></td>
<td>zygraphopus = Xyleborus suxesceni</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Xylochiricus</td>
<td>96</td>
</tr>
<tr>
<td></td>
<td>zyphoida</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>zyphoida = Phyllostreta sinuata</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>Zophodia</td>
<td>29</td>
</tr>
</tbody>
</table>
INDEX TO COMMON NAMES.

Page.

Abbot's sphinx. (See Sphinx.) white pine sawfly. (See Sawfly.) 75
Achenom sphinx. (See Sphinx.) Alder, white, bark-beetle. 75
Aleyrodes. (See White-fly.) clover. (See Clover.) 13
Alfalfa webworm. (See Webworm.) Ambrosia-beetle, cosmopolitan. 7
Ambrosia-beetles. 70
American cockroach. (See Cockroach.) copper. (See Butterfly.) 2
Dagger-moth. (See Moth.) 55
Frit-fly. (See Frit-fly.) 101
gad-fly. (See Gad-fly.) 101
locust. (See Locust.) 101
sawfly, large. (See Sawfly.) 101
spruce bark-beetle. 81
tent-caterpillar. (See Caterpillar.) 2
Angoumois grain-moth. (See Grain.) 4
Angular-winged kattydid. (See Kattydid.) 11
Anomala, varied. 24
Ant, little red. 24
white. 24
Aphis, apple. 64
cauliflower. 17
inhommat. 38
"cabbage. 38
clover. 37
cotton. 10
grain, English. 40
European. 40
German. 39
hop. 21,41,101
orange. 10
woolly apple. 12
Apple. aphid. 17
"curculio. 18
fruit maggot. 18
leaf flea-weevil. 17
leaf-folder, lesser. 15
miner. 16
sewer, Chapman's. 15
skelatonizer. 15
tree borer, flat-headed. 12,97
Bucelatrix. 12
"caterpillar, yellow-necked. 86
pruner. 13
shot-borer. 18,20
shot-hole borer. 13
tent-caterpillar. 15
twig-beetle. 7,13
borer. 12
15,22
wood-stainer. 12
woolly aphid. 12
"worn (cabbage moth). 18
Arborvine, giant, Dryophlius. 78
Ptinid. 78
Argus tortoise-beetle. (See Tortoise-beetle.) 49
Arizona Dendroctonus. 101
Army worm. 29,35,39,43
beet. 11
fall. 30,31,34,39,44,52
wheat-head. 39
Ash borer, banded. 95
four-marked. 96
Ash-gray blister-beetle. (See Bilster-beetle.) 84
Sphinx. 84
tree bark-borer. 75
Asiatic ladybird. (See Ladybird.) 57
Asparagus beetle, common. 58
twelve-spotted. 58
miner. 57
Australian ladybird. (See Ladybird.) 57
Bagworm, the common. 8,16
Banded flea-beetle. (See Flea-beetle.) 99
hornet. (See Sphecid.) 96
Trogaphils. 96
Bark-beetle, American spruce. 81
ash-tree. 75
balsam-fir. 101
birch. 81
cedar. 81
companion. 100
densely-punctured. 71
destroyer, cloudy. 82
European. 101
destroyers. 101
destructive pine. 100
fruit-tree (shot-hole borer). 15,19,20
grand fir. 75
hickory. 101
knobcone pine. 71
larger fir-tree. 75
Lawson cypress. 100
lodgepole pine. 71
minute birch. 80
oak. 80
spruce. 82
native peach. 19
Parmacheene. 81
redwood. 74
smaller fir. 72
small red spruce. 80
spruce. 81
western cedar. 78
fir. 72
hemlock. 75
oak. 71
white alder. 75
spruce. 81
Bark-borer, Douglas spruce. 76
eastern hemlock. 97
flat-headed pine. 97
small pine. 98
western cedar. 98
hemlock. 97
Bark-loise. (See Scale.) 78
weevil, sugar pine. 41
Barley-straw worm. 41
Bean cutworm. 49
ladybird. 48
leaf-beetle. 48
stem-borer, Lima. 47
weevil, common. 49
European. 50
four-spotted. 50
Mexican. 97
Beautiful wood nymphs. (Large and small.) (See Wood nymphs.) 90
hickory borer. 94
Red bug. 67
Bee, honey. 105
Beet army worm. 44
Chlorops. 43
leaf-miner. 43
Bee. (See under Ambrosia, Asparagus, Bark, Blister, Cucumber, Flea, Flour, Flower, Grain, Leaf, Pine, Potato, Spider, Timber, and Tortoise beettles.) 48
black. 64,67
cabinet. 62
carpet. 63
black. 61
cigarette. 63
drug store. 62
gibbous June. 33,46

