

1903

43

34
49

ILLINOIS STATE LABORATORY
OF NATURAL HISTORY

Urbana, Illinois

SYNOPSIS OF INSECT COLLECTIONS

FOR DISTRIBUTION

TO ILLINOIS HIGH SCHOOLS

LEPIDOPTERA

(Butterflies and Moths)

By CHARLES A. HART

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PANTAGRAPH PRINTING
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INTRODUCTORY.

THE State Laboratory of Natural History, in issuing collections of insects to Illinois schools, will hereafter make up and distribute sets of the different orders in succession, accompanying each sending with a pamphlet listing all the species of the order which are included in the distribution, with a brief summary for each species of the more important known facts concerning its food, habits, life history, general biology, and specific and sexual characteristics, and, if of economic importance, concerning injuries and remedial measures, with a reference to a discussion of the insect in some current text-book. The present list is the first of this series.

A few technical terms used in the list refer to the fundamental pattern of wing-marking, more or less of which is present in both wings of all moths. This pattern is well-developed in the fore wings of the cutworm moths (of which Fig. 45, *e*, p. 33, is an excellent example). Near the middle of the wing, the two discal spots are usually present in these moths; the outer, bean-shaped, is the kidney-spot; the inner, the round-spot. In the geometer-moths these spots are not evident, but in their place is the discal dot, usually on both wings. Four principal lines cross the wing, easily located as a rule when present but characteristically unlike in different species, and very useful in separating species. They are often more or less wanting, and except in the geometers seldom appear on the hind wings. The first of these, located near the base of the wing, is usually incomplete and very frequently absent; line 2, the "transverse anterior," is on the inner side of the round spot, at about the first third of the wing; line 3, the "transverse posterior," is always just beyond the kidney-spot, at about the second third; and line 4, the subterminal, lies between it and the fringe. In the genus *Catocala* a loop of line 3 is in some species nearly or quite cut off from the line, forming a well-marked spot, and as it lies just behind the kidney-spot, or reniform spot as that is also called, this is designated as the subreniform spot. The

dark median shade sometimes present, especially evident in some geometers, crosses the wing between lines 2 and 3, just about midway of the wing. A magnifier of quite low power may be profitably used, especially on the smaller moths.

Lepidopterous eggs are placed, as a rule, on the leaves of the host plant; consequently only departures from this practice are noted.

The scientific name of the insect is given first, in italics, followed by the name of the authority who first described the species and assigned to it the specific name; genus or species names recently in general use, but now obsolete, follow in parenthesis, the genus names with a capital initial. Thus "*Pontia rapæ* (Pieris)" means that this species has been recently known as *Pieris rapæ*. The letters I, II, etc., indicate the periods when the adult or winged insect occurs; the larval and other stages intervene, of course, between these. Only the most evident and reliable characters by which the species may be recognized, and the conspicuous differences due to sex, are given. This characterization is omitted under well-marked species not likely to be confused with any other. It is intended only as a guide in the comparison of species, and not for general identification.

The list and the collections correspond in numbering and arrangement.

The nomenclature and classification of the Lepidoptera of America have been revised throughout of late by Dr. H. G. Dyar and others, necessitating many changes to new and unfamiliar names, but on the other hand securing a fairly natural classification and placing the nomenclature on a more stable basis. The results of this revision have been published in Bulletin 52 of the United States National Museum. now our latest and best check-list of North American butterflies and moths.

REFERENCE BOOKS MENTIONED.

Scudder. Brief Guide to the Commoner Butterflies of the Northern United States and Canada. S. H. Scudder. Henry Holt & Co., New York. \$1.25; illustrated, \$1.50.

Holland. The Butterfly Book. W. J. Holland. Doubleday, McClure & Co., New York. \$3.00. (The Moth Book, by the same author, is in preparation.)

Comstock. Manual for the Study of Insects. J. H. & A. B. Comstock. Comstock Publishing Co., Ithaca, N. Y. \$3.75; in clubs of 5 or more, \$2.81; postage, 34 cents.

Saunders. Insects Injurious to Fruits. Wm. Saunders. J. B. Lippincott & Co., Philadelphia. \$2.00.

Sanderson. Insects Injurious to Staple Crops. E. D. Sanderson. John Wiley & Sons, New York. \$1.50; postage 14 cents.

ABBREVIATIONS.

| | |
|------------------|---------------------------|
| F., food. | p., pupa. |
| H., Hibernation. | I, first or only brood of |
| e., egg. | adults; II, second, |
| l., larva. | etc. |

For the lines on the wings and other technical terms, study the introductory text.

Family PAPILIONIDÆ.

1. *Iphiclides ajax* Linn. (*Papilio ajax*). **Zebra Swallowtail.** Commoner southward. F., papaw. H. as pupa; several broods. Illustrates seasonal dimorphism; spring and summer forms distinguished by length of tails and extent of white on them. Comstock, 379.

2. *Papilio glaucus* Linn. (*P. turnus*). **Tiger Swallowtail.** F., birch, poplar, ash, and other trees, etc. H. as pupa; I, June and early July; II, late July, etc. Illustrates sexual dimorphism; yellow and black females, latter recognized by black bars still traceable beneath. Comstock, 378.

3. *Papilio troilus* Linn. **Spice-bush Swallowtail.** F., spice-bush and sassafras. H. as pupa; I, late May into July; II, mid-Aug. and later. Known by a submarginal row of pale blue-green spots and large anterior orange spot, both on hind wings above. Scudder, 150.

4. *Papilio thoas* Linn. (*P. cresphontes*). **Giant Swallowtail.** Tropical, occasional in Illinois. F., orange, hop-tree (*Ptelea*), etc. H. as pupa; I, early June; II, Aug. and Sep. Larva is "orange-puppy;" injures orange trees. Scudder, 151.

5. *Papilio polyxenes* Fabr. (*P. asterias*). **Black Swallowtail.** F., parsnip, carrot, etc. H. as pupa; I, mid-May to mid-July; II, mid-July to mid-Sep. Male has second row of yellow spots on fore wings. Holland, 314.

6. *Laertias philenor* Linn. (*Papilio*). **Blue Swallowtail.** F., Dutchman's pipe (*Aristolochia*), smartweed (*Polygonum*), and bindweed (*Ipomœa*). H. as adult(?); I, July; II, Sep. Scudder, 145. (Fig. 1.)

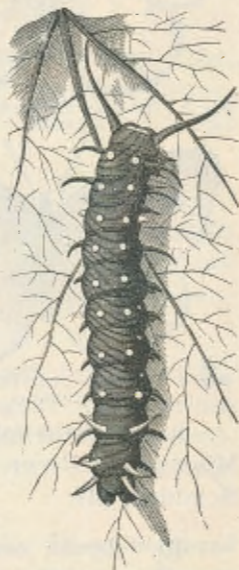


Fig. 1. Blue Swallowtail.
Laertias philenor; larva.

Family PIERIDÆ

7. *Pontia protodice* Bdv. & Lec. (Pieris). **Checkered White.** F., cabbage and other crucifers; now largely supplanted by cabbage butterfly. H. as pupa; I, May; II, late June and early July; III, late August. Known by black cross-bar at middle of front wing near front edge, and other spots. Scudder, 141. (Fig. 2.)



Fig. 2. Checkered White, *Pontia protodice*; larva and pupa on cabbage leaf.

8. *Pontia rapæ* Linn. (Pieris). **Cabbage Butterfly.** F.: destructive to cabbage and related plants. H. as a pupa; I, late April and May; II, late June to mid-July; III, August. Eggs and pupæ on leaves. Fore wing of female with two rounded black spots; of male, with one.



Fig. 3. Cabbage Butterfly, *Pontia rapæ*, male.



Fig. 4. Cabbage butterfly, *Pontia rapæ*; female.

Remedies; pyrethrum and kerosene emulsion. Comstock, 382. (Figs. 3-5.)



Fig. 5. Cabbage Butterfly, *Pontia rapæ*; a, larva; b, pupa.

9. *Nathalis iole* Bois. **Dainty Sulphur.** Found along Mississippi River and in Southern Illinois. F., *Tagetes*. Scudder, 139.

10. *Zerene caesonia* Stoll (Colias). **Dog's Head.** More abundant southwards. F., clover, etc. Two broods (?); adults, Apr. to Nov. Scudder, 133.

11. *Eurymus eurytheme* Boisd. (Colias). **Orange Sulphur.** Abundant westwards. F., clover. H. as larva and adult; 3 broods. Distinctly orange above. Scudder, 135.

12. *Eurymus philodice* Godt. (Colias). **Clouded Sulphur.** F., clover, etc. H. as larva; I, May; II, July and first part of Aug.; III, late Aug. to frosts. White form sometimes found. Black border in female contains row of yellow spots. Comstock, 385.

13. *Eurema nicippe* Cram. (Terias). **Black-bordered Yellow.** Common south of lat. 40°. F., sensitive pea (*Cassia*), etc. H. as adult; 2-brooded; adults mid-May to Nov., and in early spring; most abundant in Aug. (II). Smaller than preceding; orange; broad black outer border reaches middle of front edge. Scudder, 137.

14. *Eurema euterpe* Ménétr. (Terias lisa). **Little Sulphur.** Found with the preceding. F., sensitive pea (*Cassia*). H. as adult; I, mid-June through July; II, mid-Aug. through Sep. Yellow; border about as in preceding. Scudder, 138.

Family NYMPHALIDÆ.

15. *Euptoieta claudia* Cram. **Variegated Fritillary.** Not common in Illinois; a southern species. F., passion-flower, violets, etc. Apparently 3-brooded. Hind wings dead-leaf color beneath. Holland, 99.

16. *Argynnis cybele* Fabr. **Great Spangled Fritillary.** F., violets. H. as larva; I, late June to Sep. Pupates beneath and on stones and bark upon the ground. Hind wings beneath cinnamon, with broad buff band and large silver spots. Scudder, 79.

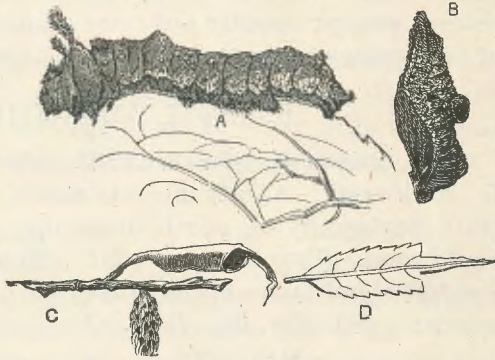
17. *Argynnis aphrodite* Fabr. **Silver-spot Fritillary.** F., violets. H. as larva; I, July to mid-Sep., eggs not laid before mid-Aug. Hind wings beneath differ from those of preceding species in buff band being very narrow or wanting. Scudder, 77.

18. *Brenthis myrina* Cram. (Argynnis). **Silver-bordered Fritillary.** Ranges with *bellona*; life history similar. Silver spots beneath. Scudder, 74.

19. *Brenthis bellona* Fabr. (Argynnis). **Meadow Fritillary.** A northern species, rare south of lat. 41°. F., violets. H. as larva; 3 broods, irregularly developing; adults, middle of May to frosts. No silver spots beneath. Scudder, 72.
20. *Phyciodes tharos* Dru. **Pearl Crescent.** F. *Aster*, etc. H. as larva; 2 broods. Eggs in large clusters on under side of leaves. Scudder, 71.
21. *Polygonia interrogationis* Fabr. (Grapta). **Violet Tip.** F., elm, hop, linden, etc. H. as adult; I, July to mid-Aug.; II, Sep. to frosts and May to mid-June. Hind wings beneath with silver semicolon; those of form *umbrosa* very dark above, spots nearly hidden. Sanderson, 279; Comstock, 405.
22. *Polygonia comma* Harr. (Grapta). **Hop Merchant.** F., hop, elm, nettle, etc. H. as adult; I, July and Aug.; II, Sep. and March to end of May. Hind wings beneath marbled with light and dark brown, with open silver G; those of form *dryas* dark, as in corresponding form of preceding species. Sanderson, 282; Comstock, 405.
23. *Euvanessa antiopa* Linn. (Vanessa). **Mourning Cloak.** Northern hemisphere. F., willow, elm, poplar, etc. H. as adult; I, July and later; II, Sep. to Nov., and from early spring into May. Comstock, 403.
24. *Vanessa atalanta* Linn. (Pyrameis). **Red Admiral.** Eur., N. Am., etc. F., nettle, hop, etc. H. as adult, also as pupa; I, July and Aug.; II, Sep. and later, also May and early June. Scudder, 87.
25. *Vanessa huntera* Fabr. (Pyrameis). **Painted Beauty.** F., everlasting (*Gnaphalium*), etc. H. as adult and pupa; I, mid-July to Aug.; II, mid-Sep. to end of season, again from mid-May to June. Two large eye-spots on hind wing beneath. Scudder, 86.
26. *Vanessa cardui* Linn. (Pyrameis). **Cosmopolitan.** Everywhere except in parts of S. Am. and Arctic regions. F., thistle. H. as adult; I, July and Aug.; II, Sep. and later, also from early spring into June. Larva weaves nest. Four smaller eye-spots on hind wing beneath. Scudder, 84.

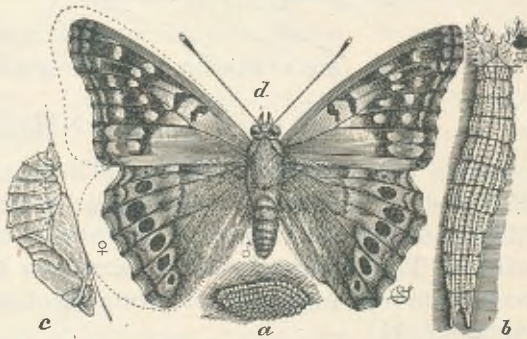
27. *Basilarchia astyanax* Fabr. (*Limenitis ursula*). **Red-spotted Purple.** F., rose family, willow, etc. H. as half-grown larva in curiously folded leaf; I, mid-June into Aug.; II (partial), mid-Aug. through Sep. Resembles *Papilio*, but tailless. Scudder, 101.

28. *Basilarchia archippus* Cram. (*Limenitis disippus*). **Viceroy.** F., *Salicaceæ* (willow, poplar, etc.). H. as larva; I, June into July; II, mid-July into fall. Mimics *Anosia plexippus*. Transverse black line on hind wings. Comstock, 407. (Fig. 6.)



29. *Chlorippe celtis* Bdv. & Lec. (*Apatura*). **Gray**

Emperor. S. Ill. especially. F., hackberry. H. as larva (and adult?); I, June to end of Aug.; II, Aug. and Sep. One roundeye-spot on fore wing like those on hind wing. Scudder, 106.



30. *Chlorippe clyton* Bdv. & Lec. (*Apatura*). **Tawny Emperor.**

Not common, except in S. Ill. F., hackberry. H. as larva; I, June and later. No true eye-spot on fore wing. Scudder, 105. (Fig. 7.)

Family AGAPETIDÆ.

31. *Cercyonis alope nephele* Kirby (*Satyrus*). **Dull-eyed Grayling.** F., grass. H. as young larva; I, mid-July

through Aug. Eye-spots of fore wings, beneath, tawny-yellow-bordered, but scarcely so above. Scudder, 111.

32. *Cissia eurytus* Fabr. (*Neonympha eurytris*). **Little Wood-satyr.** F., grass. H. as half-grown larva; I, last of May through June. Larvæ hide by day among roots and sticks on ground. Two eye-spots on each wing above and below, except usually only one above on hind wing; those of hind wings beneath with "satellites." Holland, 203.

Family LYMNADIDÆ.

