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TENTHREDINOIDEA /

By ALEX. D. MACGILLIVRAY
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TENTHREDINOIDEA*.

By ALEXANDER DYER MACGILLIVRAY.

This superfamily is differentiated from the other superfamilies of Hymenoptera by having the cephalic end of the abdomen as broad where it is joined to the thorax as the caudal end of the thorax, never constricted into a narrow pedicel; by having the first abdominal segment joined to the abdomen, instead of being closely anchylosed to the thorax and bearing a pair of spiracles, and usually with its tergum longitudinally divided at middle; by the retention in practically all the species of the base of the radial sector; and by the presence in many of the species of more than one anal cell.

Their larvæ either feed externally on the leaves of plants, within their stems, or within the trunks of trees. They can be distinguished from the larvæ of other Hymenoptera by the presence of prominent abdominal prolegs, and from the larvæ of the Lepidoptera, with which they are most likely to be confused, by the presence of only a single ocellus on each side of the head.

The most useful characters for distinguishing the species of Tenthredinoidea are found on the head capsule and on the ovipositor of the female.

The ovipositor of the female consists of two parts, an external flattened plate on each side, and two median flattened, pointed, yellowish plates located between the external plates. The external plates are known as the saw-guides. The variation in the shape of the three exposed margins, upper, lower, and apical, of the saw-guides is usually characteristic for a given species. The yellowish, chitinized plates located between the saw-guides are the saws. The distal end and ventral margin of each saw are usually denticulate. The shape and arrangement of the denticles or teeth are also usually characteristic for a given species or group of species.

* Contributions from the Entomological Laboratories of the University of Illinois, No. 50.

The variation in the shape of the head and in its sculpture is of the greatest importance for differentiating species, because it is usually characteristic for both sexes. In order to condense the descriptions and make them more accurate, names have been applied to the various head regions and their boundaries. They are as follows:

Tentorial Foveæ.—The tentorial foveæ are the pit-like openings situated between the antennal sockets and the dorsal margin of the clypeus. They mark the points of invagination for the anterior arms of the tentorium. They vary from mere pits to flaring, trumpet-shaped holes.

Antennal Furrows.—The antennal furrows, when complete, extend from the tentorial foveæ along the lateral margin of the antennal sockets, thence across the cephalic aspect of the head to near the lateral ocelli, thence across the dorsal aspect, and finally end on the caudal margin just below the ridge separating the dorsal and caudal margins of the head. While the antennal furrows are frequently complete, yet certain sections are sometimes obsolete, so that it is desirable to refer to different sections of the antennal furrows.

Vertical Furrows.—The vertical furrows are the portions of the antennal furrows situated on the dorsal aspect of the head. They extend from near the lateral ocelli to the caudal aspect of the head. The vertical furrows are rarely wanting and are usually more distinctly marked than the other parts of the antennal furrows.

Lateral Foveæ.—The portions of the antennal furrows extending between the vertical furrows and the antennal sockets are sometimes completely wanting. The antennal furrows, in many cases, instead of being entirely obsolete, are represented on each side of the head by a distinct pit. These pits are known as the lateral foveæ. They are located near the antennal sockets and may be connected with them by a short furrow. They vary considerably in size, shape, and location.

Ocellar Furrow.—The ocellar furrow is a transverse furrow extending between the ends of the vertical furrows near the dorsal margin of the lateral ocelli. It is frequently confluent with the space around the lateral ocelli.

Interocellar Furrow.—The interocellar furrow is a short depressed line or space extending from the middle of the ocellar furrow to the median ocellus. Adjacent to the median ocellus, this furrow flares out, and is frequently a depressed area surrounding the ocellus.

Postocellar Area.—The postocellar area is the region on the dorsal aspect of the head bounded by the ocellar furrow, the vertical furrows, and the caudal margin of the head.

Frontal Crest.—The frontal crest is an elevation extending across the head just above the antennal sockets. It separates the region between the antennæ from the region above it. The frontal crest is usually limited on each side by the antennal furrows, but it may extend across the antennal furrows nearly to the margin of the compound eyes. It is frequently interrupted at middle by the median fovea, when it is said to be broken.

Antennal Groove.—The antennal groove is the curved portion of the antennal furrow extending on each side of the head between the tentorial fovea and the frontal crest around the lateral margin of the antennal sockets.

Supraclypeal Area.—The supraclypeal area is the region between the antennal sockets, the clypeus, and the frontal crest. It may be flat, uniformly convex, carinated, or concave.

Median Fovea.—The median fovea is a rounded or angular pit located near the middle of the ventral margin of the frontal crest. The median fovea is figured and described by some authors as the antennal fovea.

Antennal Foveæ.—The antennal foveæ are the depressed areas surrounding the antennal sockets. The antennal furrows and the lateral foveæ are frequently connected with the antennal foveæ.

Frontal Area.—The frontal area comprises the region of the head located between the antennal furrows, the frontal crest, and the ocellar furrow.

Ocellar Basin.—The depressed area surrounding the median ocellus is frequently continued as a concave area to the frontal crest. The interocellar furrow is frequently expanded so as to occupy most of the space between the lateral ocelli. This concave area, occupying the median portion of the frontal area,

is known as the ocellar basin. The ocellar basin varies greatly in form and extent in the different families and subfamilies.

Frontal Furrow.—The frontal furrow is a well marked depression occurring on the meson of the ocellar basin of many species. It may be limited to a pit or fovea, or it may extend from the median ocellus to the frontal crest. It may not only vary in length, but may vary in position and be located anywhere in the space between the median ocellus and the frontal crest. There is also considerable variation in the width of the furrow.

Malar Space.—The malar space is the area on each side of the head included between the proximal end of the mandible and the ventral end of the compound eye.

Key to Families.

1. Front wings with free part of R_2 present; antennæ always with more than three segments, third segment of antennæ usually longer than all the following segments together
XYELIDÆ p. 29
- Front wings with free part of R_2 always wanting; antennæ with three or more segments, third segment never as long as all the following segments together; if third segment be long, antennæ consisting of only three segments 2
2. Front wings with base of subcosta always present; pronotum transverse and scarcely emarginate behind
PAMPHILIIDÆ p. 32
- Front wings with base of subcosta wanting, at most represented only by a pale indistinct line; subcosta usually represented by the free part of Sc_1 , which appears like a cross-vein in cell between costa and $R + M$; pronotum transverse but frequently so deeply emarginate behind that the mesal portion is concealed by the head 3
3. Front wings with radial cross-vein received in cell R_4 , very rarely in cell R_3 ; medio-cubital cross-vein joined to $R + M$ or to M ; if joined to M , first abscissa of M not more than one-sixth the length of the cross-vein; ovipositor in form of a saw, exserted or retracted; anterior tibiæ with two apical spurs.....TENTHREDINIDÆ p. 41
- Front wings with radial cross-vein received in cell R_3 , rarely in cell R_4 ; if in cell R_4 , medio-cubital cross-vein joining media distinctly distad of radius and subequal in length to first abscissa of media; ovipositor in form of a saw or borer and usually exserted; anterior tibiæ with one apical spur 4

4. Front wings with first abscissa of M_2 present; antennæ inserted between eyes above base of clypeus, with bases of antennæ fully exposed 5
 Front wings with first abscissa of M_2 wanting; antennæ inserted below level of eyes at base of clypeus under a transverse ridge of the front, their bases concealed
 ORYSSIDÆ p. 175
5. Front wings with a distinct cell between costa and $Sc + R + M$; medio-cubital cross-vein subequal in length to first abscissa of media 6
 Front wings without a cell between costa and $Sc + R + M$; medio-cubital cross-vein from three to five times as long as first abscissa of media CEPHIDÆ p. 172
6. Front wings with free part of Sc_1 always present; first abscissa of media extending lengthwise of wing; the last abdominal tergite not ending in a triangular or lanceolate process XIPHYDRIIDÆ p. 168
 Front wings with free part of Sc_1 always wanting; first abscissa of media extending crosswise of wing; last abdominal tergite ending in a triangular or lanceolate process SIRICIDÆ p. 169

XYELIDAE.

Key to Genera.

1. Front wings with free part of M arising a considerable distance beyond point of union of $R + M$ and Sc_2 ; hind wings with free part of R_3 wanting; claws with a minute tooth-like protuberance at base or with a long slender seta at apex 2
 Front wings with free part of M arising distinctly before point of separation of R and Sc_2 ; hind wings with free part of R_3 present; claws cleft or with a large tooth within at apex 3
2. Front wings with Sc not coalesced with $R + M$, so that free part of Sc_2 appears like a cross-vein between apex of Sc and $R + M$ Pleuroneura p. 30
 Front wings with Sc coalesced with $R + M$, so that the free part of Sc_2 is obliterated Xyela p. 30
3. Front wings with free part of R subequal in length to $R + Sc_2$ 4
 Front wings with free part of R distinctly shorter than $R + Sc_2$, frequently less than one-half the length of $R + Sc_2$ 5
4. Claws with a large erect tooth within at middle
 Odontophyes p. 30
 Claws cleft, two parts of cleft parallel.....Megaxyela p. 31

5. Clypeus triangular in outline, median portion two or three times as long as lateral portions; claws cleft, two parts of cleft parallel **Paraxyela** p. 31
- Clypeus not triangular in outline, median portion but little if any longer than lateral portions; claws with an erect tooth at middle 6
6. Front wings with free part of Sc_2 almost twice as long as free part of Sc_1 ; Sc_1 much more oblique than Sc_2 ; cell R_3 usually divided by a supernumerary cross-vein; clypeus much broader at middle than at lateral emarginations
- Protoxyela** p. 31
- Front wings with free part of Sc_2 subequal in length with free part of Sc_1 ; Sc_1 and Sc_2 inclined at about the same angle; cell R_3 never divided by a supernumerary cross-vein; clypeus only slightly if at all broader at middle than at lateral emarginations **Macroxyela** p. 31

Pleuroneura Konow.

°**P. brunneicornis** Rohwer.

Body black, with the mandibles, a line on the pronotum, and the tegulae, pallid; clypeus, labrum, palpi, legs, venter, and three apical abdominal segments, rufo-fulvous; hind tibiae infuscated; clypeus truncate with a triangular tooth at middle; antennal furrows indistinct above the middle of the head; no fovea at side of lateral ocelli. Length 6 mm.

Xyela Dalman.

°**X. minor** Norton.

Body yellowish, with indistinct or subdistinct brownish spots on the three basal segments of the antennae, a parenthesis-shaped spot each side of the ocelli, two spots on each lateral lobe of the mesonotum; third segment of the antennae distinctly shorter than all the following segments together and longer than the first and second together; ovipositor slender, longer than the abdomen; wings elongate, projecting one-half their length beyond the apex of abdomen. Length 4 mm. Larva feeds on staminate flowers of *Pinus*.

Odontophyes Konow.

°**O. avingrata** (Dyar).

Body steel blue, with the following parts yellow: the labrum, bases of the mandibles, palpi, bases of the antennae, tips

of the anterior and middle femora, trochanters, and four apical segments of the posterior tarsi; head roughened with large, closely placed punctures; abdomen iridescent with fine transverse wavy striations. Length 13 mm. Larva resembling a bird's dropping, feeds on the young leaves of hickory and butternut.

Megaxyela Ashmead.

°M. major (Cresson). *Xyela major* Cresson.

Body ferruginous, with black and yellow markings; posterior tibiae broadly expanded and flattened, covered with setae which form a brush along the ventral side. Length 10 mm. Larva feeds on hickory.

Paraxyela MacGillivray.

°P. tricolor (Norton). *Xyela tricolor* Norton.

Body steel blue, with the following parts white: spots at the insertion of the antennae, nasus, labrum, mandibles, palpi, and edges of the ventral segments; the following parts black: edge of labrum, tips of posterior femora, tibiae, and tarsi; legs rufous. Length 8 mm.

Protoxyela MacGillivray.

°P. aenea (Norton). Howard, Insect Book, pl. xiii, Fig. 5.

Body bronze-black with the following parts rufous; first segment of antennae, supraclypeal area, clypeus, labrum, mandibles, legs including the coxae, venter at apex, and apical two-thirds of saw-guides; abdominal segments beyond the basal plates with a fine apical white margin. Length 7 mm.

Macroxyela Kirby.

Key to Species.

1. Head with a flat depressed area in front of median ocellus, never crossed by the median fovea 2
- Head, if with a depressed area in front of median ocellus, always broken by the median fovea, which extends to the median ocellus 4
2. Median fovea represented by a linear smooth spot only slightly, if at all, depressed below the surface of the front; body black, with clypeus, labrum, malar space, supraclypeal area, basal plates at sides, abdomen beyond the basal plates, and legs rufous. Length 8 mm.bicolor

- Median fovea not linear and distinctly depressed below the surface of the front 3
3. Median fovea a broad, flat, indistinct depressed area, more distinct near the median ocellus; saw-guides strongly convex above on the basal half and straight or slightly convex below; body rufous, with a spot about the ocelli, a spot near the base of wings, and the base of abdomen above, more or less black. Length 8 mm.obsoleta
- Median fovea a distinct, narrow, elongate, diamond-shaped depression, flat on the bottom; saw-guides convex above on basal half and straight below; body rufous, with two spots on lateral lobes of mesonotum and the postscutellum black. Length 8 mm.distincta
4. Median fovea a wedge-shaped depression, narrowed near the median ocellus, with polished, sloping walls; saw-guides strongly convex on basal two-thirds above and almost straight below; body rufous, with antennæ beyond the second segment, a spot about the ocelli, a spot above the base of each antenna, a spot on the apex of the median lobe of the mesonotum, two spots on each lateral lobe, and the two basal tergal segments black. Length 9 mm.ferruginea
- Median fovea vase-shaped, a semicircular, slanting depression adjacent to the median ocellus, broadly boat-shaped on the middle of the front, the two parts connected by a narrower portion with high bounding walls; saw-guides moderately convex on basal two-thirds above and straight below; body rufous, with usually a spot about the ocelli, and two spots on each median lobe of mesonotum black. Length 8 mm.infuscata

- °M. bicolor MacGillivray.
- °M. obsoleta MacGillivray.
- °M. distincta MacGillivray.
- °M. ferruginea (Say). *Xyela ferruginea* Say.
- °M. infuscata (Norton). *Xyela infuscata* Norton. Larva feeds on the leaves of elm.

PAMPHILIIDÆ.

Key to Genera.

1. Claws cleft, the two rays subequal in length; hinder margin of posterior orbits with a distinct fine carina 5
- Claws with a small median or submedian erect tooth 2

2.	Anterior tibiæ with a lateral spur before the apex	3
	Anterior tibiæ without a lateral spur before the apex	4
3.	Hind margin of posterior orbits without a carina	
	Acantholyda p.	33
	Hind margin of posterior orbits with a distinct, fine carina	
	Itycorsia p.	33
4.	Front wings with medio-cubital cross-vein joined to media distinctly beyond its point of separation from radius	
	Cephaleia p.	35
	Front wings with medio-cubital cross-vein joined to media at its point of separation from radius	
	Cænolyda p.	36
5.	Front wings with free part of Sc ₁ present, cells C and Sc ₁ distinct	6
	Front wings with free part of Sc ₁ wanting so that cells C and Sc ₁ are united	
	Neurotoma p.	37
6.	Antennæ with third segment not or scarcely longer than fourth, at least always shorter than segments four and five united	
	Pamphilius p.	37
	Antennæ with third segment as long as or longer than segments four and five united	
	Anoplolyda p.	39

Acantholyda Costa.

°**A. marginiventris** (Cresson).

Tergum black, with a narrow lateral white or pinkish margin; antennæ black; legs black, except the anterior tibiæ in front; head black with the clypeus white; a spot between the base of the antenna and the eye, a pair of spots in front of the ocelli, a pair of lunate marks behind the ocelli, a narrow band from the eyes to the occiput, and the outer orbits, white; a triangular spot on the median lobes of the mesonotum, white. Length 15 mm.

°**A. bicolorata** (Norton).

Tergum honey yellow, with the two apical segments black; antennæ black; legs black; head brown, with a spot at the base of each antenna, a triangular spot above each eye, one about the ocelli, and a large spot on the vertex, black. Length 12 mm.

Itycorsia Konow.

Key to Species.

1.	Pleuræ entirely black	2
	Pleuræ either with a broad oblique pale spot or entirely pale	3

2. Body black, with the following parts rufous: head, except labrum, a spot around bases of antennæ, mandibles, greater part of lateral lobes of mesonotum, scutellum, post-scutellum, and anterior tibiæ and tarsi; lateral margin of abdominal segments with a fine yellow line; wings infuscated. Length 12 mm.**brunniceps**

Body, in female, black, with the following parts yellowish white: spot on bases of mandibles, spot on cheeks, narrow line from the caudal end of eyes to the occiput where it expands and extends along the caudal margin of the posterior orbits to near their middle, two ovate spots on vertex, a narrow line on pronotum, a line on suture between median and lateral lobes, a spot on each lateral lobe, and an irregular spot on the lateral margin of each abdominal segment; tibiæ and anterior tarsi rufous; wings hyaline, with a clouded spot extending across wings behind the stigma. Male differs in having the antennæ usually rufous at middle, a yellowish spot at caudal end of each eye, mandibles in great part yellow, spots on abdominal segments limited to a line, and all the tibiæ and tarsi yellowish rufous. Length 16 mm.**maculiventris**

3. Pleuræ and sternum black, with an oblique pale mark on pleuræ; legs in part marked with black. 6

Pleuræ and sternum wholly rufous or ochraceous; legs entirely rufous or ochraceous 4

4. Head with the summit of the declivous area at the base of antennæ broadly rounded; body rufous, with tips of antennæ infuscated, and tergum, except a line along the lateral margin, black; median fovea an elongate pit situated midway between the bases of antennæ and ocelli; basal segment of antennæ rufous. Length 14 mm.**ochrocera**

Head with the summit of the declivous area at the base of antennæ elevated into a distinct transverse ridge; basal segment of the antennæ marked with black 5

5. Head with the postocellar area elevated above ocelli; eye margin angulated opposite ocelli; median fovea a deep depression with distinct boundaries, nearer to the ocelli than to the bases of antennæ; head with indefinite black lines, more pronounced in region of ocelli; median lobe of mesonotum, scutellum and metathorax in part, and a narrow band on the base of abdominal segments, black. Length 14 mm.**angulata**

Head with postocellar area not elevated above ocelli; eye margin not angulated opposite ocelli; median fovea an elongate slit nearer to the ocelli than to the bases of antennæ; head with indefinite black lines in the region of

ocelli; median lobe at base, lateral lobes at middle, base of scutellum, metathorax in part, and a narrow transverse band on the base of each abdominal segment, black.

Length 14 mm.discolor

6. Large yellow spot laterad of the bases of antennæ smooth without punctures; clypeus and labrum yellow, produced at middle into a distinct spearhead-shaped projection, rarely punctate and if so bearing white setæ; head and thorax with the usual yellow spots; legs all yellow or yellowish-rufous with the femora black above; abdomen almost entirely rufous or with a narrow black line on the caudal margin of the segments, in some specimens the black bands expanded onto the cephalic part of the next segment until some of the segments are almost entirely black. Length 13 mm.luteomaculata

Large yellow spot laterad of the bases of antennæ completely covered with punctures, each puncture bearing a black seta; labrum and clypeus yellow, produced at middle into a triangular-shaped projection and distinctly punctate, the punctures bearing black setæ; head and thorax with the usual yellow spots; legs yellow or yellowish-rufous with all the femora black above and all with more or less black beneath; abdomen black above with a narrow yellow lateral margin. Length 14 mm.albomarginata

°I. *brunniceps* (Cresson). *Lyda brunniceps* Cresson.

°I. *maculiventris* (Norton). *Lyda maculiventris* Norton.

I. *ochrocera* (Norton). *Lyda ochrocera* Norton. Wallingford, 1 June, 1910 (D. J. Caffrey), 13 July, 1911 (J. K. Lewis); Stonington, 15 June, 1908 (W. E. B.).

I. *angulata* MacGillivray. Manchester, 20 May, 1910 (A. B. C.); Wallingford, 7 July, 1911 (J. K. Lewis).

°I. *discolor* (Cresson).

*I. *luteomaculata* (Cresson). *Lyda luteomaculata* Cresson. Torrington (R. Hochstein).

*I. *albomarginata* (Cresson). *Lyda albomarginata* Cresson. New Haven, 24 June, 1905 (H. L. V.).

Cephaleia Panzer.

Key to Species.

1. Pleuræ entirely black	2
Pleuræ with a prominent oblique pale mark	3

2. Head black, with the following parts ferruginous: spot on the side of face and on the apical middle of clypeus, broad line on cheeks, and two spots behind ocelli; antennæ in great part pale yellow; wings hyaline, with a fuscous band beneath stigma; abdomen violaceous black, transversely banded at middle with yellowish ferruginous. Length 15 mm.**fascipennis**
Head rufous, with a black spot around ocelli, extending to the bases of antennæ; tegulæ and immediate adjacent parts of pronotum and wings ferruginous; body, including wings, violaceous black. Length 18 mm.**frontalis**
 3. Scutellum yellow; head and thorax black, with the usual straw-yellow markings; antennæ black; abdomen black, with a rufous or honey-colored transverse band on segments two to four and the tip of the anal segment of the same color; wings faintly clouded. Length 11 mm.
canadensis
Scutellum black 4
 4. Head and thorax blackish, with the usual yellow spots; antennæ varying from yellow to blackish fuscous; abdomen entirely luteous or with an irregular median blackish band; legs luteous, front and middle femora black above, posterior entirely black. Length 11 mm.**mathematica**
Head and thorax black, with clypeus and three elongate spots extending from it between the antennæ and along the inner orbits, outer orbits, tegulæ, and an oblique pleural mark, yellow; abdomen black with the lateral margin and the venter more or less yellow; legs wholly pale, rufous or ochreous. Length 11 mm.**distincta**
- °C. *fascipennis* (Cresson).
 °C. *frontalis* (Westwood).
 °C. *mathematica* (Kirby). *Pamphilius mathematicus* Kirby.
 °C. *canadensis* Norton.
 °C. *distincta* MacGillivray.

Cænolyda Konow.

°C. *semidea* (Cresson). *Lyda semidea* Cresson.

Head and thorax luteous or brownish, with the usual yellow-colored spots faintly indicated; antennæ luteous beyond first segment; abdomen entirely luteous or brownish; legs luteous, with the basal three-fourths of the femora rufous, fuscous, or black; wings hyaline, veins luteous or brownish. Length 12 mm.

Neurotoma Konow.

***N. fasciata** (Norton). Howard, Insect Book, pl. xiv, Fig. 15.

Body in female black, with the following parts yellow: a shield-shaped spot between the antennæ, tegulæ, scutellum, post-scutellum, a triangular spot on the caudo-lateral angles of the fourth to the sixth tergal segment, and legs except coxæ and basal half of femora; wings fuliginous, front wings clear at apex. Male differs in having scutellum and postscutellum black, and legs beyond coxæ entirely yellow. Length 12 mm. Larva feeds on cherry.

Connecticut (E. N.).

°**N. inconspicua** (Norton).

Body dull black, with tegulæ yellow and mandibles and legs beyond the coxæ rufous; tarsi black; wings hyaline, with a faint fuscous band behind the stigma. Length 9 mm. Larva feeds on cherry.

Pamphilus Latreille.*Key to Species.*

1. Antennæ white beyond the first segment; head and thorax black, with the usual pale markings; abdomen black, with a white lateral margin and a transverse band on the middle of the four apical segments; legs yellow, with anterior and middle coxæ, anterior trochanters, basal half of anterior and middle femora, and apices of their tibiæ and tarsi, posterior coxæ in part, and apices of their tibiæ and tarsi, black; wings hyaline. Male differs from female only in having the spots on head and thorax smaller and the black on legs more pronounced. Length 10 mm.**semicinctus**
- Antennæ entirely black, yellow or rufous beyond the middle 2
2. Head and thorax in female luteous with black markings; abdomen luteous with a longitudinal black or fuscous band on each side of tergum within the margin; legs entirely luteous, darker toward apex; wings hyaline. Male differs in having disk of the head, thorax, and abdomen black with yellow spots; posterior tibiæ and all the tarsi fuscous. Length 9 mm.**ocreatus**
- Head and thorax black, with yellow markings..... 3
3. Abdomen rufous beyond the first segment..... 5
- Abdomen black, with the third and fourth segments rufous 4
4. Head with a strongly elevated V-shaped ridge behind the median ocellus; body black, with declivous part of the

head, mesal surface of the basal segment of antennæ, apical half of antennæ, genæ, a line on the outer orbits adjacent to the eyes, a spot on the posterior orbits, tegulæ, and the legs below the coxæ, except the posterior tibiæ, white; abdomen with segments three and four entirely, the basal half of five, and a line on six, rufous. Length 11 mm.

transversus

Head not with a strongly elevated V-shaped ridge behind the median ocellus; body black, with mandibles, declivous part of the head, a line on the posterior orbits, a spot on each side of the postocellar area, a spot on each side on the caudal margin of head, tegulæ, scutellum, postscutellum, and legs beyond the coxæ, yellow. Length 8 mm.rufocinctus

5. Pleuræ with a pale mark; body black, with clypeus, posterior orbits, genæ, a broad band from the middle of the eye to the occiput, two prominent, triangular-shaped dilations on the inner side near the eye, two parenthesis-shaped spots near the postocellar area, three minute spots on the front, tegulæ, V-spot, scutellum, postscutellum, front and middle legs, and posterior trochanters and femora, yellow; mandibles, posterior tibiæ and tarsi, and abdomen beyond the basal plates, rufous. Length 9 mm.

persicus

- Pleuræ without a pale mark 6
6. Labrum with a small median tooth 7
- Labrum broadly rounded without a median tooth; ocellar basin sharply defined, a V-shaped ridge behind median ocellus and two broad mounds in front; body in female black, with apical half of antennæ, clypeus, lower half of the outer orbits, a line on the genæ adjacent to the eyes, a bifid dilation on the inner orbits extending as a line to the occiput, its inner margin extending to the vertical furrows, ridges about the ocellar basin, a spot on each vertical furrow, tegulæ, a line on the collar, the V-spot, scutellum, postscutellum, and the legs below the knees, white; abdomen rufous beyond the basal plates. Male differs in having the area in front of the frontal crest and the basal segment of antennæ yellow, spots on the orbits and vertex wanting. Length 8-10 mm.dentatus
7. Median fovea wanting; ocellar basin strongly defined; body black, with apical half of antennæ, clypeus, base of mandibles, lower half of posterior orbits, area around ocellar basin, a spot on each vertical furrow, a line from the middle of the inner orbits to the occiput (enlarged at occipital end), tegulæ, prosternum, and legs beyond the

coxæ, except posterior tibiæ and tarsi, yellow; abdomen reddish beyond the first segment. Length 10 mm.

ocellatus

Median fovea open and elongate; ocellar basin not sharply defined; body black, with apex of the clypeus, genæ, three spots about ocelli, a line from the inner orbits to the eyes, a spot on the vertical furrows, apical third of the antennæ, tegulæ, scutellum, legs below coxæ, except the posterior tibiæ, pale yellow; abdomen rufous beyond the first segment. Length 7.75 mm. rubi

°*P. semicinctus* (Norton). *Lyda semicincta* Norton.

P. ocreatus (Say). *Lyda ocreata* Say. Howard, Insect Book, pl. xiv, Figs. 4 and 9. Connecticut (Norton); New Haven, 21 May, 1910 (A. B. C.). Larva a solitary feeder on *Corylus*.

°*P. transversus* MacGillivray.

°*P. rufocinctus* (Cresson). *Lyda rufocincta* Cresson.

**P. persicus* MacGillivray. Yalesville, Meriden, Wallingford, Middlefield, Durham, North Haven, New Haven, Hamden, Cheshire, Farmington (B. H. W.); Yalesville, June (W. E. B.). Larva feeds on peach.

For a full account of this insect and its appearance as a pest, see 7th Report State Entomologist, in Report for 1907-8 of Connecticut Agricultural Experiment Station, New Haven, p. 285.

**P. dentatus* MacGillivray. Hamden, 24 May, 1910, New Haven, 30 May, 1911 (B. H. W.); Wallingford, 8 June, 1911 (B. H. W. and D. J. Caffrey). Larva feeds on blackberry. See Report of Connecticut Agricultural Experiment Station for 1912, p. 236.

°*P. ocellatus* Rohwer.

°*P. rubi* Rohwer. Larva feeds on blackberry.

Anoplolyda Costa.

Key to Species.

1. Pleuræ with a large oblique pale stripe.....	2
Pleuræ black	4
2. Abdomen rufous at least beyond first segment.....	3
Abdomen black, except a rufous spot on the first and the most of the second and third segments of the tergum;	

legs black to the middle of femora, and beyond the middle of femora yellow-red; antennæ black; scutellum and post-scutellum yellow; head yellow in front of ocelli except a black line above each antenna; wings hyaline. Length 7 mm. **excavata**

3. Antennæ black at base, yellow at apex; body black, with head and thorax with the usual yellow markings; legs, except coxæ and apical three-fourths of the hinder tibiæ, pale yellow; wings hyaline. Length 10 mm. **luteicornis**

Antennæ black; body black, with head and thorax with the usual yellow markings; legs, except posterior femora, yellow; wings hyaline. Length 12 mm. **pallimacula**

4. Scutellum black; head yellow, with the area behind and including ocelli and between the antennal furrows, black; pronotum, tegulæ, and (in female) legs beyond the coxæ, yellow; abdomen black with rufous spot covering the disk of second to fourth segments of tergum and venter; antennæ black; wings strongly infuscated. Male differs in having the apex of the posterior tibiæ black. Length 13 mm. **plagiata**

Scutellum pale 5

5. Abdomen rufous beyond the first segment..... 6
Abdomen marked with rufous at middle, black at apex..... 7

6. Antennæ black; mesal projecting spot on the inner margin of eye pointed at apex and not bifid; anterior ocellus entirely surrounded by yellow; head and thorax with the usual pale markings; legs yellow beyond the middle of coxæ; wings hyaline; the basal half of stigma yellow. Length 12 mm. **quebecensis**

Antennæ white beyond the middle; mesal projecting spot on the inner margin of eyes deeply bifid at apex; anterior ocellus not entirely surrounded by yellow, interrupted by a furrow on each side; head and thorax with the usual pale markings; legs yellow beyond coxæ, except posterior tibiæ which are black; wings hyaline; stigma black. Length 12 mm. **scripta**

7. Abdomen black, with a rufous spot on the disk of tergal segments one to four; head and thorax with the usual pale markings, except that those on the head are reduced to fine lines; legs beyond coxæ, greenish yellow; antennæ black; wings hyaline, veins and stigma black. Length 9 mm.

perplexa

Abdomen black at base and apex with a transverse rufous band at middle; legs beyond coxæ entirely yellow; transverse ridge in front of ocelli and vertex deeply impressed by the antennal furrows; head and thorax with the usual pale markings; second segment of the antennæ about

twice as long as broad; wings yellowish-hyaline; antennæ black. Length 9 mm.**rufofasciatus**

°**A. excavata** (Norton).

***A. luteicornis** (Norton). Farmington (E. N.).

A. pallimacula (Norton). Howard, Insect Book, Pl. xii, Fig. 6. Farmington (E. N.).

°**A. plagiata** (Klug). Howard, Insect Book, Pl. xiv, Fig. 22.

°**A. quebecensis** (Provancher).

A. scripta (Say). Farmington; New Haven, 4 June, 1911, Hamden, 2 June, 1911 (A. B. C.), 14 June, 1911 (W. E. B.).

°**A. perplexa** (Cresson).

A. rufofasciatus (Norton). Connecticut (E. N.).

TENTHREDINIDÆ.

Key to Subfamilies.

1. Front wings with second anal cell contracted at middle 2
Front wings with second anal cell not contracted at middle 5
2. Front wings with free part of second anal vein present 3
Front wings with free part of second anal vein wanting.
SELANDRIINÆ p. 65
3. Radial cross-vein present; antennæ never with more than nine segments 4
Radial cross-vein wanting; antennæ always with more than nine segmentsDIPRIONINÆ p. 43
4. Front wings with free part of vein R_5 present and cells R_5 and R_4 therefore separate 5
Front wings with free part of vein R_5 wanting, so that cells R_5 and R_4 are unitedDOLERINÆ p. 68
5. Front wings with medio-cubital cross-vein and free part of M_{3+4} parallelEMPHYTINÆ p. 45
Front wings with medio-cubital cross-vein and free part of M_{3+4} strongly divergent behindPHYLLOTOMINÆ p. 77
6. Radial cross-vein present 7
Radial cross-vein wanting 13
7. Front wings with medio-cubital cross-vein joined to vein $Sc+R+M$ at or near origin of media, its distance from media always less than one-half the length of the cross-vein 8
Front wings with medio-cubital cross-vein joined to vein $Sc+R+M$ at a distance from origin of media, its distance

- from media always one-half or more the length of the cross-vein 10
8. Front wings with medio-cubital cross-vein and M_{3+4} parallel
BLENNOCAMPINÆ p. 142
- Front wings with medio-cubital cross-vein and M_{3+4} strongly divergent behind 9
9. Hind wings with vein R_3 reaching the margin distinctly before apex of wing; cell R_{1+2} pointed at apex and closed
SCOLIONEURINÆ p. 158
- Hind wings with vein R_3 reaching the margin at or beyond apex of wing; cell R_{1+2} rounded at apex and open..... FENUSINÆ p. 156
10. Front wings with base of third anal vein present and second anal cell therefore not combined with third 11
- Front wings with base of third anal vein atrophied and second and third anal cells therefore united DINEURINÆ p. 107
11. Front wings with medio-cubital cross-vein and vein M_{3+4} parallel or at least not divergent behind 12
- Front wings with medio-cubital cross-vein and vein M_{3+4} strongly divergent behind HOPLOCAMPINÆ p. 105
12. Antennæ with eight or nine segments, rarely enlarged at apex; front wings with first abscissa of M subequal to abscissa of R ; radio-medial cross-vein rarely if ever wanting TENTHREDININÆ p. 80
- Antennæ with less than eight segments, always enlarged at apex into a club; front wings with first abscissa of M twice as long as abscissa of R ; radio-medial cross-vein always wanting CIMBICINÆ p. 102
13. Front wings with third and combined first and second anal veins anastomosed at middle for a short distance, length of anastomosis always being less than length of second anal cell 14
- Front wings with third and combined first and second anal veins anastomosed at middle for a considerable distance, anastomosis being two or three times the length of second anal cell, or with second anal cell wanting or combined with third anal cell, or with both first and second anal cells wanting 15
14. Antennæ never with more than nine segments; hind wings with vein R_3 reaching the margin before apex of wing; cell R_{1+2} pointed at apex and closed..... CLADINÆ p. 108
- Antennæ always with more than nine segments; hind wings with vein R_3 reaching the margin at apex of wing; cell R_{1+2} broad at apex and open MONOCTENINÆ p. 108
15. Antennæ always with nine segments NEMATINÆ p. 111
- Antennæ with three or six segments 16

16. Antennæ with six segments; front wings with three anal veins fused into a single veinACORDULECERINÆ p. 165
- Antennæ with three segments; front wings with three anal veins never fused into a single vein 17
17. Front wings with free part of Sc₁ presentHYLOTOMINÆ p. 160
- Front wings with free part of Sc₁ wantingSCHIZOCERINÆ p. 164

DIPRIONINÆ.

Diprion Schrank.

Lophyrus Latreille.

Antennæ multiarticulate, with fifteen or more segments, strongly serrate in the female and bipectinate in the male, the rays shorter toward the apex; larvæ infesting various species of conifers.

Key to Species.