(118)
| Page | California tuessock moth | Phryganida, | Californian tent-necklace | Callidium, chestnut | Canadian Leptura | Cane-borer, raspberry | Canker-worm, fall | spring | Carolina. (See Locust.) | Carpenter worm, oak | Poplar | Carpet beetle | black | moth, Leconte | Case-bearer, orange (See Orange) | pistol | making clothes moth. (See Clothes moth.) | Cat and dog flea. (See Flea.) | Catalpa Sphinx | Caterpillar, American tent | tick | apple-tree tent | black hickory | Californian tent | forest tent | grapevine hog | green oak | melon | northwestern tent | orange dog | purslane | red-humped oak | Rocky Mountain tent | saddle-back | sail-trunk | 30, 49, 52 | skiff | social grape | stinging | striped hawk | tufted tent | white-marked tuessock | yellow bear | zebra | 36, 44, 53, 58 | (See also Tuessock caterpillar.) | Cattle louse | 69 | Cauliflower pyralid | 53 | Cecropia moth. (See Moth.) | Cedar bark-beetle | 81 | borer, western | 73 | borer | tree borer | 96 | Centipede, house | 64 | Chafer, (See Scarab.) | 88 | Chalcis-fly, cloverseed. (See Clover.) | Chapin's apple-leaf sewer. (See Apple.) | Cherry-fruit maggots | 20 | leaf-beetle | 20 | webworm | 88 | scale | 14, 21 | Cheese skipper. (See Skipper.) | Chestnut-borer, two-lined | 97 | Callidium | 94 | timber-worm | 98 | Chickweed geometrid. (See geometrid.) | Chinche bug | 40, 45, 104 | false | 45 | "Chin" fly. (See Fly.) | Chloron, belded | 94 | Chlamys, orange. (See Scale, sourly.) | Chlorops, beet. (See Beet.) | Chrysobothris, orange. (See Orange.) | Cicada, periodical (17-year) | 13, 19, 91 | Cicada, western | 79 | Cigarette beetle. (See Beetle.) | Circular scale. (See Scale.) | Clay-colored bill-bug. (See Bill-bug.) | Clear-winged looper. (See Looper.) | moth. (See Currant.) | Clerid, clouded | 82 | dubius | 100 | hairy | 100 | orange banded | 100 | spider-like | 101 | Clerids | 101 | Climbing cutworm. (See Cutworm.) | Clothes moth, case-making | 64 | Clouded pigweed bug. (See Pigweed.) | Cloudless sulphur. (See Butterfly.) | Cloudy-wing, northern | 36 | Clover, red | 22 | aphid | 37 | cutworm | 35, 44 | flavescent, weevil | 33 | flower-lodge | 28 | hay worm | 37 | leaf midge | 33 | leaf weevil | 32 | midge | 32 | root-borer | 32 | seed chalcis-fly | 32, 38 | worm | 38 | stem-borer | 32 | worm | 38 | Clytus, red-headed | 96 | Cockroach, American | 64 | Codling moth (apple worm) | 18, 105 | Coffee-bean weevil | 7 | Colaspis, grapevine. (See Grapevine.) | Colorado potato-beetle. (See Potato.) | Colydids | 102 | Commelina owlet-moth. (See Owlet-moth.) | Companion bark-beetle | 100 | Conyntas butterly. (See Butterfly.) | Cone neck, cut. (See Ctenucha.) | 67 | worm | 38 | spruce | 90 | southern pine | 90 | Confused flour-beetle. (See Flour-beetle.) | Convex flea-beetle. (See Flea-beetle.) | Copper, American | 36 | Corn ear worm | 42, 50, 57, 58 | root worm, western | 33 | Cosmopolitan ammobia beetle | 13 | timber-beetle | 71 | Cotton aphis | 10 | boll weevil, western | 42, 50, 57, 58 | stainer | 9 | Cottonwood root-borer | 39 | Cottony cushion scale. (See Scale.) | maple scale. (See Scale.) | Cowpea weevil | 50 | Crab, (See Crab.) | 39 | Crapbush, vagabond | 39 | Cranberry looper | 29 | scale | 14, 19, 28 | spanworm | 59 | Cricket, hee, etc. | 64 | mole, northern | 9 | short-winged | 54 | snowy tree | 22, 26 | western | 39 | Crinkle pinnate moth | 88 | Cross-striped cabbage-worm. (See Cabbage.) | Croton bug. (See Bug.) | Crow blister-beetle. (See Blister beetle.) | Crow-borer. (See Strawberry.) | girdler. (See Strawberry.) | moth. (See Strawberry.) | Crumpler, wooly. | 15 | Cryptopus, balsam fir | 79 | hairy | 71 | spruce | 79 | Cucumber beetle, (See Species) | twelve-spotted | 33, 36, 48, 58, 60 | flea-beetle | 47, 56, 60 | Curellicio, apple | 18 | plum | 54 | Currant borer, imported | 28 | clear-wing moth | 28 | mite, red | 60 | stem-borer, native | 28 | worm | 29 | native | 28 | Cutworms, bean | 49 | black | 51 | bronzed | 36 | climbing | 17 |
Destroying

Dag'g moth, American. 86
smear

Dark meal-worm. (See Meal-worm.) 74
red turpentine beetle. 74
sided cutworm. (See Cutworm.)
tussock-moth. 87

Dendroctonus, Arizona. 101
Douglas spruce, 74, 101

Densely punctured bark-beetle. 71
Depressed flour-beetle. (See Flour-beetle.)

Destroyer, fir-tree 76
western pine. 71

Destroyers, bark-beetle. 82, 101

Destroying beetle of the Black Hills, pine. 100

Destructive leaf-hopper. (See Leaf-hopper.) 82
mealy-bug. (See Mealy-bug.)
pine bark-beetle. 90

Diamondback moth. (See Moth.)

Differential leucost. (See Locust.)

Dingy cutworm. (See Cutworm.)

Distended May-beetle. (See May-beetle.)

Dog and cat, flea. (See Flea.)

face butterfly, Southern. (See Butterfly.)
range. (See Orange.)

Doluraga, sitka spruce. 73

Dried-currant. (See Currant.)

Drug-store beetle. (See Beetle.)

Dryophilus, giant arborevita. 78
Dublin clerid. 101

Dung fly, brown. 66

Dusky plant-bug. (See Plant-bug.)

Ear fly, black-striped. 68

worm. (See Corn.)

EGG-plint flea-beetle. (See Flea-beetle.)

Eight-spotted forester. (See Forester.)