33. *Anosia plexippus* Linn. (*Danais archippus*). **Monarch.** F., milkweed. Adults migrate south in fall, hibernate in Gulf States, flying north in spring, and laying eggs for first brood. Two broods in Ill. Mimicked by *Basilarchia archippus*, but lacks black cross-line on hind wing of that species. Scudder, 63. (Fig. 8.)

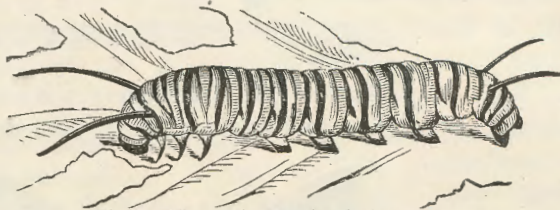


Fig. 8. Monarch, *Anosia plexippus*, larva.

Family LYCÆNIDÆ.

34. *Uranotes melinus* Hübn. (*Thecla*). **Gray Hair-streak.** F., heads of hops and various pods. Probably H. as pupa; I, May and June; II, July into Sep. Adults frequent shrubs and vines. This species and the next two have tail-filaments, and are best separated by details of markings beneath. Scudder, 111.

35. *Thecla edwardsii* Saund. **Edward's Hair-streak.** N. half of state. F., oak. H. as egg; I, in spring; I, July to Sep. See preceding species. Scudder, 121.

36. *Mitoura damon* Cram. (*Thecla smilacis*). **Olive Hair-streak.** S. part of state especially. F., red cedar; adults haunt tops of these trees. H. as pupa; I, May and June; II (partial), Aug. See *Uranotes melinus*. Scudder, 118.

37. *Chrysophanus thoe* Boisd. **Bronze Copper.** F., *Polygonum* and *Rumex*. H. as egg; I, late June and July; II, mid-Aug. to mid-Sep. Expanse, $1\frac{1}{2}$ in. or more. Female dark-bordered merely. Scudder, 127.

38. *Epidemia helloides* Boisd. (*Chrysophanus*). **Purplish Copper.** N. Ill. and westward. Colors beneath distinctive. Holland, 254.

39. *Heodes hypophleas* Boisd. (*Chrysophanus americanus*). **American Copper.** F., sorrel (*Rumex acetosella*). H. usually as pupa; I, mid-May through June; II, early July to late in Aug.; III, Sep. Pupates under stones. Expanse about 1 inch. Scudder, 128.

40. *Everes comyntas* Godt. (*Lycæna*). **Tailed Blue.** F., bean family (*Leguminosæ*). H. probably as larva; I, May to early June; II, July to mid-Aug.; III, mid-Aug. through Sep. Eggs in crevices of inflorescence, larvæ eat flower heads and tender leaves. Known from other Blues by tail-filament of hind wing. Male, violet; female, dark brown, above. Scudder, 123.

Family HESPERIIDÆ.

41. *Ancyloxypha numitor* Fabr. **Least Skipper.** F., grasses. H. probably as pupa; I, June; II, later July to mid-Aug.; III, Sep. Larva in web between grass blades; prefers wet situations. Scudder, 166.

42. *Atrytone zabulon* Bdv. & Lec. (*Pamphila*). **Mormon.** F., grass. H. as larva or pupa; I, late May and June. Larva in web between blades. Yellow, with rather broad black borders above and below; some females black, with row of white spots on fore wings; a large pallid cloud beneath near posterior angle of fore wing. Scudder, 167.

43. *Thymelicus cernes* Bdv. & Lec. (*Pamphila cernes*. *Limochores taumas*). **Tawny-edged Skipper.** F., *Panicum*, *Triticum*, and other grasses. H. as pupa; I, June and July; II (partial), Aug. and Sep. In this and the three following skippers the male has a black oblique raised "sex-mark" on the fore wing, minutely different in each species. Both sexes of *cernes* have the middle part of front edge

of fore wings dull yellow above and below, and a few yellowish dots outwardly, hind wings plain brownish. Scudder, 173.

44. *Polites peckius* Kirby (Pamphila). **Yellow Spot.** F., grasses. I, June to mid-July; II, Aug. and Sep. See preceding, which it resembles; hind wings with yellow band above, cut into row of spots by dark veins crossing it, and two well-marked bands beneath. Scudder, 170.

45. *Euphyes vestris metacomet* Harr. (Pamphila metacomet). **Dun Skipper.** See *Thymelicus cernes*. Plain blackish brown, or two or three minute spots on fore wings above. Holland, 360.

46. *Limochores manataaqua* Scud. (Pamphila). **Cross-line Skipper.** F., grass. H. as pupa (?); I, July into Aug.; I, Aug. and Sep. Larva in tubular nest between grass blades, adult in moist meadows. Fore wings blackish, with row of spots; hind wings blackish, a faint cross-row of spots beneath; details of "sex-mark" (see *Thymelicus cernes*) characteristic. Holland, 357.

47. *Epargyreus tityrus* Fabr. (Eudamus). **Silver-spotted Skipper.** F., bean family (*Leguminosæ*). H. as pupa; I, late May into Aug. Larva beneath leaf-flap or between leaves. Adults frequent flower gardens. Silver spot beneath on hind wings. Scudder, 155.

48. *Thorybes pylades* Scud. (Eudamus). **Northern Cloudy-wing.** F., clover, bush-clover, etc. H. as pupa; I, June to late July; II, mid-Aug. to mid-Sep. Larva makes nest beneath flap of leaf. Scudder, 156.

49. *Pholisora catullus* Fabr. **Sooty-wing.** F., pigweed and lamb's-quarters. H. as larva; I, mid-May through June; II, late July and Aug. Larva lives in fold of leaf. Row of minute white dots near apex of fore wing. Scudder, 164.

50. *Hesperia montivagus* Reak. (*Pyrgus tessellatus*). **Variiegated Tessellate.** F., mallows. H. believed to be as pupa; I, early in spring; II, June and July; III, Aug. and Sep. Scudder, 165.

Family SPHINGIDÆ.

51. *Hæmorrhagia diffinis* Boisd. (Hemaris, Sesia). **Bumblebee Hawk-moth.** F., Bush honeysuckle, snowberry, and *Triosteum perfoliatum*. H. probably as adult; I, late May and early June; 1., June; II, July and early Aug. Pupa in cocoon under leaves. Inner edge of black outer border toothed.

52. *Hæmorrhagia diffinis tenuis* Grote (H. *tenuis*). A variety of the preceding, with black border narrower, and entire within.

53. *Celerio lineata* Fabr. (Deilephila). **White-lined Sphinx.** F., purslane, chickweed, etc. H. as pupa in ground; I, June and July; 1., July and Aug.; II, late Aug. and early Sep.; 1., mid-Sep. through Oct. Flies like humming-bird in early evening; larva varies as in figures. Comstock, 337. (Fig. 9.)

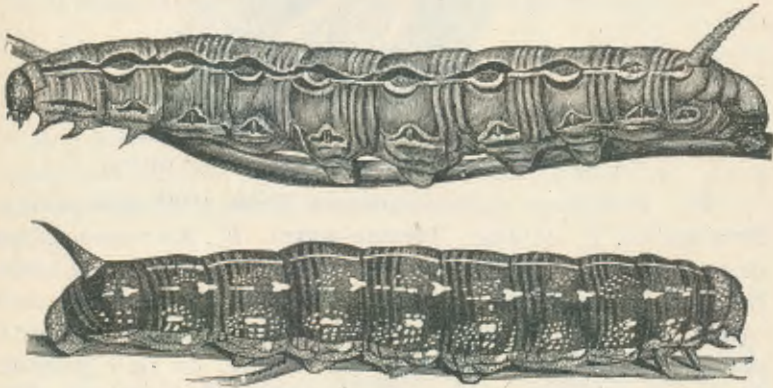


Fig. 9. White-lined Sphinx, *Celerio lineata*; two types of larval markings.

54. *Theretra tersa* Linn. (Chærocampa). Common southward. F., madder family, corn. H. as pupa in ground; I, May and early June; 1., July; II, late July and Aug., 1., Sep. and Oct. (Fig. 10.)

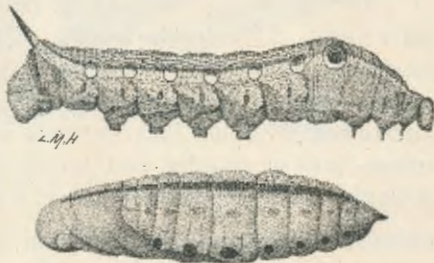


Fig. 10. *Theretra tersa*; larva and pupa.

55. *Ampelophaga myron* Cram. (Everyx, Darapsa, Chærocampa pampinatrix). **Green Grape-vine Sphinx**; I., **Grape-vine Hog-caterpillar**. Commoner eastward and southward. F., vine family. H. as pupa in loose cocoon among leaves, etc., on ground; I, May and June; II, late July and Aug. Destructive to grape-vines; remedy, hand-picking. Larva often found covered with white parasitic cocoons. Comstock, 336. (Fig. 11.)

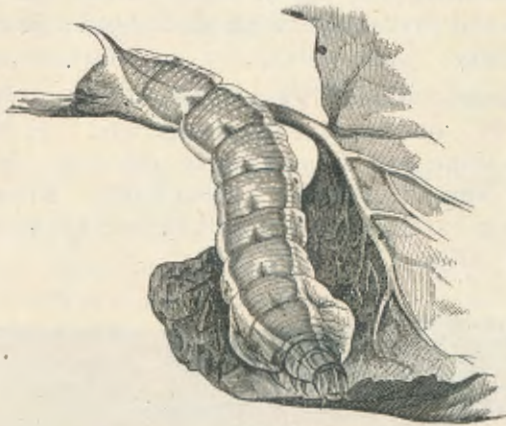


Fig. 11. Grape-vine Hog-caterpillar, *Ampelophaga myron*.

56. *Protoparce quinque maculata* Haw. (Phlegethontius, Protoparce, P. celeus). **Tomato-worm**. F., *Solanaceae*. H. as pupa in ground; I, June and early July; II, Aug. and early Sep. Fore wings with slightly sinuous, even, white and black outer line parallel to outer margin; hind wings with pair of black zigzag lines across middle, on pale ground. Abdomen yellow-spotted. Sanderson, 231; Comstock, 335.

57. *Protoparce sexta* Joh. (Phlegethontius or Macrosila carolina). L. **Tobacco-worm**. Life history and food about the same as preceding. White and black outer lines of fore wings very broken and zigzag; hind wings dark gray with broad white band just beyond middle; the pair of black cross-lines at middle and space between them covered by a dark band. Abdomen yellow-spotted. Sanderson, 231.

58. *Hyloicus eremitus* Hübn. (Sphinx). Rare. F., mints. Double-brooded.

59. *Ceratonia amyntor* Geyer (*C. quadricornis*). L., **Four-horned Sphinx**. F., elm, etc. H. as pupa in ground; I, May and June. Fore wings coffee-brown, with clean-cut light and dark lines and streaks; abdomen not yellow-spotted.

60. *Ceratonia undulosa* Walk. (*Daremma brontes*). F., ash, etc. H. as pupa in ground; I, June; II, Aug. Fore wings gray with darker cross bands and lines.

61. *Sphinx jamaicensis* Dru. (*Smerinthus geminatus*). **Twin-spotted Sphinx**. F., apple, plum, elm, ash, willow, etc. H. as pupa in ground; I, May to July; II, Aug. Outer edge of fore wings irregularly sinuous; eye-spot of hind wings double-centered, rarely single or triple. Comstock, 333.

62. *Paonias excæcatus* S. & A. (*Smerinthus*). **Blind-eyed Sphinx**. F., oak, apple, plum, elm, etc. H. as pupa in ground; I, May to July; II, Aug. Outer edge of fore wings with about 6 nearly equal notches; eye-spot single.

Family SATURNIIDÆ.

63. *Samia cecropia* Linn. (*Attacus*). **Cecropia Moth**. F., elder, willow, apple, etc., etc. H. as pupa in cocoon on branches of trees and shrubs; I, late May and June. Comstock, 356; Saunders, 73. (Fig. 12.)

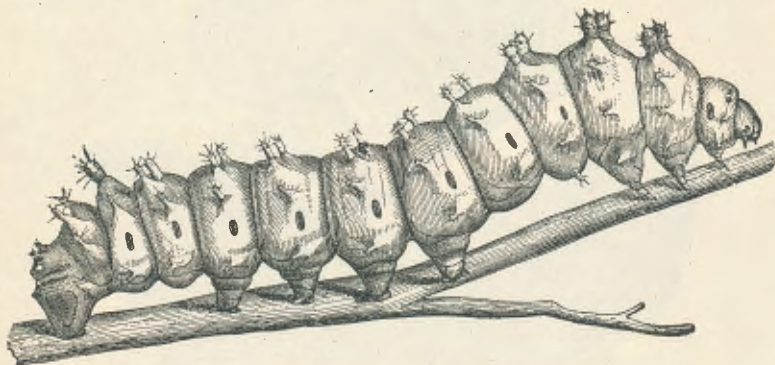


Fig. 12. Cecropia Moth, *Samia cecropia*, larva.

64. *Callosamia promethea* Dru. (*Attacus*). **Promethea Moth**. F., ash, sassafras, spice-bush, and many other trees.

H. as pupa in cocoon in leaf with petiole spun fast so that it remains attached over winter; larvæ on ash use some other leaf in place of the compound ash-leaf; I, late June and July. Male with basal half of wings nearly uniform, blackish, obscurely defined; female with basal half brown, sharply defined on both pairs from light brown of outer half. Comstock, 354; Saunders, 205. (Fig. 13.)

65. *Tropæa luna* Linn. (Actias). **Luna Moth.** F., walnut, hickory, sweet-gum, and other forest trees. H. as pupa in thin cocoon spun between leaves and falling to the ground; I, April and May; II, July. Comstock, 353. (Fig. 14.)



Fig. 13. Prometheus Moth, *Callosamia promethea*: a, b, c, younger larva, and its head and one segment enlarged; d, mature larva.

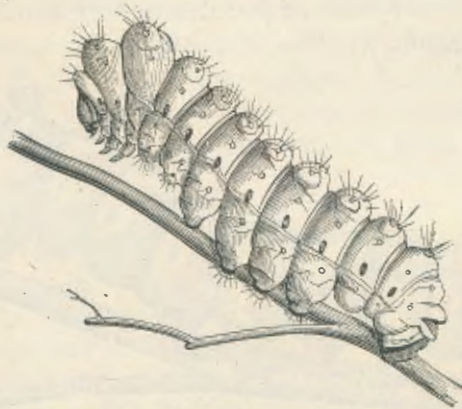


Fig. 14. Luna Moth, *Tropæa luna*, larva.

66. *Telea polyphemus* Cram. (Attacus). **Polyphemus Moth.** L., American Silk-worm. F., forest and fruit trees. H. as pupa in dense cocoon spun between leaves, usually

falling to the ground; I, late spring and summer. Comstock, 352; Saunders, 171.

67. *Automeris io* Fabr. (Hyperchiria). **Io Moth.** F., mostly forest trees, also corn, cotton, clover, etc. H. as pupa in cocoon among leaves and trash on ground; I, June into early Aug. Spines of larva urticating, like sting of nettles. Fore wings of male deep yellow; of female, purplish. Comstock, 351. (Figs. 15-18.)



Fig. 15. Io Moth, *Automeris io*, larva.



Fig. 16. Io Moth, *Automeris io*, spines of larva.



Fig. 17. Io Moth, *Automeris io*, male.



Fig. 18. Io Moth, *Automeris io*, female.

Family CERATOCAMPIDÆ.

68. *Anisota rubicunda* Fabr. (Dryocampa). L., **Green-striped Maple Worm**. F., maple, rarely also oak. H. as pupa in ground; I, May; II, July. Injurious to maples. Comstock, 349. (Fig. 19.)