1. Antennæ with sixteen segments, black; head, thorax, abdomen, and legs in great part luteous; wings hyaline. Females
fabricii
- Antennæ with more than sixteen segments..... 2
2. Head and thorax for the most part pale. Females..... 3
- Head and thorax for the most part black. Males..... 8
3. Femora black or dusky at base; antennæ with eighteen segments; antennæ and scutellum pale yellow; mesonotum with large black spots occupying the greater part of its surface; head and thorax sparsely covered with deep puncturesabdominalis
- Femora wholly pale..... 4
4. Tibiæ waxen white, at least at base; antennæ with seventeen segments 5
- Tibiæ with no part waxen white; antennæ usually with more than seventeen segments 6
5. Antennæ luteous brown; tegulæ, collar, and pleuræ luteous brown; a line joining the ocelli, a stripe on each side lobe of the mesothorax, and the sutures of the metathorax, black; claws with a tooth near the middle.....pinus-rigida
- Antennæ black, with basal half of third segment pale; tegulæ, collar, and pleuræ waxen white; sides of metathorax black; claws with the tooth distinctly nearer the apex than the middleabbotti
6. Lateral lobes of mesonotum pale..... 7
- Lateral lobes of mesonotum and sutures metallic black; body yellowish brown; antennæ with eighteen segments, black, the third segment pale at base; claws with a short tooth near the tipabietis

7. Antennæ with twenty segments; color yellow-brown; antennæ blackish; metathorax, tergum, and a stripe down each side of the venter, black; edges of pronotum, pleuræ, outer edges of abdomen, and knees, waxen white.....**lecontei**
 Antennæ with seventeen segments; color ferruginous; antennæ blackish ferruginous; sutures of face, mesothorax, abdomen, most of metathorax, and part of third and fourth segments of tergum, blackish; pleuræ dark brown.....**akhursti**
8. Collar and edge of tegulæ white; antennæ with eighteen segments; ventral part of body and legs yellow-brown; basal half of wings clouded**abbotti**
 Collar and tegulæ black..... 9
9. Antennæ with fifteen segments; abdomen beneath and at base and basal half of legs, yellow-brown; legs below knees whitish**pinus-rigida**
 Antennæ with more than fifteen segments..... 10
10. Antennæ with twenty-one segments; head and mesothorax black; tergum dark piceous; pleuræ and breast black; venter reddish brown, legs reddish yellow, darkest at base**abietis**
 Antennæ with twenty-two or more segments**lecontei**

°*D. fabricii* (Leach). *Lophyrus fabricii* Leach. Larva feeds on pitch pine.

°*D. abdominalis* (Say) *Lophyrus abdominalis* Say.

D. pinus-rigida (Norton). *Lophyrus pinus-rigida* Norton. Larva feeds on *Pinus rigida*, and this is probably the species observed at Tariffville a few years ago, where many of the small pitch pines were nearly defoliated (W. E. B.).

D. abbotti (Leach). *Lophyrus abbotti* Leach. Howard, Insect Book, Pl. xii, Fig. 3. Larva feeds on white pine and pitch pine. Middletown, 1911; Litchfield, 1916.

D. abietis (Harris). *Lophyrus abietis* Harris. Larva feeds on black spruce, fir, pitch pine. Connecticut (E. N.).

D. lecontei (Fitch). *Lophyrus lecontei* Fitch. Howard, Insect Book, Pl. xiv, Fig. 5. Larva feeds on white pine, pitch pine, *Pinus banksiana*, Scotch pine, and Austrian pine. Middletown (D. MacDonald); Hampton (A. B. Roberts); Stamford, 8 May, 1911 (R. T. Morris).

°*D. akhursti* (Norton). *Lophyrus akhursti* Norton.

EMPHYTINÆ.

Key to Genera.

1.	Posterior metatarsus subequal in length or shorter than the four following segments	2	
	Posterior metatarsus distinctly longer than the four following segments	13	
2.	Front wings with second abscissa of Cu_1 never shorter than free part of M_4	3	
	Front wings with second abscissa of Cu_1 always shorter than free part of M_4	8	
3.	Front wings with second abscissa of Cu_1 distinctly longer than free part of M_4 ; claws with a minute erect tooth at middle	4	
	Front wings with second abscissa of Cu_1 subequal in length to free part of M_4	5	
4.	Front wings with free part of 2d A oblique; hind wings with cell R_{1+2} without an appendage at apex		
	Hemitaxonus p.	46	
	Front wings with free part of 2d A perpendicular; hind wings with cell R_{1+2} with an appendage at apex		
	Epitaxonus p.	46	
5.	Hind wings with cell R_{1+2} always with a distinct appendage at apex; front wings with free part of 2d A oblique	6	
	Hind wings with cell R_{1+2} never with an appendage at apex; front wings with free part of 2d A perpendicular		
	Taxonus p.	46	
6.	Claws bifurcate at apex	Monostegia p.	47
	Claws always with a tooth but never bifurcate at apex.....	7	
7.	Claws cleft, with inner lobe not more than one-half the length of outer lobe	Phrontosoma p.	47
	Claws with an erect tooth at middle	Empria p.	48
8.	Front wings with radio-medial cross-vein always present....	9	
	Front wings with radio-medial cross-vein always wanting	Emphytus p.	55
9.	Hind wings either with free part of R_4 , or transverse part of M_2 , or with both present.....	11	
	Hind wings with both free part of R_4 and transverse part of M_2 wanting	10	
10.	Claws with a large erect tooth at middle....	Parataxonus p.	57
	Claws appendiculately toothed at base.....	Polytaxonus p.	58
11.	Hind wings with both free part of R_4 and transverse part of M_2 present	Eriocampa p.	58
	Hind wings with free part of R_4 wanting.....	12	
12.	Head and thorax strongly cribrately punctate		
	Pseudosiobla p.	58	
	Head and thorax smooth, without punctures....	Monosoma p.	59

ridge wanting, median fovea coinciding with ocellar basin and extending as a narrow groove to above the median ocellus; wings very slightly infuscated, veins and stigma brownish. Length 8 mm. **nigrisomus**

Abdomen black, transversely banded with rufous 2

2. Coxæ black; body black, with the following parts rufous: labrum, tegulæ, a band covering a part of the second and the third and fourth abdominal segments, and legs, except middle and posterior tarsi; third segment of antennæ longer than fourth; median fovea wanting; ocellar basin distinct, its walls not prominent. Length 8 mm.

innominatus

Coxæ in part pale; body black, with the following parts rufous or white: labrum, tegulæ, collar (black in male), entire abdomen in female and a band on segments two to four in male, apices of coxæ, trochanters, femora at apex and base, and base of tibiæ; hind femora and tibiæ in male black; wings hyaline; each ocellus in a basin. Length 6

mm. **amicus**

***T. nigrisomus** Norton. Larva feeds on dock. Hartford (Nason); Branford, 15 July, 1905 (H. W. W.); Thompson, 11 July, 1905 (H. L. V.); Stonington, 10 August, 1906 (J. A. Hyslop).

°**T. innominatus** MacGillivray.

°**T. amicus** Norton.

Monostegia Costa.

M. martini MacGillivray.

Body black, with the following parts rufous: labrum, collar broadly, tegulæ, metathorax, abdomen, legs, and base of wings; second segment of antennæ as long as fourth and fifth together; frontal ridge wanting, and median fovea and ocellar basin united. Length 7 mm. Larva feeds on *Ænothera*.

Hartford (W. E. B.).

Phrontosoma MacGillivray.

Key to Species.

1. Prothorax and mesonotum in great part rufous.....	2
Prothorax and mesonotum black.....	3
2. Antennal furrow below lateral ocelli broad and coarsely punctate; body black, with tegulæ, a fine line on the col-	

lar, and all the legs beyond the apical third of femora, white; apex of posterior tibiæ and tarsi infuscated; frontal ridge wanting, and median fovea and ocellar basin continuous; third segment of antennæ as long as fourth and fifth together. Length 6 mm*atra*

Antennal furrow below lateral ocelli narrow, with sharp walls, and impunctate; body black, with tegulæ, a narrow margin to pronotum, front and middle legs beyond basal fourth of femora, and posterior legs beyond knees, white; second segment of antennæ about as long as first, third about equal to fourth and fifth together; frontal ridge wanting, median fovea and ocellar basins continuous. Length 8 mm.*nortoni*

3. Femora black except at apex; body black, with a rufous spot covering the collar and mesonotum; tegulæ and legs beyond the apical third of the femora, white; third segment of the antennæ as long as fourth and fifth together; frontal ridge distinct and unbroken, median fovea and ocellar basin therefore not continuous; median fovea as large as or larger than the ocellar basin and extending through the supraclypeal area; triangular depression behind median ocellus not extending to the antennal furrow. Length 7 mm.*daecke*

Femora white; body black, with a rufous spot covering the greater part of prothorax and mesonotum; third segment of antennæ hardly as long as fourth and fifth together; frontal ridge distinct and unbroken; median fovea long and distinct; ocellar basin almost wanting; triangular depression behind median ocellus distinct and extending to the antennal furrow. Length 7 mm.*collaris*

°*P. atra* MacGillivray.

°*P. nortoni* MacGillivray.

°*P. daecke* MacGillivray.

°*P. collaris* MacGillivray.

Empria LePeletier.

Key to Species.

1. Clypeus uniformly flat or convex.....	2
Clypeus with a median longitudinal ridge or carina, frequently minute	6
2. Antennal furrows broadly rounded depressions, continuous from the antennal fovea to the lateral ocelli; ocellar basin a broadly depressed area from near the antennæ to the median ocellus; median fovea a minute pit; ocellar and	

interocellar furrows wanting; clypeus broadly roundly emarginate; third segment of antennæ longer than fourth; saw-guides straight above and broadly rounded below to a blunt point at apex above; body black, with labrum, tegulæ, and legs, except a spot on the outer margin of coxæ, white. Length 7 mm.**cavata**

Antennal furrows linear, broadly interrupted on the middle of the front 3

3. Ocellar basin a distinct depression extending to median ocellus 4

Ocellar basin wanting, or at most indicated only adjacent to median ocellus; median fovea a rounded pit..... 5

4. Ocellar basin a linear depression, with a distinct median fovea at its ventral end; ocellar furrow indicated at middle; interocellar furrow distinct; clypeus moderately deeply, angularly emarginate, with a low broad projection at middle; third segment of antennæ slightly longer than fourth; saw-guides straight above, convex below, narrowly obliquely rounded at apex; body black, with clypeus, labrum, tegulæ, a line on the collar, coxæ at apex, trochanters more or less, front femora, middle and hind femora at apex, front tibiæ and tarsi, middle tibiæ at base and beneath, and their tarsi, and hind tibiæ at base, dirty white. Length 7 mm.**callosa**

Ocellar basin a broad depression with broadly sloping sides, with a deep, broad median fovea at its ventral end; ocellar and interocellar furrows distinct; clypeus slightly bi-emarginate at apex, practically truncate; third and fourth segments of antennæ subequal; saw-guides convex above, convex below, broadly convexly rounded to a blunt point at middle of apex; body black, with collar, tegulæ, base of wings, and legs, white. Length 6 mm.**cætrata**

5. Postocellar area and dorsal margin of head polished, region of ocellar furrow flattened; ocellar and interocellar furrows distinct; clypeus angularly emarginate, lobes broadly rounded; third segment of antennæ longer than fourth; ocellar basin represented by a depression in front of median ocellus; median fovea deep with flaring sides; saw-guides with upper and lower margins parallel and truncately rounded at apex; body black, with clypeus at sides, labrum, tegulæ, collar, wings at base, and legs beyond apices of coxæ, except the front and middle femora more or less beneath, hind femora in great part, and hind tibiæ at apex, white. Length 6 mm.**celsa**

Postocellar area and dorsal margin of head finely punctate; ocellar and interocellar furrows distinct; clypeus broadly,

shallowly, angularly emarginate, the lobes broadly rounded; third and fourth segments of antennæ subequal; ocellar basin not indicated in front of median ocellus; median fovea large with flaring sides; saw-guides with their upper and lower margins converging, obliquely truncately rounded at apex; body black, with mandibles, clypeus, labrum, collar, tegulæ, base of wings, and legs, except infuscations on femora, hind tibiæ, and more or less of their tarsi, white. Length 7 mm.convexa

6. Ocellar basin extending to median ocellus..... 7
 Ocellar basin not extending to median ocellus, at most only indicated adjacent to median ocellus or median fovea.... 17
7. Clypeus black 8
 Clypeus white 12
8. Ocellar basin dumb-bell-shaped, constricted to a mere line at middle, broad and pit-like adjacent to median ocellus; median fovea an elongate pit; antennal furrows interrupted on the middle of the front; ocellar and interocellar furrows distinct; clypeus emarginate with a distinct tooth at middle; third segment of antennæ longer than the fourth; saw-guides with upper margins straight, lower margins converging, and broadly obliquely rounded at apex; body black, with labrum, clypeus, collar, tegulæ, base of wings, and legs beyond apices of coxæ, white. Length 6 mm. callida
 Ocellar basin not dumb-bell-shaped, of approximately the same width throughout..... 9
9. Clypeus with a broad, convexly rounded median ridge, occupying almost one-third of the width of clypeus; antennal furrows interrupted on the middle of the front; median tooth of clypeus distinctly shorter than lateral lobes, lateral lobes broadly rounded; ocellar furrow linear, interocellar furrow broad and distinct; third segment of antennæ almost as long as fourth and fifth together; saw-guides convex above and below, slightly obliquely rounded at apex; body black, with collar, tegulæ, front and middle legs below knees, and hind tibiæ beneath, white. Length 6 mm.cava
 Clypeus with a fine linear median carina; antennal furrows more or less distinct throughout..... 10
10. Clypeus tridentate, median tooth as long as lateral angles, broadly, shallowly emarginate, lateral angles rounded, median ridge low, not reaching dorsal margin of clypeus; postocellar area uniformly convex; ocellar and interocellar furrows distinct; third segment of antennæ longer than fourth; saw-guides slightly convex above, broadly convexly rounded below and at apex to a blunt point above;

body black, with collar, tegulæ, legs beyond knees for the most part, and caudal margin of abdominal segments, white. Length, 6 mm.costata

Clypeus tridentate, median tooth not more than one-fourth the length of lateral lobes..... 11

11. Clypeus shallowly, angularly emarginate, almost truncate, with a small but distinct tooth, lobes angularly rounded; median fovea a rounded pit opposite dorsal margin of antennal fovea; front not strongly produced between antennæ; ocellar and interocellar furrows deep and distinct; third segment of antennæ slightly longer than fourth; saw-guides slightly concave above, convex below, broadly rounded to a blunt point at middle of apex; body black, with labrum, collar, tegulæ, front and middle legs below apex of femora, and basal third of hind tibiæ, white. Length 6 mm.calda

Clypeus distinctly, but shallowly, roundly emarginate with a minute tooth, lobes acute; median fovea a pit opposite the middle of antennal fovea; front strongly produced between antennæ; ocellar and interocellar furrows distinct; third and fourth segments of antennæ subequal; body black, with collar and tegulæ white; front and middle legs beyond the basal third of their femora, and hind legs beyond the apical fourth of their femora, yellowish infuscated. Length 6 mm.cata

12. Ocellar basin extending beyond median fovea to the middle of antennal fovea; supraclypeal area elevated; median fovea but little deeper than ocellar basin; front strongly produced between antennæ; ocellar furrow only faintly indicated; interocellar furrow distinct; clypeus deeply roundly emarginate, with a minute tooth at middle, and lobes angular; third segment of antennæ longer than fourth; saw-guides convex above, straight below, and broadly rounded at apex; body black, with clypeus, labrum, tegulæ, collar, and legs beyond coxæ, white. Length 7 mm.

caprina

Ocellar basin not extending beyond median fovea to the middle of antennal fovea..... 13

13. Clypeus broadly, shallowly, roundly emarginate..... 14

Clypeus narrowly, deeply emarginate..... 15

14. Ocellar basin narrow and linear, ending ventrally in a pit-like median fovea, but little if any wider than ocellar basin; clypeus with a low, broadly rounded tooth at middle, lobes rounded; ocellar and interocellar furrows distinct; third segment of antennæ longer than fourth; saw-guides gradually converging on upper and lower margins, and broadly roundly pointed at apex; body black, with

margin of clypeus, labrum, line on collar, tegulæ, front and middle legs below coxæ, except infuscation on the middle of femora, hind trochanters, tip of hind femora, base of hind tibiæ, and base of their tarsi, white. Length 7.5 mm. **casta**

Ocellar basin rather broad, broader near the median fovea; median fovea a broad crater, much wider than the ocellar basin; clypeus with a low broad tooth at middle, lobes broadly rounded; ocellar furrow indicated, interocellar furrow broad and distinct; the third segment of antennæ distinctly longer than fourth; saw-guides convex above, straight and converging to the roundly truncated apex; body black, with clypeus, labrum, collar, tegulæ, trochanters, front legs below the middle of femora, middle and hind legs beyond knees, apex of hind tibiæ and hind tarsi, more or less infuscated, white. Length 7 mm.

celebrata

15. Clypeus with a low, broadly rounded tooth at middle. 16

Clypeus with a small, acutely pointed tooth; ocellar basin broad with sloping sides, ending ventrally in a large median fovea with broadly sloping sides; ocellar and interocellar furrows distinct; third segment of antennæ longer than fourth; saw-guides convex above and below, broadly convexly rounded at apex, extreme apex truncate for a very short distance; body black, with clypeus, labrum, collar, tegulæ, and legs below knees, white. Length 6 mm.

captiosa

16. Supraclypeal area narrow and carinately elevated; clypeus angularly emarginate with broadly rounded lobes and with a broadly rounded median tooth; median fovea an elongate pit with flaring sides at the ventral end of ocellar basin; ocellar furrow indicated, interocellar furrow distinct; third segment of antennæ distinctly longer than fourth; saw-guides parallel above and below and truncately rounded at apex; body black, with clypeus, labrum, tegulæ, and collar narrowly white; legs more or less infuscated. Length 6 mm. **cæca**

Supraclypeal area rather broad and only convexly elevated; clypeus deeply, narrowly, angularly emarginate to near the middle of clypeus; lobes roundly pointed; clypeal tooth small but distinct; ocellar and interocellar furrows distinct; a depressed area in front of median ocellus; third segment of antennæ distinctly longer than fourth; saw-guides with upper and lower margins parallel and broadly truncately rounded at apex; body black, with clypeus, labrum, collar, tegulæ, front and middle legs beyond the apices of coxæ, bases of their femora, more or

- less infuscated; hind trochanters, tibiæ and tarsi, sometimes infuscated, white. Length 7 mm.**maculata**
17. Clypeus black, heavily punctate..... 18
 Clypeus white, smooth or finely punctate..... 22
18. Clypeus distinctly emarginate..... 19
 Clypeus truncate; antennal furrows adjacent to antennal fovea well marked; ocellar furrow linear, distinct; interocellar furrow broad and deep; third segment of antennæ distinctly longer than fourth; saw-guides convex above, convex below, broadly converging to a blunt point just above the middle of apex; body black, with front and middle legs below the middle of femora, and base of tibiæ, ringed with white. Length 7 mm.**cauduca**
19. Interocellar furrow extending each side of median ocellus, forming an inverted Y-shaped furrow..... 20
 Interocellar furrow extending only to median ocellus, forming only the stem of the Y; median fovea a rounded scar; clypeus with median tooth almost as long as lateral lobes, all angular, appearing tridentate; ocellar and interocellar furrows linear, deep; third and fourth segments of antennæ subequal; saw-guides convex above and below and slightly obliquely rounded at apex, the lower angle more rounded than the upper; body black, with collar, tegulæ, front and middle femora beneath at apex, front tibiæ, middle tibiæ beneath, and a ring at the base of the hind tibiæ, white. Length 6 mm.**castigata**
20. Median fovea a rounded depression..... 21
 Median fovea a wedge-shaped depression; clypeus with tooth and lobes pointed; ocellar furrow faint; interocellar furrow distinct; postocellar area with a median furrow; antennæ with third and fourth segments subequal; body black, with collar, tegulæ, apical half of front and middle femora, their tibiæ, and knees of hind legs, all more or less infuscated, white. Length 6 mm.**casca**
21. Median fovea a minute pin-hole pit; front flat adjacent to the fovea; clypeus with a small median tooth and lateral lobes broadly rounded; ocellar and interocellar furrows deep and distinct; third segment of antennæ slightly longer than fourth; saw-guides straight above, and the lower margin and apex broadly obliquely rounded to a point at the apex above; body black, with collar and tegulæ white; legs beyond the middle of femora brownish infuscated. Length 6 mm.**ignota**
 Median fovea a broad pit with flaring sides; clypeus with a fine, median carina, median tooth short, lateral lobes broadly angular; ocellar furrow linear, interocellar fur-

row broad; saw-guides convex above, and broadly convexly rounded below and at apex to a blunt point; body black, with a line on collar, apex of front and middle femora, their tibiæ, and basal third of hind tibiæ, white. Length 6 mm.**evecta**

22. Clypeus broadly, shallowly emarginate..... 23
 Clypeus narrowly, deeply emarginate, with a small median tooth and carina, lobes broadly angular; median fovea of moderate size, with perpendicular sides, except in front, strongly flaring; a triangular-shaped pit in front of median ocellus; ocellar furrow fine, interocellar furrow broad; saw-guides straight above, straight below, and converging to apex, apex with angles broadly rounded and square at middle; body black, with clypeus, labrum, collar, tegulæ, and legs below knees, tibiæ and tarsi, more or less infuscated, white. Length 6 mm.**candidula**
23. Postocellar area longitudinally carinate at middle; clypeus broadly emarginate; ocellar furrow faint or wanting, interocellar furrow distinct; third segment of antennæ nearly as long as fourth and fifth together; saw-guides convex above and below, convexly and slightly obliquely truncately rounded at apex; body black, with clypeus, labrum, collar, tegulæ, front and middle legs below coxæ, femora more or less infuscated, hind trochanters, and a ring on the base of hind tibiæ, white. Length 6 mm.**canora**
- Postocellar area flat, not carinate at middle..... 24
24. Clypeus angularly emarginate with lobes angular; median fovea a pin-hole pit; ocellar and interocellar furrows faint; third segment of antennæ longer than fourth; saw-guides convex above and oblique below, roundly truncated at apex; body black, with clypeus, labrum, collar, tegulæ, front and middle trochanters, and hind tibiæ and tarsi, white. Length 6 mm.**cauta**
- Clypeus roundly emarginate with lobes broadly rounded at apex; median fovea a pin-hole pit; ocellar furrow faint, interocellar furrow distinct; third segment of antennæ slightly longer than fourth; saw-guides straight above, convex below, truncately rounded at apex; body black, with clypeus, labrum, collar, tegulæ, front and middle legs below coxæ, hind trochanters, and basal third of hind tibiæ, white. Length 7 mm.**cariosa**

°*E. cavata* MacGillivray.

°*E. callosa* MacGillivray.

°*E. cætrata* MacGillivray.

°*E. celsa* MacGillivray.

°*E. convexa* (MacGillivray).

°*E. callida* MacGillivray.

°*E. cava* MacGillivray.

**E. costata* MacGillivray. New Haven, 11 May, 1911 (B. H. W.).

E. calda MacGillivray. New Haven, 15 May, 1905 (B. H. W.).

°*E. cata* MacGillivray.

°*E. caprina* MacGillivray.

°*E. casta* MacGillivray.

°*E. celebrata* MacGillivray.

°*E. captiosa* MacGillivray.

°*E. cæca* MacGillivray.

E. maculata (Norton). *Harpiphorus maculatus* Norton. Larva feeds on strawberry. Connecticut (E. N.); Hartford, 12 May, 1894; Mt. Carmel, 24 May, 1906, Westville, 2 June, 1908, Yalesville, 26 May, 1908, New Haven, 22 May, 1908 (B. H. W.).

°*E. cauduca* MacGillivray.

°*E. castigata* MacGillivray.

E. casca MacGillivray. New Haven, 24 May, 1905 (W. E. B.).

E. ignota (Norton). *Monostegia ignota* Norton. Larva feeds on strawberry. Connecticut (E. N.).

E. evecta MacGillivray. New Haven, 24 May, 1905 (W. E. B.).

E. candidula MacGillivray. Waterbury, 9 June, 1905 (W. E. B.).

°*E. canora* MacGillivray.

°*E. cauta* MacGillivray.

E. cariosa MacGillivray. Hamden, 25 May, 1911 (B. H. W.).

Emphytus Klug.

Key to Species.

1. Head with the antennal furrow at most only faintly indicated; collar white 2

- Head with a distinct antennal furrow extending from the clypeus to the occiput; collar black 3
2. Abdomen with venter white or rufous; body black, with the following parts white: clypeus, labrum, collar, tegulæ, a spot on pleuræ, last dorsal abdominal segment, and legs except the posterior tarsi; tergum of abdomen black, with a median broad triangular rufous spot on each segment, the spots frequently united, forming an irregular band; antennæ with third and fourth segments subequal; median fovea an elongate, shallow groove; ocellar basin wanting. Length 7 mm.apertus
- Abdomen with venter black; body black, with the following parts white: fine line on collar, tegulæ sometimes, an interrogation-shaped point on pleuræ (sometimes wanting), and legs, except middle and posterior tarsi in female and posterior tibiæ and tarsi in male; antennæ with third segment longer than fourth; median fovea a broadly expanding pit just above supraclypeal area; ocellar basin wanting. Length 8 mm.inornatus
3. Femora wholly rufous; body black, with the following parts white: labrum usually, tegulæ, apices of coxæ, trochanters, and fourth abdominal segment in female for the greater part; legs, except the parts named, rufous; antennæ with third and fourth segments subequal; ocellar basin an elongate depressed area extending from anterior ocellus to supraclypeal area, angular above, broadly roundly expanded along the sides, and pointed below, with median fovea at its apex; ocellar furrow distinct, connected with ocellar basin, indicated by a minute notch; saw-guides with upper margins straight and lower margins broadly convexly rounded to a point at apex. Length 8-10 mm.mellipes
- Femora of anterior and middle legs at least in great part black 4
4. Femora all in great part black; body black, with the following parts white: tegulæ, costa at base, posterior trochanters, anterior and middle femora at apex in front, basal fourth of tibiæ, and fourth abdominal segment in female; legs, with coxæ and anterior and middle trochanters black, all the other parts not named, rufous; antennæ with third segment longer than fourth, and fourth and fifth subequal; median fovea a broad pit just above supraclypeal area; ocellar basin an ovate depressed area separated from the median fovea by a distinct transverse ridge and extending for some distance behind the lateral ocelli as a fine groove; ocellar furrow wanting; saw-guides convex above and broadly convexly rounded below, and extending to a bluntly rounded point at apex above. Length 8 mm.

cinctipes

Femora all in great part black except the posterior pair; body black, with the following parts white: tegulæ, trochanters, femora at apex in front, anterior tibiæ and tarsi, knees of the middle and posterior tibiæ, a spot on the middle of basal plates, and an interrupted band on fourth abdominal segment; legs, with coxæ black, all other parts not named, rufous; antennæ with third, fourth, and fifth segments subequal; ocellar basin a broad shallow depression extending from above anterior ocellus to supraclypeal area and not interrupted at middle; median fovea a rounded pit in lower part of ocellar basin; interocellar furrow a fine furrow connecting ocellar basin and ocellar furrow; saw-guides with upper and lower margins straight, obliquely truncate, and roundly pointed at apex. Length 7-9 mm.gillettii

***E. apertus** Norton. Connecticut (E. N.); Putnam, 12 July 1905 (H. L. V.); Thompson (A. P. Morse).

E. inornatus Say. Connecticut (E. N.); Putnam, 12 July, 1905, Hartford, 20 May, 1904 (H. L. V.); New Haven, 19 July, 1905 (B. H. W.); Wallingford, 7 June, 1910 (W. E. B.).

***E. mellipes** Norton. Howard, Insect Book, Pl. xiv, Fig. 3. Connecticut (E. N.); New Haven, 24 May, 1905 (W. E. B.), 4 July, 1905 (H. L. V.).

E. cinctipes Norton. Howard, Insect Book, Pl. xiv, Fig. 8. Larva feeds upon rose. Connecticut (E. N.).

E. gillettii MacGillivray. Larva feeds on strawberry.

Parataxonus MacGillivray.

P. multicolor (Norton). *Taxonus multicolor* Norton.

Black, with the following parts yellowish white: clypeus, labrum, a spot in front and between the bases of antennæ, posterior and inner orbits, tegulæ, collar, an oblique band or spot on pleuræ, and legs; abdomen with a row of elongate, ovate, reddish yellow spots on each side of meson, in some individuals becoming so prominent as to cover the entire abdomen except a trapezoidal or triangular black spot on the middle of each segment; median fovea and ocellar basin continuous. Length 7-8 mm. Larva feeds on white and yellow birch.

Hamden, 14 June, 1911 (B. H. W.); New Haven, 26 May, 1911 (A. B. C.).

Polytaxonus MacGillivray.

°**P. robustus** (Provancher). *Taxonus robustus* Provancher.

Black, with the following parts white: labrum, mandibles, collar, tegulæ, apices of coxæ, costa, and apical two-thirds of stigma; with the following parts rufous: legs, except coxæ, tarsi, and apex of posterior tibiæ, and a band covering abdominal segments two to five; median fovea large, distinct, extending nearly to median ocellus, ocellar basin not depressed; third segment of antennæ very slightly longer than fourth. Length 8 mm.

Eriocampa Hartig.

***E. rotunda** (Norton). *Sciapteryx rotundus* Norton.

Black, with legs, except coxæ and apices of middle and posterior femora and posterior tibiæ and tarsi, yellowish; head and thorax strongly punctate; frontal area prominent; third segment of antennæ almost as long as fourth and fifth together; wings hyaline with an indistinct fascia beneath stigma.

Farmington (E. N.).

Pseudosiobla Ashmead.

°**P. excavata** (Norton). *Siobla excavata* Norton.

Tegulæ black; body black, with the following parts yellow: first, second, and base of third segment of antennæ, collar, a quadrangular spot on pronotum below tegulæ, cenchri, basal plates, trochanters, front femora except a dusky spot at base, their tibiæ and tarsi, middle legs beyond the middle of femora, a ring at the base of the posterior femora, basal two-thirds of tibiæ, and the greater part of the metatarsus; first abdominal segment yellowish; wings slightly infuscated. Length 10 mm. Larva feeds on button-bush.

°**P. robusta** (Kirby). *Siobla robusta* Kirby.

Tegulæ rufous; body black, with the following parts rufous or yellowish rufous: the first, second, and base of third segment of antennæ, metathorax, basal plates, first abdominal segment, legs in part, except where marked with black as in preceding species, and costa and stigma; labrum, collar, area on pronotum below tegulæ, and tibiæ yellow; wings strongly infuscated. Length 13 mm.

Monosoma MacGillivray.

***M. inferentia** (Norton). *Pæcilostoma inferentia* Norton.

Female rufous, with the following parts black: head except clypeus and labrum, antennæ, metathorax and saw-guides; with the following parts white: labrum, tegulæ, collar, and a fine line on the apex of each abdominal segment; third segment of antennæ as long as fourth and fifth together; median fovea and ocellar basin continuous. Male differs in having head, thorax, and abdomen black, and legs dark rufo-fuscous. Length 8 mm. Larva feeds on alder.

Farmington (E. N.).

Macremphytus MacGillivray.*Key to Species.*

1. Antennæ either black or rufous at base and white at apex, or entirely black 2
 Antennæ with four basal segments rufous and five apical segments black; body in female rufous, with the following parts white: labrum, apices of coxæ, trochanters, a band at the base of tibiæ, metatarsi in part, and basal half of stigma; with the following parts black: five apical segments of antennæ, antennal furrow and ocellar basin, lateral portion in part and ventral portion of prothorax, lateral lobes of mesonotum, metathorax in part, coxæ, basal half of anterior and middle femora, the posterior femora, and the apex of posterior tibiæ; antennæ with third segment longer than fourth, fourth and fifth subequal; head with the ridges forming the side of ocellar basin parallel, and with the area between lateral ocelli distinctly depressed; postocellar area without a furrow; saw-guides straight above and gradually sloping toward the apex where they are obliquely rounded to a point above. Male differs in having the greater part of head and thorax black and the greater part of legs beyond coxæ white or rufous. Length, 8-10 mm. **semicornis**
2. Antennal furrow not as deep opposite the anterior ocellus as elsewhere, and with a supernumerary furrow extending obliquely from the antennal furrow toward the eye 3
 Antennal furrow of the same depth throughout and without an oblique supernumerary furrow..... 4
3. Thorax in great part black with rufous markings; head with the raised area between lateral ocelli flat and broken at center by a line-like furrow; ocellar furrow distinct; ocel-

lar basin shallow, not well defined except near anterior ocellus, where the raised ridges are marked by a flat angular ridge extending back of anterior ocellus, forming the apex of a triangle; antennæ with third and fourth segments subequal, fifth shorter; saw-guides narrow, gradually sloping to the apex above and convexly below to a rounded point; body rufous, with the following parts white: antennal segments six to nine, labrum, tegulæ, basal half of stigma, trochanters, and tarsi; with the following parts black: antennal segments three to five, vertex and front in great part, clypeus, thorax except scutellum, basal plates, coxæ, and apical half of posterior femora. Length 10 mm.

versicolor

Thorax in great part rufous with black markings; head with the raised area between lateral ocelli flat and broken at center by a line-like furrow; ocellar furrow distinct; ocellar basin shallow, but with distinct walls, especially heavy near anterior ocellus, and only faintly marked by the shelf extending around anterior ocellus; antennæ with third segment slightly longer than fourth and fourth slightly longer than fifth; saw-guides broad, slightly sloping above, the lower margin sloping and rounded abruptly, obliquely truncated at apex; body rufous, with the following parts white: antennal segments six to nine, labrum, tegulæ, apices of coxæ, trochanters, and tarsi; with the following parts black: antennal segments four and five, postocellar area, prothorax except collar, lateral lobes of mesonotum, pectus broadly, coxæ, apex of middle and posterior tibiæ, and apex of saw-guides. Length 14 mm.**testaceus**

4. Body color in general rufous; area between posterior ocelli divided by a deep, angular furrow; ocellar furrow wanting or indistinct; ocellar basin deep with heavy walls, walls converging at middle, constricting the ocellar basin, furrow extending around the anterior ocellus with rounded sides and somewhat indistinct; antennæ with segments broad and flat, third and fourth subequal and very slightly longer than fifth; saw-guides with the upper and lower margins slightly converging, obliquely truncated at apex, and bluntly rounded to a point above; body with the following parts white: antennal segments six to nine, labrum, tegulæ, scutellum, trochanters, base of posterior femora, and tarsi; with the following parts black: antennal segments four and five, postocellar area, thorax except the parts named and median lobe of mesonotum, bases of the anterior and middle femora, apical half of the posterior femora, and apex of posterior tibiæ. Length 10-15 mm.**varianus**

Body color in general black; area between posterior ocelli divided by a deep angular furrow; ocellar furrow distinct; ocellar basin deep with heavy walls and almost straight, the furrow extending around anterior ocellus with the sides angular and sharply defined; antennæ with segments broad, segments three to five subequal in length; saw-guides with the upper margin straight and the lower margin convexly sloping to a point at apex above; body black, with the following parts white: antennal segments six to nine, labrum, trochanters, anterior and middle tibiæ, base of posterior tibiæ, and tarsi. Length 14-16 mm.**tarsatus**

M. semicornis (Say). Connecticut (E. N.).

°**M. versicolor** (Norton). Larva feeds on *Cornus*.

°**M. testaceus** Norton.

***M. varianus** (Norton). Howard, Insect Book, Pl. xiii, Fig. 10. Larva feeds on *Cornus*. Farmington (E. N.).

M. tarsatus (Say). Howard, Insect Book, Pl. xiii, Fig. 6. Larva feeds on *Cornus*. Connecticut (E. N.).

Strongylogastroidea Ashmead.

Key to Species.