Elater, eyed. 102

elm leaf-beetle, imported. 102

small-eyed, western. 90

elm leaf-beetle, larger. 90

tree borer. 93

English grain-aphis. (See Aphis.)

Euphoria. 18

European bean-weenil. (See Bean.)

fruit-soule. (See Soule.)

grain aphid. (See Aphis.)

Eye elater. 102

ladybird. (See Ladybird.)

Eye spotted budmoth. (See Budmoth.)

Excrement fly, shining. (See Fly.)

Fall army worm. (See Army worm.)

cankerworm. (See Cankerworm.)

weevil. (See Weevil.)

False chinchi-bug. (See Bug.)

worm. (See Strawberry.)

Fidia, grapevine. (See Grapev.)

Fug-eater. 15

Fir, balsam, bark-beetle. 81

bark-beetle, smaller. 72

bark-beetle, western. 72

branch scolytus. 76

Page.

121

Page.

121

Fir, California white, Scolytus. 76

grand, bark-beetle. 75

larger, bark-beetle. 75

tree destroyer. 76

Scolytus, smaller. 76

weevil. 92

wood-ewing. 73

Five-spined Tomiens, 73

Flannel moth, erly. 88

Flat-headed apple-tree borer. (See Apple.)

borets. 97

light-colored tree borer. (See Hickory.)

Flavescent weevil, clover. 33

Flea, cat and dog. 67, 69

Flea-beetle. 48

convex. 46
cucumber. 47, 56, 60
egg plant. 52, 56

grapevine. 23

horse-radish. 53

pale-striped. 46, 48

punctured. 60

red-legged. 17

spinach. 46

strawberry. 25

striped. 53

sweet potato. 56

tomato. 41

triangular. 47

waxy-necked. 46

striped. 53

western. 53

cabbage. 53

hopper, garden. 45, 49

weevil, apple-leaf. (See Apple.)

Florida wax scale. (See Scale.)

Flour-beetle, broad-horned. 63

confused. 63

depressed. 63

rust-red. 63

slender-horned. 63

small-eyed. 63

Flour-moth, Mediterranean. 60

Flower-midge, fir. 38

Fluted scale. (See Scale.)

Fly. (See Under Bot, Chales, Ear, Frit, Fruit, Gad, Saw, and Syrphus.)

Fly, chin. 68

dring. 66

excrement, shining. 66

green bottle. 66

heel. (See Ox-bot.)

Hesi, fruit. 11, 122

Hippelates. 66

horn. 69

house. 66, 103

screw worm. 66

stable. 66, 68

vinegar or fruit. 65, 66

warble. 69

white. 9

Folder, lesser apple leaf. 15

grape leaf. 23

Forbes scale (cherry scale). 14, 21

Foreign grain weevil. (See Grain weevil.)

Forest span worm, large. 88

tent caterpillar. 87

Forester, eight-spotted. 23

Four horned spinyleaf. 84

lined plant bug. (See Leaf bug.)

marked plant leaf-beetle. (See Leaf-

beetle.)

ash borer. (See Ash borer.)

spined Tomiens. 73

spotted bean-weenil. (See Bean.)