69. *Basilona imperialis* Dru. (Eacles). **Imperial Moth**. F., many forest and shade trees. H. as pupa in ground; I, late June and July. Comstock, 346.

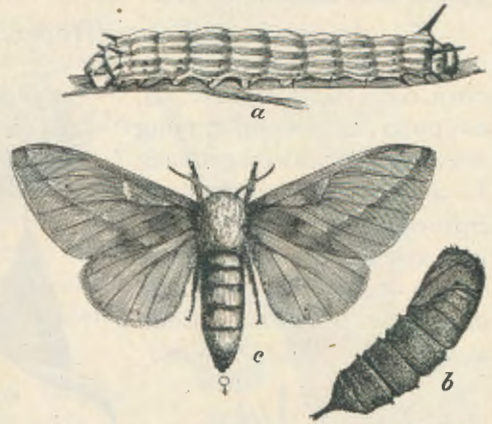


Fig. 19. Rosy Anisota. *Anisota rubicunda*: a, larva; b, pupa; c, adult.

Family SYNTOMIDÆ.

70. *Scepsis fulvicollis* Hübn. **Goldenrod Moth**. F., grasses. Pupa in lemon-yellow cocoon; I, late May to early July; II, mid-Aug. into Sep. Adult in swampy grassy meadows and on goldenrod flowers.

Family LITHOSIIDÆ.

71. *Hypoprepia fucosa* Hübn. **Painted Footman**. F., mosses and lichens. Larva spins cocoon early in May; I, mid-May through June; II, Aug. to mid-Sep. Larva on tree trunks and under stones. Lines more or less yellow. Comstock, 325.

Family ARCTIIDÆ.

72. *Utetheisa bella* Linn. **Bella Moth**. Commonest in Southern Illinois. F., *Crotalaria*, *Lespedeza*. I, June; II, Aug. and Sep. Cocoon under stones and loose roots. Comstock, 319.

73. *Estigmene acrea* Dru. (Leucarctia). **Saltmarsh Moth**; l., **Large Yellow Bear**. F., garden vegetables and flowers,

roadside weeds, etc. H. as pupa in thick cocoon of silk interwoven with its own larval hairs; I, May and first half of



Fig. 20. Large Yellow Bear, *Estigmene acrea*.



Fig. 21. Large Yellow Bear, *Estigmene acrea*; front of head of two larvæ, showing variation in extent of black coloring.

June; I., June and July; II, late July and Aug.; I., Sep. and Oct. Hind wings of female white; of male, yellow. Comstock, 321. (Figs. 20, 21.)

74. *Hyphantria textor* Harr. (*H. cunea*). L., **Fall Web-worm**. F., various fruit and shade trees, and bushes. H. as pupa in cocoon in crevices or rubbish on ground; I, mid-May into July. Females lay as many as 400 eggs in a cluster on leaves. Larvæ make large webs, becoming evident from mid-Aug. into fall. Very troublesome. Remedies, cutting off and destroying infested twigs, or burning out nests with kerosene torches. Wings snow-white throughout. Comstock, 71. (Fig. 22.)

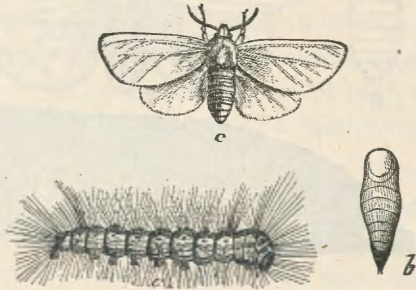


Fig. 22. Fall Web-worm, *Hyphantria textor*: a, larva; b, pupa; c, adult.

75. *Isia isabella* S. & A. (*Pyrrharctia*, *Arctia*). **Isabella Tiger-moth**. F., garden plants, weeds, etc. H. as larva, spins tawny cocoon on under side of old boards, etc., in early

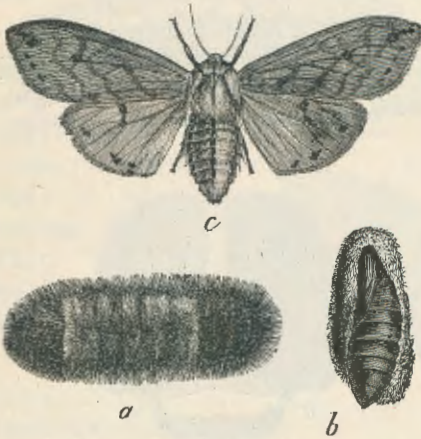


Fig. 23. Isabella Tiger-moth, *Isia isabella*: a, larva; b, pupa in cocoon; c, adult.

spring; I, May and early June; II, mid-July through Aug. Larva conspicuous in fall,

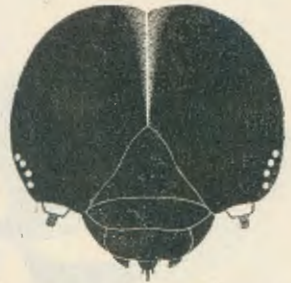


Fig. 24. Isabella Tiger-moth, *Isia isabella*, front of larval head.

crawling in search of shelter. Comstock, 322. (Figs. 23, 24.)

76. *Diacrisia virginica* Fabr. (Spilosoma). **Yellow Bear.** F., many garden and cultivated plants, bushes, and trees.

H. as pupa in nooks and crannies, in hairy cocoons; I, late April through

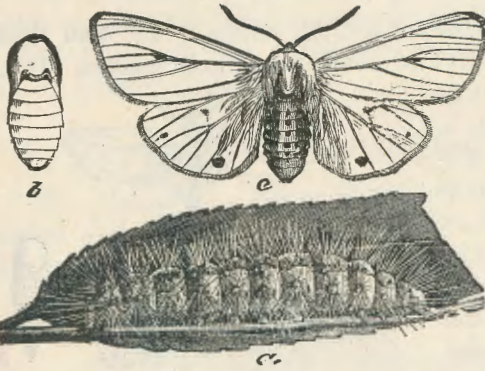


Fig. 25. Yellow Bear, *Diacrisia virginica*: a, larva; b, pupa; c, adult.

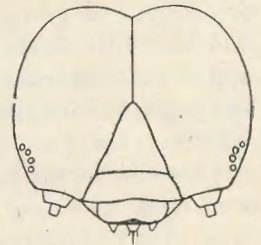


Fig. 26. Yellow Bear, *Diacrisia virginica*, front of larval head.

June; I, late June and July; II, mid-July into Sep.; I, late Aug into Oct. At least one black dot on hind wing, abdomen black-dotted. Comstock, 322. (Figs. 25, 26.)

77. *Apantesis virguncula* Kirby (Arctia, Eyprepia). F., various low plants. H. as larva; I, June. Fore wings black

with Σ -mark and fine veins pale yellow, hind wings black and orange.

78. *Apantesis arge* Kirby (Arctia, Eyprepia). **Arge Tiger-moth.** F., pigweed and other weeds, corn, etc. H. as partly grown larva, spins cocoon and pupates in early spring; I, May; 1., June; II, late July and early Aug; 1., Sep. Σ -mark and veins pale pinkish cream, broad, the wing less than half black.

79. *Apantesis vittata* Fabr. (Eyprepia, Arctia nais, Arctia phalerata). **Common Tiger-moth.** F., various low weeds and cultivated plants. H., as partly grown larva; spins loose cocoon in spring; I, May and first part of June; II, late July through Sep. Adult common at electric lights. Σ -mark and lines to base of wing, but not the veins, pale yellow; hind wings buff or pinkish, with black front border and outer spots.

80. *Ammalo tenera* Hübn. (Euchætes collaris). F., *Apocynum*, *Asclepias incarnata*. H. as pupa in slight cocoon of silk and its larval hair; I and II, June to fall. Larva hiding by day. White, front edge of fore wings yellowish.

81. *Euchætiæ egle* Dru. (Euchætes, Cynia). **Harlequin Milkweed Caterpillar.** F., milkweed. H. as pupa in cocoon of silk and its larval hair, on ground or under stones; I, June; II, end of July to mid-Aug. Eggs on under side of leaf, in batches covered with fine hair to imitate leaf surface; larva social. Larva decimated by parasites. Comstock, 319.

82. *Halisidota tessellaris* S. & A. (H. tessellata). **Checked Tiger-moth.** F., forest and fruit trees. H. as pupa in cocoon, almost entirely of its larval hair felted together, under stones, on fences, etc.; I, June and July, on milkweed flowers and at lights; larva common in Aug. and Sep.

83. *Halisidota caryæ* Harr. **Hickory Tiger-moth.** F., forest and fruit trees, especially oak and hickory. H. as pupa in cocoon of its larval hair, on fences, etc.; I, late May and June; larva social, June to Sep. Comstock, 320.

Family AGARISTIDÆ.

84. *Alypia octomaculata*
 Hübn. **Eight-spotted Forester.**
 F., grape and Virginia creeper.
 H. as pupa in cell in rotten wood
 or in earth at or near surface;
 I, late April into June; II, Aug.
 Sometimes a pest. Spray with
 Paris green in water, a tea-
 spoonful to two gallons. Com-
 stock, 314. (Fig 27.)

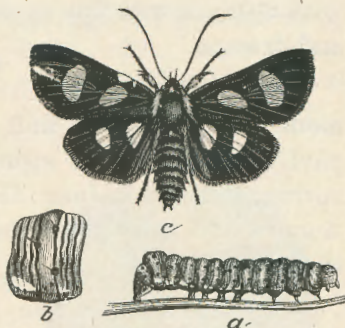


Fig. 27. Eight-spotted Forester, *Alypia octomaculata*: a, larva; b, one segment of same, side view; c, adult.

Family NOCTUIDÆ.

85. *Raphia frater* Grote. F., poplar, willow. H. as pupa in stout cocoon on bark; I, May and early June; II, July and early Aug.

86. *Apatela americana* Harr. (Acronycta). **American Dagger.** F., maple, elm, and other forest trees. H. as pupa in cavity, half in a groove excavated in the surface of bark or wood, and half in a dense cocoon covering, the inner wall of which is of silk and chips from the excavation, the outer, of silk and larval hair; I, June and July; I., Aug. and Sept. Fore wings ashy without evident black dashes; note course of line 3 (the outer transverse line); hind wings smoky. Comstock, 307.

87. *Apatela dactylina* Grote (Acronycta). **Willow Dagger.** F., birch, willow, alder. H. as pupa in cocoon of silk and larval hair among leaves, etc.; I, late May to early July. Fore wings ashy, without evident black dashes; note course of line 3; hind wings smoky in female, white in male.

88. *Apatela populi* Riley (Acronycta lepusculina, in large part). **Cottonwood Dagger.** F. cottonwood (*Populus monilifera*). H. as pupa in pale yellow cocoon of silk and larval hairs, in crevices of trees and fences; I, June. Grayish

white, transverse lines marked by blackish spots. (Fig. 28.)

89. *Apatela interrupta* Guen. (*Acronycta occidentalis*). **Gray Dagger.** F., elm, birch, apple, plum. H. as pupa in slight cocoon; I, May and early June; II, Aug. Not over three longitudinal "dashes" on fore wing.



Fig. 28. Cottonwood Dagger, *Apatela populi*, larva.

90. *Apatela lobeliae* Guen. (*Acronycta*). **Oak Dagger.** F., oak. H. in cocoon on wood or bark, excavated beneath cocoon, which is of silk and wood chips, tough; I, late April and May; II, July and Aug. Over $1\frac{3}{4}$ inches expanse; a central fourth dash connecting the discal spots.

91. *Apatela hamamelis* Guen. (*Acronycta*). **Witch-hazel Dagger.** F., witch-hazel, oak, and other forest trees. H. as pupa in cocoon of silk woven with bits of wood and earth; I, May to July. Note carefully pattern of markings of fore wing. Comstock, 308.

92. *Apatela oblinita* S. & A. (*Acronycta*). **Smeared Dagger.** F., smartweed, willow, corn, and various other trees and herbs. H. in elongate papery cocoon closely attached to stems, boards, etc.; I, April and May; II, late June to Sep. Fore wings elongate, somewhat pointed, streaked as if smeared. (Fig. 29.)

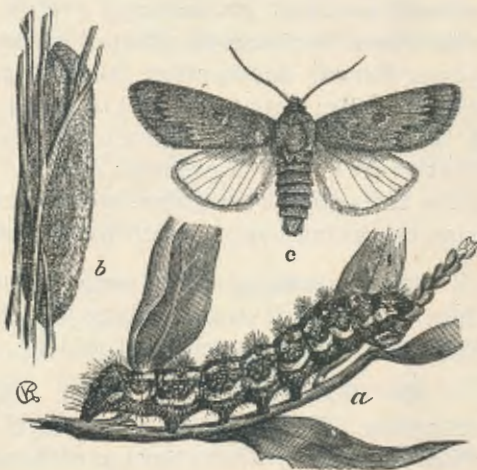


Fig. 29. Smeared Dagger, *Apatela oblinita*: a, larva; b, cocoon; c, adult.

93. *Oligia grata* Hübn. (Caradrina). F., violet. Transverse lines, and outlines of discal spots, pale on dark ground-color.

94. *Hadena modica* Guen. L. unknown. Adult flies during June, July, and Aug. A dark contrasting wedge from front edge between discal spots.

95. *Hadena dubitans* Walk. (*H. sputatrix*). L. unknown. I, late July into Sep. Fore wings very dark, markings obscure, except kidney-spot, which is pale and contrasting.

96. *Hadena devastatrix* Brace. **Devastating Dart-moth;** l., **Glassy Cutworm.** F., underground parts of grasses and grain crops, and other herbaceous plants. H. as young larva, destructive in May and early June; pupates in cell in earth; I, June to Oct. A serious pest. Fall plowing of infested land beneficial. Variably blackish-gray, line 4 (subterminal) nearly parallel to outer margin. Saunders, 329. (Fig. 30.)

97. *Hadena arctica* Boisd. L., **Yellow-headed Cutworm.** F., underground parts of grasses and grains, also other herbaceous plants. H. as young larva, destructive from May even to July; pupates in cell in earth; I, late July into Sep. More injurious northwards. With greenish and carmine tints; line 4 irregular, space between it and line 3, and also the kidney-spot, much paler than rest of fore wing.

98. *Hadena cariosa* Guen. L. unknown. I, June and July. Rear half of fore wings darker. Line 4 makes a distinct \approx , touching margin, at middle.

99. *Hadena lignicolor* Guen. Habits similar to those of *arctica*. H. probably as larva; I, June to end of Aug. Pale brownish, front border of fore wings, 2 patches on outer margin, and other spots, darker brown.

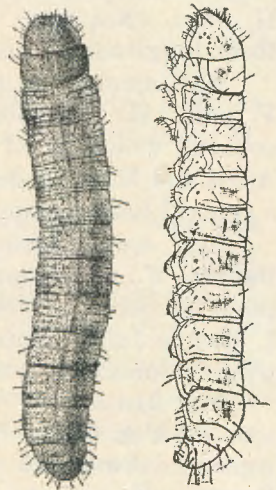


Fig. 30. Glassy Cutworm, *Hadena devastatrix*, back and side view.

100. *Hyppa xylnoides* Guen. F., dandelion, lamb's-quarters, etc. Probably H. as pupa among fallen leaves drawn together by a few threads; I, May and June; II, late July into Sep.

101. *Dipterygia scabriuscula* Linn. F., sorrel-dock (*Rumex*), plantain, etc. I, May and early June; II, latter part of July into Sep. Pupates in earth.

102. *Pyrophila pyramidoides* Guen. (Amphipyra), **American Copper Hindwing**. F., grape and fruit and forest trees and bushes. H. as adult, l. in May and June, pupates in slight cocoon among fallen leaves, etc.; I, flying latter part of July to Oct. Comstock, 302. (Fig. 31.)