1. Antennæ in part pale.....	2
Antennæ entirely black.....	9
2. Antennæ pale at apex and frequently also at base.....	3
Antennæ pale at base only.....	8
3. Head in great part pale.....	4
Head in great part black.....	7
4. Posterior femora black; antennæ black at base; body black, with the following parts white: clypeus, labrum, four apical segments of antennæ, tegulæ, a very narrow line on collar, posterior coxæ in great part, trochanters, and scutellum; with the following parts rufous: head with the exception of ocellar and postocellar areas and lower half of antennal furrow, prothorax at sides, median lobe of mesonotum, an irregular spot on mesopleuræ, abdomen except saw-guides, front and middle legs beyond middle of femora, and posterior tibiæ and tarsi; anterior ocellus situated in front of a distinct angular diverging ridge; saw-guides with the upper margin straight, the lower margin semi-straight, rounded, and obliquely truncate and pointed at apex. Length 11 mm.	
	spiculata
Posterior femora rufous, at most only with a ring at apex; antennæ usually rufous at base.....	5

5. Mesonotum with median lobe rufous..... 6
 Mesonotum with median lobe black; body in female rufous, with the following parts white: clypeus, labrum, antennal segments six to nine, a narrow line on collar, the V-spot of the mesonotum, a spot beneath anterior wings, scutellum, postscutellum; coxæ and trochanters white, shading to rufous; with the following parts black: postocellar area, an irregular spot at base of clypeus, ventral part of prothorax, mesothorax except parts named and a large spot on pleuræ, and metathorax; saw-guides with their upper and lower margins subparallel, slightly convex, and rounded, squarely truncate at apex. Male has basal segments of antennæ rufous above and pleuræ almost entirely rufous. Length 11 mm.*mellosa*
6. Female with saw-guides concave above, convex below, and the apex almost squarely truncate; body rufous with the following parts white: narrow line on collar, scutellum, postscutellum, apices of coxæ, and trochanters; with the following parts black: spot surrounding ocelli, a small spot on the middle of postocellar area, lateral lobes of mesonotum, prothorax in great part, pectus, and bases of coxæ*confusa*
- Female with saw-guides straight or slightly convex above, convex below, and gradually rounded to a blunt point at apex; body rufous, with the following parts white: clypeus, labrum, antennal segments six to nine, usually a fine line on collar, scutellum, and postscutellum; with the following parts black: antennal segments four to six, postocellar area sometimes, lateral lobes of mesonotum, metathorax, ventral part of prothorax, pectus, coxæ, trochanters in part, saw-guides, and a ring on the apex of posterior femora; amount of black extremely variable, in some specimens entire head, metathorax, prothorax, and entire legs rufous with black lines on sutures. Length 11mm.*terminalis*
7. Eyes in great part margined with white; body in female black, with the following parts white: clypeus, labrum, antennal segments six to nine, outer orbits, inner orbits, genæ, supraclypeal area, posterior margin of head, tegulæ, collar, V-spot, a spot beneath each wing, a line or spot on pleuræ, scutellum and postscutellum, coxæ at side, and trochanters; the following parts rufous: abdomen including basal plates, and legs beyond trochanters; third segment of antennæ longer than fourth; saw-guides with the upper and lower margins parallel and broadly truncately rounded at apex. Male differs only in having the white more pronounced on center of thorax. Length 11 mm.*pallidicornis*

Eyes never margined with white; body in female black, with the following parts white: antennal segments six to nine, clypeus, labrum, a fine line sometimes on collar, scutellum and postscutellum, apices of coxæ, and trochanters; with the following parts rufous: tegulæ, wings at base, abdomen including basal plates, and legs beyond trochanters except a ring on the apex of posterior femora; third segment of antennæ longer than fourth; saw-guides with the upper margin straight, lower margin convex, and squarely truncated at apex; normal individuals have head entirely black, except as specified above, but many specimens have more or less rufous on the head, and in some individuals head is almost entirely rufous. Male differs only in having apex of abdomen washed with black. Length 9-11 mm....**apicalis**

8. Pleuræ entirely black; body in female black, with the following parts rufous: clypeus, labrum, three or four basal segments of antennæ, collar, tegulæ, basal portion of wings, legs beyond apices of trochanters, and abdomen beyond basal plates; third segment of antennæ longer than fourth; saw-guides convex above and below and obliquely rounded to a point at apex above. Male differs in having labrum, clypeus, collar, tegulæ, and bases of legs whitish, and apex of the abdomen infuscated with black. Length 9 mm...**epicera**

Pleuræ entirely rufous; body black, with the following parts white: clypeus, labrum, antennal segments one and two, tegulæ, scutellum, costa, coxæ, and trochanters; with the following parts rufous: prothorax, mesopleuræ, metapleuræ in part, abdomen, and legs beyond trochanters except a ring on the apex of posterior femora; third segment of antennæ as long as fourth and fifth together; saw-guides straight above, convex below, and obliquely roundly truncated at apex. Length 9 mm.**pallipes**

9. Coxæ entirely white..... **10**

Coxæ entirely black except sometimes at apex; antennæ with second segment distinctly longer than broad; body black, with the following parts rufous: labrum, tegulæ, base of wings, legs beyond coxæ except posterior tarsi, and abdominal segments two to five; third segment of antennæ longer than fourth; mesopleuræ densely, finely punctate; saw-guides with the upper and lower margins parallel and roundly truncated at apex. Length 10 mm.**rufocincta**

10. Scutellum black; body black, with the following parts white: clypeus, labrum, a fine line on collar, tegulæ, coxæ, trochanters, costa, and base of stigma; with the following parts rufous: legs beyond trochanters except a ring on the apex of posterior femora and posterior tarsi, and abdominal segments two, three, and four; third segment of antennæ

longer than fourth; saw-guides with the upper and lower margins parallel and obliquely rounded to a point at the apex above. Length 8 mm.unicincta

Scutellum white; body black, with the following parts white: clypeus, labrum, collar in great part, postscutellum, coxæ, and trochanters; with the following parts rufous: legs beyond trochanters, and abdomen beyond basal plates except saw-guides; third segment of antennæ nearly as long as fourth and fifth together; saw-guides with the upper and lower margins parallel and obliquely truncated at apex. Length 9 mm.proxima

°*S. spiculata* MacGillivray.

S. mellosa (Norton). *Strongylogaster mellosus* Norton. Connecticut (E. N.); New Haven, 1 June, 1911, 30 May, 1911, Lyme, 20 Aug., 1910 (B. H. W.).

°*S. confusa* MacGillivray.

S. terminalis (Say). Howard, Insect Book, Pl. xiv, Fig. 30. Connecticut (E. N.); New Haven, (A. E. V.); New Haven, 17 June, 1911.

°*S. pallidicornis* (Norton).

S. apicalis (Say). Howard, Insect Book, Pl. xii, Fig. 11. Larva feeds on *Rubus*. Connecticut (E. N.); Farmington (H. L. V.); Westville, 2 June, 1908; New Haven (A. E. V.); 3 June, 1908 (B. H. W.); Middlebury, 26 May, 1911 (W. E. B.).

S. epicera (Say). Connecticut (E. N.).

°*S. pallipes* (Say).

**S. rufocincta* (Norton). Howard, Insect Book, Pl. xiv, Fig. 26. Connecticut (E. N.); Torrington, 7 July, 1905, Prospect, 15 August, 1906 (W. E. B.); New Haven, 26 May, 1904 (H. L. V.), 12 July, 1905 (B. H. W.).

**S. uncinata* (Norton). *Taxonus uncinatus* Norton. Farmington (E. N.).

°*S. proxima* (Provancher). *Strongylogaster proximus* Provancher.

Dimorphopteryx Ashmead.

**D. pinguis* (Norton). *Strongylogaster pinguis* Norton.

Body in female black, with the following parts rufous: clypeus, labrum sometimes, tegulæ, scutellum and postscutel-

lum (sometimes white), legs beyond apices of coxæ except a ring on apices of posterior femora and tibiæ, and abdominal segments one to four, with sometimes a spot on the disk of fifth; antennæ varying from yellow to rufous and black; third segment almost twice as long as fourth; segments beyond third distinctly serrate; head and thorax deeply, closely punctate; saw-guides with upper and lower margins parallel and obliquely roundly truncated at apex. Male differs in having scutellum and postscutellum black and entire abdomen beyond basal plates rufous or infuscated and almost entirely black. Length 9-11 mm. Larva feeds on birch, basswood, *Amelanchier*, and maple.

Connecticut (E. N.). A larva feeding upon sweet cherry at New Haven was identified as this species by Dyar. The same species was received from Harwinton, 16 August, 1902. New Britain, 4 August, 1906 (W. E. B.).

SELANDRIINÆ

Key to Genera.

1. Front wings with first abscissa of Cu_1 distinctly longer than free part of M_4 ; costa dilated at apex..... 2
 Front wings with first abscissa of Cu_1 subequal in length to free part of M_4 ; costa not dilated at apex..... 4
2. Claws simple, without a tooth at base; front wings with media strongly angularly bent at base **Selandria** p. 66
 Claws with a minute erect tooth at base; front wings with media not strongly angularly bent at base..... 3
3. First anal cell of hind wings closed at wing margin and therefore distinctly longer than the cell in front of it; front wings with media coalescing with radial sector for a short distance **Polyselandria** p. 66
 First anal cell of hind wings distinctly petiolate and therefore shorter than the cell in front of it; front wings with media separating from radius distinctly before origin of radial sector **Pseudoselandria** p. 66
4. Claws strongly appendiculately dentate **Stromboceros**
 Claws not appendiculately dentate..... 5
5. Claws with a minute erect tooth at base **Thrinax** p. 67
 Claws strongly bifurcate at apex **Strongylogaster** p. 67

Selandria Leach.***S. flavipes** Norton.

Black, with tegulæ, collar, and legs beyond the apices of coxæ yellowish-white; third segment of antennæ longer than fourth; ocellar basin and median fovea distinct and not connected; tergum of abdomen sometimes reddish; wings yellowish hyaline. Length 5-7 mm. Larva feeds on *Pteris aquilina*.

Connecticut (E. N.); New Haven, 27 July, 1904 (P. L. B.), 4 July, 1905 (H. L. V.), 31 July, 1910 (B. H. W.); Branford, 28 July, 1905, Thompson, 11 July 1905 (H. L. V.); Orange, 21 May, 1911 (A. B. C.).

Polyselandria MacGillivray.**°P. decolorata** (Cresson).

Pleuræ wholly shining black; body black, with tegulæ, collar, labrum, and legs beyond apices of the coxæ yellowish white; third segment of the antennæ a little longer than the fourth; wings usually strongly infuscated on the basal two-thirds; ocellar basin and median fovea distinct; tergum of the abdomen usually rufous, sometimes entirely black. Length 5-7 mm.

°P. floridana (MacGillivray).

Pleuræ shining black with a large, round, yellowish white spot at middle; body black, with clypeus, labrum, tegulæ, collar, and legs beyond the coxæ yellowish white; posterior tarsi infuscated at apex; third segment of the antennæ very slightly longer than the fourth; wings strongly infuscated. Length 5 mm.

Pseudoselandria MacGillivray.**°P. oxalata** MacGillivray.

Black, with the following parts whitish: two basal segments of the antennæ, the labrum, the clypeus, the collar broadly, the tegulæ, the upper half or more of the pleuræ, the legs, the wings at base, and the abdomen except the saw-guides; median fovea deep, ovate, transverse; ocellar basin distinct; third segment of the antennæ as long as the fourth and fifth together; wings hyaline, with the apex of the radius strongly dilated and black. Length 7 mm.

Thrinax Konow.

T. impressatus (Provancher). *Strongylogaster impressatus* Provancher.

Black, with the following parts rufous; the tegulæ, a triangular spot on the collar, the legs beyond the apices of the coxæ, the costa, and the basal third of the stigma, the disk of abdominal segments two, three, and four, wholly or in part, or with the apical half of the first and all of the three following segments; median fovea large, transverse, ovate; ocellar basin indistinct except adjacent to the anterior ocellus. Length 7-10 mm.

New Haven (B. H. W.).

Strongylogaster Dahlbom.*Key to Species.*

1. Antennæ dark rufous, with the basal segments red; body black, with the following parts rufous: upper half of orbits, middle of the pleuræ, abdomen, and legs in part; with following parts yellow: spot between and beneath the antennæ, lower half of the orbits, labrum, clypeus, collar, scutellum, and a spot at the base of coxæ; wings infuscated at middle. Length 10 mm. **rufescens**
- Antennæ entirely black..... 2
2. Thorax except collar and tegulæ rufous, abdomen rufous in female and black in male; remainder of body black; third and fourth segments of antennæ subequal; median fovea and ocellar basin wanting; head densely punctate; wings strongly infuscated. Length 8 mm. **unicus**
- Thorax either entirely black, or black with collar and tegulæ pale 3
3. Abdomen entirely pale beyond first segment..... 4
- Abdomen entirely or in part black beyond first segment.... 5
4. Tegulæ and collar black; body and legs black, with abdomen and anterior tibiæ rufous; wings strongly infuscated; third and fourth segments of antennæ subequal; median fovea indistinct; ocellar basin narrow, trough-like; head deeply, sparsely punctate. Length 7-8 mm. **tacitus**
- Tegulæ and large spot on collar yellow; body black, with abdomen beyond first segment and legs brownish; wings hyaline, costa and stigma in great part brownish; third and fourth segments of antennæ subequal; head finely, sparsely punctate. Length 9 mm. **longulus**
5. Abdomen with basal half of each segment straw-yellow and apical half black; wings hyaline, stigma and costa pale; antennæ with third segment longer than fourth; head

coarsely punctate; legs black, with tips of femora, tibiæ, and tarsi pale reddish. Length 9 mm. **multicinctus**

Abdomen never with basal half of each segment pale and apical half black 6

6. Abdomen with basal half of segments black and apical half whitish; antennæ with third and fourth segments subequal; head rough, and densely finely punctate; body black, with tegulæ, a broad spot on collar, and legs beyond apices of femora, except apices of tarsi, yellowish white; wings hyaline, costa and apex of stigma pale; median fovea and ocellar basin fairly distinct. Length 10-11 mm. **annulosus**

Abdomen either entirely black, or abdominal segments with a narrow pale line; antennæ with third and fourth segments subequal; head very finely punctate; body black, with tegulæ, collar, labrum, anterior and middle tibiæ and tarsi, and basal half of posterior tarsi, yellowish white; coxæ, trochanters, and femur rufous, remainder of legs black; median fovea and ocellar basin distinct. Length 10 mm. .. **politus**

° **S. rufescens** Norton.

° **S. unicus** Norton.

S. tacitus Say. Connecticut (E. N.); Cheshire, 8 July, 1904, Thompson, 11 July, 1904 (H. L. V.); New Haven, 9 June, 1905, 31 July, 1910 (B. H. W.), 28 July, 1911 (A. B. C.); Hamden, 25 May, 1911, Lyme, 29 May, 1910 (A. B. C.).

° **S. longulus** Norton.

° **S. multicinctus** Norton.

° **S. annulosus** Norton. Larva feeds on *Pteris aquilina*.

° **S. politus** Provancher.

DOLERINAE.

Key to Genera.

Genæ broad, their width as great as the length of first segment of antennæ, eyes therefore distant from base of mandibles; eyes round or short oval in outline, inner margin always convex **Dolerus** p. 69

Genæ narrow, their width distinctly less than the length of first segment of antennæ, eyes therefore adjacent to base of mandibles; eyes elongate and emarginate on their inner margin **Loderus** p. 76

Dolerus Jurine.*Key to Species.*

1. Surface of apex of scutellum entirely smooth..... 2
 Surface of apex of scutellum wholly or in part punctate or striate 14
2. Mesonotum with median lobe either finely punctate or almost impunctate at middle, and with large, coarse punctures or rugosities at sides..... 3
 Mesonotum with median lobe uniformly punctate at middle and at sides, at least never with a band of large punctures on each side 11
3. Pectus with three longitudinal rows of punctures that are distinctly larger than the adjacent punctures..... 4
 Pectus not with three rows of larger punctures; if any of the punctures are larger than others, then not arranged in rows 10
4. Vertical furrow with its lateral margin continued as an elevated area to upper corner of eye..... 5
 Vertical furrow with its lateral margin not extended as an elevated area below lateral ocelli..... 7
5. Head with a distinct carina between posterior orbits and occiput; postocellar area and upper orbits uniformly punctate; median lobe of mesonotum more densely punctate than lateral lobes; lateral lobes and the scutellum uniformly punctate; body dull black; wings fuliginous. Length 10-12 mm.sericeus
 Head not with a distinct carina between posterior orbits and occiput; postocellar area with fewer, smaller punctures than upper orbits..... 6
6. Scutellum and inflexed and dorsal portions of lateral lobes of mesonotum with the punctuation similar in size and arrangement; vertical furrows distinct and sharply cut, with an impunctate area on the posterior orbits; median lobe of mesonotum more densely punctate than lateral lobes; body dull black; wings infuscated, especially around the margins. Length 10 mm.parasericeus
 Scutellum and inflexed portion of mesonotum with punctuation larger and distinctly denser than on dorsal surface; vertical furrows distant and sharply cut, with an impunctate area on upper orbits; median lobe of mesonotum distinctly more densely punctate than lateral lobes; body dull black; wings fuliginous. Length 12 mm.neosericeus
7. Punctures on scutellum more sparse and twice as large as those of lateral lobes of mesonotum; vertical furrows deep with sloping sides; postocellar area more finely punctate than posterior orbits; head with a carina between occi-

- put and posterior orbits; body dull black; wings infuscated. Length 11 mm. **polysericeus**
- Punctures on scutellum similar in size and arrangement to those of lateral lobes of mesonotum 8
8. Vertical furrows obsolete; mesonotum with impunctate area on lateral surface of lateral lobes extending to median lobes; postocellar area more closely punctate than posterior orbits; posterior orbits not with a ridge extending from antennal furrow to eye; median lobe of mesonotum and scutellum more deeply and distinctly punctate than lateral lobes; wings fuliginous, veins and stigma black; body black. Length 10 mm. **tectus**
- Vertical furrows deep and distinct..... 9
9. Mesonotum with the impunctate area on lateral surface of lateral lobes not extending to median lobe; postocellar area and posterior orbits uniformly punctate; posterior orbits with a fine ridge extending from posterior end of antennal furrow to eye; median lobe of mesonotum finely, densely punctate; body uniformly black; wings fuliginous. Length 14 mm. **colosericeus**
- Mesonotum with impunctate area on lateral surface of lateral lobes extending to median lobe; the postocellar area more finely punctate than posterior orbits; posterior orbits not with a fine ridge extending from antennal furrow to eye; median lobe of mesonotum finely, densely punctate; body uniformly black; wings fuliginous. Length 10 mm. **monosericeus**
10. Vertical furrows continued as broad distinct furrows to near middle of eyes; mesonotum with impunctate area on lateral surface of lateral lobes not extending to median lobe; postocellar area with many fine punctures, and posterior orbits with adjacent large punctures, subrugose; body entirely black, except abdominal segments one to five which are rufous; wings infuscated on apical half. Length 12 mm. **apriloides**
- Vertical furrows not continued below lateral ocelli; mesonotum with the impunctate area of lateral surface of lateral lobes extending to median lobe; postocellar area and posterior orbits finely punctate, postocellar area more densely; body black, with abdominal segments one to five rufous; wings hyaline, smoky toward the apex. Length 11 mm. **neoaprilis**
11. Head with a distinct carina between occiput and posterior orbits 12
- Head not with a distinct carina between occiput and posterior orbits 13

12. Mesonotum with median lobe densely punctate and lateral lobes almost smooth; postocellar area densely, finely punctate, and posterior orbits almost smooth; vertical furrows sharp and distinctly cut; body black, with collar, tegulæ, abdominal segments one to five, and legs beyond the middle of coxæ, rufous; wings slightly infuscated. Length 8 mm.**minusculus**
- Mesonotum with median lobe not more densely punctate than lateral lobes; postocellar area and posterior orbits uniformly punctate; body black, with pronotum in front irregularly, abdominal segments one to four, segment five at base, apical half of front coxæ, front femora and tibiæ, middle femora and tibiæ, except a black spot above at apex, and knees in part, rufous; tegulæ white; wings hyaline. Length 8 mm.**luctatus**
13. Mesonotum with the impunctate area of lateral surface of lateral lobes not extending to median lobe; vertical furrows linear, definite, sharply cut, three times as long as broad; head with a transverse furrow extending between eyes and behind ocelli; head uniformly punctate; body black, with pronotum entirely, median lobe of mesonotum, and upper half of mesoepimeron, rufous; wings slightly infuscated. Length 10 mm.**neocollaris**
- Mesonotum with the impunctate area of lateral surface of lateral lobes extending distinctly to median lobe; vertical furrows punctiform, indefinite, as broad as long; head uniformly, finely punctate; body rufous, with head, antennæ, lateral lobes of mesonotum, scutellum at middle, pectus, saw-guides, stigma on its outer half, legs, except knees of front pair, black; wings infuscated at middle. Length 9 mm.**icterus**
14. Surface of apex of scutellum wholly or in part punctate..... 15
- Surface of apex of scutellum wholly or in part striate..... 16
15. Surface of apex of scutellum uniformly finely punctate; vertical furrows distinct; postocellar area and posterior orbits uniformly, closely punctate; lateral lobes of mesonotum more finely and densely punctate than the median lobe or scutellum; body black, with pronotum, median lobe of mesonotum, and upper half of pleuræ rufous; wings subhyaline, clouded at apex. Length 12 mm.**refugus**
- Surface of apex of scutellum longitudinally striate at middle and punctate at sides; vertical furrows narrow, line-like, distinct; postocellar area more finely and densely punctate than posterior orbits; median lobe of mesonotum and scutellum finely densely punctate, lateral lobes smooth with distant punctures; body black, with abdominal seg-

ments one to five rufous; wings yellowish, veins black.

Length 9 mm. **inspectus**

16. Surface of apex of scutellum not striate over its entire surface 17
- Surface of apex of scutellum striate over its entire surface.... 19
17. Mesonotum with the median lobe with a row of punctures on each side that are four or five times as large as the adjacent punctures; postocellar area and posterior orbits uniformly punctate; sides of antennal furrow behind ocelli continued as a ridge to eyes; body black, with a narrow margin on pronotum, abdominal segments one to four and the basal half of fifth segment, trochanters in part, femora, except a black spot at apex above, and knees, rufous; wings hyaline. Length 8 mm. **apricus**
- Mesonotum with median lobe not with a row of large punctures on each side..... 18
18. Antennal furrow an elongate, punctiform indentation not extending below lateral ocelli; postocellar area and posterior orbits uniformly punctate; mesonotum and scutellum moderately, densely, finely punctate; body rufous, with head, antennæ, lateral lobes of mesonotum, metanotum, scutellum except at sides, postscutellum, pectus, legs, and saw-guides black; wings fuliginous with clearer lines. Length 11 mm. **bicolor**
- Antennal furrow extending as a narrow, depressed line from occiput below lateral ocelli; postocellar area and posterior orbits with punctures of the same size but closer together on postocellar area; lateral lobes of mesonotum not so densely punctate as median lobe or scutellum; body black, with abdominal segments one to four, and tibiæ, at least on their basal half, rufous. Length 7 mm. **cohæsus**
19. Surface of apex of scutellum longitudinally striate..... 20
- Surface of apex of scutellum transversely striate..... 24
20. Head viewed from above with a deep transverse furrow, broadly rounded at bottom, extending from vertical furrow to beyond hind angle of eye..... 21
- Head viewed from above not with a deep transverse furrow extending from vertical furrow to eye, sometimes indicated for a part of the distance..... 23
21. Vertical furrows punctiform or wanting; postocellar area more densely punctate than posterior orbits or region adjacent to vertical furrows; vertex with a small impunctate area adjacent to vertical furrows; scutellum more densely punctate than lobes of mesonotum; body black, with prothorax, tegulæ, median lobe of mesonotum, and abdominal segments one to six, rufous. Length 9 mm. **inspiratus**
- Vertical furrows linear and distinct..... 22

22. Head with postocellar area more densely punctate than sides of vertex; body black, with median lobe of mesonotum sometimes knees, and abdominal segments one to five, rufous; wings hyaline, veins black, stigma paler below. Length 8 mm.**conjugatus**
 Head with the postocellar area and sides of the vertex uniformly, finely punctate; body black, with abdominal segments one to five and basal half of sixth, rufous; wings hyaline, veins and stigma black. Length 10 mm....**dysporus**
23. Mesonotum with impunctate area on sides of lateral lobes not extending to margin of median lobe; head with a fine ridge extending from eye obliquely toward occiput; median lobe of mesonotum more densely punctate than lateral lobes; body black, with the prothorax, tegulæ, and abdominal segments one to five, rufous; wings very slightly infuscated, veins and stigma black. Length 8 mm.**plesius**
 Mesonotum with impunctate area on sides of lateral lobes extending broadly to margin of median lobe; head not with a fine ridge extending from eye toward occiput; mesonotum finely, densely punctate; body black, with prothorax, tegulæ, median lobe of mesonotum, upper half of pleuræ, and abdomen except saw-guides, rufous; wings infuscated, veins black. Length 9 mm.**agcistus**
24. Mesonotum with impunctate area on sides of lateral lobes distinct and extending broadly to median lobe..... 25
 Mesonotum with impunctate area on sides of lateral lobes almost entirely wanting, or, at least always separated from median lobe by a narrow punctate area 26
25. Antennal furrows subobsolete above base of antennæ or with minute lateral foveæ; body in female blue, with pronotum, tegulæ, lobes of mesonotum, except a blue spot on middle of median lobe, rufous; wings uniformly infuscated, veins black; male differs in having body wholly blue. Length 10 mm.**unicolor**
 Antennal furrows extending as deep linear furrows above base of antennæ to near middle of face; body in female dull black, with pronotum, lobes of mesonotum, and usually upper anterior corner of pleuræ, rufous; wings uniformly infuscated; male differs in having body entirely dull black. Length 10 mm.**collaris**
26. Head when viewed from above with a transverse furrow extending behind eyes and ocelli..... 27
 Head when viewed from above with a transverse furrow extending across head behind eyes, interrupted by an oblique ridge extending from postocellar area to upper posterior corner of eye; lateral lobes of mesonotum not so densely punctate on the disk as at sides; body black, with

prothorax for the most part, a spot on each side of median lobe of mesonotum, tegulæ, knees, and abdominal segments one to five, rufous; wings yellowish hyaline, paler at base. Length 10 mm.....**stagnus**

27. Head with a carina behind the eyes between the occiput and posterior orbits 28

Head not with a carina behind the eyes between the occiput and posterior orbits 29

28. Head with postocellar area more densely punctate than sides of vertex; median third of lateral lobes of mesonotum more densely punctate than its disk; body black, with labrum, prothorax, median lobe of mesonotum, front legs beyond middle of femora, tegulæ, and abdominal segments one to six and sometimes part of seventh, rufous; wings hyaline or very slightly infuscated. Length 9 mm.....**similis**

Head with postocellar area and sides of vertex uniformly densely punctate; median third of lateral lobes of mesonotum not more densely punctate than its disk; body black, with abdominal segments one to five and usually a part of six, rufous; wings hyaline or very slightly infuscated. Length 9 mm.**aprilis**

29. Vertex adjacent to postocellar area with a small impunctate area; postocellar area as densely punctate as the front; median lobe of mesonotum not so densely punctate as lateral lobes; body black, with prothorax, tegulæ, median lobe of mesonotum except at middle, and abdominal segments one to five, rufous; wings hyaline, veins black, stigma rufous below. Length 7 mm.**acritus**

Vertex without an impunctate area adjacent to postocellar area 30

30. Median lobe of mesonotum finely, densely punctate, lateral lobes not so closely, but deeply punctate; body dull black, with abdomen wholly rufous; third segment of antennæ but little longer than fourth; wings infuscated, veins black, stigma black, paler on hind margin. Length 8 mm.

abdominalis

Median lobe of mesonotum with large, distant punctures, lateral lobes with distant shallow punctures, appearing almost smooth; scutellum more closely and finely punctate than lobes of mesonotum; front densely, compactly punctate, posterior orbits coarsely punctate, not so densely adjacent to the postocellar area as distant from it; postocellar area coarsely punctate, more densely than the portion of the posterior orbits adjacent to it; body black, with prothorax, tegulæ, a spot on each side of median lobe of mesonotum, lateral lobes of mesonotum, upper half of

pleuræ, basal plates, and abdomen except the saw-guides,
rufous. Length 11 mm.**versus**

D. sericeus Say. Howard, Insect Book, Pl. xiii, Fig. 27.
Connecticut (E. N.); Stonington, 26 April, 1907 (W. E. B.).

°*D. parasericeus* MacGillivray.

°*D. neosericeus* MacGillivray.

°*D. polysericeus* MacGillivray.

**D. tectus* MacGillivray. New Haven, 4 May, 1904 (H.
L. V.).

D. colosericeus MacGillivray. New Haven, 4 May, 1904
(H. L. V.).

D. monosericeus MacGillivray. New Haven, 4 May, 1904
(H. L. V.).

°*D. apriloides* MacGillivray.

°*D. neoaprilis* MacGillivray.

°*D. minusculus* MacGillivray.

°*D. luctatus* MacGillivray.

°*D. neocollaris* MacGillivray.

°*D. icterus* MacGillivray.

D. refugus MacGillivray. New Haven, 4 May, 1904
(H. L. V.).

°*D. inspectus* MacGillivray.

D. apricus (Norton). Connecticut (E. N.); Salisbury, 30
August, 1904, Torrington, 7 July, 1905 (W. E. B.).

D. bicolor Beauvois. Connecticut (E. N.); New Haven, 4
May, 1904 (H. L. V.); Lyme, 2 April, 1910, 14 May, 1911,
Orange, 21 May, 1911 (A. B. C.).

°*D. cohæsus* MacGillivray.

**D. inspiratus* MacGillivray. Hamden, 14 July, 1911 (B.
H. W.); New Haven, 30 May, 30 July, 1911 (A. B. C.).

D. conjugatus MacGillivray. Thompson, 11 July, 1905
(H. L. V.); New Haven, 15 May, 1911 (A. B. C.).

D. dysporus MacGillivray. New Haven, 19 April, 1910
(B. H. W.).

°*D. plesius* MacGillivray.

°*D. agcistus* MacGillivray.

D. unicolor Beauvois. Female, *D. arvensis* Say. Howard, Insect Book, Pl. xii, Fig. 10. Connecticut (E. N.); New Haven, 4, 7 May, 1904 (H. L. V.), 2 May, 1905 (B. H. W.); Westville, 22 April, 1905, 16, 25 April, 5 May, 1906, Stonington, 26 April, 17 May, 1907 (W. E. B.); Branford, 11 May, 1906 (H. W. W.); Westport, 12 April, 1905 (W. E. B.); Manchester, 1 May, 1911 (B. H. W.); Lyme, 2 April, 1910* (A. B. C.); Warehouse Point, 21 April, 1910 (W. E. B.).

D. collaris Say. Connecticut (E. N.); Lyme, 2 April, 1910 (A. B. C.).

°*D. stugnus* MacGillivray.

**D. similis* Norton. Howard, Insect Book, Pl. xiv, Fig. 31. Connecticut (E. N.).

**D. aprilis* (Norton). Howard, Insect Book, Pl. xii, Fig. 17. Connecticut (E. N.): New Haven, 4, 7 May, 1904 (H. L. V.), 15, 17 May, 9 June, 12 July, 1905, 19 April, 1910 (B. H. W.). Occurs throughout the state.

°*D. acritus* MacGillivray.

**D. abdominalis* (Norton). Connecticut (E. N.); New Haven, 4 May, 1904 (H. L. V.).

D. versus Norton. New Haven (A. E. V.).

Loderus Konow.

**L. albifrons* (Norton). *Dolerus albifrons* Norton. Howard, Insect Book, Pl. xiii, Fig. 20.

Surface of the apex of the scutellum very finely striate at base, smooth at apex; head very finely, densely, uniformly punctate, the lower half covered with a dense, white, sericeous pile; lobes of mesonotum uniformly finely punctate; body black, with the supra-clypeal area, the clypeus, the labrum, the inner orbits enlarged into a wedge-shaped dilation near the middle of the eye, and the tegulæ, white; front and middle legs beyond the trochanters, the tarsi (sometimes infuscated), the posterior trochanters, the posterior femora except a ring at apex, and abdominal segments one to four and a part of the fifth, rufous; wings hyaline or slightly infuscated. Length, 8 mm.

Connecticut (E. N.); Milldale, 21 May, 1906 (B. H. W.).

PHYLLOTOMINÆ.

Key to Genera.

Antennæ with second segment about one-half as long as first
and about as long as broad; clypeus truncate

Endelomyia p. 77

Antennæ with second segment subequal in length with first
and always much longer than broad; clypeus emarginate.

Caliroa p. 77

Endelomyia Ashmead.

E. æthiops (Fabricius). *Eriocampoides æthiops* Fabricius.
Monostegia rosæ Harris. Rose Sawfly.

Body black, with the front and middle legs below the knees,
and the knees of the hind legs, white; a distinct V-shaped fur-
row behind the median ocellus, connecting with an indistinct
furrow in front of the postocellar area; pentagonal area entirely
wanting; lateral foveæ minute; saw-guides straight above,
broadly convexly rounded from base to a point at apex above.
Larva feeds on various species of *Rosa*. Length 5 mm.

Connecticut (E. N.); Branford, 12 May, 1905 (H. W. W.);
New Haven, 24 May, 1908 (B. H. W.).

Caliroa Costa.*Key to Species.*

1. Clypeus roundly emarginate..... 2
Clypeus angularly emarginate..... 8
2. Front wings with radial cross-vein and free part of R_4 in-
terstitial or nearly so; body black, with front and middle
legs below knees white; walls of pentagonal area distinct,
a V-shaped furrow behind median ocellus, lateral walls of
pentagonal area continued to bases of antennæ where
they are enlarged and separated by a distinctly and deeply
impressed triangular median fovea; saw-guides long and
slender, straight above and below, oblique and bluntly
rounded at apex; wings more or less infuscated on basal
half. Length 6 mm.cerasi
- Front wings with radial cross-vein and free part of R_4 dis-
tant 3
3. Front distinctly impressed around the median ocellus; V-
shaped furrow always more or less indicated 4
Front uniformly flat around the median ocellus, without any
indication of a V-shaped furrow..... 6
4. Supraclypeal area convexly elevated throughout its entire
length 5

Supraclypeal area flat, somewhat elevated adjacent to the median fovea; body black, with front and middle legs below knees, basal half of posterior tibiæ, and metatarsi, white; pentagonal area rounded in outline behind, walls low and fading out before; median fovea shaped like an impressed tetrahedron with all its margins broadly rounded; saw-guides retracted, convex below and bluntly rounded to a blunt point; wings infuscated on basal half. Length 6 mm.

lorata

- Postocellar area distinctly broader than long and not strongly convex; body black, with front and middle legs below knees, hind legs with knees, basal half of tibiæ, and tarsi more or less, white; pentagonal area angular in outline behind median ocellus, with distinct walls, gradually fading out in front; median fovea shaped like an impressed tetrahedron, the outer margin being rounded; saw-guides convex above and below, gradually rounded to a point at the apex; wings hyaline. Length 4.5 mm.....lunata

Postocellar area about as long as broad and strongly convex; body black, with front and middle legs below knees, basal two-thirds of hind tibiæ, and basal three-fourths, of hind metatarsi, white or luteous; pentagonal area angular behind median ocellus, deep and distinctly impressed, walls slanting; median fovea deep and strongly impressed, sides parallel, gradually shelving off above; front with deep, round, pit-like lateral foveæ not joining the antennal foveæ; saw-guides straight above, broadly convexly rounded below to a blunt point at apex above. Length 4-6 mm.quercus-alba

- Front with sides of pentagonal area extending ridge-like to bases of antennæ, never mound-like..... 7

Front with sides of pentagonal area expanded above bases of antennæ into mound-like elevations; body black, with front and middle legs below knees, hind tibiæ on basal half, and their tarsi in part, white; pentagonal area with all its walls perfectly flat; clypeus deeply emarginate; saw-guides retracted, pointed at apex; wings hyaline. Length 5.5 mm.lobata

- Frontal crest strongly elevated above general level of basin above it; walls of pentagonal area distinct, strongly expanded below into a pair of elevated parenthesis-shaped ridges; body black, with legs below knees, except apical half of posterior tibiæ, white; antennæ with third segment subequal in length to fourth and fifth together; saw-guides with sides parallel, slender, and bluntly rounded at apex; wings infuscated on the basal half. Length 6 mm.obsoleta

Frontal crest not elevated above general level of the basin above it; walls of pentagonal area distinct, but broadly rounded, broadly expanded at their ventral ends, parenthesis-shaped, the curve being turned outward, forming a frontal crest not strongly raised above the surface adjacent to it, deeply broken at the middle; body black, with legs below middle of the femora white, more or less fuscous in places; third segment of antennæ not as long as fourth and fifth together; wings infuscated. Length 4 mm.....

quercus-coccinea

8. Supraclypeal area broadly convex, not with an elevated ridge at the middle; body black, with front and middle legs beyond knees fuscous white; pentagonal area indefinite, the V-shaped area indicated, lateral ridges continued to bases of antennæ; median fovea triangular in outline, with rounded walls; antennæ with third segment as long as fourth and fifth together; saw-guides straight on upper and lower margins, obliquely truncated and with a blunt point at the apex above; wings more or less infuscated. Length 5.5 mm.

fasciata

Supraclypeal area elevated at the middle into a prominent carina; body black, with legs beyond knees white; pentagonal area well defined, with a distinct V-shaped furrow behind the median ocellus; median fovea indefinite, transverse; third segment of antennæ not as long as fourth and fifth together; saw-guides straight above, slightly convexly rounded, somewhat truncated at apex above; wings hyaline. Length 4.5 mm.

lata

C. cerasi (Linnæus). *Eriocampoides limacina* Retzius. *Selandria cerasi* Peck. *Eriocampa cerasi* Peck. Pear Slug. Larva is reported as feeding on *Pyrus*, *Prunus*, *Rubus*, *Amygdalus*, *Cratægus*, *Betula*, and *Quercus*. Connecticut (E. N.); New Haven, 20 June, 1905 (H. L. V.).