Frit fly. American. 41

Fruit fly, Indian. 19

maggot, apple. 18

cherry. 26

mite, orange. 9

moth, grape. 24

'tree bark beetle. 13, 19, 20

worm, green. 18

Fuller's rose-beetle. (See Rose.)
Gadfly, American ..................................... 68
black .................................................. 68
black-striped ......................................... 68
Meat .................................................. 68
Gall aphis, Engelmann spruce ...................... 79
Sita sorce ............................................. 79
maker, blackberry ................................... 79
Garden flea-hopper. (See Flea-hopper.) webworm. (See Weed-hopper.) ...................... Geometer, chickweed .................................. 35
German grain-aphis. (See Grain.) ................ Gibbous June-beetle. (See June-beetle.) ....... Girdler, crown. (See Strawberry.) ......... 92
hickory twig .......................................... 92
poplar .................................................. 92
Glassy cutworm. (See Cutworm.) .................. Glover's scale. (See Scale.) ...................... Gnat, southern buffalo ......................... 66, 68
turkey .................................................. 68
Golden Buprestis ..................................... 89
Goldsmith beetle ..................................... 40
Gooseberry-borer, black ............................ 40
fruit worm ............................................. 40
Grape small .......................................... 39
Grain-aphis, English ................................... European .............................................. 40
German ............................................... 39
beetle, flat, form .................................... 61
merchand .............................................. 61
red or square-necked ............................... 61
saw-toothed .......................................... 61
borer, larger ......................................... 63
leaf-hopper .......................................... 63
moth, Angoumois .................................... 61
sawfly, western ...................................... 40
weevil, broad-nosed ................................ 63
Granary weevil ....................................... 63
Granulated cutworm .................................. 29, 51
Grape ealy-piller, social ............................ 23
fruit-moth ............................................ 23
leaf-folded .......................................... 23
Philloxera ............................................ 22
scale .................................................. 22
seed weevil .......................................... 24
Grapevine Colaspis .................................... 24, 33
Fidia .................................................. 22
flea-beetle .......................................... 22
hob-caterpillar ..................................... 22
leaf-hopper .......................................... 24
plume-moth ......................................... 23
root-borer .......................................... 23
sawfly .................................................. 23
Grasshopper. (See Locust.) ......................... 9
Grass sawfly. (See Sawfly.) ....................... 29
worm, northern ...................................... 29
Gray blister beetle. (See Blister beetle.) comma. (See Butterfly.) hair-wrack. (See Butterfly.) striped greenhead. (See Greenhead.) Greedy scale. (See Scale.) ................... Green bottle fly. (See Fly.) ....................... 22
clover worm. (See Clover.) ....................... fruit worms ........................................... 18
Green tortoise-beetle. (See Tortoise beetle.) trogostid ........................................... 102
Greenhead, common .................................. 68
gray-striped ......................................... 68
Grub, hop ............................................. 42
white .................................................. 42
25, 30, 46
Gypsy moth .......................................... 17, 87
Hackberry butterfly, common ...................... 84
Hair-streak, gray. (See Butterfly.) ............... 102
Hairý clevid .......................................... 102
Cryphalus ............................................ 71
faced joint worm ................................... 41
Ham beetle, red-legged ............................. 65
skiller .................................................. 65
Harlequin cabbage worm. (See Cabb. Borer.) 56
Hawk-moth, sweet potato .......................... 56
Hay worm, clover ................................... 37
Head louse. (See Louse.) ........................... maggot. (See Sheep.) ............................ Hemispherical scale. (See Scale.) ............. 122
Page. 68 .................................................. 68
Page. 75 .................................................. 97
bark, borer, eastern ................................ 77, 97
western ............................................... 70
wood-stainer, western ............................. 70
Hessian fly. (See Fly.) ............................. 104
Hickory bark-beetle ................................ 101
borer, beautiful ..................................... 94
common .............................................. 64
flat-headed .......................................... 97
painted .............................................. 94
tiger ................................................... 94
caterpillar, black .................................... 86
horsed devil ......................................... 85
husk-worm .......................................... 90
tobacco soft-case ................................... 91
timber-beetle ....................................... 98
tussock caterpillar ................................. 83
twig-girdler ......................................... 92
Hippelates fly. (See Fly.) .......................... 105
Hog-caterpillar. (See Beelte.) ..................... Honey bee ........................................... 42
Hooded plant-bug. (See Plant-bug.) ................. Hop-aphis ................................. 21, 41, 104
grub .................................................... 42
snout-moth ......................................... 42
Horn-blower. (See Tobacco worm.) fly. (See Fly.) Horned squash-bug. (See Squash.) Hornet, banded ...................................... 99
black .................................................. 99
blue .................................................... 99
small ................................................... 99
white .................................................. 99
yellow-winged ....................................... 99
Hornetts .............................................. 99
Horse bot fly. (See Bot-fly.) louse, sucking. (See Louse.) radish flea-beetle. (See Flea-beetle.) House centipede. (See Centipede.) cricket. (See Cricket.) moth-felder. (See Mosquito.) fly. (See Fly.) little. (See Fly.) Hudson Bay Tomius ....................................... 81
Hyleius, Douglas spruce ................................ 75
shore pine ........................................... 75
Hylurgops, Sita spruce ................................ 74
western pine ......................................... 74
Hyparax, rosý ........................................ 87