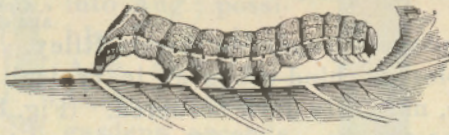


Fig. 31. American Copper Hindwing, *Pyrophila pyramidoides*, larva.

103. *Prodenia ornithogalli* Guen. (*P. lineatella*). L., **Cotton Cutworm**. F., cotton, corn, garden vegetables, etc. H. doubtful; l., late June to early Sep.; I, Aug. through Oct. Hind wings pearly white, veins partly darker.

104. *Prodenia ornithogalli eudiopta* Guen. (*P. flavimedia*, *P. eudiopta*). Food, life history, etc., same as in typical form. Oblique streak in front of middle of wing very pale, a space behind it pale brownish.

105. *Laphygma frugiperda* S. & A. L., **Grass-worm**. F., grasses, corn, wheat etc. Probably does not winter successfully in Illinois. L., July; I, first half of Aug.; l., latter half of Aug.; II, Sep., l., Oct. When destructive to lawns, kill by heavy rolling and by spraying with kerosene emulsion, followed by copious drenching with water. When marching like army worm, treat as for that species. Resembles

Prodenia, but markings more obscure, size smaller. Sanderson, 84. (Figs. 32-34.)



Fig. 32. Grass-worm, *Laphygma frugiperda*: a, typical adult; b, variation; c, variety *obscura*.



Fig. 33. Grass-worm, *Laphygma frugiperda*, larva and pupa.



Fig. 34. Grass-worm, *Laphygma frugiperda*, larva: b, front of head; c, d, one segment, back and side views.

2106. *Laphygma frugiperda obscura* Riley. Fore wings almost unicolorous, hind wings as in typical form, being pearly white, narrowly dark bordered. (Fig. 32, c.)

2107. *Adelphagrotis prasina* Fabr. (*Agrotis*). F., blackberry, raspberry, huckleberry. H. as larva; I, July to end of Aug. Known by moss-green color and white patch exterior to kidney-spot.

2108. *Agrotis ypsilon* Rott. **Lance Owlet**; l., **Greasy Cutworm**. Cosmopolitan. F., corn, grass, garden vegetables, etc. H. mainly as larva; l. destructive from May into July; pupates in earthen cell; I, July and Aug., less frequently in Sep. Adults common "at sugar." One of our worst cutworms. The gray larva is easily found in the earth at the base of cut-off plants. Infested grass-land should be pastured to pigs in fall, and plowed in late summer or early fall before planting to corn. In gardens and fields make a dry (or wet) mixture of Paris green and middlings (or bran),—1 pound of Paris green to 20 or 30 pounds of the



Fig. 35. Greasy Cutworm, *Agrotis ypsilon*, dorsal and side views.

other,—and scatter on ground about plants; or dip clover, pepper grass, or other fresh herbs in Paris green and water, and lay out in bunches on the ground, keeping out chickens, etc. Adult well-marked. Saunders, 327. (Fig. 35.)

109. *Peridroma margaritosa saucia* Hübn. (*Agrotis saucia*, *P. saucia*). **Unmarked Owllet**; I, **Variiegated Cut-worm**. F., cultivated fruits,

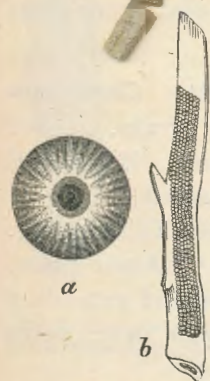


Fig. 36. Variiegated Cutworm, *Peridroma margaritosa saucia*, eggs on twig and single egg enlarged, top view.

vegetables, and flowers. H. as larva, etc.; I, destructive in May and early June; pupates in cell in earth; I, late June into Aug.; possibly II, in late Aug. and fall. Larva common in gardens, ascends trees at night; large egg patches common on twigs

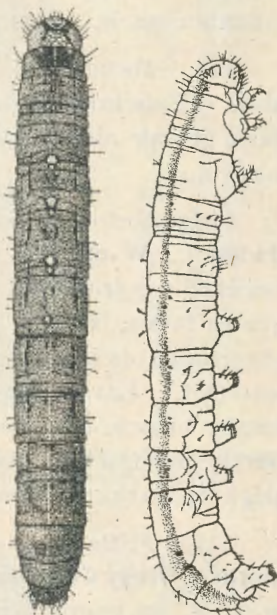


Fig. 37. Variiegated Cutworm, *Peridroma margaritosa saucia*, back and side views.

of apple, etc.; adults common "at sugar." On trees use tin and other bands as barriers to climbing, and jar larvæ from trees upon cloths so that they can be gathered and destroyed. (See also 108.) Ground color of fore wings variable, hind wings pearly whitish except margins, veins dark, strongly marked. Saunders, 106. (Figs. 36, 37.)

110. *Noctua baja* Fabr. (*Agrotis*). F., various low plants. I, late July into Sep. Black bar from front edge near apex of fore wing; a dark shade about kidney-spot.

111. *Noctua bicarnea* Guen. (*Agrotis*). L., **Chocolate-striped Cutworm**. F., grass and low plants. H. as half grown larva; I, feeding in April; I, July to Sep. Pale shade on front edge at outer third. (Fig. 38.)

112. *Noctua c-nigrum* Linn. **Black-C Owllet**. L., **Spotted Cut-worm**. F., garden vegetables and other low plants. H

as larva, soon pupating in earthen cell; I, late May and early June; I., July; II, late July and Aug. For preventives, see No. 108. A broad pale V-shaped area on front margin, its apex in the round-spot, each side of which is an angular blackish mark. Comstock, 306. (Fig. 39.)

113. *Noctua plecta* Linn. (Agrotis). F., garden vegetables. H. as larva; I, late May and June; II, Aug. Small, a dark streak along middle of wing, a pale one along front margin.

114. *Noctua clandestina* Harr. (Agrotis). **Clandestine Owlet**; I., **W-marked Cutworm**. F., grass, grain, garden vegetables, fruit and other trees, and bushes. H. as half grown larva, which become injurious in April and early May; pupates in ground; I, late May into July; II, late Aug. into Oct. Larva is a "climbing cutworm." Adult plain, smoky brown, a narrow dark line connecting and extending partly around the discal spots; hind wings pale; veins slightly darker. Saunders, 108. (Fig. 40.)

115. *Feltia subgothica* Haw. (Agrotis). **Gothic Dart-moth**; I., **Dingy Cutworm**. F., grain crops, garden vegetables, etc. H. as young larva, becoming destructive in May and early June; enters earth and forms oval cell in which it remains a month or more and then pupates; I, July to end of Sep. Adults common at electric lights. Very abundant and destructive. See No. 108. Outer third of wings pale, with dark outer border, latter invaded by two acute points from pale area (the "Z-mark"); hind wings of male white with dark border. Saunders, 328. (Fig. 41.)

116. *Feltia jaculifera* Guen. (Agrotis or *Feltia tricoso*). L., **Western Striped Cutworm**. F., grain crops and garden vegetables. H. as young larva, becoming destructive in May and early June; enters earth and forms oval cell in which it remains a month or more and then pupates; I, July to end of Sep. See No. 108. Outer third of wings moderately pale, crossed behind by a paler streak, the pale area with blunt extensions narrowing dark terminal border.

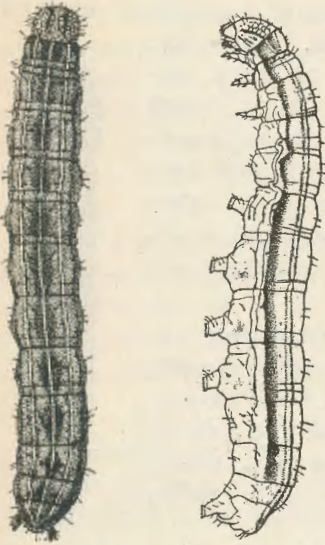


Fig. 38. Chocolate-striped Cutworm, *Noctua bicarnea*, back and side views.

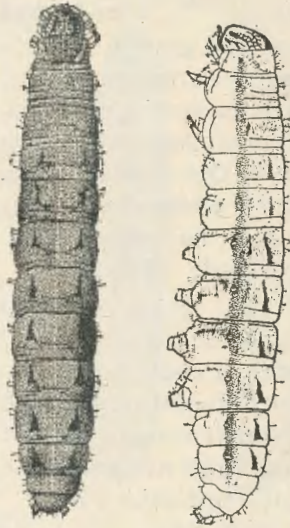


Fig. 39. Spotted Cutworm, *Noctua c-nigrum*, back and side views.

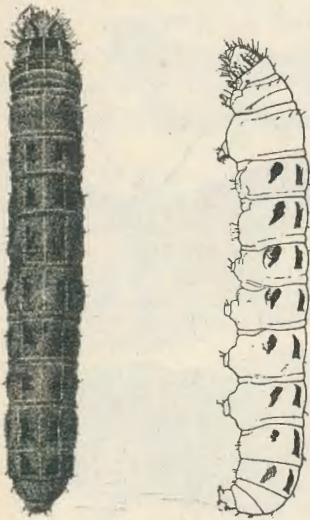


Fig. 40. W-marked Cutworm, *Noctua clandestina*, back and side views.

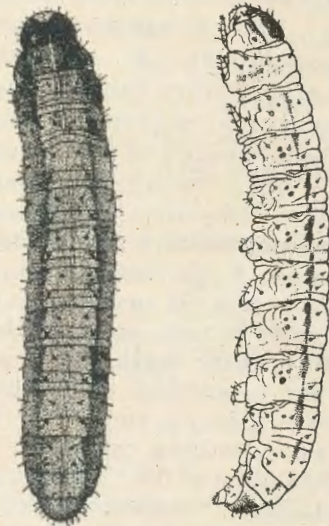


Fig. 41. Dingy Cutworm, *Feltia subgothica*, back and side views.

117. *Feltia gladiaria* Morr. (*Agrotis gladiaria* or *morri-soniana*). L., **Clay-backed Cutworm**, F., clover, corn, and garden vegetables. H. as larva, destructive from mid-April to early June; enters earth in first part of June and remains in oval cell until Aug., then pupates; I, Sep. and first half of Oct. Adults common at electric lights and on *Compositæ* at twilight. Resembles *subgothica*, but round-spot small, circular, not V-shaped. (Fig. 42.)

118. *Feltia venerabilis* Walk. (*Agrotis*). L. unknown. I, Sep., on flowers and at electric light. Front border darker, so also kidney-spot, a longitudinal dash near base and a shade in apical margin opposite kidney-spot; transverse lines not traceable, thorax with chalky white tint each side.

119. *Paragrotis velleripennis* Grote (*Agrotis*, *Carneades*). L. unknown. I, Aug. and Sep. Fore wings smoky black, with transverse lines black or not traceable; hind wings white.

120. *Paragrotis detersa* Walk. (*Agrotis* or *Carneades pitychrous*). F., cranberry, maritime grasses. I, fall. Larva girdles bark of cranberry at base; adults common in sandy places by day, on goldenrod, especially on sea shore. Discal spots and space between lines 3 and 4 paler.

121. *Paragrotis messoria* Harr. (*Agrotis*, *Carneades*). **Reaping Owlet**; l., **Dark-sided Cutworm**. F., garden vegetables and fruit trees. H. probably as larvæ, which become most evident in May; enter earth and remain a time in earthen cells, then pupate; I, July to end of Sep. Larva is a "climbing cutworm." (See Nos. 108 and 109.) Ground color uniform; transverse lines double, these and discal spots well-marked; no evident Σ -mark in line 4. Saunders, 107. (Fig. 43.)



Fig. 42. Clay-backed Cutworm, *Feltia gladiaria*.

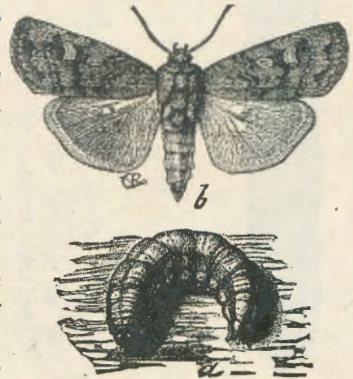


Fig. 43. Dark-sided Cutworm. *Paragrotis messoria*, larva and adult.

122. *Paragrotis tessellata* Harr. (Agrotis, Carneades). **Checkered Owlet; l., Northern Striped Cutworm.** F., garden vegetables, corn, weeds, and leaves of young trees. See Nos. 108 and 109. H. as half grown larva, most destructive from mid-May to mid-June; I, latter part of June into Aug. A black squarish (checker) spot between the discal spots; a black triangle on inner side of the round-spot; and a dark basal dash more or less evident. Saunders, 328.

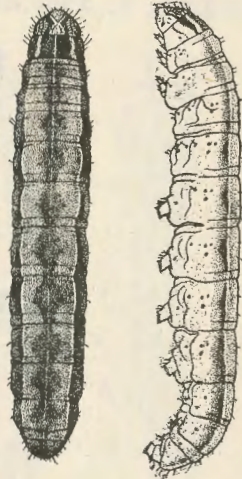


Fig. 44 Pink-backed Cutworm, *Mamestra meditata*, back and side views.

123. *Mamestra meditata* Grote. L., **Pink-backed Cutworm.** F., grasses. H. as young larva; I, May and June; II, late Aug. through Sep. Adults on *Compositæ*, etc., in late afternoon and evening in fall. Wings dark, sprinkled with bluish scales; markings obscure. (Fig. 44.)

124. *Mamestra trifolii* Rott. (*M. chenopodii*). **Garden Mamestra.** F., Garden plants, and weeds. H. as pupa in cell in ground; I, May; I, June and early July; II, late June into Sep.; I, Sep. and early Oct. Gray, Σ -mark in line 4 distinct, usual markings well-defined, hind part of kidney-spot dark. (Fig. 45.)

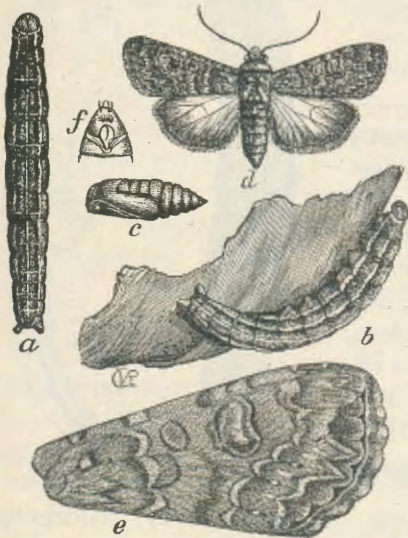


Fig. 45 Garden Mamestra, *Mamestra trifolii*: a and b, larvæ; c, pupa; d, adult; e, fore wing enlarged; f, tip of pupa beneath.

125. *Mamestra picta* Harr. (Ceramica), **Painted Mamestra; l., Zebra Caterpillar.** F., cabbage and other crucifers, and many other plants. H. usually

as pupa, underground, in rude cocoon; I, late April to end of June; l., June and July; I, late July to early Sep.; l.,



Fig. 46. Zebra Caterpillar, *Mamestra picta*, larva and adult.

Sep. and Oct. Purplish brown, two indefinite paler brown streaks; only line 4 visible; hind wings white. Comstock, 305. (Fig. 46.)

126. *Mamestra renigera* Steph. **Figure-8 Moth**; l., **Bristly Cutworm**. F., grass, garden vegetables, flowers, and weeds. H. as young larva, injury most evident in later April and early May; pupation in ground; I, late May to mid-July; l., later Aug. to early Oct. Small, dark, green-spotted; kidney spot narrow-oblong, white-edged. (Fig. 47.)