°**C. lorata** MacGillivray.

°**C. lunata** MacGillivray.

***C. quercus-alba** (Norton). *Selandria quercus-alba* Norton. *Monostegia quercus-alba* Norton. Larva feeds on white oak. Farmington (E. N.).

°**C. lobata** MacGillivray.

***C. obsoleta** (Norton). *Selandria obsoleta* Norton. Larva feeds on wild cherry. Poquonock, New Haven (H. L. V.); Branford, 20 May, 1905 (H. W. W.).

°*C. quercus-coccinea* (Dyar). *Monostegia quercus-coccinea* Dyar. Larva feeds on the leaves of the scarlet oak, *Quercus coccinea*.

**C. fasciata* (Norton). *Selandria fasciata* Norton. *Eriocampa fasciata* Norton. Larva feeds on oak. New Haven, 26 June, 1905 (H. L. V.).

°*C. lata* MacGillivray.

TENTHREDININÆ.

Key to Genera.

1. Head broad between the eyes, broader at the antennæ than the eyes are long; inner margins of the eyes subparallel... 2
Head narrow between the eyes, narrower at the antennæ than the length of the eyes; eyes strongly convergent below.... 8
2. Antennal sockets with their mesal margins not dilated.... 3
Antennal sockets with their mesal margins distinctly dilated 4
3. Anal veins anastomosed for a considerable distance, free part of 2d A wanting **Pachyprotasis** p. 81
Anal veins not anastomosed; free part of 2d A present. **Lagium** p. 81
4. Basal plates divided at the middle by a longitudinal suture... 6
Basal plates not divided at the middle..... 5
5. Malar space distinctly shorter than width of the posterior orbits; hind wings with either free part of R_4 or M_2 or both present **Tenthredopsis** p. 82
Malar space subequal in length to width of posterior orbits; hind wings with both the free part of R_4 and M_2 wanting. **Neopus** p. 82
6. Clypeus truncate **Bivena** p. 82
Clypeus distinctly emarginate..... 7
7. Lateral ocelli above a line drawn between the posterior corners of the eyes; hind wings with free part of R_4 and transverse part of M_2 wanting **Leucopelmonus** p. 83
Lateral ocelli below a line drawn between the posterior corners of the eyes; hind wings with free part of R_4 and transverse part of M_2 present **Rhogogastera** p. 83
8. Antennal sockets with their mesal margins not dilated, or, if dilated, only slightly so and then not with the area between them deeply hollowed out..... 9
Antennal sockets with their mesal margins strongly dilated and with the area between them deeply hollowed out; antennæ never thickened toward apex **Tenthredo** p. 83
9. Antennæ with nine segments..... 10
Antennæ with eight segments **Labidia** p. 92

10. Hind coxæ elongated so that apex of hind femora reaches to or beyond apex of abdomen; middle coxæ much smaller than hind coxæ, reaching to or slightly beyond proximal end of hind coxæ **Macrophya** p. 92
- Hind coxæ not elongated, apex of hind femora not reaching to apex of abdomen; middle coxæ subequal in size to hind coxæ, reaching to and usually beyond middle of hind coxæ **Allantus** p. 101

Pachyprotasis Hartig.

P. rapæ (Linnæus). *Pachyprotasis omega* Norton. *Synair-ema americana* Provancher.

Female: body black, with clypeus, labrum, mandibles, postgenæ, inner and posterior orbits, antennæ at base beneath, V-shaped spot on mesonotum, tegulæ, scutellum, postscutellum, pluræ, spot at base of hind wings, coxæ, trochanters, front and middle femora and tibiæ and tarsi beneath, basal half of posterior femora, posterior tibiæ beneath, and lateral margin of abdomen, white. Male differs in having the white more extended. Length 6-7 mm.

Connecticut (E. N.).

Lagium Konow.

Key to Species.

1. Head above lateral ocelli impunctate, strongly punctate below; median femoral pocket smooth, polished, impunctate; body black, with apices of front femora and their tibiæ and tarsi beneath yellowish; second and third abdominal segments above rufous; wings strongly infuscated. Length 13 mm. **cinctulum**
- Head above and below lateral ocelli strongly punctate; median femoral pocket finely longitudinally rugose 2
2. Abdomen wholly black; body black, with apex of anterior femora, their tibiæ and tarsi beneath, yellow; a spot on the posterior coxæ white, sometimes wanting in males; wings strongly infuscated. Length 13 mm. **atroviolaceum**
- Abdomen wholly rufous beyond the basal plates, except the saw-guides **atroviolaceum** var. **tardum**

L. cinctulum (Norton). *Tenthredo atrovioleacea* var. *cinctula* Norton. New Haven, 13 July, 1904 (P. L. B.); Scotland, 25 July, 1904 (B. H. W.); Lyme, 5 August, 1911 (A. B. C.).

L. atrovioleaceum (Norton). *Tenthredo atrovioleacea* Norton. *Tenthredopsis atrovioleacea* Norton.

Connecticut (E. N.).

L. atrovioleaceum var. **tardum** (Norton). *Tenthredo atrovioleacea* var. *tarda* Norton. Connecticut (E. N.); Hartford (Nason).

Tenthredopsis Costa.

***T. semilutea** (Norton). *Tenthredo semilutea* Norton.

Female: body black, with the clypeus, labrum, mandibles, supraclypeal area, line on collar, tegulæ, lateral margin of pronotum, broad spot on mesopleuræ, line on metapleuræ, pectus for the most part, small spot of lateral lobes of mesonotum, scutellum, the coxæ, and the trochanters, white; abdomen beyond the basal plates, antennæ either entirely beyond the second segment or beneath beyond the second segment, and the remainder of the legs except a black ring on the apex of posterior femora, rufous. Male differs in having a line on the front and middle legs extending to the apex of femora and on the posterior legs extending to the apex of the tibiæ, with the disk of the basal plates, the two basal abdominal segments, and a minute spot around the abdominal spiracles, black. Length 7-8 mm.

Connecticut (E. N.).

Neopus MacGillivray.

°**N. 14-punctatus** (Norton). *Tenthredo 14-punctata* Norton. *Tenthredopsis 14-punctata* Norton.

Body greenish white, with a spot on the vertex, the disk of each lobe of the mesonotum, the disk of the pronotum, the sutures of the thorax, the legs more or less above, the tarsi darkest, and the sutures of the abdomen, black; sometimes the metathorax entirely, a line between the prothoracic pleuræ and pectus, and a triangular spot on the disk of the abdominal segments, black. Length 9 mm.

Bivena MacGillivray.

°**B. delta** (Provancher). *Pachyprotasis delta* Provancher. *Tenthredopsis delta* Provancher. *Homæoneura delta* Provancher.

Female: body black, with the clypeus, labrum, mandibles, supraclypeal area, genæ, inner orbits, collar narrowly, tegulæ, spot on mesopleuræ, scutellum, spot above posterior coxæ, coxæ for the most part, and trochanters, white; antennæ beneath, legs beyond trochanters, except the posterior femora and tibiæ at

apex, and abdominal segments two to four, rufous. Male differs in having more black on the posterior legs. Length 6-8 mm.

Leucopelmonus MacGillivray.

°*L. annulatus* MacGillivray.

Female: body black, with the labrum, antennal segments five and six, the tegulæ, the apices of the coxæ, the trochanters, the middle and posterior tarsi, and the stigma at base, white; antennæ at base, the clypeus, mandibles, spot on supraclypeal area, prothorax, mesonotum except spots on lateral lobes, scutellum, post-scutellum, legs beyond the trochanters except parts named, mesopleuræ and metapleuræ in great part sometimes, and abdomen, rufous. Male differs in having the entire antennæ and only abdominal segments one to five rufous, the posterior femora and tibiæ black at apex. Length 7-10 mm.

Rhogogastera Konow.

°*R. evansii* (Harrington). *Tenthredopsis evansii* Harrington.

Body greenish-yellow, with the antennæ above, a spot on the vertex, the greater part of the mesonotum, the metanotum, the apex of the scutellum, a broad band along the middle of the tergum, the apices of the tibiæ, and the apex of each tarsal segment, black; wings hyaline; the head smooth, impunctate. Length 12 mm.

Tenthredo Linnæus.

Key to Species.

1. Antennæ wholly or in part pale.....	2
Antennæ wholly black.....	20
2. Antennæ wholly pale.....	3
Antennæ in part black.....	8
3. Abdomen wholly black beyond basal plates.....	4
Abdomen wholly or in part rufous.....	6
4. Femora rufous	48
Femora for the most part black	5
5. Head uniformly finely punctate; body black, with clypeus, labrum, mandibles at base, scutellum, legs beyond coxæ except posterior femora, and basal plates in part, yellow; antennæ, posterior orbits, tegulæ, wings in great part, and anterior and middle femora, somewhat rufous. Length 11 mm.	<i>fernaldi</i>
Head impunctate, but finely, indefinitely wrinkled; body black, with antennæ, clypeus in part, front femora before,	

front and middle tibiæ and tarsi before, tarsal segments ringed with black at apex, yellowish fuscous; sides of basal plates yellow; wings slightly infuscated, the veins and stigma fuscous. Length 12 mm.**dubitata**

6. Ocellar basin with a ridge at middle; abdomen wholly rufous; body rufous, with some small spots on head, antennæ in part sometimes, prothorax in great part, side lobes of mesonotum in part, mesopleuræ in part, pectus, and abdominal segments in part, black; clypeus, labrum, mandibles at base, a spot on supraclypeal area, inner orbits, beneath eyes, collar, tegulæ, and a spot above the coxæ and on the sides of the basal plates, yellow. Length 11 mm.**mellina**
 Ocellar basin with a furrow at middle; abdomen not wholly rufous 7
7. Abdomen black at base and rufous at apex; body rufous, with antennal area in part, prothorax in great part, lobes of mesonotum in part, pectus, and three basal segments of abdomen, black; clypeus, labrum, mandibles, spot above posterior coxæ, sides of basal plates, and tarsi and posterior tibiæ in great part, yellow. Length 12 mm.**redimacula**
 Abdomen black at base and apex, rufous at middle; body black, with clypeus, labrum, mandibles at base, spot on supraclypeal area, collar, scutellum, a spot above posterior coxæ, sides of basal plates, and tarsi, yellow; tegulæ, front femora beneath, tibiæ for the most part, and abdominal segments two to four, rufous. Length 10 mm.**neoslossoni**
8. Antennæ pale at base or apex..... 9
 Antennæ pale beneath, black above..... 18
9. Antennæ pale at apex..... 10
 Antennæ pale at base..... 14
10. Abdomen beyond the basal plates wholly black 11
 Abdomen wholly or in part pale..... 13
11. Ocellar basin deeply hollowed out, scoop-shaped, and impunctate; body black, with clypeus, labrum, mandibles at base, antennæ at apex, a spot above posterior coxæ, and sides of basal plates, yellow; front and middle femora in part, tibiæ, and tarsi beneath, rufous; scutellum and mesonotum densely, finely punctate. Length 12 mm.**nigricollis**
 Ocellar basin hollowed out with a transverse ridge above the middle 12
12. Anterior femoral pocket yellow; body black, with clypeus, labrum, mandibles at base, antennæ at apex, collar broadly, anterior femoral pocket, scutellum, spot above posterior coxæ, apex of basal plates, front legs beneath beyond the middle of the femora, and middle legs beneath beyond the apex of the femora, yellow; wings infuscated at apex. Length 12-13 mm.**grandis**

- Anterior femoral pocket black; body black, with clypeus, labrum, mandibles at base, antennæ at apex, collar, scutellum, front legs beneath beyond the middle of the femora, middle tarsi, a spot on sides of basal plates, apex of basal plates, sometimes broadly, rarely a spot above posterior coxæ, white; wings infuscated at apex. Length 12 mm.**antennata**
13. Abdomen black at base and apex, rufous in middle; body black, with apex of antennæ, a white spot above posterior coxæ, a spot on pleuræ, sides of basal plates, anterior and middle coxæ and trochanters in part, tegulæ, base of costa, legs except the parts named and the bases of the coxæ, a line on the femora above, a spot at apex of the tibiæ above, posterior tarsi for the greater part, and abdominal segments three to six, rufous. Length 10 mm.**semicornis**
- Abdomen yellow; body black, with clypeus, labrum, mandibles at base, cheeks, orbits, two spots on postocellar area, apex of antennæ, collar and tegulæ, scutellum, two spots on pleuræ, and apices of coxæ, a spot on side of posterior coxæ, and trochanters, yellow; legs, except apex of posterior femora, rufous. Length 11 mm.**jocosa**
14. Vertex impunctate, polished..... 15
Vertex finely, distinctly punctate..... 17
15. Head with orbits wholly black; body black, with clypeus, labrum, mandibles at base, cheeks broadly, collar, tegulæ, oblique spot at middle and edge of posterior margin of mesopleuræ, spot above posterior coxæ, coxæ except above, and margin and sides of basal plate, white; legs (except a line above on front and middle femora, hind coxæ, apex of femora above, apex of tibiæ and tarsi), and abdomen, rufous; in some specimens the antennæ may be entirely black or rufous beneath at the apex, or the apex of the abdomen black, or the pleuræ almost wholly black. Length 13 mm.**signata**
- Head with orbits in great part yellow..... 16
16. Appendage of scutellum transversely striate, with numerous large punctures; body black, with clypeus, labrum, mandibles at base, cheeks, orbits, interrupted opposite base of antennæ and at top of head, collar, tegulæ, vittæ on mesonotum, metanotum in part, spot above posterior coxæ, and spot on side of basal plates, yellow; legs beyond coxæ, except basal half of middle and hind femora above, two basal segments of antennæ, and abdomen beyond third segment, rufous. Length 13 mm.**bilineata**
- Appendage of scutellum not striate, with few punctures or none; body in female black, with clypeus, labrum, mandibles, supraclypeal area, orbits in great part, collar, tegulæ, vittæ on mesonotum, sometimes wanting, scutellum, postscutel-

lum, rarely with a small spot on mesopleuræ, front legs, middle legs beyond coxæ, posterior trochanters, basal half of femora, tibiæ and tarsi, basal plates, venter of five basal abdominal segments, tergum of fourth and a band at middle and sides of first and third, sometimes narrowed to a line at middle, yellow; costa yellow, stigma pale at base; male differs in having pleuræ, pectus, all the coxæ, and abdomen beyond first segment, yellow or rufous; posterior and middle femora with a black line above, basal plates and first abdominal segment black; some specimens wholly yellow or rufous, except antennæ beyond second segment, spot on vertex, three spots on mesonotum, and base of abdomen, which are black. Length 11-13 mm. **verticalis**

17. Abdomen rufous beyond basal plates; body black, with two basal segments of antennæ, posterior orbits, tegulæ, scutellum, front and middle legs beyond coxæ except the tarsi, the posterior femora at base and the tibiæ, and the abdomen beyond the basal plates, rufous; clypeus, labrum, cheeks, collar, a spot above posterior coxæ, and tarsi, white. Length 12 mm. **ruficolor**
 Abdomen black at base and apex, rufous at middle; body black, with clypeus, labrum, mandibles, cheeks, collar, tegulæ, spot above posterior coxæ, legs except apical half of posterior femora and ring at apex of tibiæ, and the basal plates, yellow; two basal segments of antennæ and abdominal segment four and a part of three and five, yellowish rufous; wings hyaline. Length 12 mm. **bifasciata**
18. Abdomen wholly or in part rufous (See sec. 15) **signata**
 Abdomen wholly black 19
19. Pectus black (See sec. 48) **rufipes**
 Pectus rufous (See sec. 48) **rufopecta**
20. Head above antennæ more or less yellow..... 21
 Head above antennæ wholly black..... 30
21. Abdomen wholly or in part pale..... 22
 Abdomen wholly black..... 29
22. Scutellum wholly or in part yellow..... 23
 Scutellum wholly black..... 26
23. Pleuræ and pectus black (See sec. 16) **verticalis**
 Pleuræ and pectus pale..... 24
24. Abdomen wholly pale beyond the basal plates..... 25
 Abdomen with first three abdominal segments black; body black, with clypeus, labrum, mandibles, cheeks, face around and beneath antennæ, inner orbits, a line near occiput, tegulæ, collar, spot on sides of scutellum, spot on pleuræ, coxæ, trochanters, front legs in great part, middle femora, basal third of posterior femora, venter of abdo-

- men, and edge of basal plates, white; middle tibiæ and tarsi, posterior femora and tibiæ in great part, and five apical abdominal segments, rufous. Length 13 mm. **formosa**
25. Scutellum smooth, polished, impunctate; body rufous or yellow, with an irregular spot above ocelli, a spot on the center of each lobe of mesonotum, basal plates for the most part, a small spot on the posterior coxæ, trochanters, and base of femora above, black. Length 13 mm. **rubripes**
- Scutellum finely, densely punctate; body black, clypeus, labrum, mandibles, cheeks, orbits, posterior margin of post-ocellar area, supraclypeal area, collar broadly, tegulæ, V-spot, scutellum, postscutellum, pleuræ except sutural lines, pectus, legs except a black line above on femora, and abdomen except basal plates, yellow. Length 12 mm. **causata**
26. Posterior coxæ black at base; body black, with clypeus, labrum, mandibles, cheeks, orbits except at top of eyes, V-spot, spot on side of pronotum, collar, tegulæ, an angular mark on pleuræ, pectus in part, spot above posterior coxæ, sides of basal plates, apical portion of coxæ, trochanters, femora except above, front and middle tibiæ and tarsi except above, and basal half of abdomen beneath, white; abdomen rufous beyond second segment. Length 10 mm. **angulata**
- Posterior coxæ wholly pale..... 27
27. Posterior orbits black; body black, with clypeus, labrum, mandibles, face above and beneath antennæ, inner orbits, tegulæ, collar, angular spot on pleuræ and the basal half of venter, white; legs whitish except a black line at apex of anterior femora and base of tibiæ above, middle femora and tibiæ above, posterior femora and tibiæ for the most part; five apical segments of abdomen rufous. Length 13 mm. **eximia**
- Posterior orbits wholly pale..... 28
28. Abdomen with four basal segments black; body black, with clypeus, labrum, mandibles, face above and below antennæ, anterior and posterior orbits, collar, tegulæ, spot on pronotum, pleuræ for the most part, pectus and sides of basal plates, white; legs yellowish rufous, except apex of front femora above, basal half of front and middle tibiæ above, middle and posterior femora above, and basal third of posterior tibiæ, which are black. Length 13 mm. **simulata**
- Abdomen with three basal segments black; body black, with clypeus, labrum, mandibles, face above and below antennæ, anterior and posterior orbits, collar, tegulæ, pronotum at sides, pleuræ for the most part, and pectus, yellow; legs yellow, except line on front femora at apex above, front tibiæ above, middle femora and tibiæ above, and hind

femora and greater part of tibiæ, which are black; abdomen rufous, except basal plates and three tergal segments. Length 12 mm. **secunda**

29. Pleuræ black; body black, with clypeus, labrum, mandibles, orbits entirely except above, face about and beneath antennæ, collar, tegulæ, margin of pronotum, V-spot, vittæ on mesonotum, metanotum at sides, spot above posterior coxæ, front legs except line above, middle legs beyond coxæ except greater part of femora and tibiæ above, hind legs beyond coxæ except femora and tibiæ above at apex, pale yellow. Length 14 mm. **lobata**

Pleuræ with a large angular white spot; body black, with clypeus, labrum, mandibles, orbits except above, broadly behind, face above and below antennæ, collar, tegulæ, lateral margin of pronotum, V-spot above posterior coxæ, large angulate spot on pleuræ, pectus in great part, front legs except point above at apex, middle legs except apical half of femora and tibiæ above, hind legs except apical half of femora and tip of tibiæ, and abdomen beneath, white. Length 14 mm. **angulifera**

30. Abdomen in part pale..... 31
 Abdomen, including venter, black..... 45
 31. Tergum in part pale..... 32
 Tergum wholly black..... 44
 32. Mesopleuræ wholly or in part pale..... 33
 Mesopleuræ wholly black..... 42
 33. Pectus pale 34
 Pectus black 41
 34. Posterior femora wholly or in part pale above..... 35
 Posterior femora wholly black above..... 39
 35. Posterior femora wholly pale..... 36
 Posterior femora in part black..... 38
 36. Abdomen wholly or in part black..... 37

Abdomen wholly rufous; body black, with clypeus, labrum, mandibles, cheeks, collar, tegulæ, sides of pronotum, lower half of mesopleuræ, pectus, spot above posterior coxæ, sides of basal plates, coxæ, trochanters, remainder of front legs except a line above on femora, white; remainder of legs except a line above on middle femora, and abdomen beyond basal plates, rufous. Length 11 mm. **frigida**

37. Abdomen wholly black above; body black, with clypeus, labrum, mandibles, cheeks, collar, tegulæ, narrow line on pleuræ, spot above posterior coxæ, sides of basal plates, and a narrow band along the side of the abdomen, white; legs rufous with tip of middle femora, apex of posterior femora, and apical half of posterior tibiæ black; pectus more or less rufous. Length 11 mm. **lineata**

Abdomen black, with at least the second and third tergal segments rufous; body black, with clypeus, labrum, mandibles, cheeks, dot at base of antennæ, collar, tegulæ, side of pronotum, angulate spot on pleuræ, pectus, spot above posterior coxæ, and four anterior coxæ, yellow; legs except a spot on tip of anterior femora and apical half of posterior tibiæ and tarsi, and the second, third, and part of the fifth abdominal tergite, and all the sternites except the two apical, rufous. Length 12 mm.**rufopediba**

38. Front and middle legs with a black line above. (See sec. 15) **signata**

Front and middle legs wholly pale; body black, with clypeus, labrum, mandibles, cheeks, inner orbits narrowly, collar, tegulæ, line on mesopleuræ, pectus in part, spot above posterior coxæ, coxæ, and trochanters, yellow; legs except the parts named and apices of posterior femora and tibiæ and their tarsi, and abdomen beyond basal plates, rufous. Length 12 mm.**pallicola**

39. Posterior tibiæ black at apex. 40

Posterior tibiæ wholly pale; body black, with clypeus, labrum, mandibles, cheeks, collar, tegulæ, spot on lower edge of pronotum, spot on pleuræ, pectus, spot above posterior coxæ, sides and posterior margin of basal plates, coxæ and trochanters except a black line above, front femora except a black line above, yellow; remainder of legs except a black line above on femora and the posterior tarsi entirely, and abdomen beyond basal plates, rufous. Length 12 mm.**hyalina**

40. Abdomen black at base only (See sec. 15) **signata**

Abdomen black at base and apex; body black, with clypeus, labrum, cheeks, collar, tegulæ, spot on mesopleuræ, spot above posterior coxæ, legs (except a black line above as far as apex of femora, apical three-fourths of posterior tibiæ, and their tarsi) yellow, shading to rufous on the posterior legs; abdomen with segments two to five rufous. Length 13 mm.**slossoni**

41. Abdomen rufous beyond first segment; body black, with clypeus, labrum, mandibles, cheeks, collar, tegulæ, spot on mesopleuræ, lower margin of pronotum, caudal margin of mesopleuræ, spot above posterior coxæ, sides of basal plates, front and middle legs except a black line above to the apex of tibiæ, posterior coxæ above and beneath, and a line beneath on the posterior femora and tibiæ, yellow. Length 13 mm.**junghannsii**

Abdomen rufous beyond third segment; body black, with clypeus, labrum, mandibles, cheeks, collar and tegulæ narrowly, a spot on mesopleuræ, a spot above posterior

coxæ, front and middle legs except a black line to the base of tibiæ, the apical half of the posterior coxæ, the posterior trochanters, the basal third of the posterior femora, and venter of three basal abdominal segments, yellowish white. Length 12 mm.nova

42. Pectus black 43
 Pectus pale; body black, with clypeus, labrum, mandibles, cheeks, collar, tegulæ, spot above posterior coxæ, pectus, anterior coxæ, and trochanters, white; legs except apical half of posterior tibiæ and their tarsi, and second to fourth segments of abdomen, rufous. Length 12 mm.varians
43. Posterior tibiæ wholly black; body black, with clypeus, labrum, mandibles, cheeks, spot above posterior coxæ, front and middle legs except a black line above beyond coxæ, yellow; posterior femora and abdomen beyond second segment rufous. Length 12 mm.mutans
 Posterior tibiæ wholly pale; body black, with clypeus, labrum, mandibles except at apex, cheeks, collar, a spot above posterior coxæ, and sides of basal plates, white; tegulæ, legs except anterior coxæ above and femora in great part, and abdomen beyond fourth segment, rufous. Length 12 mm.montana
44. Pectus rufous(See sec. 48) rufopecta
 Pectus black(See sec. 48) rufipes
45. Legs black, varied with white or yellow..... 46
 Legs rufous, varied more or less with black or yellow..... 48
46. Posterior tibiæ in part pale..... 47
 Posterior tibiæ wholly black; body black, with clypeus, labrum, mandibles, cheeks, collar, tegulæ, spot above posterior coxæ, sides of basal plates, anterior pair of legs for the most part, middle tibiæ at tip, and tarsi at apex, white; wings clouded toward apex. Length 12 mm.flavomarginis
47. Scutellum and mesopleuræ black; body black, with clypeus, labrum, mandibles, collar, spot above posterior coxæ, sides of basal plates, front femora beneath, front tibiæ except at apex above, middle tibiæ beneath, posterior tibiæ except apical third, and tarsi, white. Length 13 mm. cinctitibiis
 Scutellum and mesopleuræ in part pale; body black, with clypeus, transverse line on vertex, labrum, collar, tegulæ, a spot on mesopleuræ, scutellum, two spots on basal plates, and a spot on posterior coxæ, white; legs black, with spot on front and hind coxæ, trochanters, front tibiæ before, band on middle and hind tibiæ, and bases of all the tarsal segments, white. Length 12 mm.decorata
48. Pectus rufous; body black, with clypeus, labrum, mandibles, line on collar, tegulæ, spot above posterior coxæ, and some-

times narrow apical margin of abdominal terga, white; pleuræ, pectus, and legs (except tips of the posterior femora, apical half of the tibiæ, and their tarsi) rufous. Length 13 mm....

rufopecta

Pectus black; body black, with clypeus, labrum, mandibles, and a spot above posterior coxæ, yellow; legs, except apical half of posterior tibiæ and their tarsi, rufous. Length 13 mm. **rufipes**

T. rufopecta (Norton). Howard, Insect Book, Pl. xiii, Fig. 16. Connecticut (E. N.); New Haven, 1 June, 1911 (A. B. C.).

°**T. fernaldi** MacGillivray.

°**T. dubitata** MacGillivray.

°**T. mellina** (Norton).

°**T. redimacula** MacGillivray.

°**T. neoslossoni** MacGillivray.

°**T. nigricollis** Kirby

***T. grandis** (Norton). Howard, Insect Book, Pl. xiii, Fig. 30. Farmington (E. N.).

°**T. antennata** Kirby.

°**T. semicornis** Harrington.

°**T. jocosa** Provancher.

°**T. signata** (Norton).

°**T. bilineata** MacGillivray.

T. verticalis Say. Howard, Insect Book, Pl. xiii, Fig. 32. Connecticut (E. N.); West Haven, 27 June, 1905 (H. L. V.); New Haven, 14 July, 1908 (B. H. W.), 30 May, 1911 (A. B. C.).

°**T. ruficolor** Norton.

°**T. bifasciata** (Say). *Allantus bifasciatus* Say. *Macrophya bifasciata* Say.

T. rufipes Say. Howard, Insect Book, Pl. xiii, Fig. 23. New Haven, 9 June, 1911 (A. B. C.).

°**T. formosa** Norton. Howard, Insect Book, Pl. xiv, Fig. 18.

°**T. rubripes** MacGillivray.

°**T. causata** MacGillivray.

°**T. angulata** Norton.

°**T. eximia** Norton.

- °*T. simulata* MacGillivray.
- °*T. secunda* MacGillivray.
- **T. lobata* (Norton). Howard, Insect Book, Pl. xiii, Fig. 4. Farmington (E. N.); Westville, 11 June, 1905 (W. E. B.).
- T. angulifera* (Norton). Connecticut (E. N.).
- °*T. frigida* MacGillivray.
- °*T. lineata* Provancher.
- °*T. rufopediba* Norton.
- °*T. pallicola* MacGillivray.
- °*T. hyalina* MacGillivray.
- °*T. slossoni* MacGillivray.
- °*T. junghannsii* MacGillivray.
- °*T. nova* MacGillivray.
- °*T. varians* Norton.
- °*T. mutans* Norton.
- °*T. montana* Provancher.
- **T. flavomarginis* (Norton). Farmington (E. N.).
- °*T. cinctitibiis* Norton. Howard, Insect Book, Pl. xiii, Fig. 25.
- °*T. decorata* Provancher.

Labidia Provancher.

- °*L. originalis* (Norton). *Allantus originalis* Norton.

Body black, with the clypeus, labrum, mandibles at base, collar broadly, scutellum, postscutellum, a spot on the outer side of posterior coxæ, anterior and middle femora beneath, tibiæ except a ring on the apex of the posterior pair, tarsi, basal plates, apical half of each abdominal segment, interrupted at middle on the first and second segments, yellow; body finely, densely punctate; veins and stigma rufous. Length 10 mm.

Macrophya Dahlbom.

Key to Species.

1. Antennæ wholly black	2
Antennæ not wholly black	27

2. Scutellum white or yellow..... 3
 Scutellum wholly black..... 10
3. Mesopleuræ wholly black..... 4
 Mesopleuræ with a white or yellow spot..... 7
4. Abdomen in part rufous or brownish..... 5
 Abdomen wholly black..... 6
5. Abdomen dorsally and ventrally with segments two, three, and four brownish; body black, with front and middle legs, tegulæ, and base of wings, brownish; collar, scutellum, a large spot on side of posterior coxæ, their apices, basal third of posterior femora, and tarsi beyond basal three-fourths of first segment, white; wings hyaline. Length 8 mm.....*nidonea*
 Abdomen rufous beyond basal plates; body black, with clypeus, labrum, mandibles at base, collar, tegulæ, scutellum, front legs except coxæ in part above and tibiæ at apex beneath, middle legs except a ring on apex of tibiæ, posterior legs (except basal half of coxæ, apical two-thirds of femora and a ring at their base, apical third of tibiæ, and basal half of metatarsus), white; mesopleuræ uniformly densely punctate. Length 8 mm.*ornata*
6. Middle legs beyond coxæ in part black; body black, with clypeus, labrum, collar, two spots on postocellar area, tegulæ, scutellum, front coxæ at apex, front femora and tibiæ beneath, front tarsal segments at base, middle coxæ at apex, middle trochanters, middle femora at extreme base and apex, middle tibiæ except at apex, middle tarsi except at apex, a spot on side and apex of hind coxæ, hind trochanters, middle of hind tibiæ, hind metatarsi except extreme base and apex, hind tarsi at apex, and basal plates at middle, white; veins black; wings smoky; head closely punctate, with an impunctate area on each upper orbit. Length 9-10 mm.*epinota*
 Middle legs beyond apices of coxæ wholly yellow; body black, with clypeus, labrum, collar, tegulæ, scutellum, front and middle legs beyond apices of coxæ, apices of hind coxæ, hind trochanters, basal half of hind femora, hind tibiæ except apical third, hind tarsi, and basal plates, yellow; stigma and veins brownish; head densely, finely punctate, with minute impunctate areas on the upper orbits. Length 8 mm.*texana*
7. Abdomen rufous beyond first segment; body black, with clypeus, labrum, collar, tegulæ, scutellum, oblique spot on pleuræ, front and middle legs, hind coxæ and hind trochanters, basal half of hind femora, band on middle of hind tibiæ, and hind tarsi except apex of apical segment, yellow or white. Length 8-9 mm.*trosula*
 Abdomen wholly black..... 8

8. Antennal area without an impunctate area; body black, with clypeus, labrum, collar broadly, tegulæ, scutellum, post-scutellum, round spot on mesopleuræ, front and middle legs except apical third of femora and extreme base and apex of tibiæ, basal plates, and last abdominal segment, yellow; stigma and veins brownish; mesopleuræ above the yellow spot much more densely punctate than below. Length 10 mm. **alba**
- Antennal area with a small impunctate area..... 9
9. Mesopleuræ with upper half more coarsely and densely punctate than lower half; basal plates yellow; body black, with clypeus, labrum, collar, tegulæ, scutellum, an oblique band on pleuræ frequently interrupted, apices of front coxæ, front femora beneath, front tibiæ beneath and at base, front tarsal segments except at apex, middle coxæ in great part, middle trochanters, middle femora on basal half, middle tibiæ and tarsi except a ring at apex, hind coxæ and hind trochanters, basal third of hind femora, hind tibiæ except a ring at base and the apical fourth, a ring on middle of hind metatarsi, basal plates, and last abdominal segment, yellowish; wings smoky, veins and stigma brownish. Length 10 mm. **pulchella**
- Mesopleuræ with upper half slightly more coarsely but no more densely punctate than lower half; basal plates wholly black; body black, with clypeus, labrum, mandibles at base, collar, tegulæ, scutellum, an oblique band on the mesopleuræ frequently interrupted, front and middle legs except tips of femora and tibiæ above and apices of tarsal segments, hind legs (except apical half of femora, a ring at base of tibiæ, apical fifth of tibiæ, and apices of tarsal segments), and an oblique band on apex of metapleuræ, yellow or white; wings hyaline. Length 8-9 mm. **confusa**
10. Abdomen wholly black..... 11
- Abdomen more or less pale; body black, with front and middle tibiæ beneath and three basal segments of abdomen, piceous; wings infuscated, veins black, stigma piceous. Length 12 mm. **dejecta**
11. Posterior tibiæ in part pale..... 12
- Posterior tibiæ wholly black..... 21
12. Posterior tibiæ banded with pale at middle..... 13
- Posterior tibiæ with an outer pale line or spot, sometimes indistinct 19
13. Mesopleuræ with a white or yellow spot..... 14
- Mesopleuræ wholly black..... 15
14. Mesopleuræ more densely punctate on upper half than on lower half; body black, with clypeus, labrum, mandibles

at base, collar, tegulæ, line on pleuræ, front legs beneath and base of femora and tibiæ above, middle legs except at apex of femora above and a ring on apices of tibiæ and apices of tarsal segments, hind legs (except base of coxæ, apical two-thirds of femora, ring at base and apical fourth of tibiæ, and ring on apices of tarsi) white. Length 9 mm.

lineata

Mesopleuræ uniformly densely punctate; body black, with clypeus, labrum, collar, tegulæ, round spot on pleuræ, front and middle femora, hind legs with apices and spot on side of coxæ, trochanters, ring on base and apex of femora, middle of tibiæ, tarsi with ring at apex of each segment and base of metatarsus, white. Length 9 mm.

punctata

15. Antennal area no more densely punctate than postocellar area 16

Antennal area distinctly more densely punctate than postocellar area 17

16. Antennal area with a distinctly rounded, pit-like median fovea; body black, with apex of labrum, collar and tegulæ narrowly, front legs beyond coxæ and beneath except basal third of femora, middle legs beyond coxæ (except femora, ring at apex of tibiæ, and apices of tarsi), an elongate spot on hind coxæ, their apices, hind tarsi except at apices of segments, basal half of hind metatarsi, and hind margin of basal plates, white. Length 9 mm.