Imbricated snout-beetle. (See Snout-beetle.) imperial moth ........................................... 85
Imported cabbage leaf-moth. (See Cabbage.) webworm. (See Cabbage.) currant-borer. (See Currant.) worm. (See Currant.) Indian Engia. (See Brown fruit chafer) ............... 18
fruit-fly. (See Fruit-fly.) meal moth. (See Moth.) Indian Engia ........................................... 30, 36, 44
Isabella tiger-moth ................................... 30, 36, 44
Joint worms .......................................... 41
hairly-faced ......................................... 41
June beetle ........................................... 11
libeg-eater ........................................... 18
gibbous .............................................. 33, 46
Katydid ............................................... 89
angular-winged .................................... 9
Kissing bug ......................................... 106
Ladybird, Asiatic ................................... 105
Australian ........................................... 106
bean .................................................... 48
blood-red ............................................ 17, 40, 55
eyed ................................................... 17, 41
scaeth .................................................. 60
twice-stabbed ....................................... 55
Larch sawfly .......................................... 89
Larder beetle ........................................ 89
Leaf-beetle, bean .................................... 48
<table>
<thead>
<tr>
<th>Page</th>
<th>Maple sugar, borer</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>worm, green-striped</td>
<td>85</td>
</tr>
<tr>
<td></td>
<td>worm, semi-looping</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>Margined blister-beetle</td>
<td>(See Blister-beetle.)</td>
</tr>
<tr>
<td></td>
<td>May beetle</td>
<td>30,46</td>
</tr>
<tr>
<td></td>
<td>distended</td>
<td>30,49</td>
</tr>
<tr>
<td></td>
<td>Meadow worm</td>
<td>(See Leather-jacket.)</td>
</tr>
<tr>
<td></td>
<td>Meal sap-beetle</td>
<td>(See Sap-beetle.)</td>
</tr>
<tr>
<td></td>
<td>snout-moth</td>
<td>(See Snout-moth.)</td>
</tr>
<tr>
<td></td>
<td>worm, dark</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>yellow</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>Mealy-bug, destructive</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Long-tailed wing</td>
<td>(White-fly)</td>
</tr>
<tr>
<td></td>
<td>Mediterranean flour-moth</td>
<td>(See Flour.)</td>
</tr>
<tr>
<td></td>
<td>Melon caterpillar</td>
<td>(See Caterpillar.)</td>
</tr>
<tr>
<td></td>
<td>Membiant grain-beetle</td>
<td>(See Grain.)</td>
</tr>
<tr>
<td></td>
<td>Mexican bean-weevil</td>
<td>(See Bean.)</td>
</tr>
<tr>
<td></td>
<td>cotton boll weevil</td>
<td>(See Cotton.)</td>
</tr>
<tr>
<td></td>
<td>gaddly</td>
<td>(See Gaddly.)</td>
</tr>
<tr>
<td></td>
<td>Military bug</td>
<td>(See Bug.)</td>
</tr>
<tr>
<td></td>
<td>Millipede, ringed</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>Miner</td>
<td>(See Asparagus and Leaf-miner.)</td>
</tr>
<tr>
<td></td>
<td>Midge, clover-flyer</td>
<td>(See Clover.)</td>
</tr>
<tr>
<td></td>
<td>clover-moth</td>
<td>(See Clover.)</td>
</tr>
<tr>
<td></td>
<td>Mite</td>
<td>(See Clover, Orange, Pearl)</td>
</tr>
<tr>
<td></td>
<td>orange fruit</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>pear blisters</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Mole-cricket, northern</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Mottled-winged</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>Mosquito, house</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>malaria</td>
<td>65,103</td>
</tr>
<tr>
<td></td>
<td>salt-marsh</td>
<td>103</td>
</tr>
<tr>
<td></td>
<td>yellow</td>
<td>103</td>
</tr>
<tr>
<td></td>
<td>MOTH</td>
<td>(See under Bud, Flour, Fruit, Hawk, Grain, Owlet, Plum, Snout, Tussock, and Tiger.)</td>
</tr>
<tr>
<td></td>
<td>blue-spotted looper</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>brown-tail</td>
<td>17,87</td>
</tr>
<tr>
<td></td>
<td>back</td>
<td>85</td>
</tr>
<tr>
<td></td>
<td>carpet</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>chestnut</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>clothes</td>
<td>64,65</td>
</tr>
<tr>
<td></td>
<td>codling</td>
<td>18,105</td>
</tr>
<tr>
<td></td>
<td>crinkly flannel</td>
<td>88</td>
</tr>
<tr>
<td></td>
<td>current clearwing</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>dagger, American</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>smeared</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>diamond-back</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>dried-currant</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td>gypsy</td>
<td>18,57</td>
</tr>
<tr>
<td></td>
<td>imperial</td>
<td>85</td>
</tr>
<tr>
<td></td>
<td>imported pea</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Indian-meat</td>
<td>61</td>
</tr>
<tr>
<td></td>
<td>lo</td>
<td>18,55</td>
</tr>
<tr>
<td></td>
<td>leopard</td>
<td>98</td>
</tr>
<tr>
<td></td>
<td>lime-tree winter</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Mediterranean flour</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>peach-twig</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>polyphemus</td>
<td>84</td>
</tr>
<tr>
<td></td>
<td>strawberry crown</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>white-marked tussock</td>
<td>87</td>
</tr>
<tr>
<td></td>
<td>wool</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>Mottled-tortoise-beetle</td>
<td>(See Tortoise-beetle.)</td>
</tr>
<tr>
<td></td>
<td>Mountain ash borer</td>
<td>83</td>
</tr>
<tr>
<td></td>
<td>Mourning cloak butterfly</td>
<td>83</td>
</tr>
<tr>
<td></td>
<td>Mulberry borer, ash colored</td>
<td>94</td>
</tr>
<tr>
<td></td>
<td>Nails tiger-moth</td>
<td>(See Tiger-moth.)</td>
</tr>
<tr>
<td></td>
<td>Native currant stem-borer</td>
<td>(See Currant.)</td>
</tr>
<tr>
<td></td>
<td>currant worm</td>
<td>(See Currant.)</td>
</tr>
<tr>
<td></td>
<td>peach-bark-beetle</td>
<td>(See Peach.)</td>
</tr>
<tr>
<td></td>
<td>Negro-bug, little</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>New York weevil</td>
<td>(See Weevil.)</td>
</tr>
<tr>
<td></td>
<td>Northern Bristlies</td>
<td>98</td>
</tr>
<tr>
<td></td>
<td>cloudy-wing</td>
<td>(See Buttery.)</td>
</tr>
<tr>
<td></td>
<td>grass-worm</td>
<td>(See Grass-worm.)</td>
</tr>
<tr>
<td></td>
<td>leaf-footed plant-bug</td>
<td>(See Plant-bug.)</td>
</tr>
<tr>
<td></td>
<td>mole-cricket</td>
<td>(See Cricket.)</td>
</tr>
<tr>
<td></td>
<td>tobacco worm</td>
<td>(See Tobacco.)</td>
</tr>
<tr>
<td></td>
<td>Northwestern tent-caterpillar</td>
<td>88</td>
</tr>
<tr>
<td></td>
<td>Nut weevils</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>Nuttall's blister-beetle</td>
<td>(See Blister-beetle.)</td>
</tr>
<tr>
<td></td>
<td>Oak ambrosia beetle</td>
<td>(See Ambrosia.)</td>
</tr>
<tr>
<td></td>
<td>bark-beetle, minute</td>
<td>80</td>
</tr>
</tbody>
</table>
Oak bark-beetle, western
borer, dusty
variable
carpenter worm
caterpillar, green
red humped
live, root-borer
pruner
spanworm, western
timberworm. (See Northern Bremthis)
tussock caterpillar
twig Ormyrus
webworm
worm, orange-striped
worm, pod
Obligue banded leaf-roller. (See Leaf-roller.)