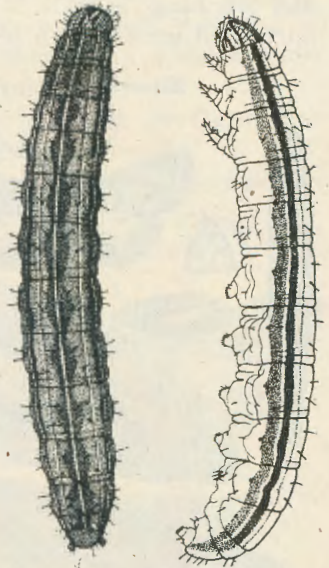


Fig. 47. Bristly Cutworm, *Mamestra renigera*, back and side views.

127. *Mamestra lorea* Guen. F., strawberry, wild geranium, etc. I, late May into July. Outer part of fore wings pale, division (line 3) sharply marked, oblique, nearly straight.

128. *Nephelodes minians* Guen. (*N. violans* and *minians*).
 L., **Bronze Cutworm**. F., grasses, smartweed, corn, etc. H. as
 larva; l. common in grass lands in
 May; enters ground about June 1,
 and remains without transforma-
 tion (æstivation) in naked earthen
 cell, pupating in late July and
 Aug.; I, early Aug. to end of Oct.
 Larva 5-striped, green when young,
 bronzy when over half grown, very
 subject to disease and parasites;
 adults on flowers of *Compositæ*,
 etc., by day and at lights by night;
 wing-scaling very delicate, re-
 quiring careful handling. Purplish
 brown; space between inner and
 outer lines, except discal spots,
 more or less darker. (Fig. 48.)

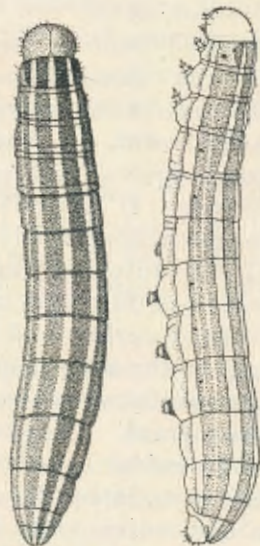


Fig. 48. Bronze Cutworm,
Nephelodes minians, back and
 side views.

129. *Heliophila unipuncta* Haw.
 (Leucania). L., **Army-worm**. F.,
 grasses, grains, etc. H. mostly as
 adult; I, Oct. to next May; l., mid-May to mid-June; II, late
 June and early July; l., late June and July; III, Aug;
 l., Sep. Breeds in dense grassy spots, making serious out-
 breaks at intervals of several years; usually held in check
 by numerous parasites and enemies. When abundant,
 migrates in armies in search of fresh food. Clean
 cultivation advisable, also burning grass-land in early
 spring; plowing furrow with vertical side facing the
 advancing "army" to stop their progress, with post-
 holes at intervals in furrow,
 where they may be de-
 stroyed with kerosene and
 water mixture. Vegetation
 about to be attacked may
 be heavily sprayed with
 Paris green and water.
 Rather uniform buff, with
 blackish powdering; a short oblique dark streak from



Fig. 49. Army-worm, *Heliophila unipuncta*.

apex of fore wings, central vein scarcely darker; a white speck at point of forking, just back of kidney-spot. Adult very common at "sugar" and lights. Comstock, 303; Sanderson, 79. (Fig. 49.)

120. *Heliophila albitinea* Hübn. (Leucania harveyi). **Wheat-head Army-worm.** F., heads of grasses and small grains, and unfolding leaves of corn. H. as pupa in cell about 6 inches underground; I, May; l., July; II, late July and Aug.; l., Sep. Preventives, fall plowing, burning over in early spring, and prompt harvesting of threatened crop. Eggs laid in rows between sheath and stalk of host plant. Pale buff, outer border and central longitudinal streak, blackish, latter cut by whitish line along central vein; kidney-spot indicated by a black dot. (Fig. 50.)

131. *Heliophila phragmitidicola* Guen. (Leucania). **Striped White Cut-worm.** F., grasses and other low plants. H. as larva; l. full grown by about May 1; p. in earthen cell; I, later May and June; l., July; II, late July to end of Sep. Blackish-buff, hind wings white. Central vein white, a blackish streak bordering it behind to forking of vein; terminal border not much darker than ground color.

132. *Orthodes crenulata* Butl. (O. infirma). L. unknown. I, June to end of Sep. Transverse lines and outlines of spots pale, distinct, smoothly curved or straight.

133. *Graphiphora alia* Guen. (Tæniocampa). **Drab Moth.** F., oak, apple, willow, etc. H. as adult; I, late fall through next April; l., May; p. in ground; summer spent in this stage. Both wings mouse-gray to rust-brown, coloring of usual markings variable, but hind part of kidney-spot dark, and a dark transverse shade at middle more or less evident.

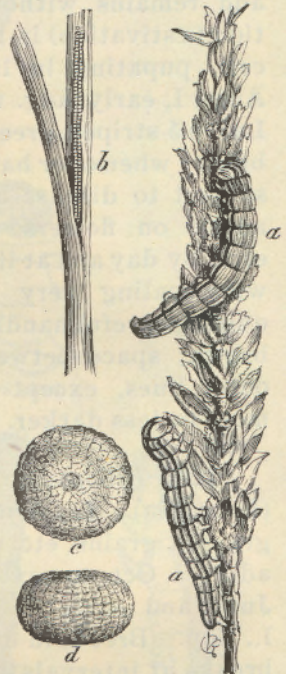


Fig. 50. Wheat-head Army-worm. *Heliophila albitinea*: a. larva on wheat head; b. eggs on stem; c. egg enlarged, seen from above; d. side view of same.

134. *Xylina grotei* Riley (Lithophane, *X. antennata* Slingerland). **Ash-gray Pinion**; l., **Green Fruit-worm**. F., soft maple, cherry, leaves of apple and wild cherry and other forest trees, also apples and other fruit. H. as adult; I, late Sep. to next April; l., May; spends summer as p. in ground. Dark ash-gray, with oblique and slightly contrasting round spot; wings elongate and slightly pointed; markings dull.

135. *Cucullia asteroides* Guen. **Hooded Owlet**. F., goldenrod. H. as larva; l. late June and early July; p. in cocoon in earth; I, late July to early Sep.; l., Sep. Movable thoracic tuft; note markings at hind angle of fore wings.

136. *Papaipema nitela* Guen. (Gortyna, Hydroecia). L., **Stalk-borer**. H. probably as egg; l. in spring in grasses and grains, then and later also in corn, ragweed, potato, and similar thick-stemmed weeds and garden plants, boring up in center of stem, often with small round openings below; heads of affected grasses, etc., whiten, and tops of plants wilt; p. in stem just below opening, or in earth; I, mid-Aug. to end of Oct.; at lights and "sugar." Does some injury to corn and oats; cannot be reached with poisons. While in grass stems in May, grass about corn fields may be mowed and carried away before larva leave these for corn. Outer third of fore wing pale, lightening up toward the nearly straight, whitish division line (3). Var. *nebris* with discal spots white. Saunders, 334.

137. *Scoliopteryx libatrix* Linn. **Scalloped Owlet**. F., willow. H. as adult; l., May and June; I, mid-June to end of July; l., late July and Aug.; II, mid-Aug. to early next May; p. in thin cocoon between leaves on tree. Comstock, 302.

138. *Orthosia bicolorago ferruginoides* Guen. (*O. ferrugineoides*). F., maple. I, July to Nov. Yellow buff, dark median cross-shade at middle of fore wing, and also one bordering line 4.

139. *Scopelosoma morrisoni* Grote. F., oak, etc. H. as adult; l., May; enters earth in June and makes slight cocoon,

resting therein until Aug., then pupating; I, Sep. to next April.

140. *Heliothis armiger* Hübn. L., **Corn-worm, Boll-worm.** F., cotton, corn, tomato. H. mostly as pupa in ground; I., April; I, May; I., June; II, July; I., Aug.; III, Sep. and Oct. In North, in spring boring into tomatoes, in summer eating unfolding corn leaves, and later feeding in cavity near tip of growing corn-ear; often very troublesome. In South, very seriously injurious to cotton-bolls. Adults common at lights late in fall. Sanderson, 151, 201, 220; Comstock, 300. (Fig 51.)

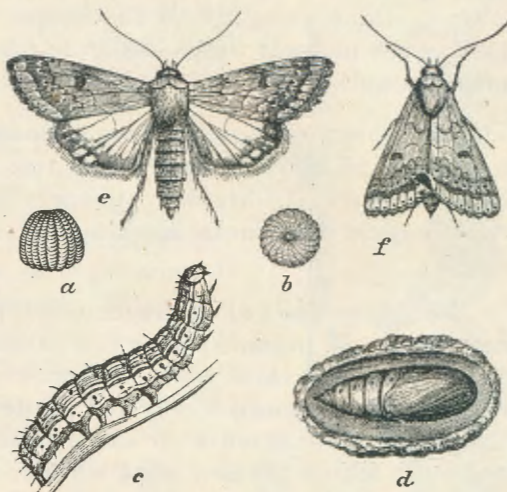


Fig. 51. Corn-worm, *Heliothis armiger*: a, egg, side view; b, same from above; c, larva; d, pupa in earthen cell; e, f, adults.

141. *Eudryas unio* Hübn. (Euthisanotia). **Pearl Wood Nymph.** F., evening primrose, *Hibiscus*, *Epilobium*. H. as pupa; I, June; II, Aug. Larva bores into decaying wood for pupation; adults at electric lights. Wing borders rust-brown. Comstock, 316.

142. *Eudryas grata* Fabr. (Euthisanotia). **Beautiful Wood Nymph.** F., grape and Virginia creeper. H. as pupa in ground or in cavity in rotten or soft wood; I, late May to early July; I., July to end of Sep. Adult mimics bird-droppings; taken at lights. Comstock, 315. (Fig. 52.)

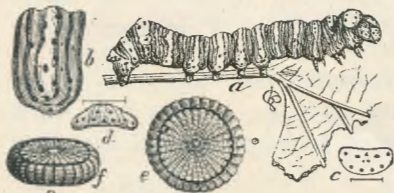


Fig. 52. Beautiful Wood Nymph, *Eudryas grata*: a, larva; b, one segment of same; c, neck plate; d, posterior hump; e, f, egg, top and side view, natural size and enlarged.

143. *Plusia aerea* Hübn! Adult, July to Sep. Bronzy, wing apex acute, line 4 dark, seemingly curving out to apex.

144. *Autographa biloba* Steph. (Plusia). Adult, May and July. Large bilobed silver spot.

145. *Autographa precatationis* Guen. (Plusia). L., **Eyed Cabbage-looper**. F., plantain, burdock, dandelion, cabbage, etc. L., May and early June; I, June, July; l., Aug.; II, Sep. and Oct. Small silver oval and V-mark, joined or not; bronzy.

146. *Autographa brassicae* Riley (Plusia). **Cabbage-looper**. F., *Cruciferae* and other garden vegetables, flowers, and weeds. H. probably as both pupa and adult; apparently largely winter-killed, and this region mostly restocked by moths from the South; l., early July; I, late July; l., Aug.; II, early Sep.; l., late Sep.; continues to breed if weather favors. Pupates in delicate cocoon on leaf.

Gray, finely marked, hind wings dark; white or silvery spot, and U-mark on its inner side. Comstock, 301. (Fig 53.)

147. *Autographa falcigera simplex* Guen. (Plusia simplex). L., **Celery-looper**. F., celery, lettuce, beets, and low weeds. H. as larva; I, April and early May; II, mid-July to mid-Aug.; III, latter part of Sep. Fore wings bronzy, hind wings with broad dark border, within this a pale band, then a darker line; silver spot and V-mark usually connected, the rear arm of latter continued to inner margin. Comstock, 301.

148. *Ogdoconta cinereola* Guen. (Telesilla). L., **Bean Cut-worm**. F., bean leaves and pods, *Compositae*. H. as pupa in oblong earthen cocoon; I, late May and June; l., June and

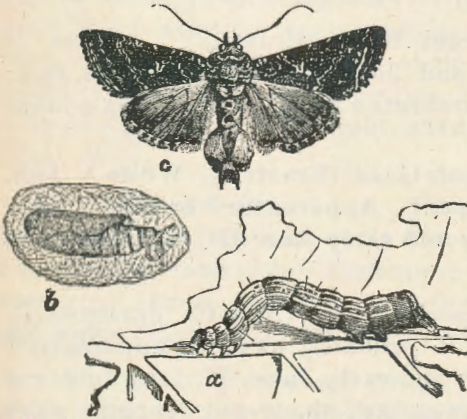


Fig. 53. Cabbage-looper, *Autographa brassicae*: a, larva; b, pupa in cocoon; c, adult.

July; II, late July to early Sep.; 1, Sep. Inner part of fore wing dark gray, outer part paler, especially near the line of division (line 3), which is oblique, nearly straight.

149. *Alabama argillacea* Hübn. (Aletia). L., **Cotton-worm**. Does not hibernate in Illinois; the most destructive cotton insect; adults fly north in latter part of season, and come abundantly to lights in fall. Clay-color; markings slight; wing-apex acute. Sanderson, 188.

150. *Eustrotia muscosula* Guen. (Erastria). Adults at "sugar," apparently two broods; I, late May and June; II, Aug. and first part of Sep. Small; easily identified by its pattern and color.

151. *Eustrotia apicosa* Haw. (Erastria). Adults at "sugar;" I, late May and June; II, late July into Sep.; kidney-spot oblique, connected by 2 lines with pale outer part of wing.

152. *Eustrotia carneola* Guen. (Erastria). **White-X Moth**. Adults common at "sugar." Apparently 3 broods; I, May and early June; II, July and early Aug; III, Sep. and early Oct.

153. *Tarache erastrioides* Guen. (Acontia erastroides). F., ragweed, burdock. H. probably as pupa, apparently 2 broods of adults; I, May and early June; II, late July and Aug. Head mostly brown, dark shade not reaching apex of fore wings.

154. *Tarache candefacta* Hübn. (Acontia). F., ragweed, burdock. H. probably as pupa; apparently 2 broods; I, May and early June; II, July and Aug. Head snow-white, wing shade reaching apex.

155. *Drasteria erectea* Cram. **Clover Looping-owlet**. F., clover. H. probably as pupa; I, April and early May; II, late June and first part of July; III, mid-Aug. into Oct. Inner darker cross-band not bent strongly outward along hind margin; well separated at tip from outer band; markings in male distinct, with black dot in inner band; fore wing of female darker and obscurely marked. Comstock, 299.

156. *Drasteria crassiuscula* Haw. (D. erichto). F., clover. H. as pupa in cocoon of grass and clover leaves; I,

May; II, July; III (partial), Sep. Inner dark band bent strongly outward along hind margin, tip close to or confluent with that of outer band, or indefinite; sexes similar. Comstock, 299.

157. *Catocala vidua* S. & A. (*C. desperata*). F., oak, willow, hickory, walnut. H. as egg on bark of food trees, hatching about May 1; I., May and June; I, later July to end of Sep. Pupates in cocoon spun among fallen leaves. Adults common at "sugar;" by day rest on trunks of trees, often abundantly in plain sight, but usually unseen because fore wings mimic bark and conceal hind wings. Clear gray, a well-marked black curve from middle of costa to below apex above kidney-spot, and a straight shade in front of hind margin; in front of these respectively a similar black shade extends along line 3 from the curve, and along line 2 from the straight shade; hind wings black, fringe white.

158. *Catocala resecta* Grote. Habits as in *vidua* H. as egg on bark; I.; June and early July; I, later July to end of Sep. Smaller than *vidua*, dark curve and line more or less broken up, curve passing through or below kidney-spot; hind wings black, fringe white.