mixta

Antennal area without any indication of a median fovea; body black, with clypeus, labrum, mandibles at base, line on collar and tegulæ, front and middle legs beneath except middle femora, an elongate spot on hind coxæ, hind trochanters, ring at base of hind femora, ring at middle of hind tibiæ, hind tarsal segments except ring at apex, and hind margin of basal plates, white. Length 10-11 mm.

pannosa

17. Posterior coxæ black, with a large outer white or yellow spot 18

Posterior coxæ, except at tip, wholly black; body black, with clypeus, labrum, collar tegulæ, legs (except base of coxæ, apex of front femora and tibiæ above, apex of middle femora and tibiæ, apex of hind femora, base and apex of hind tibiæ and hind tarsi), and basal plates, yellow. Length 10 mm.

proximata

18. Front and middle femora black on basal half; body black, with clypeus, labrum, collar, tegulæ, apical half to two-thirds of coxæ, trochanters, apical fifth of front and middle femora, front and middle tibiæ except a line above and a ring at apex, front and middle tarsi except at apex, basal fourth of posterior femora, a ring on middle of posterior tibiæ, and tarsi except at apex, yellow. Length 10 mm. .

flavicoxa

Front and middle femora wholly yellow; body black, with clypeus, labrum, collar, tegulæ, front and middle legs except a ring at apex of tibiæ and apex of tarsi, posterior coxæ, trochanters, basal half of femora, median half of tibiæ, and tarsi except at apex, yellow. Length 10 mm.

incerta

19. Posterior coxæ wholly black; body black, with clypeus, labrum, line on collar, tegulæ, trochanters, a ring on base and apex of femora, front and middle tibiæ and tarsi beneath, and a line on hind tibiæ, white; scutellum densely punctate. Length 10-11 mm. **externa**

Posterior coxæ black, with a white spot on the side 20

20. Posterior orbits as densely punctate as the antennal area; body black, with clypeus, labrum, two spots on occiput, very narrow line on collar and tegulæ, a spot on the outer side of coxæ, trochanters, apical half of front and middle femora beneath, front and middle tibiæ beneath, front and middle tarsi except a ring at apices of segments, posterior tibiæ on upper median half, and hind margin of the basal plates, white. Length 10 mm. **tibiator**

Posterior orbits not as densely punctate as the antennal area; body black, with clypeus, labrum, narrow line on collar, tegulæ, front coxæ beneath, a spot on side of middle and hind coxæ, trochanters, front femora at apex beneath, front and middle tibiæ beneath, front and middle tarsi beneath, posterior tibiæ at middle above, and posterior tarsi beyond the apex of the metatarsi except a ring at apex of each segment, white. Length 9 mm. **bilineata**

21. Posterior legs wholly black; body black, with base of mandibles, apical half of front femora, and tibiæ beneath, white; body strongly punctate throughout; wings fuliginous. Length 12 mm. **fuliginea**

Posterior legs in part white or yellow..... 22

22. Posterior coxæ wholly or in great part pale..... 23

Posterior coxæ black, with an outer pale mark 24

23. Anterior tibiæ wholly yellow (male) **flavicoxa**

Anterior tibiæ with a black line above (male) **incerta**

24. Head with an impunctate area below median ocellus; body black, with clypeus, labrum, mandibles at base, line on collar, tegulæ, coxæ at apex and a spot on outer margin, trochanters, apical half of anterior femora beneath, anterior tibiæ beneath, apical half of middle tibiæ beneath, tarsi except a ring at apices of segments, and posterior metatarsi, white; postocellar area distinctly separated from upper orbits. Length 11-12 mm. **propinqua**

Head without an impunctate area below median ocellus..... 25

25. Postocellar area densely punctate throughout..... 26
 Postocellar area sparsely punctate, except on its occipital margin; body black, with clypeus, labrum, mandibles at base, front coxæ in great part beneath, middle coxæ at apex, hind coxæ at apex, and a large spot on outer side, trochanters, front femora at apex beneath, front and middle tibiæ beneath, and tarsi except apices of segments and posterior metatarsi, white; upper orbits with a large impunctate area. Length 8 mm.contaminata
26. Mesopleuræ more densely punctate on upper portion than lower; body black, with clypeus, labrum, mandibles at base, narrow line on collar and tegulæ, front and middle legs beneath except base of coxæ, a large spot on side of hind coxæ, hind trochanters, and hind tarsi beyond the metatarsi, white; upper orbits with a large impunctate area. Length 8 mm.albomaculata
- Mesopleuræ uniformly densely punctate throughout; body black, with tip of labrum, front and middle legs beneath beyond middle of coxæ, apices and a large spot on outer side of hind coxæ, and hind trochanters, white; front, post-ocellar area, and upper orbits almost uniformly finely punctateminuta
27. Antennæ pale at base or apex..... 28
 Antennæ pale at base and apex..... 37
28. Antennæ pale at apex 29
 Antennæ pale at base 31
29. Collar black; body black, with antennæ at apex, labrum in part, trochanters, front legs beyond middle of femora beneath, middle legs beyond basal two-thirds beneath, and a large spot on the side of the posterior coxæ, white; head uniformly densely punctate. Length 10 mm.nigra
- Collar broadly white..... 30
30. Middle of head between antennal furrows distinctly elevated; posterior orbits polished and obsoletely punctate; body black, with apex of antennæ, clypeus, labrum, base of mandibles, collar broadly, V-spot, a triangular spot on pleuræ, sometimes a mere dot, or wanting, an elongate dot at base of each wing, sometimes wanting, scutellum, front and middle legs (except femora and tibiæ above, a ring at apex of tibiæ, and rings at apices of tarsal segments), a spot on side of hind coxæ, hind trochanters, hind femora beneath, venter of abdomen, and dorsal apical margin of segments, enlarged at sides (apical margin sometimes wanting), white. Length 11 mm.zonalis
- Middle of head between antennal furrows not decidedly elevated; posterior orbits distinctly punctate; body black,

with antennæ at apex, clypeus, labrum, mandibles at base, collar, V-spot, sometimes wanting, scutellum, front legs beyond basal third of femora beneath, tarsal segments at base, middle femora at apex beneath, middle tibiæ in part beneath, middle tarsal segments at base, a spot on hind coxæ, hind trochanters, hind femora beneath, and apical margins of abdominal segments, white. Length 10-11 mm.

trisyllaba

31. Abdomen wholly or in part rufous 32
 Abdomen wholly black, or black marked with white 34

32. Abdomen wholly rufous; body black, with clypeus, labrum, mandibles at base, collar, tegulæ, V-spot, scutellum, post-scutellum, angular spot on pleuræ, front legs entirely, middle legs except a black line on femora, posterior coxæ except a black line, trochanters, basal third of femora, a stripe at middle above on posterior tibiæ, and posterior tarsi beyond middle of metatarsi, white; two basal segments of antennæ, abdomen including basal plates except saw-guides, posterior two-thirds of femora, posterior tibiæ at base and apex, and basal half of posterior metatarsi, rufous. Length 8 mm. **goniphora**

Abdomen wholly or in part rufous beyond second segment.. 33

33. Vertical furrows not distinct and line-like; body black, with two basal segments of antennæ, clypeus, labrum, mandibles, collar broadly, tegulæ, V-spot, scutellum, postscutellum, round spot on pleuræ, posterior margin of mesopleuræ, legs except apex of posterior femora and tibiæ, and basal plates, yellow; abdomen usually with the third, fourth, and fifth dorsal segments, rufous. Length 9-10 mm. **intermedia**

Vertical furrows distinct, line-like; body black, with two basal segments of antennæ, clypeus, labrum, mandibles at base, spot on supraclypeal area, collar broadly, tegulæ, scutellum, postscutellum, rounded spot on pleuræ, spot at base of hind wings, legs (except basal half of hind coxæ, apical half of hind femora, and ring at apex of hind tibiæ), yellow; fourth and fifth segments of tergum rufous. Length 12 mm. **formosa**

34. Head uniformly densely punctate 35
 Head with upper orbits not as densely punctate as antennal area 36

35. Abdomen wholly black; body black, with two basal antennal segments, collar, a spot below collar on pleuræ, front and middle legs beyond coxæ except a band at middle of femora, apices of posterior coxæ, their trochanters, a ring on base of femora, tibiæ except a ring at apex, tarsi in part, and basal plates, white; body coarsely punctate. Length 8 mm. **cesta**

Abdomen black, apical margin of segments margined with yellow; body black, with two basal segments of antennæ, clypeus, labrum, mandibles at base, collar broadly, tegulæ, rounded spot on mesopleuræ, legs beyond apices of coxæ except apex of posterior femora and tibiæ, basal plates, and dorsal apical margin of abdominal segments, broader behind, white or yellow. Length 9 mm.**succincta**

36. Postocellar area separated from posterior orbits by deep, well-marked vertical furrows; body black, with two basal segments of antennæ, clypeus, labrum, V-shaped spot on collar, tegulæ, scutellum, legs beyond apices of coxæ except apices of posterior femora and tibiæ, an elongate spot on outer upper side of posterior coxæ, and basal plates, yellow; upper orbits polished, almost entirely without punctures. Length 11 mm.**melanopleura**

Postocellar area not distinctly separated from upper orbits, vertical furrows feeble (See sec. 33) **intermedia**

37. Pleuræ with a large oblique white mark; body black, with apex of antennæ, supraclypeal area, clypeus, labrum, mandibles at base, pronotum in great part, V-spot, scutellum, postscutellum, large mark on pleuræ, spot at base of hind wings, front and middle coxæ, trochanters, and basal half of femora, a spot on hind coxæ, their apices, trochanters and basal half of femora, and basal plates in part, white; two basal segments of antennæ, tegulæ, remainder of legs except apical half of femora, and abdomen except basal plates in part and tergum of first segment, rufous. Length 10 mm.**fascialis**

Pleuræ wholly black; body black, with apex of antennæ, clypeus, labrum, mandibles at base, collar, V-spot, scutellum, postscutellum, apical half of front and middle coxæ, front and middle trochanters, basal half of front and middle femora, hind coxæ beneath and a large spot on the outer side, hind trochanters, basal half of hind femora, and hind tarsi, white; basal segment of antennæ, tegulæ, remainder of legs except apices of tibiæ, and abdominal segments two to five, rufous. Length 10 mm.**varia**

°**M. nidonea** MacGillivray.

°**M. ornata** MacGillivray.

M. epinota (Say). Connecticut (E. N.); Hartford (Nason).

°**M. texana** Cresson.

M. trosula (Say). Connecticut (E. N.); New Haven, 30 May, 1910 (W. E. B.).

M. alba MacGillivray. *Macrophya pulchella* var. *alba* MacGillivray. *Macrophya sonata* Konow. New Haven, 21 May, 1910 (A. B. C.).

M. pulchella (Klug). Connecticut (E. N.).

°*M. confusa* MacGillivray.

°*M. dejecta* (Norton).

**M. lineata* Norton. Connecticut (E. N.); Farmington; New Haven, 1 June, 1908, Westville, 2 June, 1908 (B. H. W.); Hamden, 25 May, 1911 (A. B. C.).

°*M. punctata* MacGillivray.

°*M. mixta* MacGillivray.

M. pannosa (Say). Yalesville, 26 May, 1908, 17 June, 1907 (B. H. W.).

**M. proximata* Norton. Connecticut (E. N.).

**M. flavicoxa* (Norton). Larva feeds on elder. Connecticut (E. N.); Waterbury, 9 June, 1905 (W. E. B.); New Haven, 21 May, 1910 (A. B. C.).

**M. incerta* (Norton). Howard, Insect Book, Pl. xiv, Fig. 20, Connecticut (E. N.).

M. externa (Say). Larva feeds on hickory. Connecticut, (E. N.); Poquonock, 27 June, 1905 (B. H. W.); New Haven, 14 June, 1910 (A. B. C.), 26, 30 May, 1911 (A. B. C. and B. H. W.); Hamden, 25 May, 1911 (B. H. W.).

M. tibiator Norton. Larva feeds on elder. Connecticut (E. N.); Westville, 2 June, 1908 (B. H. W.).

M. bilineata MacGillivray. Larva feeds on *Viburnum*. Milldale, 21 May, 1906 (B. H. W.).

M. fuliginea Norton. New Haven, 17 June, 1905 (H. L. V.).

°*M. propinqua* Harrington.

°*M. contaminata* Provancher.

**M. albomaculata* (Norton). Connecticut (E. N.).

M. minuta MacGillivray. Orange, 4 July, 1910 (B. H. W.).

**M. nigra* (Norton). Farmington (E. N.); Hamden, 1 June, 1911, New Haven, 28 June, 1911 (A. B. C.).

°*M. zonalis* Norton.

**M. trisyllaba* (Norton). Howard, Insect Book, Pl. xiii, Fig. 8. Larva feeds on elder. Connecticut (E. N.); New Haven, 27 June, 1902 (E. J. S. M.).

M. goniphora (Say). Connecticut (E. N.); Hamden, 1 June, 1911 (A. B. C.).

**M. intermedia* (Norton). Connecticut (E. N.).

M. formosa (Klug). Howard, Insect Book, Pl. xiv, Fig. 25. Connecticut (E. N.); New Haven, 8 June, 1904 (W. E. B.), 4 July, 1905 (H. L. V.), 20 July, 1904 (B. H. W.), 24 June, 1902 (E. J. S. M.).

°*M. cesta* (Say).

M. succincta Cresson. Stonington, 8, 14, June, 1906 (W. E. B.); New Haven, 25 June, 1907 (B. H. W.), 6 June, 1908 (W. E. B.), 26 May, 1911 (A. B. C.).

°*M. melanopleura* MacGillivray.

**M. fascialis* Norton. Farmington (E. N.); New Haven, 4 July, 1905 (H. L. V.).

**M. varia* (Norton). Farmington (E. N.).

Allantus Jurine.

Key to Species.

1. Female: posterior femora pale at base and black at apex, or black above and pale below; body black, with clypeus, labrum, mandibles, line on lower half of postgenæ adjacent to eyes, two basal segments of antennæ, collar, tegulæ, mesopleuræ broadly, scutellum, a spot above posterior coxæ, legs beyond coxæ (except middle femora at apex above, apical half of posterior femora, and a ring on apex of posterior tibiæ), basal plates, abdominal segments four, seven, and eight, and a spot on each side of fifth and sixth, yellow. Male differs in having only basal segment of antennæ, genæ, lower half of postgenæ, mesopleuræ entirely, sides of pronotum, metapleuræ, legs entirely except a black line above on middle and hind legs and hind tarsi, and abdomen beyond basal plates, white or yellow. Length 12 mm:**basilaris**
- Female: posterior femora wholly black or rufous; body black, with clypeus, labrum, mandibles, genæ, lower half of postgenæ, spot on mesopleuræ, sometimes wanting, scutellum, trochanters, tibiæ, becoming rufous at apex, tarsi, basal plates, and abdominal segments five to seven with a short band

interrupted at middle, yellow; antennæ, tegulæ, upper orbits at times, front femora, wings, veins, and stigma, rufous. Male differs in having antennæ black, front femora entirely and middle femora beneath pale, and abdominal segments two to four entirely yellow. Length 12 mm.

dubius

A. basilaris (Say). Howard, Insect Book, Pl. xiii, Fig. 15. Connecticut (E. N.); New Haven (H. L. V.); Canaan (A. P. Morse); Prospect, 15 August, 1906, Hamden, 23 August, 1910 (W. E. B.).

A. dubius Norton. *A. robustus* Provancher. Scotland (B. H. W.); Colebrook, 20 July, 1905 (W. E. B.); Lyme, 31 July, 1910 (A. B. C.).

CIMBICINÆ.

Key to Genera.

1. Free part of 2d A present..... 2
 Free part of 2d A wanting, due to anastomosing of anal veins
 at middle **Abia** p. 102
2. Basal plates deeply emarginate at apex and filled with a
 chitinous membrane; hind femora not toothed.. **Cimbex** p. 103
 Basal plates not or scarcely emarginate at apex and never
 with a chitinous membrane; hind femora more or less
 distinctly toothed beneath **Trichiosoma** p. 103

Abia Leach.

***A. inflata** (Norton). *Zarea inflata* Norton. Howard, Insect Book, Pl. xii, Fig. 8; Pl. xiii, Fig. 28.

Basal plates white; body bluish black, with the legs beyond the coxæ except the basal two-thirds of the front and middle femora, and the basal plates, white; the posterior femora sometimes infuscated above; third and following abdominal segments with a band of sericeous pile, in no case covering the entire segment. Length 11 mm. Larva feeds on honeysuckle. Farmington (E. N.).

°**A. americana** (Cresson). *Zarea americana* Cresson. Howard, Insect Book, Pl. xiv, Fig. 21.

Basal plates not white; body greenish black, with the trochanters, apices of the femora, the tibiæ, and the tarsi, white; third and following abdominal segments with a band of sericeous pile covering practically the entire segment. Length 8-12 mm.

Trichiosoma Leach.*Key to Species.*

1. Abdomen black, or at most with only the apex and lateral margins more or less rufous..... **2**
 Abdomen entirely rufous, or at most with only first and second segments with bars of black; tibiæ and tarsi yellowish white; remainder of body black; pubescence of vertex black, of front, thorax, and base of abdomen, yellow; abdomen in great part bare, sides of segments with a short yellow pile with scattered longer hairs. Length 15-20 mm.**confusum**
2. Abdomen wholly black or at least the last segment in most part black **3**
 Abdomen black with apex and lateral margin rufous, at least the apical segment always rufous; tibiæ and tarsi yellow; remainder of body black; pubescence of vertex and front woolly, black, mixed with a few yellow hairs; pubescence of thorax and abdomen long, yellow, woolly and matted. Length 20-25 mm.**triangulum**
3. Abdomen densely covered with short black pile; tibiæ and tarsi yellow; remainder of body black; pubescence of head and abdomen black; pubescence of thorax yellow, except a transverse band across the middle, which is black; abdomen short and broad, broadest at middle. Length 15 mm.**crassum**
 Abdomen covered with long, woolly, gray hair; tibiæ and tarsi yellow; tibiæ sometimes infuscated at base; remainder of body black; pubescence of entire body consisting of woolly gray hairs, more abundant on head and thorax; abdomen long and slender, sides parallel. Length 15-18 mm.**spicatum**

°**T. confusum** MacGillivray.

T. triangulum Kirby. Howard, Insect Book, Pl. xii, Fig.

5. Larva feeds on willow, wild cherry, poplar, alder. New Haven (F. E. Willits); Oxford, 21 May, 1904 (W. E. B.).

T. crassum W. F. Kirby. Lyme, 1 May, 1910 (A. B. C.).

°**T. spicatum** MacGillivray.

Cimbex Olivier.*Key to Species.*

1. Tibiæ pale yellow; body black, with antennæ, tibiæ and tarsi yellow; prothorax, middle of abdominal segments two to five and part of following segments yellowish ferruginous;

broad band at sides of abdominal segments two to four and spot at sides of segment five, white. Length 16 mm.

- semidea
- Tibiae black 2
2. Abdominal segments never marked with white..... 3
- Abdominal segments always marked at sides with white... 5
3. Abdomen steel blue..... 4
- Abdomen for the most part rufous (male) ..**americana** var. **laportei**
4. Wings for the most part hyaline; body steel-blue, with tarsi and antennae beyond second segment yellow; head and thorax clothed with long black hairs (male). Length 20 mm. **americana**
5. Abdomen almost wholly steel-blue, with obscure spots on each side of fifth or fifth and sixth abdominal segments; body steel-blue, with the tarsi and the antennae beyond the second segment, yellow; head and thorax more or less covered with long black hairs. Length 20-25 mm. (female). **americana**
- Abdomen steel-blue, with three or more distinct white spots 6
6. Abdomen with a white spot on each side of third, fourth, and fifth segments; wings violaceous (female) **americana** var. **nortoni**
- Abdomen with more than three segments marked with white 7
7. Abdominal segments marked with small rounded spots..... 8
- Abdominal segments marked with broad transverse bands... 9
8. Abdomen with white spots on each side of segments two to five; wings violaceous (female) **americana** var. **luctifera**
- Abdomen with white spots on each side of segments two to six; wings hyaline (female) **americana** var. **decimaculata**
9. Abdomen with white bands on segments two to six; wings violaceous (female) **americana** var. **dahlbomii**
- Abdomen with white bands on segments two to seven, frequently meeting at middle; wings hyaline (female) **americana** var. **alba**

°C. **semidea** Cresson.

C. **americana** var. **laportei** LePeletier. New Haven (F. E. Willits).

C. **americana** Leach. Howard, Insect Book, Pl. xii, Fig. 4 (male), Fig. 44, p. 74 (female). Larva feeds on willow, elm, poplar, alder, maple, and linden. Connecticut (E. N.); New Haven, 2 June, 1904 (H. L. V.); Woodmont (W. E. B.); Stonington, August, 1907 (G. H. Hollister).

*C. **americana** var. **nortoni** MacGillivray. Howard, Insect Book, Pl. xii, Fig. 1. Connecticut (E. N.).

°C. **americana** var. **luctifera** Kirby.

- ° *C. americana* var. *decimaculata* Norton.
- ° *C. americana* var. *dahlbornii* Guerin-Meneville.
- ° *C. americana* var. *alba* Norton.

HOPLOCAMPINÆ.

Key to Genera.

1. Claws bifid	3
Claws never bifid	2
2. Claws simple, without a tooth on their inner margin <i>Marlattia</i> p.	105
Claws with a minute, erect tooth at middle ... <i>Hoplocampa</i> p.	105
3. Front wings with the transverse part of M_2 received in cell R_4
some distance before the free part of the vein R_5	
<i>Craterocercus</i> p.	105
Front wings with the transverse part of M_2 either interstitial with
the free part of R_5 or received in cell R_5 <i>Hemichroa</i> p.	106

Marlattia Ashmead.

- °M. laricis (Marlatt). *Hemichroa laricis* Marlatt.

Body black, with the mouth-parts scarcely paler than the body-color or slightly reddish; tegulæ and legs beyond the coxæ strongly infuscated, pallid; wings infuscated; clypeus broadly, shallowly emarginate with a strong transverse ridge near the base; pentagonal area distinct, ridges somewhat rounded, median fovea shallow and circular; antennæ with fourth segment much longer than third; saw-guides short and rounded at tip. Length 5.5 mm. Larva feeds on larch.

Hoplocampa Hartig.

- H. halcyon** Norton.

Body ochreous; with the mesonotum, metanotum, and tergum of the abdomen black, or body sometimes entirely ochreous; clypeus distinctly emarginate; pentagonal area and median fovea wanting; third segment of the antennæ longer than the fourth, tooth of claws minute. Length 3.5 mm.

Lyme, 14 May, 1911 (A. B. C.).

Craterocercus Rohwer.

Key to Species.

1. Mesonotum and collar marked with white..... 2
 Mesonotum and collar black; body black, with legs beyond
 femora white; third segment of antennæ shorter than

fourth; clypeus distinctly emarginate; median fovea large, shallow, circular; wings infuscated on basal half. Length 6 mm.infuscatus

2. Basal plates black..... 3

Basal plates white; body black, with edge of clypeus, labrum, tegulæ, collar, median lobe of mesonotum, lateral lobes in part, a band on the four basal segments of the tergum, edge of three apical segments, and legs, except a band on hind femora and the hind tarsi, white; third and fourth segments of antennæ subequal. Length 6 mm. (female)

albidovariatus

3. Median lobe of mesonotum in great part white (male) albidovariatus

Median lobe of mesonotum with white lines, short and obscurephytophagicus

°C. infuscatus MacGillivray.

°C. albidovariatus (Norton). *Hemichroa albidovariata* Norton. Howard, Insect Book, Pl. xiv, Fig. 19 (female). Larva feeds on black oak.

°C. phytophagicus (Dyar). *Hemichroa phytophagica* Dyar. Larva feeds on white oak.

Hemichroa Stephens.

°H. americana (Provancher). *Dineura americana* Provancher.

Scutellum polished, impunctate; body of female rufous, with metathorax, antennæ, coxæ, trochanters, front femora at base, middle and posterior femora, tibiæ at tip, tarsi, and saw-guides, black; tibiæ white; wings infuscated, paler at apex; pentagonal area indistinct, walls flat; median fovea shallow, elongate; third and fourth segments of the antennæ subequal; body of male black, with legs beyond coxæ and tegulæ rufous. Length 5.7 mm. Larva feeds on alder; gregarious.

H. fraternalis Norton.

Scutellum uniformly finely punctate; body of female with the median lobe of the mesonotum, the lateral lobes in part, a large spot on the mesopleuræ, the venter of the abdomen, the basal plates, and more or less of each of the other tergal segments, rufous; prothorax for the most part, the tegulæ, the legs except the posterior femora, and the costa and stigma, white;

male differs in lacking the rufous and in having the femora in great part black. Length 9 mm. Larva feeds on white oak.

New Haven, 1907 (A. D. Reid), 21 May, 1910 (A. B. C.); Lyme 1 May, 1910 (A. B. C.).

DINEURINÆ.

Key to Genera.

- Front wings with transverse part of M_2 interstitial with free part of R_5 ; free part of Sc_1 situated before the medio-cubital cross-vein **Mesoneura** p. 107
- Front wings with transverse part of M_2 received in cell R_5 and never interstitial with free part of vein R_5 ; free part of Sc_1 interstitial with or situated beyond the medio-cubital cross-vein **Dineura** p. 107

Mesoneura Hartig.

***M. parva** (Norton). *Dineura parva* Norton.

Body black, with the tegulæ and the apex of the venter picous; legs yellow-rufous; wings hyaline, the veins brown; antennæ filiform, third and fourth segments subequal; head without depressions about ocelli; clypeus truncate. Length 4 mm.

Farmington (E. N.).

Dineura Dahlbom.

Key to Species.

1. Antennæ with third segment longer than or subequal to fourth 2
- Antennæ with third segment shorter than fourth; body black, with legs beyond base of femora and apex of venter rufo-testaceous; wings hyaline, iridescent, veins brown, costal vein and stigma dull luteous. Length 5 mm. **luteipes**
2. Mesonotum more or less marked with rufous; body black, with prothorax, tegulæ, side lobes of mesonotum, pleuræ, legs, and apex of abdomen, rufous; wings hyaline, stigma pale, cell R_4 almost square. Length 5 mm. **linita**
- Mesonotum wholly black; body black, with tegulæ, collar, large spot on pleuræ, legs, apical half of tergum, and apical two-thirds of venter, rufous; basal half of stigma white; cell R_4 longer than wide. Length 4.5 mm. **lateralis**

°**D. luteipes** Cresson.

°**D. linita** Norton.

°**D. lateralis** Norton.

MONOCTENINÆ

Monoctenus Dahlbom.

Front wings with medio-cubital cross-vein in the angle between R + M and M; the free part of 2nd A wanting and the anal veins anastomosing at middle; radial cross-vein wanting; the antennæ with more than nine segments.

°M. **fulvus** (Norton.) *Lophyrus fulvus* Norton. Howard, Insect Book, Pl. xiv, Figs 11 and 16.

Body rufous, with a lunate mark about the ocelli, the antennæ, a spot on each lateral lobe, the metathorax in great part, the dorsal part of the mesopleuræ, the ventral margin of the mesopleuræ, the pectus, the venter of the abdomen, the basal plates and the first abdominal segment, black; varies until practically entire body except legs is black; antennæ with a variable number of segments. Length 8 mm.

CLADIINÆ.

Key to Genera.

1. Front wings with transverse part of M₂ received in cell R₄ .. 3
Front wings with transverse part of M₂ received in cell R₅.. 2
2. Claws simple**Anoplonyx** p. 108
Claws bifid**Platycampus** p. 109
3. Hind wings without an appendage at the apex of cell R₁₊₂
Priophorus p. 109
Hind wings with an appendage at the apex of cell R₁₊₂ 4
4. Front and middle metatarsi never more than one-half the length of their tibiæ; tarsal segments all of practically the same width throughout, segmentation indistinct; antennæ of male with prominent branches or projections at tip of basal segments at least**Cladius** p. 110
Front and middle metatarsi never more than one-third the length of their tibiæ; tarsal segments distinctly broader at apex than at base, segmentation very distinct; antennæ never with projections at apices of segments, male with a blunt projection at base of third segment beneath.
Trichiocampus p. 110

Anoplonyx Marlatt.

°A. **canadensis** Harrington.

Body black, with edge of the clypeus, labrum, mandibles, tegulæ, and legs except coxæ, pale honey-yellow; veins, includ-

ing costa and stigma, pale; body impunctate, pentagonal area distinct, not strongly marked; antennal segments three to five sub-equal; clypeus emarginate. Length 5 mm.

Platycampus Schiödt.

°*P. americanus* (Marlatt). *Camponiscus americanus* Marlatt.

Body rufous, with the antennæ above, spot about ocelli, tip of scutellum, postscutellum, metathorax more or less, hind coxæ, base of abdomen beneath, mesopleuræ more or less, femora more or less, apex of hind tibiæ, and hind tarsi, brownish or infuscated; pentagonal area sharply defined; frontal ridge strong, unbroken; median fovea broad and deep; antennal segments three and four subequal. Length 5-6 mm. Larva feeds on poplar.

Priophorus Latreille.

Key to Species.

1. Frontal crest never large and prominent and never extending laterally to eyes; entire free part of Sc_1 always distinct.... 2
Frontal crest large and prominent, extending laterally to eyes; free part of Sc_1 almost entirely atrophied; body black, with legs beyond knees semi-resinous to brown; clypeus transverse, deeply emarginate; antennal furrow extending as a groove along lateral margin of antenna to about the middle of the front, where it is interrupted by the frontal crest, then continued as a short groove behind the lateral ocelli; median fovea triangular, flat. Length 6 mm. *simplicicornis*
2. Frontal crest distinct or subdistinct; color black, with apical half of legs paler..... 3
Frontal crest wanting; ocellar furrow distinct; body resinous, with head except mouth, antennæ except two basal segments, and mesonotum and metanotum, black; clypeus shallowly emarginate with rounded lateral angles; antennal furrow continuous; median fovea shallow and indefinite; pentagonal area wanting; third antennal segment longer than fourth. Length 4 mm. *acericaulis*
3. Frontal crest broken by median fovea; sides of ocellar basin scarcely indicated; ocellar furrow distinct; body black, with legs beyond knees, four hind trochanters, and anterior femora on the sides, white; clypeus transverse and deeply emarginate; median fovea deeply concave; third and fourth antennal segments subequal. Length 6 mm. *æqualis*

Frontal crest entire, not broken by median fovea; sides of ocellar basin clearly distinguishable; ocellar furrow scarcely indicated; body black, with legs beyond knees white; clypeus transverse, deeply and roundly emarginate, lateral angles prominent; median fovea large, broad, shield-shaped; third and fourth antennal segments subequal. Length 7 mm. **solitaris**

P. simplicicornis (Norton). *Cladius simplicicornis* Norton. New Haven (A. E. V.)

***P. acericaulis** MacGillivray. Larva a borer in the leaf-stems of the sugar maple. New Haven, Stonington (W. E. B.); Southington, New Haven (B. H. W.).

***P. æqualis** (Norton). *Cladius æqualis* Norton. Farmington (E. N.).

°**P. solitaris** (Dyar). Larva feeds on alder.

Cladius Illiger.

C. pectinicornis Fourcroy. *Cladius isomera* Norton. Howard, Insect Book, Pl. xii, Fig. 19.

Body black, with the legs beyond the knees and the costa whitish; third segment of the antennæ shorter than the fourth; clypeus transverse, broad, shallowly emarginate; pentagonal area indistinct; frontal crest distinct and broadly broken; median fovea broad, flat, indistinct; antennæ of the male with projections at the apex of segments three to six, largest at base. Length 6-8 mm. Larva feeds on rose.

Farmington (E. N.); New Haven (H. L. V.), 6, 29 July, 1910 (W. E. B.); Orange, 21 May, 1911 (A. B. C.).

Trichiocampus Hartig.

T. viminalis Fallen. *Auliacomerus lutescens* Lintner.

Abdomen rufous; body black, with the antennæ, the legs, the pleuræ broadly, and the abdomen, rufous; third segment of the antennæ not as long as the fourth; pentagonal area distinct, the frontal crest broken, the median fovea large, elongate; basal two-thirds of the wings infuscated. Length 10 mm. Larva feeds on *Populus monilifera*. New Haven (W. E. B.)

°**T. gregarius** Dyar.

Abdomen black; body black, with the front and middle legs beyond the middle of their femora and the hind legs beyond the

femora white; third and fourth segments of the antennæ subequal; pentagonal area distinct, the° frontal crest slightly broken, the median fovea small, circular; basal two-thirds of the wings dark, smoky black. Length 6 mm. Larva feeds on *Populus tremuloides*.

NEMATINÆ.*

The types of the following species are not accessible and it is impossible to locate them in the tables.

Nematus (Pteronus?) longicornus Say.

Body black, with the postgenæ, orbits, face below the antennæ, the tegulæ, the angles of the pronotum, the pleuræ except two black spots, the body beneath, and the legs (except the apical half of the hind femora, their tibiæ, and their tarsi), whitish; antennal segments three and four subequal; clypeus angulately emarginate; male with the antennæ pale fulvous beneath; the third segment shorter than the fourth and curved at base. Length 12 mm.

Connecticut (E. N.).

***Nematus (Pachynematus) nigrinus** Norton.

Body black, with the postgenæ, the clypeus, the labrum, the tegulæ, and the apex of the abdomen above and below, yellowish; the trochanters, the apical half of the femora, the tibiæ except the tips and base of the hind pair, reddish white; antennæ with the third segment shorter than the fourth; clypeus hardly emarginate. Length 12 mm.

Connecticut (E. N.).

Key to Genera.

1. Claws, simple, without a tooth; clypeus emarginate; head with frontal area indistinct or wanting **Diphadnus** p. 112
Claws with a tooth 2
2. Claws with a small, erect tooth at middle 3
Claws cleft at apex, the two rays usually subequal in length.. 5
3. Clypeus emarginate, sometimes very slightly; vertex with a fairly distinct frontal area; radio-medial cross-vein always present **Pachynematus** p. 115

*In the preparation of the tables dealing with this subfamily free use has been made of a paper by C. L. Marlatt, "Revision of the Nematinae of North America," Bull. No. 3, Technical Series, Bureau of Entomology, U. S. Dept. of Agriculture.

- Clypeus squarely truncate; radio-medial cross-vein usually wanting 4
4. Frontal area of head more or less distinct; saw-guides simple; elongate species **Lygæonematus** p. 115
- Frontal area entirely wanting; saw-guides with a distinct scopa; short, ovate species **Pristiphora** p. 113
5. Front wings with free part of R_s always present and the cells R_s and R_4 therefore always separate 6
- Front wings with free part of R_s always wanting and the cells R_s and R_4 therefore always united **Euura** p. 141
6. Antennæ of female filiform, of practically the same width throughout; eighth dorsal segment of abdomen of male with a small, blunt, more or less awl-shaped projection; small species **Pontania** p. 137
- Antennæ of female setaceous, distinctly tapering toward apex; eighth dorsal segment of abdomen of male with a broad, obtusely pointed projection, or not at all produced at the tip; usually larger than 5 mm. 7
7. Hind tibiæ at apex and hind metatarsus not strongly compressed and flattened 8
- Hind tibiæ at apex and hind metatarsus strongly, foliaceously compressed and flattened **Cræsus** p. 121
8. Head with frontal area distinct; thorax shining, smooth, at most sparsely punctate; head triangular when viewed in front 9
- Head with frontal area wanting; thorax opaque, with dense, fine punctures; head round when viewed in front **Amauronematus** p. 121
9. Male with the last ventral abdominal segment obtusely triangularly produced at the apex; saw-guides of female of the usual form **Pteronidea** p. 124
- Male with the last ventral abdominal segment excavated at the tip, and not obtusely triangularly produced at the apex; saw-guides of female very broad, large, and thickened **Nematus** p. 120

Diphadnus Hartig.

Key to Species.