Oleander scale. (See Scale.)
Orange aphid
banded clerk
Chionaspis
Celosiella
dog (hog caterpillar)
fruit-mite
leaf-notcher
rust-mite
sawyer
striped oak worm
sulphur leaf-footed
white spot
Oregon Tomicus
Ormyrus, oak twig
Owl-trot moth
Ox-bot
lace, long-nosed
short-nosed
Oyster shell. (See Scale.)

Pale-striped flea-beetle. (See Flea-beetle.)
Tremex
tusk-cuckoo caterpillar
Pale weevil
Pan-American Platybus. (See Platybus)
Parmacheene bark-beetle
Pea moth, imported
weevil
Peach bark-beetle, native
borer
moth, blue-spangled
scale
twig moth
Pear-blight beetle
blister-mite
bore, yellow
Psylla
shot-borer
slug

Pegomya bidentata
Penellid snout-beetle. (See Snout-beetle.)
Periodical cicada. (See Cicada.)
Phyrgania, California
Phylloxera. (See Grape.)
Pickle worm
Pigeon Tremex
Pigweed bug, clouded
Pin borer (gopher)
Pin bark-beetle, destructive
bark-borer, flat-headed
small
birdseye
borer, black-horned
knob-horned
heartwood
lesser
obsolete
ponderous
ribbed
butterfly
cone-worm, southern
destroyer, western
destroying beetle of the Black Hills.
tungus-gall weevil
horntail, black
small
heartwood borer

Pine Hylurgops, western
Jeffrey, twig beetle
Knot scale, bark-beetle
lodgepole, bark-beetle
Monterey, twig-beetle
mountain, Dendroctonus
wood-roller
sawyer, common
shore, Hylesinus
silver, Tomicus
Sphinx
sugar, bark-weevil
smaller Tomicus
wood-roller
tussock caterpillar
twig miner
white, Abbott's sawfly
sawyer
twined
weevil
wood-roller
wood-roller
wood-perforator
stainer, western
yellow, wood-roller
Pistol case-bearer. (See Case-bearer)
Pitch-enable caterpillar
Plant-bug, dusky
four-lined
hooked
northern leaf-footed
tarnished
smokey
Platypus, Pan-American western
Plum curculio
gouger
Plum-moth, grape-vine
sweet potato
Polyphemus moth
Pilar borers
barkworm
carpenter worm
girdler
tent-mucker
Colorado
carrier
southern leaf-footed
tarnished
three-lined
stalk-worm
tuber worm
Pot herb butterfly. (See Butterfly)
Powder-post beetles
Pretty cutworm. (See Cutworm)
Prions, leaf-bored
lesser
tile-horned
Pruner, apple-tree. (See Apple)

Psylla. (See Pear)
Ptithrid, borer, red-shouldered
giant arboreal
Punctured flea-beetle. (See Flea-beetle)
Purple scale. (See Scale.
Purslane bug
caterpillar
Putnam's scale. (See Scol.)
Pyralid, cauliflower
Rascal leaf curculier. (See Leaf-currulier)
Raspberry cane-borer
leaf roller
root-borer
sawfly
scarab
Red-banded leaf-roller. (See Leaf-roller)
Red bug (Dysdercus)
(Leptus)
Red grainer (See Gril)
Red-headed Clytus
legged flea-beetle. (See Flea-beetle)
hum-beetle. (See Ham)
locust. (See Locust)
shouldered pliniid borer. (See Cane-borer)
Red-shouldered twig-borer. (See Twig-borer.)
spider, two-spotted

turnip beetle. (See Turnip.)
Redwood bark-borer...

Resplendent shield-bearer. (See Shield-bearer.)
Rhinoceros beetle...
Ringed millipede. (See Millipede.)
Rocky Mountain locust. (See Locust.)

Roller worm. (See Worm.)
Root aphis, corn. (See Corn.)
•borer, clover. (See Clover.)
cottonwood

grape-vine. (See Grape.)
live oak
raspberry. (See Raspberry.)
strawberry. (See Strawberry.)
sweet potato

worn, grape-vine. (See Grape.)
Rose beetle, Fuller’s

leaf-beetle

Rocky Mountain locust. (See Locust.)

Rosy Hyparpex

Round-headed apple-tree borer. (See Apple.)
Round-headed borers...

Rustic white. (See Orange.)
red flour-beetle. (See Flour-beetle.)

Rusty borer.

Rusty brown Tortrix. (See Tortrix.)
tussock-moth

Saddleback. (See Caterpillar.)
Salt-marsh caterpillar. (See Caterpillar.)
Sandy ground bug. (See Bug.)
San Jose scale. (See Scale.)
Sap-bettle, corn. (See Corn.)

meat

Sawfly, grain, weedy

grape-vine

grass

larch

 larger American

larger sweet-potato

raspberry

wheat

White pine, Abbott’s

Sawtoothed grain-beetle. (See Grain-beetle.)

Sawyer, common pine

orange. (See Orange.)
ponderous

white pine

Scale, barnacle

black

California red

chaff

cherry

circular

cottony cushion

maple

cranberry

European fir

Florida wax

fluted

Forbes’s

gloomy maple

Glover’s

grape

grey

hemispherical

hickory, soft

long

bleeder

oyster-shell

peach

purple

Putnam’s

San Jose

scurvy, apple

orange

soft

terrapin

Scolytus, California white fir

fir branch

red spruce

single-spine

smaller fir tree

Screw-worm fly

Seed, clover, chalet-fly. (See Clover.)
midge. (See Clover flower-midge.)

worm, clover. (See Clover.)
grape. (See Grape.)
weevil, grape.

Semicolon. (See Butterfly.)

Seventeen-year Cicada

Shagreened cutworm.

Sharp-shinned hawk.

Sheep botfly...

head maggot

loose

tick

shield-bearer resplendent

Shining excrement fly. (See Fly.)

Short-nosed ox-louse. (See Louse.)

Shot borer. (See Borer.)

Shot-hole borer. (See Apple.)

Silkworm

Silver fish

Single-spine Scolytus

Sinuate pear borer. (See Pear.)

Skiff caterpillar. (See Caterpillar.)

Skipper, ham or cheese

Slender-billed flour-beetle. (See Flour-beetle.)

Slug. (See Pear.)