159. *Catocala robinsonii* Grote. F., hickory. I, Sep. Rather small, clear gray, lightly marked, hind wings black, fringe pure white.

160. *Catocala insolabilis* Guen. F., hickory I, later June into Aug. Fore wings bordered behind with black, hind wings with blackish fringe.

161. *Catocala cara* Guen. F., willow, poplar. I, late July to end of Sep. Fore wings purple brown, on front part of wing only lines 2 and 3 evident; hind wings with broad dark ros-y-red band across middle, and pale yellow fringe.

162. *Catocala amatrix* Hübn. F., poplars, willow. H. as egg; I., late May to end of July; I, late July into Oct. Often quite numerous on trees about dwellings as well as in the forest; but as in the other species of this genus, the fore wings mimic bark and cover hind wings when at rest

on tree trunks, so that the moths are not easily detected. A variably distinct blackish shade from base to below apex; broad even band and base of hind wings rose-red.

163. *Catocala parta* Guen. F., willow and poplar. L., June and early July; I, July to end of Sep. Spins leaves together for pupation. Fore wings as usual; a white patch on inner side of kidney-spot, and a pale subreniform spot behind kidney-spot; hind wings with moderately even band and base orange, and nearly white fringe.

164. *Catocala ilia* Cram. F., oak. H. as egg; I., late April to early June; I, June to early Aug.; cocoon among leaves. Rather dark, a paler cross-shade (not oblique) just within kidney-spot; hind wings with dark orange-red band, narrow, and zigzag behind, base dusky, fringe pale yellow. Comstock, 293.

165. *Catocala innubens* Guen. F., walnut, honey-locust. H. as egg; I., May, etc.; I, July to end of Sep. Fore wings with a longitudinal dark streak from base to apex; in front of this more or less dark except pale apex reaching back to whitish front part of line 4; subreniform spot pale and usually conspicuous; hind wings with rather narrow, even, dark, orange-red band, subangled at middle.

166. *Catocala piatrix* Grote. F., walnut, hickory, persimmon. H. as egg; I, later July to end of Sep. Fore wings dark, with strong oblique pale shade from front margin ending in the elongate subreniform; band of hind wings clear orange, base dusky, fringe yellow, a dark cloud about each black vein-tip.

167. *Catocala neogama* S. & A. F., walnut, oak. H. as egg. I, July to end of Sep. Paler than *piatrix*, usual three darker dashes, oblique pale shade not evident, hind wings black and orange, fringe pale yellow, vein-tips black, without surrounding cloud.

168. *Catocala cerogama* Guen. I, late July to early Sep. Band of hind wings yellow, narrow, of very even width.

169. *Catocala palæogama* Guen. F., hickory, walnut, apple. H. as egg; I., May; I, July to early Sep. Eggs in groups, overlapping, in crevices of bark; cocoon made of

leaves fastened together and slightly lined with silk. Resembles *ilia* as to fore wings, but smaller; fringe and band of hind wings nearly concolorous, dark orange, latter subangled at middle, slightly notched behind, base dusky.

170. *Catocala habilis* Grote. F., hickory. L., July; I, Aug. and Sep. Fore wings pale, hind wings orange and black, band narrow, subangled at middle; line 4 pale within, not much curved.

171. *Catocala grynea* Cram. **Apple Underwing.** F., apple, plum, crab, oak. L., May to early July; I, late June to end of Aug. Cocoon spun among dead leaves. Small, fore wings mouse-gray, smoothly marked, hind wings black and orange, band angled and notched.

172. *Catocala amica* Hübn. F., oak. L., May to early July; I, late June to end of Aug. Small, hind wings yellow with only broad black border and adjacent marginal black spot.

173. *Parallelia bistriaris* Hübn. F., maple. I, late May and June; I., July; II, late July to end of Sep. Pupates under flap of leaf, cut out, folded over, and fastened down with silk. Lines 2 and 3 nearly straight and parallel.

174. *Homoptera lunata* Dru. F., rose (in greenhouses), maple, willow, plum, oak, etc. H. as pupa in cocoon; I, late April into June; I., May and June; II, July to end of Sep.; I., Aug. and Sep. Larva mimics color of sticks, etc.; adult mimics bark, rests with wings partly spread. This form said to be male, and the following one female. Outer blackish curves of both wings not white-edged or bordered.

175. *Homoptera lunata edusa* Dru. (H. *edusa* and H. *saundersii*). Life history same as typical *lunata*; said to be female, and typical *lunata* male, of same species. Outer blackish curves edged or often broadly bordered outwardly with white.

176. *Homoptera galbanata* Morr. I, April to early June; II, later July to end of Sep. Similar to preceding, but much smaller.

177. *Epizeuxis amula* Hübn. (Helia). L., **Fodder Worm.** F., corn-fodder, dry leaves, etc. H. as larva; p. in June in cocoon; I, late June and July, and later. Pupa green, striped; adults at lights and "sugar." Line 4 and kidney-spot palē; hind wings with several wavy lines

178. *Epizeuxis lubricalis* Geyer (Pseudaglossa). H. as larva; I. occasional under pieces of wood in June and July; I, late June to end of Sep at "sugar." Pupa in cocoon. Smoky black, markings blurred. Comstock, 296.

179. *Zanclognatha pedipilalis* Guen. (Pityolita). F., dead leaves. Apparently 2 broods; I, late May and June; II, late July and Aug. Adults at lights and "sugar." Transverse lines light brown on an even pale ground, line 4 running exactly toward apex, but not quite reaching it; line 3 rather sharply angled opposite kidney-spot.

180. *Philometra metonalis* Walk (P. longilabris). Adults late May to Aug. at lights. Pale, with obscure rusty shades; line 4 wavy, median transverse shade variably distinct; legs not heavily tufted in male; palpi directed forward, tips diverging.

181. *Philometra eumelusalis* Walk. (P. serraticornis). F., grass roots. I, May to early July; II, late July to early Sep. at lights and "sugar." Closely resembles preceding, slightly larger, transverse shade usually evident; legs heavily tufted in male, palpi directed obliquely upwards, diverging throughout.

182. *Renia flavipunctalis* Geyer (R. belfragei). I, late June to first part of Aug. at "sugar" and lights. Line 3 smooth, broadly sinuated; continued across hind wings; male antennæ tufted at tip.

183. *Bleptina caradrinalis* Guen. I, June to end of Aug. at "sugar" and lights. Grayish, line 4 near and parallel to outer margin, space between these and kidney-spot usually darker, also a median dark cross-shade.

184. *Heterogramma pyramusalis* Walk. (Phalænophana rurigena). I, May and early June; II, late July to early Sep. at "sugar" and lights. Two darker cross-bands, with

sharp parallel straight inner edges at right angles to hind margin.

185. *Plathypena scabra* Fabr. (*Hypena*). L., **Green Clover-worm**. F., clover and other *Leguminosæ*, strawberry, apple. H. as adult; l., late May into Sep.; I, June to early Aug.; II, late Aug. to early May. Pupates in loose cocoon made among leaves or covered with bits of earth, etc.; adults at lights and "sugar." Hind edge of fore wing outwardly distinctly concave.

Family NOTODONTIDÆ.

186. *Melalopha apicalis* Walk. (*Ichthyura*). F., poplar, willow. H. probably as pupa; adults, July; l., Aug. and Sep.; perhaps 2-brooded. Cocoon tent-like, spun between leaves. No strongly contrasting markings, all cross-lines more or less wavy, front end of line 1 turned strongly outward near middle of basal part of wing.

187. *Datana ministra* Dru. **Apple Handmaid Moth; L., Yellow-necked Apple-caterpillar**. F., apple and other fruit and forest trees. H. as pupa in cell in ground; I, June and July; l., Aug. and Sep.; II (partial), Aug. Larvæ feed in company, elevate head and tail when at rest. Injurious to young apple-trees. Shake off and kill. Red-brown, outer margin distinctly scalloped, cross-lines dark. Comstock, 265. (Fig. 54.)



Fig. 54. Yellow-necked Apple-caterpillar, *Datana ministra*: a, larva; b, adult; c, eggs; d, egg enlarged.

188. *Datana integerrima* G. & R. **Forest Handmaid Moth**. F., walnut and other forest trees. H. as pupa in cell in ground; I, late May to end of Aug.; l., Aug. and Sep. Eggs, 500-1200 in a mass on leaf; larvæ descend to trunk or

large branch and mass together for last molt, then ascend, leaving behind a cluster of cast skins. Walnut often defoliated. Watch for and destroy young larval colonies, also mass of molting larvæ. Outer margin entire, cross-lines margined with conspicuous narrow pale shades; expanse 2 inches or less.

189. *Nadata gibbosa* S. & A. F., oak, maple, etc. H. in underground cocoon; I, May; 1., June; II, late June and July; 1., Aug. and Sep.

190. *Symmerista albifrons* S. & A. (Edema). **White-tipped Moth.** F., oak and beech. H. as larva; pupates in cocoon on ground among fallen leaves; I, June and July; 1., July to end of Oct. When disturbed, larva raises fore part of body, and shakes it from side to side. Comstock, 266.

191. *Heterocampa bilineata* Pack. (Seiroduonta, Notodontia ulmi). **Two-lined Prominent.** F., elm, oak, basswood, etc. H. as pupa in loose cocoon underground; I, late May and early June; II, July and Aug. Larva common in early fall. Line 2 usually approaches body strongly in front; a dark shade from kidney-spot to front end of line 3. Comstock, 266.

192. *Schizura ipomeæ* Doub. (Cœlodasys). L., **Long-horned Prominent.** F., forest trees, blackberry. H. probably as pupa in cocoon in ground; I, March to end of Aug.; 1., May to end of Oct. Kidney-spot a short black line encircled by a distinct pale line, the whole in a variable dark shade. Hind wings of male whitish, dark at hind angle; of female, dark.

193. *Harpyia cinerea* Walk. (Cerura). F., willow. H. as pupa in cocoon of gummy silk and bark looking like excrescence of surface; I, April to end of June; 1., June; II, July and Aug.; 1., Sep. Larvæ with long tail-filaments, thrashed over back to repel enemies. Hind wings whitish with border of black dots; fore wings mouse-gray, markings distinct, but not conspicuous.

194. *Gluphisia septentrionis* Walk. (G. trilineata), F., willow, poplar, etc. H. as pupa in slight cocoon at surface; I, mid-May through June; 1., July; II, late July to mid-Aug.

Small, lines 2 and 3 rather close, 2 fairly straight across wing; outer third of wing paler centrally.

Family LIPARIDÆ.

195. *Hemerocampa leucostigma* S. & A. (Orgyia, Notolophus, *O. leucostigma*). **White-marked Tussock-moth.** F., fruit



Fig. 55. White-marked Tussock-moth, *Hemerocampa leucostigma*; cocoon of female and frothy egg mass laid by her upon it.

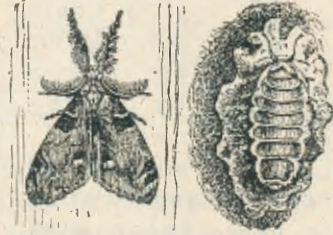


Fig. 56. White-marked Tussock moth, *Hemerocampa leucostigma*, mal and female.

and shade trees. H. as egg in white frothy mass on empty cocoon of female, on bark, fences, etc.; l., late May and June; I, June to end of Aug.; l., Aug. and early Sep.; II, Sep. Pupa short-hairy; female wingless. Injures shade trees. Destroy egg-bearing cocoons; spray with



Fig. 57. White-marked Tussock-moth, *Hemerocampa leucostigma*, larva.

arsenites. A small but evident whitish spot in line 4 near hind edge of wing. Comstock, 311. (Figs. 55-57).

Family LASIOCAMPIDÆ.

196. *Malacosoma americana* Fabr. (Clisiocampa). L., **Apple Tent-caterpillar.** F., apple and other fruit trees. H. as egg, 200-300 in oval mass encircling twig, hatching in early spring; larvæ make large conspicuous white tent-like web, where they stay when not feeding; when mature, about June 1, scatter widely and make oblong cocoons of white silk mixed with sulphur-yellow powder. I, late June and early

July. Estimated that 6 to 8 nests will destroy 75,000 leaves.



Fig. 58. Apple Tent-caterpillar, *Malacosoma americana*, egg mass.

Adults at lights. Often defoliate trees. Remove egg-masses in winter; destroy nests when larvæ are in them by placing coal-oil-soaked rag on stick and twisting in nest; spray with Paris green in water—1 lb. to 250 gallons—with a little lime water added. Lines 2 and 3 pale, ground color nearly uniform; female larger than male. Comstock, 360. (Figs. 58, 59.)

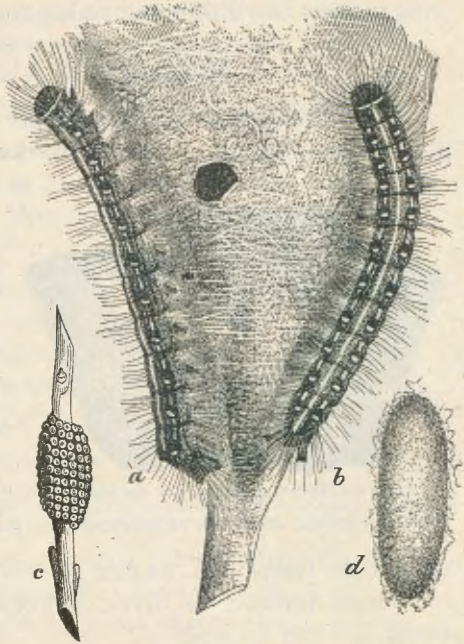


Fig. 59. Apple Tent-caterpillar, *Malacosoma americana*: a, b, larvæ on nest; c, egg-mass on twig with gummy covering removed; d, cocoon.

197. *Malacosoma disstria* Hübn. (*Clisiocampa*, *C. sylvatica*). L., **Forest Caterpillar**. F., many forest and fruit trees. H. as eggs, in cylindrical mass about twig, ends of mass square-cut; hatch in early spring; webbing branches slightly, no tent; l., May and early June; scatter for pupation, making cocoons of silk mixed with sulphur-yellow powder; l., late June and early July. Very destructive in East. Same remedies as for preceding; band trees with cotton to capture larvæ. Lines 2 and 3 dark brown; space between usually darker than rest of wing. Comstock, 362. (Fig. 60.)

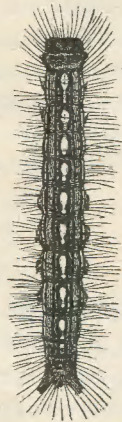


Fig. 60. Forest Caterpillar, *Malacosoma disstria*, larva.

Family BOMBYCIDÆ.

198. *Bombyx mori* Linn. (Sericaria). **Silk-worm Moth.** F., mulberry (not our native species, however), Osage orange. An exotic species; yields commercial silk; reared to a small extent in this country. Comstock, 340.

Family PLATYPTERYGIDÆ.

199. *Eudeilinea herminiata* Guen. F., dogwood. Adults, June to early Aug.; larva lives between leaves spun together; pupa between leaves on ground, connected by a few threads. Expanse about 1 inch; white, lines 2 and 3 represented by faint rows of brown dots on both wings; antennæ whitish; outer margins of wings well rounded off.

Family GEOMETRIDÆ.

200. *Heterophleps triguttaria* H.-S. (*H. triguttata*). F., maple. Two broods indicated; I, late May and early June; I., June; II, late July and Aug. Adults at lights and "sugar." Two or three dark spots on front edge of wing.