1. Pronotum with angles broadly yellow 2
- Pronotum with angles black; vertex smooth, shining, frontal crest almost obsolete; third antennal segment longer than fourth; median fovea very minute, circular; saw-guides scarcely projecting, tapering, rather densely clothed with hairs; body shining black, with tegulæ and legs light yellowish; bases of coxæ and anterior femora somewhat infuscated; antennæ pale beneath. Length 5 mm. **appendiculatus**

2. Clypeus and labrum black; head densely punctate, opaque; clypeus very slightly emarginate beneath and acuminate at tip; body black, with angles of pronotum, tegulæ, trochanters, apices of femora, especially the front pair, tibiæ, and tarsi, yellowish ferruginous; posterior tibiæ and tarsi somewhat infuscated. Length 4.5 mm**californicus**

Clypeus and labrum pale; head and thorax punctate; clypeus squarely truncate; frontal crest rounded, almost wanting; antennal segments three to five subequal; procidentia very broad, obtusely, strongly keeled; body black, with clypeus, labrum, and mouth-parts pallid; angles of pronotum, tegulæ, more or less of apical half of femora, anterior tibiæ and tarsi, and basal two-thirds of tibiæ, yellowish. Length 5.5 mm.**proximatus**

D. appendiculatus (Hartig). *Pristiphora grossularia* Walsh. *Gymnonychus appendiculatus* Hartig. Larva feeds on gooseberry. New Haven, 21 April, 1896 (W. E. B.); Orange, 13 April, 1911 (B. H. W.).

D. californicus (Marlatt). *Gymnonychus californicus* Marlatt. Larva feeds on pear. New Haven (H. L. V.).

***D. proximatus** (Norton). *Nematus proximatus* Norton. *Gymnonychus proximatus* Norton. Connecticut (E. N.).

Pristiphora Latreille.

Key to Species.

1. Thorax and abdomen black	2
Thorax or abdomen or both in part pale	3
2. Head small, narrow, and not much more than half the width of thorax; vertex smooth, ridges rounded, sub-obsolete; median fovea minute and circular; third antennal segment longer than fourth; body shining black, with anterior and middle tibiæ and tarsi yellowish; posterior tibiæ with basal two-thirds whitish. Length 5 mm.	sycophanta
Head nearly as wide as thorax; vertex without ridges and deeply, coarsely punctate; third antennal segment longer than fourth; body shining black, with apex of clypeus, labrum, tegulæ in the female, apices of coxæ, trochanters, and tibiæ in great part, pallid; anterior tarsi somewhat infuscated; apical half of posterior tibiæ and tarsi black. Length 5 mm.	banksi
3. Abdomen entirely black on the dorsum	4
Abdomen in part pale on the dorsum	6

4. Abdomen with venter pale; vertex without ridges and somewhat roughened with minute tubercles; median fovea shallow or nearly wanting; procidentia broad and strongly keeled; body shining black, with clypeus, mouth-parts, pronotum, tegulæ, legs, and central area of abdomen on venter, pale yellowish; apical half of posterior tibiæ and their tarsi, brownish black. Length 5 mm.**carolinensis**
Abdomen with venter black 5
5. Pronotum and tegulæ pale; head and thorax strongly punctate; ocellar and frontal ridges sub-obsolete; median fovea broad and shallow; antennal segments three to five subequal; procidentia broad, slightly excavated at tip, not projecting; hypopygium notched at tip; body black, with clypeus, labrum, bases of mandibles, palpi, legs in great part, pronotum, and tegulæ, yellowish ferruginous; tips of posterior tibiæ and tarsi fuscous. Length 6 mm.**luteola**
Pronotum and tegulæ black(See sec. 7) **idiota**
6. Body reddish orange marked with black; head densely and finely, tuberculately granulate, opaque, clothed with setæ; ridges of ocellar basin and frontal crest almost wanting; antennal segments three to five subequal; clypeus, labrum, and bases of mandibles inclined to pallid; vertex in great part, antennæ, stripes on lobes of mesonotum, scutellum, metanotum, sides of first abdominal segment, other segments along the middle of dorsum, lower part of pleuræ, and saw-guides, black or dark brown; tips of hind tibiæ and hind tarsi infuscated. Length 6.5 mm.**bivittata**
Body black, marked with yellow 7
7. Abdominal segments two to five, usually only on sides, yellow; head with coarse, deep punctures; ridges of ocellar basin rounded, nearly obsolete; third antennal segment much longer than fourth, fourth and fifth segments subequal; saw-guides rather slender, rounded at tip, with a dense bordering fringe of hairs; body shining black, with clypeus, tegulæ, legs, and abdominal segments two to five, usually interrupted at middle, yellow; femora usually brown basally and apically; tips of posterior tibiæ and their tarsi brown or black. Length 5 mm.**idiota**
Abdomen with segments one to four entirely reddish yellow; head with dense, coarse punctures; frontal crest slightly elevated; median fovea shallow; third antennal segment longer than fourth; saw-guides not very broad, rounded at apex, with dense bordering hairs; body shining black, with clypeus, outer half of pronotum, tegulæ, abdominal segments one to four, and legs, reddish yellow; apical third of posterior tibiæ and their tarsi black. Length 5.5 mm.**dyari**

P. sycophanta Walsh. *Pristiphora tibialis* Norton. Larva feeds on willow, birch, and *Vaccinium*. Connecticut (E. N.).

°*P. banksi* Marlatt.

°*P. carolinensis* Marlatt.

P. luteola (Norton). *Nematus luteolus* Norton. Farmington (E. N.).

°*P. idiota* Norton. *Pristiphora identidem* Norton. Larva feeds on *Vaccinium*.

P. bivittata (Norton). *Nematus bivittatus* Norton. Larva feeds on *Spiræa*. Connecticut (E. N.).

°*P. dyari* Marlatt.

Lygæonematus Konow.

L. erichsoni Hartig. *Nematus erichsoni* Hartig. *Nematus notabilis* Cresson. Larch Sawfly. Howard, Insect Book, Pl. xii, Fig. 16.

Head and thorax finely punctate, entire body shiny; ridges of ocellar basin and frontal crest rounded and distinct; median fovea long, shallow, deepest at apex; antennal segments three and four subequal; saw-guides broad, rounded, truncate at tip; body black, with tip of clypeus, basal two-thirds of tibiæ, apices of trochanters, and angles of pronotum, whitish; femora, tips of anterior tibiæ and their tarsi, and four basal segments of abdomen, orange rufous; male, with procidentia strongly keeled, somewhat constricted basally, short, not projecting beyond the seventh dorsal segment, and the hypopygium slightly emarginate at apex. Length 8-11 mm. Larva feeds on European and American larch (*Larix*).

New Canaan, North Canaan, Union, and Woodstock, 1915.

Pachynematus Konow.

Key to Species.

1. Males	15
Females	2
2. Saw-guides large, projecting free for at least one-half of their length	3
Saw-guides normal, projecting but slightly, at least never for one-half of their length.....	4
3. Body black or dark brown; ocellar basin with distinct but not strongly elevated walls; frontal crest not strongly	

raised, slightly broken at middle; antennæ with third segment much shorter than fourth; saw-guides long, rounded at apex, blades thin and closely applied; body brownish black, with abdomen lighter, inclined to fulvous; face below antennæ, the upper and posterior orbits, pronotum, tegulæ, and legs except bases of coxæ, reddish yellow, strongly infuscated. Length 8 mm.**dimmockii**

Body in great part yellow or resinous; ocellar basin with distinct and broad lateral walls; frontal crest strong and unbroken; antennal segments three and four subequal; saw-guides long and large, broadly rounded at apex, blades thin, translucent, closely applied; body shining resinous yellow, with antennæ, spot on lateral lobes of mesonotum, apex of scutellum, metanotum in part, and narrow border to basal plates, brownish black. Length 8.5 mm**ocreatus**

4. Head strongly developed and dilated behind compound eyes 5
Head narrowed more or less behind compound eyes 10

5. Head and mesonotum in great part pale 6
Head black, with orbits black or strongly infuscated; thorax in great part black 9

6. Ocellar basin with strong, distinctly defined sides; frontal crest strong, very minutely notched; median fovea extending laterally over bases of antennæ; saw-guides moderately broad and thick, obliquely truncate, upper edge nearly straight; body resinous or sulphur yellow, with antennæ, a small spot including the ocelli, spot on lobes of mesonotum, spot on either side and base of scutellum, metanotum, tergum of abdomen except narrow lateral margin and two terminal segments, and saw-guides, brownish black. Length 7-8.5 mm**extensicornis**

Ocellar basin with its sides and the frontal crest indistinct 7
7. Wings hyaline; median fovea distinct 8

Wings infuscated; median fovea almost wanting; saw-guides narrow and pointed at tip, upper edge straight; body shining honey-yellow, with antennæ, a spot about the ocelli, spot on lobes of mesonotum, apex of scutellum, metanotum, center of basal plates, and bases of first six dorsal abdominal segments, black or fuscous. Length 6.5 mm**suadus**

8. Median fovea shallow, and extending widely over bases of antennæ; antennæ with fourth segment as long as or longer than third; saw-guides narrow, tapering, straight on upper margins, obtusely pointed; body luteous, with antennæ, a small spot including the ocelli, a spot on lateral lobes of mesonotum, scutellum in part, metanotum in part, basal plates, disk of tergum, and saw-guides, black; apices

of hind tibiæ and their tarsi, bases of hind coxæ, and a small spot beneath anterior wings, infuscated; stigma, costa, and veins at base, hyaline. Length 6 mm. **affinis**

Median fovea circular, not extending over bases of antennæ; antennæ with third and fourth segments subequal; saw-guides straight and oblique above, convex below, convexly rounded at apex to a blunt point above; body luteous, with a spot above the bases of antennæ, around the ocelli, a broad band on median lobe of mesonotum, a narrow band on each lateral lobe, an oblique band at their apices, apex of scutellum, all sometimes rufous, postscutellum, metathorax in part, basal plates, a spot on middle of first abdominal segment, apices of posterior tibiæ, and posterior tarsi, black; stigma luteous, veins brownish.

Length 8 mm. **rufocinctus**

9. Stigma very narrow and acuminate; head and thorax with long, dense pubescence; ocellar basin rather indistinctly defined; frontal crest long and unbroken, median fovea triangular; saw-guides short, tapering, obtusely pointed; body black, with tips of clypeus, mouth-parts, angles of pronotum, tegulæ, tip of abdomen except saw-guides, and outer half of femora, reddish yellow; tibiæ pale yellowish; tarsi infuscated; pleuræ with a reddish mark. Length 8 mm. **pubescens**

Stigma broad and rounded beneath; head and thorax with short, inconspicuous pubescence; ocellar basin distinct, with sharp lateral walls; frontal crest not prominent and unbroken; median fovea oval; saw-guides short and tapering; body black, with labrum, angles of pronotum, tegulæ, tip of abdomen, venter in great part, and legs, yellowish or reddish; bases of coxæ and of femora infuscated.

Length 8 mm. **montivagus**

10. Tergum of abdomen reddish yellow; head and thorax strongly punctate; ocellar basin with prominent, elevated ridges; frontal crest prominent and unbroken; saw-guides broad and truncate; body black, with posterior orbits, and notum in part including the scutellum, reddish; supraclypeal area, tip of clypeus, labrum, pronotum, tegulæ, legs, and abdomen, reddish yellow; tips of posterior tibiæ and posterior tarsi infuscated. Length 6.5 mm. **punctulatus**

Tergum of abdomen black or brown 11

11. Femora entirely pale 12

Femora wholly, or at least some of them in part, black 13

12. Head and thorax black; body black, with clypeus, labrum, collar, tegulæ, legs beyond coxæ except apex of posterior tibiæ and posterior tarsi for the most part, and venter of the abdomen, white or luteous; head distinctly punctate; cly-

peus deeply and narrowly emarginate; frontal crest unbroken; third and fourth segments of antennæ subequal; saw-guides oblique above and below and obliquely truncated at apex. Length 7 mm **corticus**

Head and thorax dark brown; body black, with head, antennæ, pronotum, mesonotum, and dorsum of abdomen more or less, upper half of pleura, and saw-guides, dark brown; clypeus broadly and shallowly emarginate; frontal crest unbroken; antennæ with third segment longer than fourth; saw-guides short, obliquely truncate, pointed at tip. Length 4.3 mm. **gregarius**

13. Anterior pair of legs entirely pale; vertex finely tuberculate; ocellar basin with lateral walls minutely but sharply raised, obsolete posteriorly; frontal crest acutely elevated, angulated, and extending nearly to inner orbits; median fovea broad, extending on each side over bases of antennæ; saw-guides broad, straight on upper margins, obliquely truncated at apex, bordering hairs minute and scattering; body shining black, with apex of clypeus, mouth-parts, pronotum in great part, tegulæ, anterior pair of legs, posterior pair of legs except bases of coxæ and apices of femora and tibiæ and all of tarsi, venter of abdomen except at apex, lateral margin and more or less of apex of tergum, yellowish white. Length 6-7 mm.

corniger

Anterior pair of legs more or less marked with black 14

14. Frontal crest strongly developed, slightly broken at center, and not reaching inner orbits; ocellar basin with distinct sides but not strongly elevated; median fovea distinct, broadening posteriorly into a suture beneath the frontal crest; saw-guides rather broad, rounded, truncate at apex, straight on upper margins; body black, with tip of the clypeus, labrum, angles of pronotum, tegulæ, coxæ except at base, trochanters, bases of femora and tips of anterior femora, tibiæ except tips of posterior pair, anterior tarsi, and venter except laterally at base and apex, pallid. Length 8 mm.

subalbatus

Frontal crest distinctly elevated and unbroken, extending nearly to the inner orbits; ocellar basin with sides rounded, not strongly raised, and indistinct; median fovea large, circular, deeply excavated; saw-guides rather slender, somewhat pointed at tip, dorsal margin nearly straight; body black, with labrum, bases of mandibles, angles of pronotum, tegulæ, coxæ except at base, trochanters, tibiæ of anterior pair of legs and their tarsi, and venter of abdomen, yellowish or pallid. Length 6 mm. **palliventris**

15. Head strongly dilated behind the compound eyes 16
Head not strongly dilated behind the compound eyes 22

16. Body black on dorsum and venter 17
 Body black, with venter and more or less of dorsum pale .. 21
17. Head and thorax covered with long, dense pubescence; stigma narrow and acuminate; procidentia wide, tapering, truncate at tip. Length 8 mm.pubescens
 Head and thorax not covered with long, dense pubescence; stigma broad and tapering 18
18. Legs pale beyond apices of femora 20
 Legs pale beyond bases of femora 19
19. Procidentia longer than broad, truncate at apex; head with ocellar basin and frontal crest distinct but not strongly raised; body shining black, with supraclypeal area, labrum, apex of abdomen above, hypopygium, more or less of venter on each side, apices of coxæ, trochanters, femora except bases, and tibiæ except apices, light fulvous. Length 5.5 mm.triticæ
 Procidentia broader than long, broadly rounded; ocellar basin distinct, sharply raised; body black, with supraclypeal area, labrum, apices of segments of tergum, venter, a spot on pleuræ, and legs, except apices of posterior tibiæ and their tarsi, fulvous. Length 7 mm.rufocinctus
20. Mouth-parts and orbits black; procidentia very broad, slightly tapering and rounded at tipextensicornis
 Mouth-parts and orbits pale; procidentia projecting only about half its width, broadly truncate at apexaffinis
21. Procidentia narrow, tapering, pointed at top; body resinous yellow, with antennæ, large spot on vertex about ocelli extending onto occiput, thorax above except pronotum and tegulæ, and central dorsal area of abdomen, brownish black. Length 4 mm.gregarius
 Procidentia very broad, tapering, squarely truncate at apex, not keeled; vertex rugose; ocellar basin with indistinct walls, median fovea extending laterally over bases of antennæ, indistinctly defined; body black, with labrum, upper and posterior orbits, angles of pronotum, tegulæ, outer two-thirds of femora, tibiæ, tarsi, and abdomen except base of first dorsal segment, yellowish ferruginous; wings smoky, especially centrally. Length 8 mm.infumatus
22. Procidentia rounded at apex, not constricted basally, strongly keeled; body black, with tip of clypeus, mouth-parts, angles of pronotum, tegulæ, pectus, venter of abdomen, and legs except bases of coxæ and apices of posterior tibiæ and tarsi, yellowish ferruginous. Length 5 mm.corniger
 Procidentia short, narrow, truncate; body black, with tip of clypeus, mouth-parts, angles of pronotum, venter, and legs except bases of coxæ, extreme tip of posterior tibiæ, and all posterior tarsi, yellowish ferruginous. Length 6.5 mm.subalbatus

°*P. dimmockii* (Cresson). *Nematus dimmockii* Cresson.

°*P. ocreatus* (Harrington). *Nematus ocreatus* Harrington.

P. extensicornis (Norton). *Nematus extensicornis* Norton.
Nematus marylandicus Norton. *Nematus aureopectus* Norton.
 Howard, Insect Book, p. 75, Fig. 46, Pl. xiv, Fig. 29. Larva
 feeds on wheat. New Haven, 15 May, 1911, Orange, 21 May,
 1911 (A. B. C.).

P. affinis Marlatt. Larva feeds on grass. Stonington, 16
 May, 1906 (B. H. W.).

**P. rufocinctus* MacGillivray. New Haven, 15 May, 1911,
 Orange, 21 May, 1911 (A. B. C.).

°*P. suadus* (Cresson). *Nematus suadus* Cresson.

°*P. pubescens* Marlatt. Larva feeds on *Carex*.

°*P. montivagus* Marlatt.

°*P. punctulatus* Marlatt.

°*P. corticosus* MacGillivray.

°*P. gregarius* Marlatt. Larva feeds on willow.

**P. corniger* (Norton). *Nematus corniger* Norton. Larva
 feeds on grass. Connecticut (E. N.); Branford, 8 May, 1905
 (H. W. W.).

P. subalbatus (Norton). *Nematus subalbatus* Norton.
 Orange, 21 May, 1911 (A. B. C.); New Haven, 30 May, 1911
 (B. H. W.).

°*P. palliventris* (Cresson). *Nematus palliventris* Cresson.

°*P. tritici* Marlatt. Larva feeds on wheat.

°*P. infumatus* Marlatt.

Nematus Jurine.

Key to Species.

1. Abdomen with last dorsal arc enormously developed; clypeus
 deeply, rather narrowly notched, lobes large and rounded;
 ocellar basin scarcely defined, deep furrow connecting an-
 terior ocellus with median fovea; saw-guides tapering,
 pointed, and with the terminal abdominal segment enor-
 mously developed, representing nearly half of abdomen;
 body uniformly reddish yellow. Length 7 mm.unicolor
- Abdomen with last dorsal arc not enormously developed 2

2. Ocellar basin with indistinct lateral walls and without tubercles; clypeus nearly truncate; frontal crest large and rounded; saw-guides thick, short, scarcely projecting, margined with long, not very numerous curved hairs; body yellowish ferruginous, with antennæ, spot on either side of scutellum, metathorax in part, basal plates, and center of abdomen above, black; mesonotum, pleuræ in part, margin of abdomen, and sheath, more or less reddish. Length 5 mm.

chloreus

Ocellar basin with distinct lateral walls and containing two small tubercles; clypeus broadly emarginate; frontal crest large, obtusely rounded; saw-guides thick, squarely truncate, tubular; body luteous, pallid or reddish yellow, with the sides of the mesonotum, most of the metanotum, and a broad stripe on the middle of the abdomen, black. Length 7 mm. **pergandei**

°**N. unicolor** Marlatt. Larva feeds on birch.

***N. chloreus** Norton. Larva feeds on *Quercus coccinea*. Connecticut (E. N.).

°**N. pergandei** Marlatt.

Cræsus Leach.

C. latitarsus Norton. Pl. I, Fig. I.

Mesothorax with confluent longitudinal punctures; body blue-black, with the labrum, mandibles, palpi and the anterior pair of legs toward the tip, piceous; posterior trochanters and the basal half of all the tibiæ white; wings hyaline, with a smoky area beneath the stigma. Length 8 mm. Larva feeds on birch.

New Haven, 1910 (B. H. W.); Stafford, 24 August, 1906 (W. E. B.). Common in New Haven.

°**C. laticulus** Norton.

Mesothorax with scattered, sub-obsolete, oval punctures; body black, with tegulæ, and a spot on the sides of the basal plates and of the second and third abdominal segments, whitish; mandibles at apex, and legs, ferruginous, with apical two-thirds of their tibiæ and greater part of metatarsi black; wings hyaline. Length 12 mm.

Amauronematus Konow.

Key to Species.

1. Body black on dorsum	2
Body pale on dorsum, marked more or less with black	9

2. Wings smoky 3
Wings hyaline 6
3. Legs entirely black 4
Legs with tibiae yellowish, at least anterior pair in front 5
4. Abdomen with venter pale; clypeus almost truncate at apex; frontal crest and sides of ocellar basin nearly obsolete, indistinct; median fovea small, elongate; antennae with third segment shorter than fourth; procidentia very minute and squarely truncate or broadly excavated at apex; body black, with clypeus, labrum, cheeks, and bases of mandibles, whitish; orbits tinged with rufous. Length 6.5-7 mm.concolor
Abdomen with venter yellowish white; clypeus very shallowly emarginate; ocellar basin with rounded, indistinct walls, frontal crest almost wanting; median fovea shallow, elongate; antennal segments three to five subequal, the fourth longest; saw-guides obliquely truncate at apex; body black, with the oral region, outer orbits, supraclypeal area, pronotum in great part, and venter of abdomen, yellowish white. Length 9 mm.comstockii
5. Clypeus rather broadly and shallowly emarginate; orbits pale; ocellar basin with distinctly defined walls; frontal crest narrow, not extending on each side, slightly broken by the deeply excavated, elongate median fovea; antennae with third segment shorter than fourth; saw-guides somewhat elongate, rounded at apex; body brownish black, with supraclypeal area, orbits, oral region, angles of pronotum, more or less of apical ventral segments, joints of legs, and most of anterior tibiae, yellowish. Length 8 mm.gracilis
Clypeus narrowly and rather deeply emarginate; orbits not pale; ocellar basin with its lateral walls rounded; frontal crest deeply broken by backward extension of deep, elongate median fovea; antennae with third segment shorter than either fourth or fifth; saw-guides elongate, slightly tapering, rounded at tip; body black, with supraclypeal area, clypeus, labrum, cheeks, base of mandibles, and angles of pronotum, yellowish white; anterior legs in front from middle of femora, yellowish infuscated; venter of abdomen, except apex, yellowish. Length 9 mm.similis
6. Abdomen black on venter 7
Abdomen pale on venter 8
7. Legs black except at joints; clypeus moderately and rather narrowly emarginate; ocellar basin with side walls rounded and indistinct; frontal crest not extending laterally, slightly broken by the shallow median fovea; procidentia short, squarely truncate, with sharp angles, keeled; body black,

with clypeus, oral region, and beneath the eyes, whitish; joints of legs, more or less of anterior face of tibiæ and apices of femora, and angles of pronotum, yellowish.

Length 5 mm. **cooki**

Legs reddish except apical half of posterior tibiæ; clypeus broadly emarginate; ocellar basin distinctly defined but not deeply excavated; frontal crest not strongly developed; median fovea triangular; procidentia short, more than twice as broad as long, truncate; body entirely black except parts named. Length 9 mm. **rufipes**

8. Frontal crest strongly raised and unbroken; clypeus broadly and shallowly emarginate; ocellar basin with distinctly defined but not prominent walls; median fovea shallow, elongate oval; saw-guides pointed, with a distinct scopa near the tip; body in female dull black, with face below antennæ, orbits, pronotum, tegulæ, pectus broadly, venter of abdomen, lateral edge of dorsum, and some of the margins of the basal segments of the abdomen, pallid; legs in part slightly infuscated; male differs in having dorsum of abdomen black and venter somewhat infuscated. Length 5.5 mm. **azaleæ**

Frontal crest broken (See sec. 5) **similis**

9. Abdomen black on dorsum; ocellar basin with side walls indistinct or wanting; frontal crest short, strongly raised, and scarcely broken; median fovea small, shallow, circular; saw-guides very broad, obliquely truncate, upper edge obtusely pointed; body luteous or reddish, with a spot on vertex extending to antennæ, lobes of mesonotum at center, scutellum in part, metanotum, abdomen on dorsum, saw-guides, and lower half of pleuræ, black. Length 6 mm. **fulvipes**

Abdomen yellow **10**

10. Wings smoky; legs black; frontal crest and sides of ocellar basin indistinct; median fovea elongate, shallow; saw-guides elongate, obtusely rounded at apex; body yellowish ferruginous, with the head and thorax in great part, center of the basal plates, apex of the abdomen, saw-guides, and legs, black. Length 8.5 mm. **luteotergum**

Wings hyaline or nearly so; legs pale **11**

11. Femora wholly or in part black; ocellar basin with indistinct walls; frontal crest large, sharply defined, slightly or not at all broken; median fovea triangular; saw-guides long, narrow, regularly and equally rounded on both margins to obtuse apex; body ferruginous or reddish, with antennæ above, a line on anterior lobes of mesonotum, sometimes wanting, apex of scutellum, metanotum in great part, and abdomen dorsally at center, black. Length 7.5 mm. **lineatus**

Femora resinous or yellow **12**

12. Frontal crest slightly broken; ocellar basin with rounded walls; median fovea elongate; saw-guides tapering on both edges, somewhat angularly, to an obtuse tip, smooth, margined with very short, scattering hairs; body light yellowish or reddish, with the antennæ above black; tips of hind tibiæ and their tarsi infuscated. Length 7 mm.**brunneus**

Frontal crest distinct and unbroken; ocellar basin with wide, rounded walls; median fovea circular, with branches extending over bases of antennæ; saw-guides tapering, obtusely pointed, clothed with short and rather dense hairs; body resinous yellow, thorax and head reddish; antennæ, ring about ocelli, and postscutellum black. Length 6 mm.

dyari

***A. concolor** (Norton). *Nematus concolor* Norton. *Nematus violaceipennis* Norton. Farmington (E. N.).

° **A. comstocki** Marlatt.

° **A. gracilis** Marlatt.

° **A. similis** Marlatt. Larva feeds on willow.

° **A. cooki** Marlatt.

° **A. rufipes** Marlatt.

° **A. azaleæ** Marlatt. Larva feeds on *Azalea*.

A. fulvipes (Norton). *Nematus fulvipes* Norton. Connecticut (E. N.).

A. luteotergum (Norton). *Nematus luteotergum* Norton. Larva feeds on alder. Connecticut (E. N.).

° **A. lineatus** (Harrington). *Nematus lineatus* Harrington.

° **A. brunneus** (Norton.) *Nematus brunneus* Norton.

° **A. dyari** Marlatt. Larva feeds on poplar.

Pteronidea Rohwer.

Key to Species.

1. Females	2
Males	34
2. Dorsum of body black with pale markings	3
Dorsum of body pale with black markings	31
3. Pectus always black	4
Pectus usually entirely pale, rarely in part fuscous	20
4. Stigma narrow, more than three times as long as wide, usually straight on lower margin	5
Stigma broad, not much more than twice as long as wide, rounded on lower margin	7

5. Head, thorax, and abdomen black above; ocellar basin well-defined; frontal crest slightly notched at center; antennal segments three and four subequal; saw-guides broadly rounded on lower margin, pointed at tip; body black, with the area above bases of antennæ, postgenæ, orbits, mouth-parts, pronotum, tegulæ, legs in great part, and venter of abdomen, pale; remainder of legs, veins, and stigma brown. Length 8 mm. **lata**
- Head and thorax black, abdomen more or less pale. 6
6. Abdomen with broad, lateral, pale stripe; sides of ocellar basin strongly and sharply raised; median fovea small, indistinct; frontal crest very prominent, broadly curved, unbroken; saw-guides short, broad, obtusely pointed; body black, with clypeus and mouth-parts, most of pronotum, tegulæ, lateral third of dorsum of abdomen, all of venter of abdomen, and legs, yellowish ferruginous; upper orbits and sides of mesonotum tinged with reddish. Length 7 mm. **limbata**
- Abdomen with a broad, transverse, yellow band; sides of ocellar basin and frontal crest strongly raised; median fovea large, oval, deeply excavated; antennal segments three and four subequal; saw-guides moderately robust, obtusely pointed, with straight upper margins; body black, with tip of clypeus, labrum, bases of mandibles, palpi, and basal half of hind tibiæ, whitish; upper margin of pronotum, tegulæ, dorsum of four basal abdominal segments except apex of fourth, all of venter, and legs, yellowish ferruginous. Length 8 mm. **latifasciata**
7. Head and thorax black 8
- Head and thorax in great part pale 19
8. Abdomen with venter pale, dorsum always more or less black, except sometimes the apical segments 9
- Abdomen with venter and dorsum pale, except sometimes the basal dorsal segments and rarely the terminal segments 12
9. Femora all black; ocellar basin well defined; frontal crest large, indistinctly broken; antennæ with third segment slightly longer than fourth; saw-guides pointed, slightly excavated above and rounded beneath; body brownish black, with inner and outer orbits, face below base of antennæ, pronotum except two or three dusky spots, tegulæ, front femora, sometimes almost entirely, tips of femora and tibiæ, lateral edges of thorax and abdomen, and venter, yellowish white. Length 8 mm. **ventralis**
- Femora wholly or in part pale 10
10. Femora of front and middle legs pale, of hind legs black; ocellar basin deep with well-defined walls; frontal crest unbroken; median fovea large, triangular, deeply exca-

vated; antennal segments three and four subequal; saw-guides broad, obtusely pointed, upper margin slightly emarginate; body black, with the face below the antennæ, mouth-parts, orbits, angles of pronotum narrowly, tegulæ, narrow apical margin of dorsal segments, two apical dorsal segments, venter except epimera and some dusky spots on lateral margin of abdomen, and legs except apical half of posterior femora and apices of tibiæ and tarsi, yellowish.

Length 5.5 mm. **marlattii**

Femora of all the legs pale..... 11

11. Hind wings with free part of R_4 and transverse part of M_2 interstitial; ocellar basin distinctly defined; frontal crest strong, unbroken; median fovea deep, with lateral channels running from it over bases of antennæ; antennal segments three and four nearly equal; body black, with tip of clypeus, mouth-parts, angles of pronotum, tegulæ, legs in great part, venter of abdomen, and marginal third of dorsum of abdomen, yellowish. Length 7 mm. **harringtoni**

Hind wings with transverse part of M_2 separating from R a considerable distance before free part of R_4 ; ocellar basin with well defined walls; frontal crest unbroken; median fovea oval; antennal segments three and four sub-equal; saw-guides broad, tapering, slightly produced, with a rather dense tuft of short hairs at the extreme tip; body black, with supraclypeal area, clypeus in great part, mouth-parts, tegulæ, abdomen except broad dorsal stripe, and legs in great part, reddish yellow.

Length 7 mm. **fylesi**

12. Hind femora black, at least apically 13
Hind femora entirely pale 17

13. Head with orbits pale; ocellar basin with sharply defined walls; frontal crest distinct, unbroken; median fovea circular; saw-guides smooth, polished, pointed, bordering hairs minute; body black, with clypeus, mouth-parts, angles of pronotum, tegulæ, anterior and posterior legs (except apical three-fourths of hind femora, hind tibiæ, and tarsi), yellowish white; central part of mesonotum and scutellum sometimes yellowish brown; apical two-thirds of abdomen ferruginous; hind tibiæ entirely brown, pale at base, and gradually darker towards apex, or white at base and gradually shading to brown. Length 7 mm. **tricolor**

Head with orbits black 14

14. Abdomen with apical segments black 15

Abdomen with apical segments rufous 16

15. Antennal segments three and four subequal; median fovea distinctly defined, oval; ocellar basin with sharply defined and strongly raised walls; frontal crest prominent, sharp, unbroken; saw-guides short, obtusely pointed, quite

densely clothed with hairs; body black, with the center of the basal abdominal segment, the three following segments and part of the fourth, reddish yellow; tip of clypeus, mouth-parts, anterior legs in great part, coxæ except at base, trochanters, bases of femora, and basal half of tibiæ of hind legs, pallid; pronotum and tegulæ pallid, infuscated. Length 8 mm.

rufocincta

Antennæ with third segment longer than fourth; median fovea very shallow, indistinct; ocellar basin well-defined, with prominent anterior angle; saw-guides short, stout, scarcely projecting; body black, with angles of pronotum, tegulæ, and abdominal segments one to five dorsally and ventrally, yellowish ferruginous; mouth-parts strongly infuscated; coxæ except at base, trochanters, and basal half of posterior tibiæ, whitish; anterior and posterior faces of anterior tibiæ and tarsi pallid. Length 6 mm.*dyari*

16. Head and thorax finely punctate; clypeus shallowly and broadly emarginate, lobes triangular and rather pointed; median fovea circular, deeply excavated; frontal crest and sides of ocellar basin strongly raised, frontal crest unbroken; saw-guides rather robust, rugose, with numerous hairs; body black, with tip of clypeus, labrum, palpi, angles of pronotum, tegulæ, abdomen except basal plates, first segment on dorsum, saw-guides, and legs (except bases of coxæ, tips of hind femora, apical two-thirds of hind tibiæ, and hind tarsi), rufous; basal third of hind tibiæ, white. Length 7.5 mm.*erythrogastra*

Head and thorax rather coarsely punctate, somewhat shiny; clypeus very shallowly emarginate, lobes very short and broadly rounded; median fovea broad and shallow; frontal crest and sides of ocellar basin distinctly elevated; frontal crest rarely indistinctly broken; saw-guides not very robust, rounded at apex, and with rather long and dense hairs; body black, with bases of antennæ, tip of clypeus, labrum, palpi, angles of pronotum, tegulæ, legs (except apex of posterior femora, apical half of posterior tibiæ, and hind tarsi), and abdomen except basal plates, yellowish ferruginous. Length 6-7 mm.*corylus*

17. Angles of pronotum and coxæ black; walls of ocellar basin distinctly defined; frontal crest prominent, unbroken; median fovea shallow; saw-guides robust, obtusely pointed, straight on the upper margins; body black, with labrum pallid; tips of anterior femora, hind femora, and abdomen except apical segment, orange-yellow, inclined to reddish on legs; wings smoky. Length 8.5 mm.*fulvicrus*

Angles of pronotum and the coxæ pale. 18

18. Mesonotum with lateral lobes black, spotted with ferruginous; first abdominal segment black at base, ferruginous at apex; sides of ocellar basin distinctly raised; frontal crest prominent and unbroken; median fovea broad, shallow, not distinctly defined; saw-guides rather broad, slightly excavated above, pointed, and with rather dense whitish hairs at tip; body black, with tip of clypeus, labrum, posterior orbits, angles of pronotum, tegulæ, spot on the lateral lobes of mesonotum, abdomen beyond the middle of the first segment, and legs except the bases of the coxæ and the hind tibiæ and tarsi, yellowish ferruginous. Length 7 mm.populi
- Mesonotum with the lateral lobes entirely and the entire first abdominal segment ferruginous; ocellar basin distinctly defined; frontal crest very prominent, unbroken; median fovea distinctly excavated, triangular; saw-guides narrow and tapering; body black, with clypeus and labrum pale; angles of pronotum, tegulæ, lateral lobes of mesonotum, abdomen except the basal plates and saw-guides, and legs except hind tibiæ and tarsi, yellowish ferruginous. Length 10 mm.hudsonii
19. Hind femora mostly black; ocellar basin distinct, with sharply raised sides; frontal crest broad, rounded, unbroken; median fovea deep, circular; saw-guides strongly tapering toward the rounded apex, nearly straight on upper margins, with very short, inconspicuous pubescence; body yellowish or ferruginous, with base of antennæ, spot about ocelli, occiput, pronotum except outer angles, spot on lobes of mesonotum, spot about the cenchri, basal plates, and first abdominal segment at base, black; pectus, hind femora except at base, tips of hind tibiæ, and hind tarsi, blackish brown. Length 6 mm.antennata
- Hind femora entirely pale; ocellar basin with poorly defined walls; frontal crest entire or indistinctly broken; median fovea rather deep at apex, oval; saw-guides rather narrow, rounded at extremity, with short hairs; body luteous or ferruginous, with head below antennæ, except the supraclypeal area, orbits, more or less of antennæ above, large spot on middle of lobes of mesonotum, scutellum more or less, lower part of pleuræ, pectus, apices of posterior tibiæ, and posterior tarsi, brownish black. Length 7-7.5 mm.ribesi
20. Head with the orbits not pale 21
- Head with orbits pale..... 23
21. Mesonotum black; ocellar basin distinctly defined, with prominent walls; frontal crest strongly bent anteriorly, scarcely broken centrally; median fovea triangular, deep, with sharp limiting ridges; saw-guides short, rounded

at tip, slightly emarginate beneath, clothed with dark brownish hairs; body black, with supraclypeal area, clypeus, mouth-parts, pronotum, tegulæ, pectus in great part, legs except apices of hind femora and tibiæ and hind tarsi, and venter of abdomen, light resinous yellow; abdomen at sides, and central area interrupted at base and apex, yellow.