Slug caterpillars

Small-eyed Eater

Small white cutworm. (See Cutworm.)

Smeared dagger

Snout-beetle, fabricrated

Smilax

moth, hop

meal

Snowy tree-cricket. (See Cricket.)

Social grape caterpillar. (See Grape.)

Soft scale. (See Scale.)

Southern buffalo gnat. (See Gnat.)
cabbage-worm. (See Cabbage.)
dog face. (See Butterfly.)
glass worm. (See Worm.)

leaf-footed plant-bug. (See Plant-bug.)
tobacco worm. (See Tobacco.)

Spanworm, cranberry

elm

gooseberry

large forest

raspberry

western oak

Speckled cutworm. (See Cutworm.)

Sphinx, Abbott’s

achemone

alo

caterpillars

four-horned

pine

walnut

wavy ash

western cottonwood

white-lined

Spider-beetle, brown

Sphyrhinus

Spider-like cladid.

Spinach flea-beetle. (See Flea-beetle.)

Spotted blister-beetle. (See Blister-beetle.)

cutworm. (See Cutworm.)

strawberry leaf-beetle. (See Leaf-beetle.)

Spring canker-worm. (See Canker-worm.)

Spruce bark-beetle

Aster

beetle

American

minute

small red

white

black, wood-engraver

borer, wavy

cone-worm

Cryphalus

destroying beetle

Douglas, bark-borer

Dendroctonus

Dendroctonus
Spruce, Douglas, Hylesinus ............... 75
Engelmann, gall-aphis ............... 79
red, Scolytus ............... 82
sika, Dolurus ............... 78
gall-aphis ............... 79
Hylobius ............... 74
Tomeius ............... 73
twig-beetle ............... 72
twig-beetle, minute ............... 80
dark-beetle ............... 91
wood-borer, destructive ............... 83, 96
wood-engraver ............... 80
Square-necked grain-beetle. (See Grain.)
Squash-bug, common ............... 60
horned ............... 60
ladybird ............... 60
vine borer ............... 39
Stable fly, cotton. (See Cotton.)
Stalk-borer ............... 39, 54, 57
corn, smaller ............... 48
Stalk-weevil, pine ............... 51
Stem-borer, elover ............... 32
lima bean ............... 47
native currant ............... 28
Stinging caterpillar. (See Insect.)
Strawberry crown-borer ............... 24
girdler ............... 24
moth ............... 25
false worm ............... 25
flea-beetle ............... 25
leaf-beetle, spotted ............... 25
chafers ............... 26
roller ............... 27
root-borer ............... 25
weevil ............... 26
Straw-worn, barley ............... 26
Straw-worn, pepper ............... 41
Striped blister-beetle. (See Blister-beetle.)
cucumber-beetle. (See Cucumber.)
cut-worm. (See Cut worm.)
 flea-beetle. (See Flea-beetle.)
Sucking horse louse. (See Louse.)
Sugar-beet. (See Leaf-beetle and Webworm.)
maple borer ............... 93
 Sulphur, cloudless ............... 32
colored Tortrix ............... 34, 59
little. (See Butterfly.)
orange. (See Butterfly.)
Sweet-potato flea-beetle, sugar ............... 56
 hawk-moth ............... 56
plume-moth ............... 56
root-borer ............... 56
Swollen May-beetle. (See May beetle.)
 Tapestry moth. (See Carpet moth.)
Tarrished plant bug. (See Plant bug.)
Ten-spotted Xanthia. (See Xanthia.)
Tent-caterpillar. (See Apple.)
American .................. 88
California .................. 88
 forest .................. 87
northwestern .................. 88
Rocky Mountain .................. 88
Turkey .................. 93
 maker, poplar .................. 86
 Tannin scale. (See Scale.)
 Thick-thighed walking stick. (See Walking stick.)
 Three-lined potato beetle. (See Potato beetle.)
 Thrift, wheat .................. 32
Thundersbolt beetle ............... 35
Tick, cattail .................. 66
sheep .................. 69
Tiger-moth, isabella ............... 39, 36, 44
 main .................. 36
 Tile-moth, isabella. (See Prionus.)
 Timber-beetle, birch .................. 71
vapour ............... 71
hickory ............... 95
spruce ............... 71
Timber worm, chestnut. ............... 98
tick. (See Northern Brench.)
Timothy plant bug. (See Plant bug.)
Tobacco split-work, small ........................................ 54
worm, Northern ............... 57
 Southern ............... 57
Tomato worm ............... 57
Tomicus, touplipis ............... 57
Tortoise-beetle, argus ............... 57
Tortoise-beetle. (See Flea-beetle.)
Twisted-lobed plant louse. (See Louse.)
Twist-lobed plant, black-legged ............... 56
golden ............... 55
green ............... 57
little green ............... 54
mottled ............... 56
two-striped ............... 56
Tortoise, yellow. (See Apple.)
Tortrix, russet brown ............... 34
Tussok-caterpillar, hickory ............... 85
oak .................. 85
pale .................. 85
 pine .................. 85
white-marked ............... 15
moth, California ............... 87
dark ............... 87
rufus ............... 87
white. (See White.)
Twelve-spotted asparagus beetle. (See Asparagus.)
cucumber beetle. (See Cucumber.)
Twice-stabbed ladybird. (See Ladybird.)
Twig-beetle. (See Apple.)
Jeffrey pine ............... 72
Mounty, larger pine ............... 72
Sita spruce ............... 72
white pine ............... 80
borer. (See Apple.)
 red-shouldered ............... 22
girdler, hickory ............... 92
maggot, pine ............... 78
miner, pine ............... 79
Delmonia spruce ............... 78
Two-lined chestnut borer ............... 97
spotted red spider. (See Red spider.)
striped locust. (See Locust.)
tufted beetle. (See Tortoise-beetle.)
 walking-stick. (See Walking-stick.)
Tyer, greenhouse leaf. (See Leaf-tyer.)
Urographis, banded ............... 96
Vagabond Crambus. (See Crambus.)
Varied Anomala. (See Anomala.)
Variegated cutworm. (See Cutworm.)
Viscount butterfly ............... 83
Vinegar fly ............... 65, 86
Violet-tip butterfly ............... 83
Walking stick, common ............... 89
 Walnut borer, blue-winged ............... 94
<table>
<thead>
<tr>
<th>Page</th>
<th>Walnut fruit weevil</th>
<th>90</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sphinx</td>
<td>81</td>
</tr>
<tr>
<td></td>
<td>weevil</td>
<td>82</td>
</tr>
<tr>
<td></td>
<td>Marble fly</td>
<td>89</td>
</tr>
<tr>
<td></td>