201. *Tephroclystis interruptofasciata* Pack. (Eupithecia). **Common Pug-moth.** F., willow, apple, raspberry, strawberry, currant, wild sunflowers and clover. H. as pupa; adults and larvæ May to early Oct.; broods uncertain; pupa in slight whitish cocoon at surface of ground; adults at lights. Very small; cross-lines bent outward opposite discal dot, line 3 blackish and angled at this point; line 4 pale, variable, ending close to hind angle in a minute double whitish spot with blackish inner border.

202. *Eustroma diversilineata* Hübn. (Petrophora, Cidaria). **Diverse-line Moth; 1., Grape-vine Span-worm.** F., grape, Virginia creeper, elm, rose, fruit trees, etc. H. as larva; I, late May; I., June; II, July and Aug.; I., Sep. to next May. Adults at lights late June to early Sep. in our collections.



Fig. 61. Grape-vine Span-worm, *Eustroma diversilineata*.

They rest with wings spread, and abdomen curved over back; larvæ mimic twigs. Comstock, 285. (Fig. 61.)

203. *Pernoptilota fluviata* Hübn. (Plemyria). F., smartweed, elm, etc. Adults, April to Nov.; probably about 4 broods; as follows: I, early April; II, later May and June; III,

late July and early Aug.; IV, late Aug. and Sep. Adults at lights and "sugar." Females dark gray-brown, discal dot white-ringed; males buffy-brown, a darker cross-band near middle of wings.

204. *Mesoleuca lacustrata* Guen. (Rheumaptera). F., blackberry. Two or more broods; I, March and early April; II, June to end of Aug. Adults at lights and "sugar." Light and dark bands of fore wings not definitely continued across hind wings.

205. *Hydriomena latirupta* Walk. (Phibalapteryx). F., smartweed. Probably 2-brooded in Illinois, adults April, Aug., Sep. Line 3 on inner side with conspicuous dark border which ends abruptly opposite discal dot; a similar border becomes evident opposite this dot on line 2, extending to hind margin.

206. *Hæmatopsis grataria* Fabr. (Hæmatopsis). **Chickweed Geometer.** F., chickweed (*Stellaria media*), smartweed. H. as egg or larva; about 5 broods; adults, May to Sep., often very abundant. Eggs on edge of leaf or stem of food plant; larvæ, when disturbed, fall rigid or jerk themselves away to some distance; cocoon a delicate net in which pupa is suspended; adults in grass lands or at lights. Comstock, 287.

207. *Deptalia insularia* Guen. (Acidalia). F., *Cassia*, *Galium*, *Celastrus scandens*. I, June; I, Aug.; II, Sep. and early Oct. Pupa 2-spined like "beggar-tick" seed (*Bidens*); fastened by tail end upon webbed surface, and by a silken thread or girth about middle; no true cocoon. Greenish clay-color, line 4 pale, edged within with blackish points at veins, and with row of pale points between it and the fine dark marginal line.

208. *Synelys ennucleata* Guen. (Acidalia). F., *Rhexia lutea*, blueberry, huckleberry, *Galium*, apple, wild cherry, etc. H. as larva; I, late June to early Aug. Pupa in thin cocoon; adults at lights. Sordid white, faint brownish cross-lines, discal dot on all wings.

209. *Synelys alabastaria* Hübn. (Acidalia). Confused with preceding, life history probably similar; I, May to end of Aug.; at lights. Blackish powdery markings of variable extent between line 3 and outer margin.

210. *Eois inductata* Guen. (*Acidalia*). F.: bred by us several times on clover; larvæ reared on ragweed (*Dyar*). I, May and early June; II, July and early Aug.; III, end of Aug. through Sep. Pupa in cocoon of earth particles and silk on ground; adults at lights. Expanse 1 inch or less. Line 3 fairly straight; discal dots distinct.

211. *Deilinia variolaria* Guen. F., willow. I, late June to early Aug. White, finely specked or minutely cross-streaked more or less with pale brown; often traces of a brown cross-line; sometimes pure white. Male antennæ feathery, with dark fringe.

212. *Cymatophora ribearia* Fitch (*Eufitchia*, *Diastictis*). L., **Currant Span-worm**. F., currant, gooseberry. H. as egg on twig of food plant; l., later May and June; I, June to early Aug. Pupa underground; adults about food plants and at lights. At times may strip bushes of leaves. Spray with Paris green, or strike bush lightly, when larvæ will drop and hang by thread, and may be gathered with stick. Peculiar markings as if badly rubbed. Comstock, 279.

213. *Apæcasia defluata* Walk. (*Lozogramma*). F., grass. I, May and early June; II, Sep. Lines 2 and 3 distinct, nearly straight, slightly diverging forwards.

214. *Cleora pampinaria* Guen. (*Cymatophora*). **Common Bark-moth**. F., apple and other fruit trees, willow, strawberry, blackberry, etc. H. as pupa between a few cocoon-threads; I, late April to early June; l., June; II, July to Sep.; l., Aug. and Sep.; adults at lights, or at rest with wings spread, on bark, which they closely imitate. Line 3 finely zigzag, broadly S-shaped on both wings, not produced into large angles.

215. *Ectropis crepuscularia* Den. & Sch. (*Cymatophora*). **European Bark-moth**. F., clover, rose, and a number of forest and orchard trees. I, April; l., May and early June; II, June and early July; l., July and early Aug.; III, late July to mid-Sep. Pupa in earth; adults at lights and on bark. Whitish gray; line 3 feebly curved.

216. *Lycia cognataria* Guen. (*Amphidasys*, *Eubyja*). **Pepper-and-salt Currant-moth**. F., currant, apple, and other orchard and small fruits, maple, sweet clover, etc. H. as

pupa in cell in ground; I, late April to end of June; l., June and July; II, mid-July through Aug. Larva mimics green twig; adults at lights. Rarely serious injury. Remedies as for *Cymatophora ribearia*. Heavy-bodied; line 3 distinct on both wings, nearer margin than usual, with a tooth-like angulation opposite discal spot. Comstock, 280; Saunders, 349.

217. *Erannis tiliaria* Harr. (Hybernia). **Lime-tree Winter-moth.** F., basswood, elm, hickory, apple, and many other forest and fruit trees. H. as egg in little clusters on branches of host; sometimes as pupa in cell in ground, l., May to mid-June; p., mid-June to Oct.; I, late Oct. and Nov. Males at lights, females wingless. Comstock, 280; Saunders, 109.

218. *Eugonobapta nivosaria* Guen. Larva unknown. Adults in first half of July. White; hind wings with a distinct angle at middle of outer margin; outer edge of fore wings evenly curved, apex squarely angled.

219. *Ennomos subsignarius* Hübn. (Eugonia, Eudalimia subsignaria). L., **Elm Span-worm.** F., elm, basswood, maple, apple, and many other trees. H. as eggs on trunk and branches of host tree; l., May and June; adults, end of June to early Aug. Larva brown, with red head, imitating elm twig and bud; pupa in loose web between leaves, etc.; adults at lights. Destructive to shade trees in East. White; both wings more or less angled at middle of outer edge; antennæ of male feathered. Saunders, 111.

220. *Ennomos magnarius* Guen. (Eugonia alniaria.) F., maple and other shade trees, lilac, etc. H. as eggs in rows on bark of trees, etc.; l., late May to early Sep. I (partial?), mid-May to mid-July (Illinois, occasional at electric lights, etc.); II, Aug. to early Nov. Larva imitates twigs and bark; pupa in cocoon between leaves, etc.; adults at lights. Comstock, 278.

221. *Xanthotype crocataria* Fabr. (Angerona). **Sulphur Currant-moth.** F., currant and other small fruits, smartweed. H. as larva; I, first part of June; l., June and early July; II, July to early Sep. Pupa in silken shelter between leaves; adults during twilight, and at lights. Purplish-brown band across wings more or less broken at middle on each wing. Saunders, 348.

222. *Gonodontis hypochraria* H.-S. (Endropia). Adults late May through July. Line 3 sharply and broadly angled opposite discal dot on both wings.

223. *Caberodes confusaria* Hübn. F., clover. Adults late May to early Sep. at lights. Colors variable; line 3 on both wings straight, not quite reaching front edge or apex of fore wing; line 2 usually traceable, parenthesis-shaped; male antennæ feathery.

224. *Sabulodes transversata* Dru. (Eutrapela, Choerodes). L., **Large Maple Span-worm**. F., maple, smartweed, apple (bred), grass, etc. H. probably as larva, or occasionally as adult; l., early May; I, June to first part of July, a few earlier, to April 28; I, July to Aug.; II, late July to early Oct. Cocoon, a few coarse threads between leaves; adults at lights and "sugar." Yellow-brown, colors variable; a variable row of dark shades between line 3 and margin, line 2 traceable, wavy, running strongly inwards near front edge; line 3 nearly straight, bent strongly inward at front edge; hind wings narrowly angled at middle, edge very slightly wavy.

Family PSYCHIDÆ.

225. *Thyridopteryx ephemeræformis* Haw. **Bag-worm**. F., evergreens, apple, and many other fruit and shade

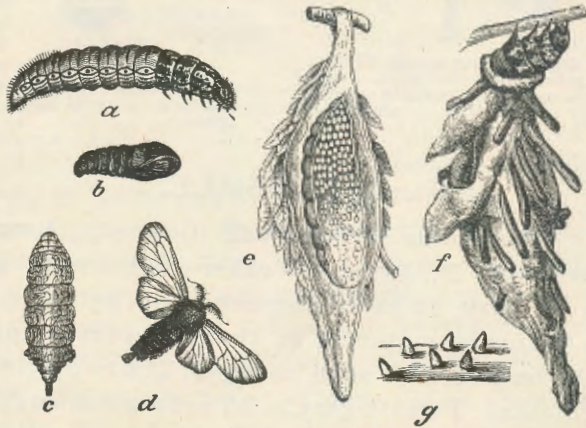


Fig 62. Common Bag-worm, *Thyridopteryx ephemeræformis*: a, larva; b, pupa; c, female; d, male; e, section of bag with female full of eggs; f, larva in bag; g, newly hatched larvæ in bags.

trees. H. as eggs; hatch in May; larvæ inhabit silken bags covered with leaves and twigs of food plant, especially cedar and apple; adult larvæ scatter to other trees and thus

disseminate the species; pupate in bags; I, late Aug. and Sep. Female wingless, lays eggs in bag, then comes out and dies; eggs remain in bag over winter. Locally destructive; gather and destroy bags and eggs during winter. Comstock, 220; Saunders, 222. (Figs. 62-64.)



Fig. 63. Common Bag-worm, *Thyridopteryx ephemeriformis*: apple leaf, showing young larvæ in their cases, and injury to leaf; also a case enlarged.



Fig. 64. Common Bag-worm, *Thyridopteryx ephemeriformis*; completed case of larva, from apple.

Family COSSIDÆ.

226. *Prionoxystus robinie* Peck (Cossus). **Locust-tree Carpenter-moth.** F., locust and other shade trees. Eggs in crevices of bark, in early summer, soon hatching; larva burrows in trunks, maturing in about 3 years; pupates in cocoon in burrow, and soon emerges; I, late May to early July, at lights. Female gray, with network of dark markings; male half as large, darker, hind wings yellow outwardly. Comstock, 222.

Family PYRALIDÆ.

227. *Evergestis straminealis* Hüb. (Mesographe straminealis). **Horse-radish Moth.** F., horse-radish. H. as larva in oval cocoon among fallen leaves or beneath surface of ground; I, late May and June; II, Aug. and Sep.; 1., late fall. Adults at lights and "sugar." Lines 2 and 3 distinct and regular; 2 with circle near kidney-spot; a dark apical shade surrounding a small pale spot.

228. *Nomophila noctuella* Den. & Sch. F., clover, grass, also bred from celery. H. as larva in silken nest; I, late April and early May; II, mid-June; III, late July and Aug.; IV, late Sep. and early Oct. Pupa in thin white cocoon under dried dung, chips, etc.; adults very common at lights. Gray-brown, hind wings broad, fore wings long and narrow; two or three dark cross bands.

229. *Loxostege similalis* Guen. (Eurycreon rantalis). **Common Garden Web-worm.** F., pigweed and other common weeds, garden vegetables, grasses, corn, clover, etc. H. as

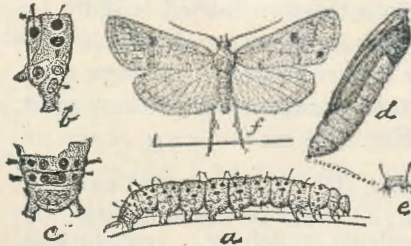


Fig. 65. Common Garden Web-worm, *Loxostege similalis*: 'a', larva; 'b', 'c', one segment of larva, side view and posterior end, seen from above; 'd', 'e', pupa, and its tip enlarged; 'f', adult.

larva in cocoon in earth at base of plant; I, late May and early June; 1., June; II, early June: 1., mid-July; III, late July and Aug.; 1., late Aug. and early Sep.; IV, mid-Sep.; 1., late Sep. and Oct.

Larvæ web up the leaf or plant attacked; adults common at lights. De-

structive in South and West, at times eating nearly all herbaceous vegetation. Plow and harrow infested ground in fall, spray infested plants with Paris green—1 pound to 125 gallons of water. Discal spots dark, line 3 with a certain slight outward curve at middle, and faintly continued across hind wings parallel to margin. Sanderson, 260. (Fig. 65.)

230. *Phlyctenia tertialis* Guen. (Botis plectilis). **Elder Leaf-tyer.** F., elder, *Vaccinium*, grape. I, late May and early June; 1., July; II, mid-July to beginning of Sep. Larva

lives in shelter of leaves folded and tied together; common on elder bushes; adults at lights, "sugar," and on wild *Compositæ* flowers in evening. Blackish gray with round whitish spots.

231. *Phlyctænia ferrugalis* Hübn. (*Botis harveyana*, *P. rubigalis*). **Greenhouse Leaf-tyer.** F., *Rivinia*, heliotrope,

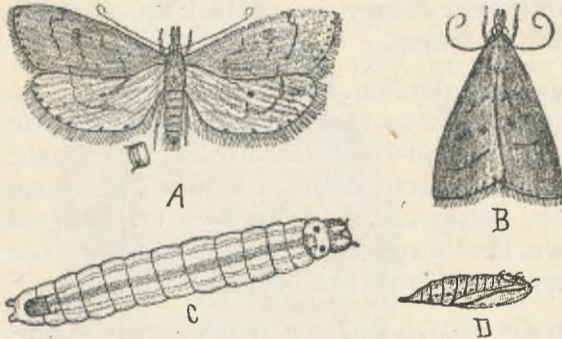


Fig. 66. Greenhouse Leaf-tyer, *Phlyctænia ferrugalis*; A, B, adults; C, larva; D, pupa.

and other greenhouse plants, celery, beet, etc. H. as pupæ or adults; probably 4 broods, as follows: I., May; I, late May and early June; I., early July; II, late July and early Aug.; I., Aug.; III, late Aug.; I., Sep.; IV, late fall and next April. Larva lives in folded leaf or between two leaves, held together by threads of silk; adults at lights. Rusty brown; line 3 narrow on both wings, making a U-shaped loop of a certain form under kidney-spot. Discal dot on hind wings. (Fig. 66.)

232. *Pyrausta penitalis* Grote (*Botis*). **Dogbane Leaf-tyer.** F., dogbane (*Apocynum*), pigweed. H. as larva in cocoon; I, late May and June; I., late June and July; II, mid-July through Aug.; I., late Aug. and Sep. Larva webs leaves together with threads to form nest; summer brood pupates in nest; adults at lights. Rather large. powdery rust-color; line 4 wanting; hind wings with at most a trace of line 3 only.

233. *Scoparia basalis* Walk. (*S. libella*). I, late May and June; II, late Aug. and Sep. Adults at lights. Lines 3 and 4 form a pale X at end of fore wings.