Length 6 mm. **carpini**

Mesonotum, at least in part, pale..... 22

22. Median lobes of mesonotum in great part, and abdomen, black; frontal crest prominent, sometimes slightly broken; median fovea shallow, indistinct; saw-guides obtusely pointed, straight on upper edge, narrow; body ferruginous, with head except palpi and clypeus sometimes in part, margin of the pronotum, a band along middle of mesonotum, metanotum, metapleuræ, basal plates, abdomen above, apices of posterior tibiæ, and posterior tarsi, black.

Length 7 mm. **militaris**

Median lobes of mesonotum and abdomen in great part reddish; ocellar basin with rounded walls; frontal crest unbroken; median fovea shallow, circular; saw-guides rather short and robust, regularly rounded at tip; body reddish yellow, with antennæ, head except tip of clypeus and more or less of mouth-parts, scutellum more or less, metanotum, center of basal dorsal area of abdomen, and saw-guides, black. Length 6 mm. **thoracica**

23. Stigma and costa brown 24

Stigma and costa yellowish hyaline 28

24. Scutellum black 25

Scutellum pale 27

25. Frontal crest unbroken; ocellar basin with distinctly limiting walls; median fovea deep and triangular; saw-guides short, rather robust, regularly tapering; body light greenish yellow, with antennæ, large spot about the ocelli extending onto the occiput, lobes of mesonotum, metanotum, large spot on upper angles of pleuræ, base of dorsal abdominal segments centrally, apex of saw-guides, apex of hind femora, apical two-thirds of hind tibiæ, and hind tarsi, black.

Length 6 mm. **ostryæ**

Frontal crest broad, slightly broken at middle..... 26

26. Head nearly spherical when viewed laterally; clypeus rather narrowly and deeply emarginate; ocellar basin distinctly defined, sides acute, finely raised; frontal crest broad, somewhat broken at middle; median fovea broad, circular, shallow; saw-guides narrow, rounded at apex; body pallid or resinous, with antennæ, spot on vertex, including the ocelli and extending onto the occiput, mesonotum, metanotum,

abdomen on dorsum except narrow lateral margin, and apex of saw-guides, black; scutellum at base, and suture of mesonotum, inclined to reddish. Length 5.5 mm.odorata

Head triangular in outline when viewed laterally; clypeus broadly, circularly emarginate, lobes rounded, not broad; ocellar basin deeply and distinctly excavated, lateral walls rounded; frontal crest strongly developed, divided by a narrow depressed line at middle; median fovea deep; saw-guides narrow, tapering to a rounded tip; body pallid or resinous, with antennæ, large spot covering vertex, dorsum of thorax, and abdomen except narrow lateral margin, black; hind tarsi and saw-guides brown; hind tibiæ darker at tip. Length 7 mm.cornelli

27. Posterior tibiæ and tarsi dark brown; ocellar basin with distinctly defined sides; frontal crest distinct, unbroken, curving anteriorly; median fovea triangular, sharply defined; saw-guides narrow, smooth, tapering on both edges to rounded tip; body reddish yellow, with antennæ, large spot on vertex extending onto occiput, mesonotum, small spot beneath anterior wings, metanotum except postscutellum and sutures and lateral margin, abdomen except lateral margin and apical segment, apical half of saw-guides, and posterior tibiæ and tarsi, brownish black. Length 6.5-7 mm.trilineata

Posterior tibiæ and tarsi resinous; ocellar basin distinctly defined, sides faintly raised; frontal crest stout; median fovea elongate, rather deeply excavated; saw-guides broad, obtusely pointed, densely hairy at apex and on lower margin; body yellow ferruginous, with the antennæ basally, spot on the head surrounding the ocelli and extending narrowly over the vertex, large spot on anterior lobe of mesonotum, apex of scutellum, metanotum, and abdomen on dorsum except narrow lateral margin and more or less of some of the middle segments at apex, black. Length 8 mm.magna

28. Frontal crest broad, unbroken at middle..... 29
Frontal crest broad, broken at middle..... 30

29. Antennæ with third segment longer than fourth; saw-guides robust, densely clothed with long, whitish hairs at apex on lower margin; clypeus nearly truncate; ocellar basin indistinctly defined, sides rounded; frontal crest broad, unbroken; median fovea defined only on anterior margin; body yellowish or ferruginous, with a spot on the vertex extending back over the occiput, mesonotum, metanotum, and dorsum of abdomen except a narrow lateral margin, black. Length 4.5 mm.quercus

Antennæ with third segment shorter than fourth; saw-guides narrow, tapering to a rounded tip; clypeus very broadly but not deeply emarginate; ocellar basin with distinctly

defined walls; frontal crest prominent but not distinctly limited; body yellowish or pallid, with antennæ, a large spot on the vertex, mesonotum, metanotum, and dorsum of abdomen, black. Length 7 mm.**hyalina**

30. Scutellum wholly or in part black; saw-guides rather pointed, lower margin regularly pointed, upper margin straight or slightly concave, bordering hairs very minute; clypeus distinctly but not very broadly emarginate; ocellar basin with sides distinctly, rather sharply raised; frontal crest rounded, broken at middle; median fovea circular, shallow; body light yellowish, with antennæ, a spot on vertex extending onto occiput, lobes of mesonotum except lateral edges, metanotum, and dorsum of abdomen centrally except apex of last segment, black or dark brown; hind tibiæ and tarsi more or less infuscated. Length 6 mm.

vertebrata

Scutellum pale; saw-guides rather narrow, slightly concave above, rounded at apex; clypeus circularly emarginate; ocellar basin distinctly limited; frontal crest large, slightly broken at middle; median fovea expanding basally; body pallid or yellowish, with antennæ above, spot on vertex extending to bases of antennæ, center of lobes of mesonotum, metanotum, and central portion of abdomen on dorsum, brownish black; tibiæ and tarsi slightly infuscated. Length 6-6.5 mm.**integra**

31. Body entirely without black or brownish markings of any sort. Length 7 mm.**monochroma**

Body, at least in part, with black or brownish markings 32

32. Body greenish luteous, with first seven dorsal abdominal segments, saw-guides, mesothorax in part, metathorax, spot on pleuræ below wings, and two basal segments of antennæ, black; clypeus hardly emarginate; tips of tarsi blackish; stigma and costa pale green. Length 7 mm.**stigmata**

Body yellow or pallid, without black or brownish band on dorsum of abdomen 33

33. Frontal crest prominent, broken at middle, or strongly bituberculate; median fovea broad, shallow; clypeus broadly but not deeply notched; ocellar basin with distinctly defined but rounded lateral walls; saw-guides tapering, straight or slightly concave on upper margin; body light yellowish, with narrow border to ocelli, small spot on occiput, spots on lobes of mesonotum, sometimes wanting, apex of scutellum, and spot between cenchri, brownish black; costa and stigma greenish hyaline. Length 5-6 mm.

mendica

Frontal crest unbroken; median fovea deep, extending laterally over bases of antennæ; clypeus deeply, circularly

emarginate; ocellar basin distinctly defined, lateral walls not very sharply raised; saw-guides robust, obliquely truncate at tip; body light yellow or pallid, with spot connecting ocelli, antennæ above, and anterior edge of cenchri, dark brown or black; lobes of mesonotum and head above, brownish purple; stigma yellow. Length 8 mm.

pinguidorsum

34. Procidentia very broad and large..... 35
Procidentia narrow, sometimes almost obsolete..... 36

35. Head including orbits black; clypeus shallowly and broadly emarginate; sides of ocellar basin and frontal area rounded, indistinct; procidentia very broad, one-third as wide as last segment, rounded at tip, strongly constricted basally; body black, with clypeus, mouth-parts, angles of pronotum, tegulæ, narrow lateral margin of abdomen, posterior margin of central segments, two terminal segments, venter of abdomen, and legs, yellowish ferruginous; apices of posterior tibiæ and their tarsi black. Length 6-7 mm.....**longicornis**

Head with orbits reddish; procidentia very broad, as broad as long, constricted at base; body black or brownish, with mouth-parts, pronotum, tegulæ, base of costa, legs except tips of posterior tibiæ and their tarsi, abdomen beneath, and more or less of the sides of the tergum, luteous; orbits, lateral lobes of mesonotum, and basal edges of scutellum, more or less rufous. Length 6 mm.**ribesi**

36. Pectus black 37
Pectus and venter of abdomen pale..... 43
37. Abdomen with the venter black..... 38
Abdomen with the venter pale..... 42

38. Legs pale except tips of posterior tibiæ and their tarsi..... 39

Legs entirely pale; clypeus broadly emarginate, almost truncate; frontal crest very large, strongly angled anteriorly; ocellar basin with lateral walls tapering rapidly posteriorly; median fovea narrow, breaking slightly through the frontal crest; third antennal segment slightly shorter than fourth or fifth; procidentia short, not very broad, rounded at apex; body black, with clypeus, mouth-parts, extending to eyes, narrow line on venter of abdomen including hypopygium, and legs, ferruginous yellow; coxæ black at base. Length 5.5 mm.....**dubia**

39. Clypeus distinctly emarginate; procidentia minute 40

Clypeus nearly truncate; procidentia long and projecting, keeled; body colored as in female, except that the abdomen is wholly black, and the legs yellowish except tip of posterior femora and apical half of posterior tibiæ. Length 5.5 mm.

dyari

40. Stigma rather elongate and acuminate; extreme tips of hind tibiæ brown 41^I
 Stigma short and robust; apical half of hind tibiæ infuscated; clypeus shallowly but distinctly emarginate; ridges around ocellar basin rounded but distinct; procidentia narrow, short, and blunt; body black, with clypeus, labrum, palpi, tegulæ, and legs except coxæ and posterior tibiæ and tarsi, yellowish ferruginous. Length 5.5 mm.**lombardæ**
41. Abdomen with venter black; hind wings with free part of R_4 and transverse part of M_2 interstitial; procidentia short, narrow, slightly constricted basally, truncate at apex; other characters as in female. Length 6 mm.**harringtoni**
 Abdomen with venter pale; hind wings with free part of R_4 and the transverse part of M_2 not interstitial; procidentia short, narrow, truncate at apex; other characters as in female except that dorsum of abdomen is entirely black and venter infuscated. Length 6 mm.**fylesi**
42. Abdomen entirely black on dorsum; upper half of pleuræ pale; procidentia apparently nearly wanting; other characters as in female. Length 4.5 mm.**thoracica**
 Abdomen with a transverse reddish band on segments two and three of dorsum and venter; procidentia as long as broad, narrow, tapering, squarely truncate, or slightly emarginate at apex, constricted at base; other characters as in female, except that inner orbits are black, legs dark reddish yellow, bases of all dorsal abdominal segments dark, especially the terminal ones, and hind tibiæ slightly infuscated. Length 7 mm.**ventralis**
43. Stigma and costa brown..... 44
 Stigma and costa yellowish hyaline..... 45
44. Head nearly spherical in outline when viewed laterally; clypeus narrowly and deeply excavated; procidentia short, narrow, rounded at apex. Length 5 mm.**odorata**
 Head triangular in outline when viewed laterally; clypeus rather broadly excavated; procidentia short, narrow, projecting about its own width. Length 5 mm.**cornelli**
45. Procidentia narrow, nearly twice as long as wide, slightly notched at tip; other structural characters as in female. Length 4 mm.**vertebrata**
 Procidentia narrow, projecting, squarely truncate at apex, about as wide as long; other structural characters as in female. Length 4.5-5 mm.**mendica**

°**P. lata** (Marlatt). *Pteronus latus* Marlatt.

P. limbata (Cresson). *Nematus limbatus* Cresson.

Pteronus limbatus Cresson. Larva feeds on willow. Fairfield, 1 August, 1904 (B. H. W.).

°*P. latifasciata* (Cresson). *Nematus latifasciatus* Cresson. *Pteronus latifasciatus* Cresson. Larva feeds on birch.

P. ventralis (Say). *Nematus ventralis* Say. *Pteronus ventralis* Say. Howard, Insect Book, Pl. xii, Fig. 9. Larva feeds on willow and poplar. Pl. i, Fig. 3. Farmington (E. N.); New Haven.

°*P. marlattii* (Dyar). *Nematus marlattii* Dyar. *Pteronus marlattii* Dyar. Larva feeds on alder.

°*P. harringtoni* (Marlatt). *Pteronus harringtoni* Marlatt.

°*P. fylesi* (Marlatt). *Pteronus fylesi* Marlatt.

°*P. tricolor* (Marlatt). *Pteronus tricolor* Marlatt.

°*P. rufocincta* (Harrington). *Nematus rufocinctus* Harrington. *Pteronus rufocinctus* Harrington.

°*P. dyari* (Marlatt). *Pteronus dyari* Marlatt. Larva feeds on alder.

°*P. erythrogastra* (Norton). *Nematus erythrogaster* Norton.

P. corylus (Cresson). *Nematus corylus* Cresson. *Pteronus corylus* Cresson. *Pteronus erythrogaster* Norton. Howard, Insect Book, Pl. xiv, Fig. 32. Larva feeds on *Corylus*.

°*P. fulvicrus* (Provancher). *Nematus fulvicrus* Provancher. *Pteronus fulvicrus* Provancher. *Nematus salicis* Ashmead. Larva feeds on willow.

P. populi (Marlatt). *Pteronus populi* Marlatt. Larva feeds on poplar. New Haven, 20 July, 1911 (A. B. C.).

°*P. hudsonii* (Dyar). *Nematus hudsonii magnus* Dyar. *Pteronus hudsonii* Dyar. Larva feeds on poplar.

°*P. antennata* Marlatt. *Pteronus antennatus* Marlatt.

P. ribesi (Scopoli). *Nematus ribesi* Scopoli. *Pteronus ribesi* Scopoli. *Nematus ventricosus* of many authors. Imported or Common Currant Worm. Common throughout the state on wild and cultivated currants and gooseberries. New Haven (A. E. V., W. E. B., H. L. V., B. H. W.).

°*P. carpini* (Marlatt). *Pteronus carpini* Marlatt. Larva feeds on ironwood.

FIG. 3. *Pteronidea ribesi*. Eggs. Twice natural size. FIG. 4. *Pteronidea ribesi*. Partially grown larvæ. Twice natural size. FIG. 5. *Pteronidea ribesi*. Fully grown larva. Natural size. 1 FIG. 6. *Pteronidea ribesi*. Cocoons. Natural size. FIG. 7. *Pteronidea ribesi*. Adult female. About twice natural size.

°*P. militaris* (Cresson). *Nematus militaris* Cresson. *Pteronius militaris* Cresson.

P. thoracica (Harrington). *Nematus thoracicus* Harrington. *Pteronius thoracicus* Harrington. Larva feeds on shad-bush. Hamden, 28 May, 1911 (B. H. W.).

°*P. ostryæ* (Marlatt). *Pteronus ostryæ* Marlatt.

°*P. odorata* (Dyar). *Nematus salicis odoratus* Dyar. *Pteronus odoratus* Dyar. Larva feeds on willow.

°*P. cornelli* (Marlatt). *Pteronus cornelli* Marlatt.

P. trilineata (Norton). *Nematus trilineatus* Norton. *Pteronus trilineatus* Norton. *Nematus similis* Norton. *Nematus robinia* Forbes. Howard, Insect Book, Pl. xiv, Fig. 28. Larva feeds on locust. Farmington (E. N.); New Haven, 22 May, 1908 (B. H. W.).

°*P. magna* (Marlatt). *Pteronus magnus* Marlatt.

°*P. quercus* (Marlatt). *Pteronus quercus* Marlatt. Larva feeds on white oak.

°*P. hyalina* (Marlatt). *Pteronus hyalinus* Marlatt. Larva feeds on white birch.

°*P. vertebrata* (Say). *Nematus vertebratus* Say. *Pteronus vertebratus* Say. *Nematus dorsivittatus* Cresson. Larva feeds on willow and poplar.

P. integra (Say). *Nematus integer* Say. *Pteronus integer* Say. Larva feeds on black oak. Connecticut (E. N.); New Haven.

°*P. monochroma* (Norton). *Nematus monochromus* Norton.

°*P. stigmata* (Norton). *Nematus stigmatus* Norton.

P. mendica (Walsh). *Nematus mendicus* Walsh. *Pteronus mendicus* Walsh. *Nematus trivittatus* Norton. Larva feeds on willow. New Haven, 4 May, 1904, 19 April, 1910 (H. L. V., VanDuzee, B. H. W.); Wallingford, 14 June, 1911 (J. K. Lewis).

°*P. pinguidorsum* (Dyar). *Nematus pinguidorsum* Dyar. *Pteronus pinguidorsum* Dyar. Larva feeds on birch.

°*P. longicornis* (Marlatt). *Pteronus longicornis* Marlatt.

°*P. dubia* (Marlatt). *Pteronus dubius* Marlatt.

°*P. lombardæ* (Marlatt). *Pteronus lombardæ* Marlatt. Larva feeds on Lombardy poplar.

Pontania Costa.*Key to Species.*

1. Head, including orbits, black..... 2
 Head with orbits resinous or ferruginous..... 5
2. Thorax with collar and tegulæ black; body black, with trochanters, apical half of femora, tibiæ, and tarsi, pallid; clypeus nearly truncate; antennæ with third segment distinctly shorter than fourth; saw-guides slender, tapering, rounded at tip. Length 4 mm..... **atra**
 Thorax with tegulæ and collar narrowly pale..... 3
3. Clypeus very slightly concave, almost truncate; body black, with tip of the clypeus, labrum, mouth-parts, extreme angles of pronotum, tegulæ, and legs except bases of coxæ, yellow; antennæ with third and fourth segments subequal; saw-guides elongate, narrow, tapering regularly to tip. Length 4 mm. **hyalina**
 Clypeus emarginate 4
4. Head smooth, not coarsely punctate; body black, with apex of clypeus, other mouth-parts, angles of pronotum, tegulæ, and legs for the most part, yellow; antennæ with third segment slightly longer than fourth; saw-guides narrow, regularly tapering or slightly emarginate on lower edge. Length 4 mm. **terminalis**
 Head roughened and coarsely punctate; body black, with clypeus, mouth-parts, angles of pronotum, tegulæ, hypopygium, and legs except bases of coxæ, yellowish ferruginous; antennæ with segments three and four subequal; hypopygium narrow, rounded at tip. Length 4 mm. **rugulosa**
5. Head with the frontal crest obsolete..... 6
 Head with the frontal crest present 7
6. Claws coarsely notched; body resinous yellow, with antennæ above, quadrate spot on vertex, quadrate spot on mesonotum, line down center and tip of scutellum, and dorsum of abdomen except the lateral margin, brownish black; antennæ with the third segment a little shorter than the fourth; saw-guides short, broad, rounded at tip, emarginate beneath. Length 4.5 mm **robusta**
 Claws very minutely cleft at extreme tip; body yellowish ferruginous, with antennæ, a large spot on head about the ocelli, occiput, mesonotum and metanotum, abdomen except narrow lateral margin, more or less of metaepisternum, and bases of posterior coxæ, black; procidentia not or scarcely projecting. Length 4.5 mm **placenta**
7. Head with frontal crest unbroken, not even slightly notched 8
 Head with frontal crest broken or notched..... 12

8. Body in great part black with pale markings..... 9
 Body in great part resinous with black markings..... 11
9. Antennæ with third segment longer than fourth; clypeus deeply emarginate, lobes somewhat pointed; ocellar basin sharply defined; saw-guides elongate, narrow, regularly tapering; body black, with apical half of clypeus, mouth-parts, angles of pronotum broadly, tegulæ, and legs for the most part, light yellow; venter of abdomen yellowish, strongly infuscated. Length 5 mm.populi
10. Surface of body shining, entirely without pubescence; ocellar basin distinctly defined, with rounded walls; frontal crest rather sharp and unbroken; median fovea oval and distinctly defined; saw-guides moderately broad, regularly round at tip; body black, with orbits and face brownish yellow; pronotum, tegulæ, legs for most part, and venter of abdomen, yellowish or resinous; apical half of abdomen of female above, yellow; procidentia not longer than wide. Length 4.5 mm.consors
- (Surface of the body clothed with minute yellowish hairs, especially evident on thorax; ridges of ocellar basin almost obsolete; frontal crest well developed; median fovea minute, oval; saw-guides narrow, elongate, regularly tapering or slightly excavated beneath, clothed with short black hairs; body black, with the inner orbits narrowly, and the cheeks, resinous, strongly infuscated; supraclypeal area, mouth-parts, pronotum, tegulæ, legs in great part, and central area of venter of abdomen, resinous infuscated. Length 4 mm.borealis
11. Stigma broad, rounded on lower margin; body resinous, with base of antennæ, space about ocelli, stripe on each lobe of mesonotum, apex of scutellum, metanotum, dorsal segments of abdomen except the last, extending over sides, large spot on pectus, and saw-guides, brownish black; clypeus broadly and shallowly emarginate; ocellar basin sharply and distinctly defined; antennæ with third segment a little shorter than fourth; saw-guides stout and broad basally, slightly emarginate on lower apical edge, tip obtusely rounded. Length 5 mm.pectoralis
- Stigma narrow, acuminate; body resinous, with antennæ, spot on head back of ocelli extending over occiput, center of lobes of mesonotum, apical half of scutellum, meta-thorax, basal plates, more or less of abdomen basally and centrally to apex, and saw-guides, black; clypeus shallowly, somewhat angularly notched; ocellar basin with its walls low; antennæ with segments three and four subequal; saw-guides broad, slightly concave on upper margin, and

- decidedly produced at tip, which is obtusely pointed, with a rather dense tuft of hairs. Length 5.5 mm. *acuminata*
12. Dorsum of thorax and abdomen in great part black. 13
Dorsum of thorax and abdomen in great part ferruginous.. 16
13. Pale color of inner orbits interrupted; body black, with face below antennæ, posterior and upper orbits, most of pronotum, tegulæ, legs except extreme bases of posterior coxæ and extreme bases of posterior tibiæ, whitish or resinous; clypeus circularly emarginate; ocellar basin distinctly defined; saw-guides broad, strongly acuminate at tip. Length 4 mm. *nigrita*
- Pale color of inner orbits not interrupted. 14
14. Antennæ entirely black; body black, with orbits, face beneath antennæ, pronotum, tegulæ, legs, and venter of abdomen, reddish yellow; head much narrower than thorax; clypeus distinctly circularly emarginate; ocellar basin with ridges rounded and subobsolete; saw-guides elongate, narrow, and tapering. Length 4 mm. *gracilis*
- Antennæ, at least in part, pale beneath. 15
15. Vertex roughened; body in female black, with the face below the antennæ, orbits, mouth-parts, angles of pronotum, tegulæ, and legs except extreme bases of coxæ, ferruginous; clypeus circular and moderately broadly notched with small lobes; ocellar basin distinctly defined; frontal crest strongly developed and very slightly broken by median fovea; saw-guides rather broad, acuminate, not very sharply pointed, hairs rather long and abundant; male differs mainly in having a greater extent of ferruginous. Length 5 mm. *pallicornis*
- Vertex not roughened; body in female black, with orbits, face below including frontal crest, most of pronotum, tegulæ, legs, extreme bases of posterior coxæ, more or less of central portion of venter of abdomen, including terminal segments, and terminal dorsal segments with the cerci, ferruginous; clypeus rather deeply and angularly notched, lobes triangular; ocellar basin distinctly limited, lateral ridges not very sharply raised; frontal crest prominent, slightly notched at center; saw-guides broad, very slightly emarginate beneath, rounded above, apex rounded; male differs in having antennæ beneath and frontal crest fulvous. Length 4 mm. *pisum*
16. Head with ridges about ocellar basin rounded, subobsolete; clypeus rather deeply but angularly emarginate, lobes triangular, rounded; frontal crest broad, rounded, slightly notched; body in female ferruginous, with antennæ except beneath, quadrate spot including ocelli, stripe on center of mesonotum sometimes wanting, spot on either side of scutellum, metathorax in part, basal plates, narrow basal margin of dorsal

segments indistinct toward tip, and saw-guides, black; saw-guides broad and robust, scarcely tapering, rounded at tip; male differs in having more of black on head, thorax for the most part, and dorsum of abdomen, black. Length 4-5.5 mm. **pomum**

Head in female with ridges about ocellar basin well defined and thick; clypeus deeply and narrowly emarginate, lobes rounded; head and thorax strongly punctate; frontal crest large, slightly notched; body ferruginous, with antennæ, large spot including ocelli, stripe on anterior lobe of mesonotum, stripe in front of scutellum, most of metanotum, and dorsum of abdomen except at sides and at apex, brownish black. Male differs in having ocellar basin less distinctly defined. Length 4-5 mm. **desmodioides**

°*P. atra* Marlatt.

P. hyalina (Norton). *Messa hyalina* Norton. Larva makes galls on *Salix fragilis*. New Haven, 19 April, 1910 (B. H. W.).

P. terminalis Marlatt. Larva makes galls on smooth-leaved willow.

°*P. rugulosa* Marlatt.

°*P. robusta* Marlatt. Larva folds the leaves of *Populus tremuloides*.

°*P. placenta* Norton. *Nematus placenta* Norton.

°*P. populi* Marlatt. Larva folds the leaves of *Populus grandidentata*.

°*P. consors* Marlatt. Larva makes galls on *Salix sericea*.

°*P. borealis* Marlatt. Larva makes galls on *Salix sericea*.

°*P. pectoralis* Marlatt.

°*P. acuminata* Marlatt.

°*P. nigrita* Marlatt.

°*P. gracilis* Marlatt. Larva makes galls on *Salix petiolata*.

°*P. pallicornis* (Norton). *Nematus pallicornis* Norton. Larva feeds on willow.

P. pisum (Walsh). *Nematus pisum* Walsh. Larva makes galls on *Salix discolor*. New Haven, 20 May, 1911 (A. B. C.).

°*P. pomum* (Walsh). *Nematus pomum* Walsh. *Nematus hospes* Walsh. Larva makes galls on *Salix cordata* and *discolor*.

P. desmodioides Walsh. *Nematus desmodioides* Walsh.
Larva makes galls on *Salix humilis*. New Canaan, 17 September, 1915 (B. H. W.).

Euura Newman.

Key to Species.

1. Frontal crest distinct 2
Frontal crest indefinite and apparently wanting; body black, with the head except a quadrangular spot about the ocelli and extending to the eyes, prothorax, margins of lobes of mesonotum narrowly, upper half of pleuræ, tegulæ, legs, abdomen except above at base, and saw-guides except at apex, resinous; median fovea a minute elongate pit; saw-guides large, upper and lower margins slightly converging, and broadly rounded at apex. Length 7 mm. **maculata**
2. Frontal crest unbroken at middle..... 3
Frontal crest notched or broken at middle..... 5
3. Orbits rufous 4
Orbits wholly black; body black, with antennæ, except at base, rufous; tegulæ and legs beyond basal third of femora, yellowish rufous; median fovea distinct, round, pit-like; clypeus deeply, narrowly, angularly emarginate; saw-guides narrow and converging on both margins to a bluntly rounded apex. Length 6 mm. **salicicola**
4. Median fovea circular, shallow; body black, with head except a round patch about ocelli, prothorax, legs, venter, and apex of abdomen more or less, rufous; clypeus shallowly, roundly emarginate; saw-guides straight above, and broadly convexly rounded to a blunt point at apex above. Length 7 mm. **orbitalis**
Median fovea deep, pit-like, longer than broad; body in female black, with head except a square spot about ocelli and occiput, prothorax, tegulæ, legs, and abdomen except some of the basal dorsal abdominal segments, rufous; clypeus broadly, deeply rounded; saw-guides with two margins converging toward apex, the lower margin strongly oblique, bluntly pointed at apex; apex of saw-guides covered with a dense scopa; male differs in having more black on head and abdomen. Length 7 mm. **ovum**
5. Orbits, at least in part, pale..... 6
Orbits wholly black; body black, with legs beyond middle of femora, rufous; median fovea shallow, broad, indefinite; frontal crest broken by a very narrow furrow; saw-guides with the two margins gradually converging to a bluntly rounded point at apex. Length 6 mm. **nigra**
6. Median fovea indefinite, represented only by a shallow depression in frontal crest; body black, with head except

a spot around ocelli and occiput, pronotum, tegulæ, legs, and venter of abdomen, luteous; saw-guides straight above and broadly convexly truncated from the base to a point above at apex. Length 4 mm.minuta

Median fovea distinct, circular in outline, deep, and longer than broad; body in female black, with head except a spot around ocelli and occiput, prothorax, tegulæ, legs beyond middle of coxæ, and abdomen except more or less at base, rufous; clypeus broadly, shallowly, roundly emarginate; saw-guides straight on upper margins, convex on lower, and obliquely convexly truncated at apex; male differs in having body almost entirely black. Length 6 mm.nodus

°E. maculata MacGillivray.

E. salicicola Smith. Larva makes galls on stems of *Salix alba*. New Haven, 19 April, 1910 (B. H. W.).

*E. orbitalis Norton. Larva makes galls on stems of *Salix humilis*. Connecticut (E. N.) ; New Haven, 1, 8 June, 1911 (A. B. C.).

°E. ovum Walsh. Larva makes galls on stems of *Salix cordata*.

°E. nigra Provancher. Larva makes a witch's broom on *Salix*.

°E. minuta MacGillivray.

°E. nodus Walsh. Larva makes galls on stems of *Salix longifolia*.

BLENNOCAMPINÆ.

Key to Genera.

- 1. Genæ broad and distinct, the eyes being distant from the base of the mandibles 2
Genæ narrow and indistinct, hardly more than a line beneath the eyes 9
- 2. Claws simple, without a tooth..... 3
Claws always with a tooth, the tooth sometimes small..... 4
- 3. Antennæ with third segment always distinctly longer than fourthPareophora p. 143
Antennæ with third segment subequal in length to fourth
Neopareophora p. 144
- 4. Claws with a small tooth within before the apex..... 5
Claws cleft at apex, inner tooth nearly as long as outer.. 7
- 5. Mesothoracic episternum with a transverse suture near its cephalic margin separating off a presternum
Neotomostethus p. 144

- Mesothoracic episternum without a transverse suture near its cephalic margin 6
6. Antennæ with third segment distinctly longer than fourth..... **Ardis**
 Antennæ with third segment subequal to or shorter than fourth **Rhadinoceræa** p. 144
7. Antennæ with third segment subequal in length to fourth..... **Hypargyricus** p. 144
 Antennæ with third segment always distinctly longer than fourth 8
8. Hind wings of female with first anal cell never constricted or petiolated at apex **Isodyctium** p. 145
 Hind wings of female with first anal cell always distinctly constricted and petiolated at apex **Periclista** p. 146
9. Mesothoracic episternum with a transverse suture near its cephalic margin, separating off a presternum **Tomostethus** p. 148
 Mesothoracic episternum not with a transverse suture near its cephalic margin 10
10. Claws simple, without a tooth **Monopadnus** p. 148
 Claws always with a tooth, the tooth sometimes small..... 11
11. Claws with one or more teeth within before the apex..... 12
 Claws cleft at apex..... 13
12. Claws with an erect tooth at middle **Paracharactus** p. 150
 Claws with two erect teeth at middle **Neocharactus**
13. Hind wings with transverse part of M_2 present 14
 Hind wings with transverse part of M_2 wanting 16
14. Antennæ with third segment subequal to or shorter than fourth **Phymatocera** p. 150
 Antennæ with third segment always longer than fourth..... 15
15. Front wings with radial cross-vein and free part of R_4 inclined at the same angle **Monopadnoides** p. 151
 Front wings with radial cross-vein and free part of R_4 inclined at different angles **Aphanisus** p. 153
16. Front wings with radial cross-vein and free part of R_4 inclined at same angle **Blennocampa** p. 154
 Front wings with radial cross-vein and free part of R_4 inclined at different angles **Erythraspides** p. 155

Pareophora Konow.

°*P. floridana* (Cresson). *Selandria floridana* Cresson.
Blennocampa floridana Cresson.

Body shining black, with the mandibles rufous at base, the tegulæ and collar white, and the legs beyond the coxæ luteous. more or less suffused with fuscous; wings infuscated, veins and stigma black. Length 5 mm.

Neopareophora MacGillivray.*Key to Species.*

1. Pleuræ rufous; body black, with labrum, mandibles, prothorax, tegulæ, mesopleuræ, side lobes of mesonotum, legs, venter and tip of abdomen, yellow or rufous; cerci elongate; saw-guides obliquely truncated at apex; wings hyaline. Length 4 mm.**martini**
Pleuræ black 2
2. Antennal furrows broad and distinct, interrupted on the middle of the front by a fine, transverse ridge; body black, with labrum, tegulæ, front legs below coxæ, middle and hind legs below knees, and wings more or less at base, white; cerci hardly exerted; saw-guides large, straight above, broadly convexly rounded to a blunt point at apex. Length 6 mm**nigra**
Antennal furrows broad and distinct, not interrupted at middle by a fine transverse furrow; body black, with labrum, mandibles for the most part, front legs, more or less infuscated at base and apex, and middle legs beyond apices of femora, rufous; cerci hardly projecting; saw-guides large and obliquely rounded to a point at apex; wings infuscated. Length 7 mm.**scelesta**

°**N. martini** MacGillivray.

°**N. nigra** (Harrington). *Phymatocera nigra* Harrington.

°**N. scelesta** MacGillivray.

Neotomostethus MacGillivray.

°**N. hyalinus** MacGillivray.

Body black, with the tegulæ and the legs below the knees, except the apices of the posterior tibiæ and tarsi, white; median fovea broad and rounded; antennal furrow wanting on the front; wings hyaline. Length 6 mm.

Rhadinoceræa Konow.

°**R. similata** MacGillivray.

Body black; wings strongly infuscated; the postocellar area elevated; ocellar basin distinct; saw-guides rounded at apex to a blunt point above. Length 8 mm.

Hypargyricus MacGillivray.

°**H. infuscatus** MacGillivray.

Postocellar area strongly elevated; saw-guides straight on upper and lower margins and rounded to a blunt point at middle

of apex; body black; front femora and tibiæ more or less white in front, suffused with black; wings infuscated. Length 8 mm.

**H. fumipennis* (Norton). *Selandria* (*Phymatocera*) *fumipennis* Norton. Howard, Insect Book, Pl. xiv, Fig. 13.

Postocellar area hardly elevated above the posterior orbits; saw-guides straight above and convex below, rounded to a blunt point at apex above; body black; front femora and tibiæ more or less white in front, suffused with black; wings infuscated. Length 8 mm. Larva feeds on *Smilacina racemosa*.

Farmington (E. N.); Hamden, 24 July, 1910 (B. H. W.).

Isodyctium Ashmead

Key to Species.