<td>Waved sharpshooter. (See Sharpshooter.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Waxy-necked flea-beetle. (See Flea-beetle.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>striped flea-beetle. (See Flea-beetle.)</td>
<td>31</td>
</tr>
<tr>
<td>Webworm, alfalfa</td>
<td>cherry-leaf</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>fall</td>
<td>88</td>
</tr>
<tr>
<td></td>
<td>garden</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>imported cabbage</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>oak</td>
<td>89</td>
</tr>
<tr>
<td></td>
<td>sugar-beet</td>
<td>41</td>
</tr>
<tr>
<td>Woevil. (See under Apple, Bark-weevil)</td>
<td>Bean, Cotton, Grain, Rice, and Strawberry.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>clover-leaf</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>coffee bean</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>cowpea</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>cypress</td>
<td>92</td>
</tr>
<tr>
<td></td>
<td>fir</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>flavescet clover</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>granary</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td>grape-seed</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>lentil</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>New York</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>nut</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>pales</td>
<td>92</td>
</tr>
<tr>
<td></td>
<td>pea</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>pine fungus gall</td>
<td>78</td>
</tr>
<tr>
<td></td>
<td>pitch-eating</td>
<td>92</td>
</tr>
<tr>
<td></td>
<td>strawberry</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>walnut</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>fruit</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>western spruce</td>
<td>91</td>
</tr>
<tr>
<td></td>
<td>white pine</td>
<td>91</td>
</tr>
<tr>
<td>Western cabbage (flea-beetle, cabbage.) (See Flea-beetle.)</td>
<td>79</td>
<td></td>
</tr>
<tr>
<td></td>
<td>cicada, small</td>
<td>79</td>
</tr>
<tr>
<td></td>
<td>corn-root worm. (See Corn.)</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>cricket. (See Cricket.)</td>
<td>79</td>
</tr>
<tr>
<td></td>
<td>flea-beetle. (See Flea-beetle.)</td>
<td></td>
</tr>
<tr>
<td>West Indian mole-cricket. (See Cricket.)</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wheat sawfly</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>head army-worm</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>joint worm</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>stem maggot, greater</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>straw maggot, lesser</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>worm, greater</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>thrips</td>
<td>32</td>
</tr>
<tr>
<td>White blister-beetle. (See Blister-beetle.) fly</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>White grub (June beetle)</td>
<td>25, 30, 46</td>
</tr>
<tr>
<td></td>
<td>(May beetle)</td>
<td>30, 46</td>
</tr>
<tr>
<td></td>
<td>horned horntail</td>
<td>99</td>
</tr>
<tr>
<td></td>
<td>lined Sphinx. (See Sphinx.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>marked spider-beetle. (See Spider-beetle.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>tussock-caterpillar. (See Catterpillar.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>tussock-moth. (See Moth.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>spot. (See Orange.)</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>Willow leaf-beetle, spotted</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>striped</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Winter-moth, lime-tree</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>W-marked cutworm. (See Cutworm.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wolf-moth. (See Moth.)</td>
<td>82</td>
</tr>
<tr>
<td></td>
<td>Wood-engraver, black spruce</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>fir</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>minute spruce twig</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>mountain pine</td>
<td>72</td>
</tr>
<tr>
<td></td>
<td>spruce</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>sugar pine</td>
<td>73</td>
</tr>
<tr>
<td></td>
<td>white pine</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>yellow pine</td>
<td>72</td>
</tr>
<tr>
<td></td>
<td>nymph, beautiful</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>perforator, pine</td>
<td>78</td>
</tr>
<tr>
<td></td>
<td>stainer. (See Apple.)</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>eastern pine</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>western hemlock</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>pine</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>Woodpecker work</td>
<td>82</td>
</tr>
<tr>
<td></td>
<td>Woolly aphis. (See Apple.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Worm. (See under Apple, Armyworm, Bagworm, Bud, Cabbage, Canker, Clover, Corn, Cotton, Currant, Cutworm, Fruit, Joint, Maple, Meal, Oak, Poplar, Root, Spanworm, Straw, Tobacco, Tomato, and Webworm.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>meadow. (See Leather-jacket.)</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>pickle</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>roller</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Yellow-bear caterpillar. (See Catterpillar.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>black-bordered. (See Butterfly.) butterfly. (See Butterfly.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>fever mosquito. (See Mosquito.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>meal worm. (See Meal.)</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>necked caterpillar</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>winged horntail</td>
<td>99</td>
</tr>
<tr>
<td></td>
<td>Xanthonia, ten-spotted</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Zebra caterpillar. (See Catterpillar.)</td>
<td></td>
</tr>
</tbody>
</table>