234. *Hypsopygia costalis* Fabr. (*Asopia*, *Pyrallis*). L., **Clover-hay Worm.** F., clover hay, preferably slightly damp. H. as larva in stack, active, up to end of April; I, late May

and early June; II, Aug. Larva in cylindrical web, pupa in crevices, under boards, etc., near stack; adults about old hay. Often very troublesome pest, fouls the hay. Do not put new hay on old, or where old has just been; keep hay as dry throughout as possible. Sanderson, 186; Comstock, 233.

235. *Pyralis farinalis* Linn. (Asopia). **Meal-moth.** F., meal, grain, flour, hay, etc., especially if slightly damp and "heated." H. as larva in this material; about 4 broods a year; larva in tubes made of silk and food particles, adults on walls of buildings, etc., abdomen curved over back. Clean dry material not injured by them. Sanderson, 161.

236. *Crambus laqueatellus* Clem. **Paneled Crambus.** F., grass. H. as larva in tubular webs at surface of ground in grass lands. I, mid-June; adults flying in grass lands in afternoon and early evening, and at lights; usually rest head down on stem or leaf blade, wings enfolding body. Two narrow silver stripes on fore part of fore wings, separated by a brown stripe; some terminal minute black dots at outer ends of fine black lines.

237. *Crambus alboclavellus* Zell. F., grass. H. as larva in tubular webs in grass lands; I, mid-June to early Aug.; adults in grass lands in late afternoon, and at lights. One broad silvery stripe, with projecting "tooth" behind towards apex, sometimes faintly divided lengthwise by a pale yellow line; terminal black dots without black lines.

238. *Crambus hortuellus* Hübn. (C. topiarius). **Garden Crambus; l., Cranberry Girdle-worm.** F., grass, cranberry, sheep-sorrel (*Rumex*). H. as larva in tubular nest; I, late June and July. Larva girdles cranberry stems; adults at lights, etc. Streaked golden light-brown, line 4 distinct, metallic, angled; 3 larger terminal black dots.

239. *Crambus vulgivagellus* Clem. **Vagabond Crambus.** F., grass, wheat, corn, etc. H. as larva in tubular nest; l. mature by early June, aestivates in cocoon in nest during summer; I, Aug. and Sep., at lights. Sprinkled with minute dark brown scales, no distinct lines; row of terminal dots.

240. *Crambus ruricoellus* Zell. **Rustic Crambus.** F., grass, sheep-sorrel. H. as larva in tubular nest; l. aestivates.

in cocoon; I, late Aug. and early Sep. Adults in grass in late afternoon, and at lights and "sugar." Smaller, yellow-brown, fringe golden; row of terminal dots; lines 3 and 4 darker, indefinite, oblique.

241. *Crambus teterellus* Zinck. (*C. camurellus*). L., **Blue-grass Worm**. F., grass. H. as larva in tubular nest; I, late May and June; II, late July and Aug.; III (partial), late Sep. and early Oct. Adults at lights and in grass lands in afternoon. Dark gray-brown, fringe dark, row of minute but distinct terminal dots; line 4 regular, distinct, double, a brown line within, bordered by a pale line; line 3 towards middle, dark, broad, vague, with 2 outwardly projecting angles.

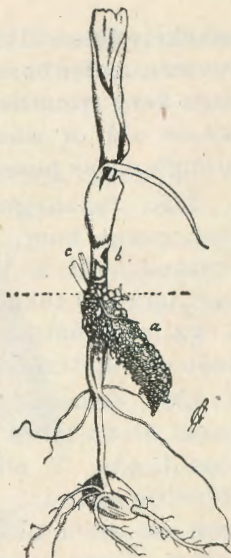


Fig. 67. Sod-worm, *Crambus*: web (a) containing larva at base of young corn plant; b, c, injuries to leaf and stem.

242. *Crambus mutabilis* Clem. (*C. fuscicostellus*). **Dark-spotted Crambus**. F., grass, corn. H. as larva in tubular nest; I, late May to early July; II, late July to early Sep. Adults at lights and "sugar." Slaty, front half of fore wing, except front edge, lightly overlaid and more or less streaked with white; fringe dark; line 3 forming a dark spot near center of wing, line 4 usually evident, nearly straight. (Fig. 68.)

243. *Crambus trisectus* Walk. (*C. exsiccatu*s, *C. interminellus*). **Common Sod-worm**. F., grass, corn. H. as larva in tubular nest in grass land, feeding May and early

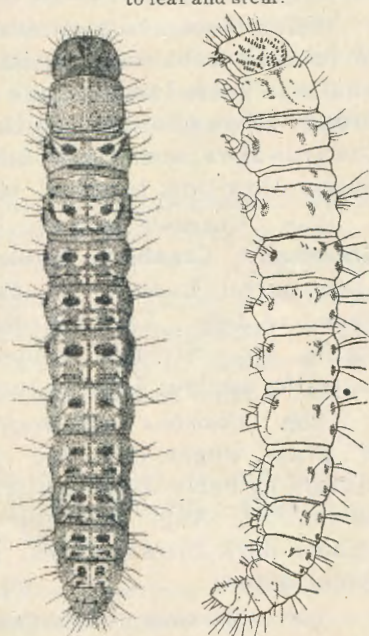


Fig. 68. Dark-spotted Crambus, *Crambus mutabilis*; larva, back and side views.

June; I, late May to early July; 1., late July and early Aug.; II., late July and Aug.; III (partial), late Sep. and early Oct. Pupates in cocoon in tube-nest; adults at lights and "sugar," and in grass-lands. Deadens lawns, and devours young corn on sod-land, gnawing into the stem and eating leaves. Plow grass-lands in early fall; when replanting, plant between rows and leave old planting to keep worms away from new planting. In lawns injury but temporary, grass will usually recover; use of roller advisable. Larger, pale brownish-gray, dark oblique traces of lines 3 and 4, fringe blackish, with pale streaks. (Figs. 67,69.)

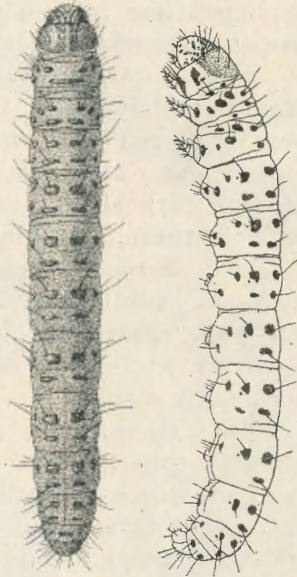


Fig. 69. Common Sod-worm, *Crambus trisectus*; back and side views.

244. *Crambus caliginosellus* Clem. **Sooty Crambus; 1., Tobacco Stalk-worm.** F., grass, corn, tobacco. H. as larva intubular nest; I, June and July; adults at lights. Smaller, dark gray-brown, apex of fore wing more or less acute; lines indefinite, line 4 dark, wavy, fringe dark. Sanderson, 130, 217. (Fig. 67.)

245. *Hulstia undulatella* Clem. (Honora oblitella). F., elm. Adults, July and Aug.; pupa in cocoon made of silk and particles of bark; adults at lights. Wing darker between lines 1 and 2, and beyond line 3; lines pale, bordered by dark, that on inner side of line 3 not forming a continuous dark line throughout.

Family TORTRICIDÆ.

246. *Exartema permundanum* Clem. (Eccopsis). **Raspberry Leaf-roller.** F., raspberry and other small fruits, Siberian crab, hazel, hickory, rose, *Spiræa*. H., probably as eggs on twigs; 1., late May and early June; adults mid-June to mid-Aug.; perhaps 2 broods. Larva webs up terminal leaflets and flowers, and feeds on them. Fore wings with fine

cross streaks among numerous large irregular brown patches outlined in whitish; about three on hinder part of wing, an \perp -shaped one from middle of front margin, an oblique one at outer end, and some small ones along front margin.

247. *Olethreutes constellatana* Zell. (Sericoris). I, late May to mid-June, at lights. Hind wings gray, fore wings heavily dotted with metallic lead-color and blackish, an oblique outer dark patch ringed with metallic dots, a vague central dark shade, and a small triangular dark shade between these, near hind angle.

248. *Eucosma strenuana* Walk. (Pædisca). F. apple, *Ambrosia*. Adults late May into Sep., abundant mid-June and mid-Aug., reared mid-July; 2 or 3 broods. Adults at lights. Squarish white spot at hind angle of fore wings, usually divided by black line.

249. *Carpocapsa pomonella* Linn. **Codling Moth.** F., fruit of apple, pear, peach, and crab. H. as larva, at first in apples, as soon as mature making tough papery cocoon in crevices of bark, apple barrels, etc.; p., April and May; I, mid-May through June; 1., June and July; II, mid-July into Sep.; 1., Aug. to next April. This is the pale pinkish or yellowish 16-footed worm common in apples; a very serious fruit pest; best kept out by spraying trees with arsenites after petals have fallen, but while fruit is still upright and the calyx still open. Put bands of burlap on tree trunks for second generation, from June to September. Destroy insects under them every week. Gray, finely cross-barred, an oval outer dark area bordered inwardly with blackish, and with some short bronzy cross-bars. Saunders, 127; Comstock, 241. (Fig. 70.)

250. *Epagoge sulfureana* Clem. (Dichelia). **Sulphur Leaf-roller.** F., clover, corn, willow, strawberry, fleabane and many other weeds, etc. H. probably as larva; I, early June to early July; II, late July and Aug.; III (probably partial), late Sep. and early Oct. Larva lives and pupates in rolled leaf. Quite variably marked with a pale brown network and darker brown lines forming a more or less distinct broad \vee , becoming an \times when wings are closed.

251. *Cœlostathma discopunctana* Clem (Amphisa). **Pale Clover Leaf-roller.** F., clover. Adults mid-June to end of



Fig. 70. Codling Moth, *Carpocapsa pomonella*: adult; larva on twig and in apple seed; injured fruit, exterior and interior; egg on apple, and enlarged; pupa; and fruit at proper time for spraying.

Sep.; probably several broods. Larva and pupa in rolled leaf. Two slightly oblique curved blackish cross-lines, ground color darker along outer side of each; midway between them a minute, distinct, black, discal dot.

252. *Archips rosaceana* Harr. (Cacœcia). **Oblique-banded Leaf-roller.** F., rose, apple, and other *Rosaceæ*, cotton, clover, box-elder, oak, etc. H. probably as egg; I., May and June; I, late June to early July; I., July and Aug.; II, Aug. and early Sep. Eggs overlapping in flat masses; larva lives and pupates in rolled leaf; adults on food plants and at lights. Destructive to roses. Crush them in nests; spray with arsenites. Red-brown, 2 oblique paler bands, hind wings dusky towards base, pale yellow outwardly. Saunders, 90. (Fig. 71.)

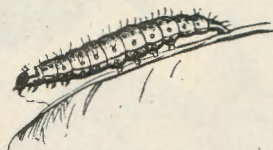


Fig. 71. Oblique-banded Leaf-roller, *Archips rosaceana*; larva and pupa.

253. *Archips semifera* Walk. (Cacœcia). **Box-elder Leaf-roller.** F., box-elder, oak, smartweed, hickory, etc. H. as eggs; I., May and June; I, June and early July; eggs, July to next May. Eggs in flat masses on rough bark, roofed by female with the coating of scales from the under side of her body, transferred entire by pressure to the sticky surface of the egg mass; larva and pupa in rolled leaf. Pale brown; subapical spot and two ill-defined cross-bands whitish.

254. *Tortrix peritana* Clem. I, June; II, late July to early Sep., at lights. Red-brown; oblique band and subapical spot dark; size unusually variable.

Family YPONOMEUTIDÆ.

255. *Atteva aurea* Fitch. (Æta, Æ. compta). **Ailanthus Moth.** F., *Ailanthus*. All stages late July to early Nov.; probably 2 broods. Pupa suspended in middle of loose web.

256. *Plutella maculipennis* Curt. (P. cruciferarum). **Diamond-back Moth.** F., cabbage and other *Cruciferae*. H. as adult; said to be 2 broods; I, midsummer; II, late fall and winter. Larvæ and adults most abundant in late fall; pupa in delicate oval cocoon of relatively coarse gauze-like net-work

on leaves, Hind edge of fore wing with pale border, sharply separated from dark part by a wavy line of division.

Family GELECHIIDÆ.

257. *Sitotroga cerealella* Oliv. (Gelechia). **Fly Weevil; Angoumois Grain-moth.** F., grains of wheat, corn, and other cereals, cow-peas, etc., in field and in storage, burrowing and pupating in them. H. as larva in grain; I, late May or early June; II, July; III, early Sep.; in grain stored indoors: IV, mid-Oct.; and V-VIII may occur if warmth sufficient. Eggs in grooves of grain. Very destructive to stored grain, exhibition corn, etc., especially in the

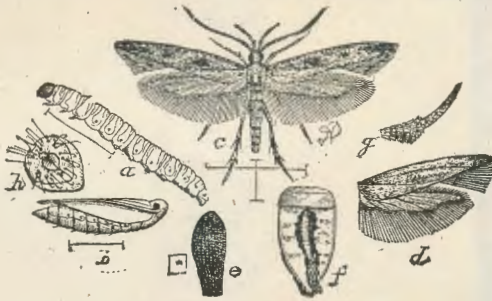


Fig. 72. Angoumois Grain-moth, *Sitotroga cerealella*: a, larva; b, pupa; c, adult; d, wings of a paler variety; e, egg; f, larva in corn grain; g, male palpus; h, tip of pupa.

South. Harvest and store grain promptly in moth-proof bins; if infested, put dishes of carbon bi-sulphide on grain and let the heavy poisonous vapor descend through it, first shutting in the grain as tightly as possible. No light or fire permissible, as vapor mixed with air is explosive. Fore wings lanceolate, a dark line on fringe, encircling dark apical spot. Hind wings of even width, suddenly narrowing near apex, which is prolonged like an index finger about as far as width of wing.



Fig. 73. Angoumois Grain-moth, *Sitotroga cerealella*, injury to stored corn.

Both fringes surpass width of wings. Comstock, 258; Sanderson, 162. (Figs. 72, 73.)

Family TINEIDÆ.

258. *Hypoclopus mortipennellus* Grote (Cænogenes, Acrolophus). **Burrowing Web-worm.** F., grass, young corn. H. probably as larva; l., Oct. to next May; I, June and July, at lights. Larva and pupa in very deep vertical burrow.

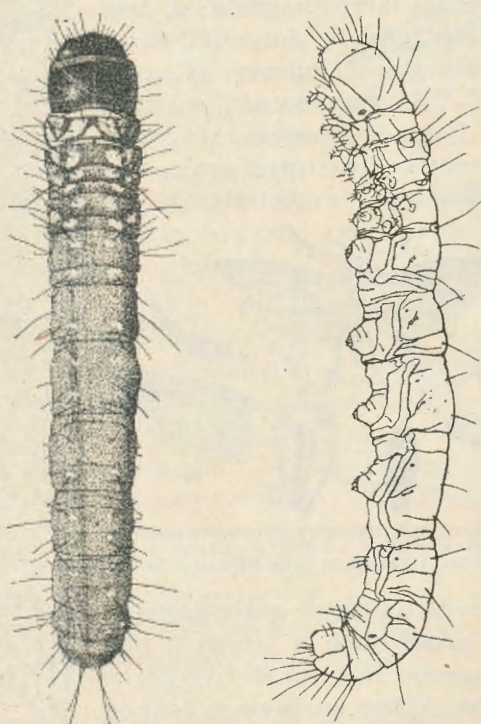


Fig. 74. Burrowing Web-worm, *Pseudanaphora* or *Hypoclopus*, back and side views.

Body slender, fore wings buff, finely mottled, and with several dark spots more or less connected and making a vague v or w. Male palpi curved upward. (Fig. 74.)