1. Head wholly or in part pale..... 2
 Head wholly black 3
2. Body wholly yellow or rufous, with eyes and antennæ beyond first segment, black; wings, including veins and stigma, yellowish hyaline; postocellar area completely circumscribed; saw-guides concave above and below, prolonged into a narrow truncated projection above at apex. Length 6-7 mm. *dilutum*
 Body black, with orbits connected across postocellar area, antennal foveæ, first segment of antennæ in part, supraclypeal area in part, clypeus, spot on mandibles, most of prothorax, tegulæ, median lobe of mesonotum with its lateral margins, a spot on scutellum, pleuræ in part, legs, and abdomen in great part, pale luteous; wings hyaline. Length 6 mm. *rileyi*
3. Ocellar basin subobsolete; body black, with clypeus, labrum, mandibles, tegulæ, prothorax, legs, and abdomen beyond basal plates, except a broad fuscous band through the middle of the dorsum, luteous; pleuræ, broad bands on lobes of mesonotum, and scutellum, rufous; saw-guides concave above, convex below, and prolonged above into a marked spine-like projection at apex; wings hyaline. Length 7 mm. .. *caryicola*
 Ocellar basin small, but distinct..... 4
4. Clypeus scarcely emarginate; body black, with a spot on supraclypeal area, clypeus, broad bands on lobes of mesonotum, pleuræ, legs, and abdomen, except blackish bands of varying extent on each of the segments, rufous; wings hyaline. Length 6.5 mm. *infrequens*
 Clypeus distinctly, angularly emarginate 5
5. Pleuræ in great part black; body black, with clypeus, labrum, spot on mandibles, collar narrowly, tegulæ, a narrow line

on posterior margin of mesopleuræ, a line on the posterior margin of the abdominal segments, broadest on the venter, and the legs, brownish white; a band on posterior margin of each lobe of mesonotum, the scutellum, and the median tergal abdominal segments more or less, rufous; saw-guides concave above, and convex below, broadly rounded at apex to a point above; wings hyaline. Length 6 mm.**atratum**

Pleuræ rufous; body black, with clypeus, labrum, mandibles in great part, collar broadly, tegulæ, legs, and abdomen beyond basal plates in great part, luteous, sometimes suffused with rufous; lobes of mesonotum except a black spot on center of each, scutellum, and pleuræ, rufous; saw-guides slightly concave above, and convexly rounded from the base to a point at apex above; wings hyaline. Length 6 mm.**murtfeldtiæ**

°**I. dilutum** (Cresson). *Monophadnus dilutus* Cresson. Larva feeds on *Quercus alba* and *Quercus prinus*.

°**I. rileyi** (Cresson). *Selandria rileyi* Cresson. *Monophadnus rileyi* Cresson.

°**I. caryicola** Dyar. Larva feeds on pig-nut hickory.

°**I. infrequens** Dyar. Larva feeds on *Quercus alba*.

I. atratum MacGillivray. Southington, 27 April, 1911 (W. E. B.).

°**I. murtfeldtiæ** Dyar. Larva feeds on black oak.

Periclista Konow.

Key to Species.

1. Pleuræ more or less rufous..... 2
Pleuræ wholly black..... 4
2. Fourth segment of antennæ distinctly longer than fifth; front finely punctate 3
Fourth segment of antennæ equal to fifth; front finely striated; saw-guides with their upper margins straight, their lower margins convex at base, concave and constricted into a blunt point at apex; body black, with clypeus, labrum, collar broadly, tegulæ, legs, metapleuræ, venter of abdomen, and greater part of tergum except a band at center, luteous or white; pleuræ, a broad band on apex of each lobe of mesonotum, and scutellum, rufous; wings hyaline. Length 7 mm.**purpuridorsum**
3. Ocellar basin uniformly concave; ocellar furrow distinct; body black, with clypeus, labrum, collar broadly, tegulæ,

legs, upper half of pleuræ, mesonotum except black spot at middle, metanotum, scutellum, and abdomen, fulvous; mesonotum and mesopleuræ tending to rufous; wings hyaline. Length 7 mm.**marginicollis**

Ocellar basin flat and distinct; ocellar furrow wanting; saw-guides with their upper margins slightly concave above, and with the lower margins convex, and drawn out to a sharp point above at apex; body black, with clypeus, labrum, collar broadly, tegulæ, legs beyond coxæ, and abdomen at sides above and for the most part beneath, luteous shading to brownish; median lobe of mesonotum for the most part, and pleuræ, brown; wings hyaline. Length 5 mm.**confusa**

4. Clypeus, if emarginate, not angularly emarginate 5

Clypeus angularly emarginate; body black, with labrum, collar narrowly, tegulæ, legs, and tergum of abdomen for the most part, white, more or less suffused with rufous and fuscous; wings hyaline. Length 7 mm.**emarginata**

5. Legs with femora more or less black..... 6

Legs wholly pale beyond coxæ; body black, with collar narrowly, tegulæ, and legs beyond knees, luteous; femora rufous; ocellar basin distinct; postocellar area twice as broad as long; wings hyaline. Length 6 mm.**media**

6. Interocellar furrow not extending onto postocellar area; body black, with collar narrowly, and tegulæ, white; knees and tibiæ luteous; tarsi fuscous; wings hyaline. Length 5.5 mm.

chionanthi

Interocellar furrow extending onto postocellar area; body black, with collar narrowly, and tegulæ, white; legs beyond middle of femora, brown; tarsi more or less dusky; wings hyaline. Length 5.5 mm.**subtruncata**

°**P. purpuridorsum** Dyar. Howard, Insect Book, Pl. xiv, Fig. 10. Larva feeds on *Quercus alba*.

°**P. marginicollis** (Norton). *Selandria marginicollis* Norton. *Monophadnus marginicollis* Norton.

°**P. confusa** MacGillivray. Larva feeds on *Quercus obtusiloba*.

°**P. emarginata** MacGillivray. *Mogerus emarginatus* MacGillivray. Larva feeds on *Quercus coccinea*.

°**P. media** (Norton). *Selandria media* Norton. *Monophadnus media* Norton. Larva feeds on *Quercus alba*.

°**P. chionanthi** Dyar. Larva feeds on *Chionanthus*.

°**P. subtruncata** Dyar. Larva feeds on *Quercus coccinea*.

Tomostethus Konow.*Key to Species.*

1. Mesonotum and pleuræ rufous..... 2
 Mesonotum and pleuræ black; body black, with labrum, a fine line on collar, tegulæ, front legs below middle of femora, and middle and hind legs beyond knees, white; saw-guides concave above, and broadly convex below, obliquely truncately rounded to a point at apex above; wings hyaline. Length 6 mm.**nortonii**
2. Front with large transverse lateral foveæ; body in female black, with prothorax, mesonotum, mesopleuræ, scutellum, and mesonotum, rufous; wings infuscated; saw-guides broadly obliquely rounded at apex; male sometimes has the entire mesonotum black. Length 5-8 mm.**bardus**
 Front not with large transverse lateral foveæ; body black, with prothorax, upper half of mesopleuræ, lobes of mesonotum, front legs below knees, and knees of middle and hind pair, luteous or rufous; head with a depressed, roughened, shield-shaped area below and including the median ocellus; wings hyaline; saw-guides obliquely pointed to apex above. Length 7 mm.**inhabilis**

°T. nortonii MacGillivray.

T. bardus (Say). *Allantus bardus* Say. *Selandria barda* Say. *Monophadnus bardus* Say. Pl. i, Fig. 4. Howard, Insect Book, Pl. xii, Figs. 13 and 15. Larva feeds on ash. New Haven, 1904 (B. H. W.).

T. inhabilis (Norton). *Selandria inhabilis* Harris. *Blenno-campa inhabilis* Norton. Larva feeds on pear. New Haven, 15 May, 1905, Milldale, 21 May, 1906, Yalesville, 26 May, 1908 (B. H. W.); Watertown, 26 May, 1911 (W. E. B.); Orange, 21 May, 1911 (A. B. C.).

Monophadnus Hartig.*Key to Species.*

1. Antennal furrow interrupted on middle of front..... 2
 Antennal furrow continuous and distinct from clypeus to occiput; body black, with labrum, tegulæ, and legs below knees, white; scutellum coarsely punctate behind at sides; scutellar appendage flat and impunctate; ocellar basin distinct. Length 7 mm.**distinctus**
2. Front with deep, broad lateral foveæ, not connected with antennal foveæ; body black, with tegulæ, corners of pro-

- thorax somewhat, and legs below knees, white; scutellum with a few scattered coarse punctures behind; scutellar appendage flat and impunctate; median fovea continuous with ocellar basin. Length 5 mm. **minutus**
- Front not with a large puncture on each side, sometimes with end of antennal furrow enlarged and punctiform 3
3. Mesonotum with median lobe more densely punctate than lateral lobes; body black, with tegulæ and legs below knees white; saw-guides straight above and below, and obliquely rounded to a blunt point at apex above; apex of scutellum finely densely punctate; scutellar appendage flat and punctate. Length 6 mm. **tiliæ**
- Mesonotum with the median lobe, if punctate, uniformly punctate with the lateral lobes 4
4. Scutellar appendage flat and not carinate at middle 5
- Scutellar appendage longitudinally carinate at middle 6
5. Area in front of median ocellus smooth; body black, with legs below trochanters more or less whitish, sometimes strongly infuscated; wings infuscated; head and thorax impunctate; saw-guides with sides straight and obliquely rounded at apex. Length 6 mm. **nubilipennis**
- Area in front of median ocellus always more or less roughened; body black, with tegulæ and legs below knees, white; wings slightly infuscated; scutellum coarsely punctate at sides behind; saw-guides obliquely rounded to a blunt point at apex. Length 6 mm. **bipunctatus**
6. Scutellum and metathorax uniformly densely punctate; body black, with tegulæ, pronotum for the most part, front legs beyond bases of femora, and middle and hind legs beyond knees, white; front finely punctate; ocellar basin fairly distinct; saw-guides oblique at apex and pointed. Length 5.5 mm. **æqualis**
- Scutellum more densely punctate than metathorax..... 7
7. Head with V-shaped furrow behind the median ocellus distinct; body black, with tegulæ, margin of pronotum more or less, and legs beyond knees, white; wings yellowish hyaline; saw-guides with two edges parallel and obliquely truncate at apex. Length 6.5 mm. **plicatus**
- Head with V-shaped furrow behind the median ocellus indefinite, almost obliterated; body black, with labrum, tegulæ, pronotum entirely, legs beyond knees, and a narrow margin at apex of each tergal and ventral segment, white; wings yellowish hyaline; saw-guides with two sides parallel, squarely truncated at apex, with lower corner rounded. Length 6 mm. **transversus**

°*M. distinctus* MacGillivray.

°*M. minutus* MacGillivray.

**M. tiliæ* Norton. *Selandria tiliæ* Norton. Larva feeds on linden. Farmington (E. N.).

°*M. nubilipennis* Norton. *Selandria nubilipennis* Norton.

M. bipunctatus MacGillivray. Stonington, 16 May, 1906 (B. H. W.).

°*M. æqualis* MacGillivray.

°*M. plicatus* MacGillivray.

°*M. transversus* MacGillivray.

Paracharactus MacGillivray.

**P. rudis* (Norton). *Selandria rudis* Norton. *Phymatocera rudis* Norton.

Mesonotum wholly rufous; body black, with the labrum white, and the prothorax, mesonotum, and the metanotum in part, rufous; front legs below the knees, and the knees of the middle pair, white, more or less infuscated; ocellar basin distinct; median fovea broader than long. Length 6 mm.

Connecticut (E. N.).

°*P. obscuratus* MacGillivray.

Mesonotum black, except a small infuscated spot near the bases of the wings; body black, with the tip of the clypeus, the labrum, the supraclypeal area, the angles of the prothorax, the posterior third of the mesopleuræ, and the front and middle legs below the knees, yellow or rufous; ocellar basin indistinct. Length 5 mm.

Phymatocera Dahlbom.

P. rufula Norton. *Selandria rufula* Norton.

Body black, with the clypeus, labrum, and mandibles, rufous, shading onto the front adjacent to the antennal sockets and the proximal segments of the antennæ; tip of the anterior femora longer beneath, rufous shaded with fuscous; head polished; the antennal foveæ wanting below the lateral ocelli, replaced by a sharp ridge extending to the antennal sockets; the antennal sockets deeply and broadly notched above; the area between the ridges concave, polished around the median ocel-

lus, angularly interrupted between the antennal sockets; the supraclypeal area depressed; antennæ with the third, fourth and fifth segments subequal; the saw-guides concave above, and broadly convexly rounded below and at apex to a point above. Length 5.5 mm.

New Haven, 28 July, 1911 (A. B. C.); Farmington (E. N.).

Monophadnoides Ashmead.

Key to Species.

1. Abdomen with dorsal surface rufous 2
 Abdomen with dorsal surface black..... 4
2. Front with a depression around the median ocellus more or less distinct but not V-shaped; body black, with tegulæ, corners of pronotum, and legs beyond bases of femora, luteous; abdomen with greater part of tergal segments two to five rufous; front with lateral fovea; scutellum punctate at apex; saw-guides broad, straight above, broadly convex below, oblique at apex. Length 5.5 mm.**rubi**
 Front with a V-shaped furrow behind the median ocellus 3
3. Front with a triradiate depression in front of the median ocellus; antennæ with third segment shorter than the fourth and fifth together; body black, with tegulæ, pronotum, front legs beyond trochanters, and middle and hind legs beyond middle of femora, luteous; abdominal segments one to five, yellowish rufous; front with lateral fovea; saw-guides of moderate width, straight above and below, obliquely rounded to a point above at apex. Length 6.5 mm.**conspicuous**
 Front with a deep, semicircular depression in front of the median ocellus; body black, with angles of pronotum, tegulæ, and legs below knees, white; third segment of antennæ shorter than fourth and fifth together; head smooth and polished; saw-guides straight above and below, obliquely convexly rounded at apex. Length 6 mm.**concessus**
4. Front with lateral foveæ..... 5
 Front not with lateral foveæ; if indicated, the puncture broad and shallow 10
5. Scutellum wholly smooth..... 6
 Scutellum punctate or striate at apex..... 8
6. Antennæ with second segment broader than long..... 7
 Antennæ with second segment longer than broad; body black, with collar narrowly, tegulæ, and legs below knees, white; pentagonal area wanting; saw-guides straight above, convex below, and obliquely, emarginately truncated at apex. Length 5 mm.**conspiculatus**

7. Ocellar furrow narrow, deep, and distinct; body black, with angles of pronotum, tegulæ, and legs below knees, white; pentagonal area flattened, walls flat and practically wanting; third segment of antennæ not as long as fourth and fifth together; saw-guides straight above, convex below, broadly obliquely rounded to a blunt point above at apex. Length 6 mm.consobrinus
- Ocellar furrow broad, shallow, and indistinct; body black, with tegulæ, and legs beyond knees, white, except that the tips of the tibiæ and the tarsi are more or less infuscated; pentagonal area wholly wanting; third segment of antennæ as long as fourth and fifth together; saw-guides convex above and below, obliquely truncated to a point above at apex. Length 5 mm.cordatus
8. Scutellum punctate at apex; front without a V-shaped furrow behind median ocellus; body black, with collar narrowly, tegulæ, and legs below knees, white; third segment of antennæ subequal in length to fourth and fifth together; pentagonal area wanting; saw-guides straight above and below, obliquely rounded to a blunt point at apex above. Length 6 mm.crassus
- Scutellum striate at apex..... 9
9. Front with a V-shaped furrow behind median ocellus; body black, with angles of pronotum, tegulæ, trochanters, and legs beyond knees, white; third segment of antennæ subequal in length to fourth and fifth together; pentagonal area wanting; saw-guides broad, straight above, strongly convexly rounded below to apex above. Length 5 mm. conspersus
- Front without a V-shaped furrow behind anterior ocellus; body black, with angles of pronotum, tegulæ, and legs below knees, white; third segment of antennæ shorter than fourth and fifth together; pentagonal area wanting; saw-guides straight above and below, oblique at apex, drawn out into a long point above. Length 6 mm.costatus
10. Scutellum smooth, or at most extremely finely rugose; body black, with angles of pronotum narrowly, tegulæ, and legs beyond knees, white; antennæ with third segment distinctly shorter than fourth and fifth together; pentagonal area and V-shaped furrow behind median ocellus wanting. Length 6 mm.coracinus
- Scutellum distinctly punctate at sides; body black, with angles of pronotum broadly, tegulæ, apices of coxæ and trochanters more or less, and legs beyond knees, white; antennæ with third segment shorter than fourth and fifth together; pentagonal area indistinctly impressed; V-shaped furrow behind median ocellus distinct; saw-guides broad, convex

above and below, broadly obliquely rounded to a blunt point at apex above. Length 6 mm.**collaris**

°**M. conspicuus** MacGillivray.

***M. rubi** (Harris). *Selandria* (*Hoplocampa*) *rubi* Harris
Monophadnus rubi Harris. Raspberry Saw-fly. Larva feeds on *Rubus*. Connecticut (E. N.); Branford, 8 May, 1905 (H. W. W.).

°**M. concessus** MacGillivray.

°**M. conspiculatus** MacGillivray.

M. consobrinus MacGillivray. New Haven, 28 April, 1905 (A. B. Recknagel), 30 May, 1910 (W. E. B.).

°**M. cordatus** MacGillivray.

°**M. crassus** MacGillivray.

°**M. conspersus** MacGillivray.

°**M. costatus** MacGillivray.

M. coracinus MacGillivray. New Haven, 22 June, 1907 (B. H. W.).

M. collaris MacGillivray. Stonington, 13 June, 1907 (B. H. W.).

Aphanisus MacGillivray.

Key to Species.

1. Front with a distinct pentagonal area..... 2
Front with pentagonal area entirely wanting..... 3
2. Pentagonal area with its lateral walls sharp and distinct; front smooth and polished; body black, with pronotum, tegulæ, legs, and a fine margin on apex of abdominal segments, white or luteous; wings somewhat infuscated; scutellum impunctate at sides; front without lateral foveæ; saw-guides broad, straight above, broadly convexly rounded from the base to a hooked point above. Length 5 mm.**lobatus**
Pentagonal area with its lateral walls low and indistinct; front finely rugose; body black, with collar, tegulæ, and legs below knees, white; femora more or less piceous; wings hyaline; scutellum punctate at sides; front without lateral foveæ; saw-guides straight above, convexly rounded below to a blunt point above. Length 5 mm.**muricatus**
3. Front with a V-shaped furrow behind median ocellus; body black, with collar, tegulæ, and legs below knees, white;

wings hyaline; scutellum punctate at sides; front with lateral foveæ connected with antennal foveæ; saw-guides straight above, convex below, and obliquely rounded to a point above. Length 5 mm.odoratus

Front without a V-shaped furrow behind median ocellus; body black, with collar, tegulæ, and legs beyond middle of femora, white; wings hyaline; scutellum roughened at sides; front with lateral foveæ not connected with antennal foveæ; saw-guides straight above and convexly rounded from the base to a blunt point above. Length 6 mm.nigritus

- °A. lobatus MacGillivray.
- °A. muricatus MacGillivray.

A. odoratus MacGillivray. New Haven, 15 May, 1905 (B. H. W.).

- °A. nigritus MacGillivray.

Blennocampa Hartig.

Key to Species.

- 1. Antennæ with third segment shorter than fourth and fifth together 2
Antennæ with third segment as long as or longer than fourth and fifth together 3
- 2. Antennæ with third segment a little longer than fourth; wings fuliginous; body black, with trochanters, front legs in front, and knees and tarsi more or less, pale luteous; tegulæ brown. Length 6 mm.carbonaria
- Antennæ with third segment one and one-half times as long as fourth; wings hyaline; body black, with legs beyond knees shading from piceous to luteous; tegulæ in part, white; head and thorax finely pubescent. Length 6.5 mm.spirææ
- 3. Front with a V-shaped furrow behind the median ocellus 4
Front without a V-shaped furrow; pentagonal area entirely wanting; body black, with tegulæ and legs below knees, white; tibiæ more or less infuscated; clypeus angularly emarginate. Length 5.5 mm.abnorma
- 4. Scutellum punctate or striate, at least in part..... 6
Scutellum smooth, not punctate or striate..... 5
- 5. Median fovea with a rounded papilla at center; hind wings with the cell R₁₊₂ rounded at apex, without a spur; body black, with tegulæ and legs below knees luteous; front tibiæ and tarsi more or less infuscated; saw-guides convex above and below and convexly truncated at apex. Length 6 mm.antennata

Median fovea flat, without a papilla at center, somewhat X-shaped; hind wings with cell R_{1+2} angulated at apex below, with a spur; body black, with tegulæ and legs below knees, except apices of tibiæ and greater part of tarsi, white; saw-guides strongly convex above and below and rounded to a point at apex. Length 6 mm. **aperta**

6. Scutellum punctate at sides. 7

Scutellum finely striate at sides; body black, with tegulæ and legs below knees, except apices of tibiæ and tarsi, white; median fovea an elongate furrow; saw-guides broad, straight above, convex below, obliquely truncated at apex. Length 6 mm. **angulata**

7. Median fovea with a large rounded papilla at center; body black, with tegulæ, and legs, except tips of middle and posterior tibiæ and tarsi, white; hind wings with cell R_{1+2} angular below at apex, without a spur; saw-guides straight above, and convexly obliquely rounded from base to apex below. Length 6 mm. **adusta**

Median fovea flat, without a papilla at center; body black, with tegulæ and legs below knees luteous; hind wings with cell R_{1+2} rounded at apex, without a spur; saw-guides broad, straight above and below, broadly convexly and somewhat obliquely rounded at apex. Length 6 mm. **acuminata**

° **B. carbonaria** (Cresson). *Selandria carbonaria* Cresson.

° **B. spirææ** Dyar. Larva feeds on *Spiræa salicifolia*.

° **B. abnorma** MacGillivray.

° **B. antennata** MacGillivray.

° **B. aperta** MacGillivray.

° **B. angulata** MacGillivray.

° **B. adusta** MacGillivray.

° **B. acuminata** MacGillivray.

Erythraspides Ashmead.

Key to Species.

1. Mesonotum rufous 2
 Mesonotum shining black; body black, with apices of coxæ, trochanters, and legs beyond knees, white; posterior tibiæ infuscated; pentagonal area and V-shaped furrow wanting; front without lateral foveæ; saw-guides straight above and below, broadly convexly rounded to a blunt apex; wings in female infuscated; male with wings clearer at apex. Length 5.5 mm. **parvus**

2. Lateral foveæ broken by antennal foveæ; body black, with prothorax, mesothorax, and scutellum except at apex, rufous; clypeus and legs for the most part, white; coxæ and tarsi somewhat infuscated; wings somewhat infuscated. Length 6 mm. **caryæ**

Lateral foveæ not broken by antennal foveæ; body black, with tip of clypeus, front and middle legs beyond coxæ, hind coxæ, and hind femora beneath, white; pronotum, mesonotum, and tegulæ, rufous; pentagonal area and V-shaped furrow wanting; front with a pit-like puncture on each side; saw-guides retracted. Length 7 mm. **pygmæus**

°**E. parvus** (Cresson). *Blennocampa parva* Cresson. Larva feeds on *Fuchsia*.

***E. caryæ** (Norton). *Monophadnus caryæ* Norton. *Selandria caryæ* Norton. Larva feeds on hickory. Farmington (E. N.).

E. pygmæus (Say). *Blennocampa pygmæa* Say. *Selandria vitis* Harris. Larva feeds on *Vitis*. Connecticut (E. N.).

FENUSINÆ.

Key to Genera.

1. Hind wings with second anal vein wanting, so that the first anal cell is open; base of third anal vein in front wings represented by a dark band **3**
- Hind wings with second anal vein present, so that the first anal cell is closed; base of third anal vein in front wings entirely wanting **2**
2. Front wings with the radio-medial cross-vein present **Profenusa** p. 156
- Front wings with the radio-medial cross-vein wanting .. **Messa** p. 157
3. Radial cross-vein ending in cell R_4 a considerable distance before free part of R_4 **Kaliofenusa** p. 157
- Radial cross-vein ending in cell R_3 a considerable distance beyond free part of R_4 **Fenusa** p. 157

Profenusa MacGillivray.

P. collaris MacGillivray.

Body in female black, with clypeus, labrum, malar space, mandibles, first segment of antennæ, tegulæ, a narrow margin to the pronotum, and legs for the most part, whitish; prothorax except parts named, cephalic part of mesopleuræ, and pectus, rufous; median fovea minute but distinct; vertical furrows

not reaching the occiput; clypeus truncate; saw-guides with dorsal and ventral margins converging, the apex bluntly pointed. Male differs in having rufous part of thorax inclined to whitish and extending over entire pleuræ, venter of abdomen, and a broad band on lateral part of dorsal aspect, broader behind, sometimes fused on meson, whitish. Length 3 to 4 mm. Larva mines leaves of *Cratægus* and *Prunus*.

Messa Leach.

°*M. ambigua* (Norton). *Fenusa ambigua* Norton.

Black, with the two basal segments of the antennæ, the prothorax entirely, the tegulæ, the legs entirely, the abdomen for the most part (sometimes infuscated at apex), white; antennæ with the second segment elongate, the first and second together subequal to the third in length, the third longer than the fourth; wings hyaline, hairy, the veins and stigma brownish; saw-guides straight above, rounded below and at apex to a point above. Length 3.5 mm.

Kaliofenusa MacGillivray.

°*K. ulmi* (Sundewall). *Kaliosysphinga ulmi* Sundewall.

Black, except legs beyond the knees, which are brownish; hypoclypeal area convex, abrupt in front; clypeal furrow prominent, not interrupted by the clypeal area; front elevated, with a broad, shallow median fovea, as broad as the area between the antennæ; antennal furrows extending from the tentorial invaginations almost to the occiput, deep and narrow as far as the anterior ocellus, separated from the occiput by a narrow wall; wings almost hyaline, infuscated along the veins. Length 3.5 mm. Larva mines leaves of the European and American elms.

Fenusa Leach.

°*F. dohrnii* (Tischbein). *Kaliosysphinga dohrnii* Tischbein.

Black, except legs beyond the knees, which are fuscous; head without a distinct furrow between the ocellar and postocellar areas; antennal furrow not expanded into a large pit opposite the middle of the front, and with two distinct tooth-like indentations on the median side; saw-guides with the

dorsal margin convex and obliquely rounded at apex, bluntly and roundly pointed above; third segment of the antennæ as long as the fourth and fifth together, the fourth and fifth subequal, the second broader than the fourth. Length 3 mm. Larva mines the leaves of the European alder.

SCOLIONEURINÆ.

Key to Genera.

1. Antennæ with second segment annular, broader than long; first and second segments together shorter than third.... 2
 Antennæ with second segment distinctly longer than broad; first and second segments together as long as or longer than third**Melanobates** p. 158
2. Eyes with their inner margins straight and parallel, not converging below; front distinctly wider than high
Polybates p. 158
 Eyes with their inner margins uniformly convex and converging below; front not as wide as high**Metallus** p. 159

Melanobates MacGillivray.

M. leucostomus Rohwer.

Body black, with the clypeus, labrum, basal half of the mandibles, angles of the pronotum, and tegulæ, white; legs below the knees brownish white; front around the base of the antennæ indistinctly punctate; median fovea large, circular, and not sharply defined; antennal furrows punctiform above the ocelli; third antennal segment longer than the fourth; the stigma rounded on the radial margin, broadest at the middle. Length 3 mm.

Polybates MacGillivray.

P. slossonæ MacGillivray.

Lateral foveæ united with the antennal foveæ; vertical furrows punctiform; ocellar furrow distinct, broadly concave behind; ocellar basin strongly convex, slightly depressed in front of the median ocellus; median fovea deep, punctiform; antennæ slender, the first and second segments together less than half the length of the third; wings hyaline, the veins, costa, and stigma brown; stigma over twice as long as wide, its hind margin uniformly convexly rounded; saw-guides straight above and below, converging to a bluntly rounded point at apex; body black, with all the legs entirely white. Length 3 mm.

P. secundus Rohwer.

Lateral foveæ distinctly separated from the antennal foveæ; ocellar furrow straight; median fovea small, circular, and well defined; postocellar area broader at the occiput; antennæ with the first segment slightly shorter than the second, the second and third equal; saw-guides like those of the preceding species; stigma about twice as long as its greatest width, broader and somewhat angled at base; body black, with the abdomen piceous and all the legs pale yellow; wings dusky, the veins dark brown. Length 3 mm.

Metallus Forbes.*Key to Species.*

1. Stigma three times as long as broad; front not punctate around base of antennæ; body shining black, with median and lateral lobes of mesonotum rufous; labrum, clypeus, mandibles, antennæ, angles of pronotum, tegulæ, anterior and middle legs below bases of coxæ, and trochanters, tibiæ, and tarsi of hind legs, orange white; antennæ with third segment not as long as fourth and fifth together; saw-guides narrow, upper margins straight, apex rounded, curved from upper apex to lower base. Length 4 mm.**canadensis**
 Stigma twice as long as broad; front not punctate around base of antennæ 2
2. Front wings with free part of $M_4 + Cu_1$ joining cell M_4 distinctly beyond the middle; body reddish yellow, with legs pallid, and head, antennæ beyond second segment, mesopleuræ, pectus, and apex of abdomen, piceous; head with an indistinct transverse carina between antennæ; third antennal segment longer than fourth and not as long as fourth and fifth together; saw-guides straight above, obliquely truncate, and rounded below. Length 3.5 mm.**capitalis**
 Front wings with free part of $M_4 + Cu_1$ joining cell M_4 at middle 3
3. Mesonotum and scutellum rufous; body black, with the two basal segments of antennæ, middle and lateral lobes of mesonotum, scutellum, its appendage, and postscutellum, rufous; legs with trochanters, knees, front and middle tibiæ and tarsi, posterior tibiæ (more or less infuscated towards apex), and posterior tarsi, yellowish white; saw-guides straight above, convex below, obliquely truncated at apex, rounded at angle below, and sharply pointed at upper apical angle. Length 4.5 mm.**rohweri**
 Mesonotum and scutellum black..... 4

4. Ocellar furrow distant from median ocellus, connected with it by a distinct interocellar furrow; depressed area around median ocellus small with precipitous walls, forming a well marked V; median fovea a broad, deep pit, subequal to lateral fovea; body polished, with sparse setigerous punctures, and black, with apices of coxæ, trochanters, knees, tibiæ, and tarsi, white; front femora sometimes only infuscated at apex; saw-guides straight above, oblique at apex, convex below, and rounded to a point at apex above. Length 4 mm.**rubi**

Ocellar furrow adjacent to median ocellus, interocellar furrow therefore wanting; depressed area behind median ocellus broad; median fovea a broad, deep pit, larger than lateral fovea; lateral fovea distinct from antennal fovea; body polished, with sparse setigerous punctures; saw-guides straight above, somewhat oblique below, broadly obliquely rounded to a point at apex above. Length 4 mm. **bethunei**

°**M. canadensis** Marlatt.

°**M. capitalis** Norton.

°**M. rohweri** MacGillivray.

M. rubi Forbes. Larva a leaf miner in blackberry and dewberry. New Haven, 6 July, 1904 (H. L. V.).

°**M. bethunei** MacGillivray. Larva a leaf miner in blackberry.

HYLOTOMINÆ.

Key to Genera.

Front wings with cell R_{1+2} not appendiculate at apex; cells R and R_s coalesced**Atomacera** p. 160

Front wings with cell R_{1+2} not appendiculate at apex; cells R and R_s separate**Hylotoma** p. 161

Atomacera Say.

Key to Species.

1. Body black and rufous 2
Body black; wings strongly infuscated; front legs white or piceous beyond knees; head and body polished. Length 4 mm. Without much doubt the male of the following species**debilis**
2. Body black, with pronotum, mesonotum, scutellum, and upper part of pleuræ, rufous; wings strongly infuscated; legs paler beyond knees, front pair usually white; mesonotum sparingly punctate. Length 4 mm.**ruficollis**

Body black, with abdomen rufous; clypeus, labrum, and palpi, whitish; wings strongly infuscated; legs whitish, anterior tibiæ darker. Length 6 mm.**cellularis**

A. debilis Say. Poquonock, 27 June, 1905 (H. L. V.).

A. ruficollis Norton. Poquonock, 27 June, 1905 (H. L. V., B. H. W.).

°**A. cellularis** Say. Larva feeds on sweet potato.

Hylotoma Latreille.

Key to Species.

1. Head, thorax, and abdomen wholly black or blue-black 2
Head, thorax, and abdomen not wholly black..... 4
2. Tibiæ black; wings strongly infuscated, clearer at tip, a darker spot below stigma. Length 8 mm.**cærulea**
Tibiæ in great part white..... 3
3. Legs white below knees, except apices of middle and posterior tibiæ and apices of each of their tarsal segments; body entirely black, except parts named; wings strongly infuscated, paler at apex. Length 6 mm. (male)**dulciaria**
Legs wholly pale below knees; body black or blue-black, with palpi and legs beyond knees white, tip of posterior tibiæ and their tarsi sometimes somewhat infuscated; wings smoky or hyaline, with a dark spot below the stigma. Length 11 mm.**macleayi**
4. Head wholly black..... 5
Head wholly or in great part pale..... 13
5. Thorax wholly black 6
Thorax wholly or in part pale..... 8
6. Legs black; abdomen beyond basal plates yellow or reddish yellow; palpi and front tibiæ infuscated. Length 8 mm.**abdominalis**
Legs wholly or in part pale..... 7
7. Antennæ usually with apical segments yellow; abdomen usually beyond the basal plates, and legs beyond the knees, yellow; wings and veins yellowish hyaline, with stigma and a spot below it infuscated; remainder of body shining black. Length 10 mm.**clavicornis**
Antennæ with apical segment black; abdomen with basal plates and first six abdominal segments yellow; basal half of tibiæ white, shading to fuscous at apex; wings varying from infuscated to yellowish hyaline; stigma and an angular spot beneath it infuscated; remainder of body black. Length 10 mm.**virescens**

8. Abdomen black; body in female, except pronotum, mesonotum, scutellum usually, and mesopleuræ frequently, glossy black; the wings strongly infuscated, especially towards the base; male differs usually in having the prothorax yellow and the legs beyond the knees white. Length 8-10 mm. **scapularis**
 Abdomen wholly or in part pale..... 9
9. Mesonotum wholly or in part black..... 10
 Mesonotum wholly pale..... 12
10. Mesonotum wholly black; body black, with scutellum usually, mesopleuræ, sometimes extending onto pronotum, and abdomen except at extreme apex, red or yellow-red; wings strongly infuscated, lighter toward apex. Length 12 mm. **humeralis**
 Mesonotum rufous, with black markings 11
11. Mesonotum rufous, with a black spot on each lobe; body black, with mesonotum (except a black spot on each lobe), scutellum, mesopleuræ, and abdomen, red; wings infuscated. Length 10 mm. **miniata**
 Mesonotum rufous, with a black spot on each lateral lobe; body black, with mesonotum (except a black spot on each lateral lobe), metanotum, scutellum, mesopleuræ, pronotum in part, hind coxæ at middle, and abdomen, red; wings infuscated, clearer toward the tip. Length 12 mm. **sphinx**
12. Ocellar basin with low, broadly rounded walls, not broken above median fovea; body yellow or luteous, with head and its appendages, prothorax in great part, tegulæ, legs, pectus, and saw-guides, black; wings smoky. Length 10 mm. **pectoralis**
 Ocellar basin with comparatively high, sharp walls, distinctly broken above median fovea; body yellow, with head and its appendages, prothorax in great part, tegulæ, legs, pectus, and saw-guides, black; wings smoky. Length 8 mm. (female) **dulciaria**
13. Mesonotum wholly rufous; body rufous, with eyes, labrum, antennæ, tegulæ, spot at base of front wings, and legs, black; first pair of legs sometimes rufous; wings strongly infuscated. Length 10-12 mm. **rubiginosa**
 Mesonotum more or less marked with black 14
14. Mesonotum black; body red, with antennæ, legs, and a spot on mesonotum, black; wings infuscated, clearer at apex. **coccinea**
 Mesonotum rufous with a black spot covering the three lobes of mesonotum and scutellum in part; body rufous, with apices of mandibles, eyes, antennæ, palpi, a spot on meso-

notum, tegulæ, and legs, black; wings infuscated. Length
14 mm.*rubra*

°*H. cœrulea* Norton. Howard, Insect Book, Pl. xiv, Fig. 7.
Larva feeds on white birch.

H. dulciaria Say. Connecticut (E. N.).

H. macleayi Leach. Howard, Insect Book, Pl. xiii, Fig. 21.
Larva feeds on Chinese honeysuckle, wild cherry, white and black
birch, mountain ash, willow, strawberry, and *Amelanchier*. Con-
necticut (E. N.); New Haven, 27 May, 1906, 4 August, 1905;
Colebrook, 20 July, 1905 (W. E. B.).

H. abdominalis Leach. Larva feeds on willow. Orange,
21 June, 1905 (W. E. B.); Westville, 2 June, 1908 (B. H. W.);
New Haven, 30 May, 1911 (A. B. C.), 31 July, 18 August, 1910
(B. H. W.).

H. clavicornis (Fabricius). Howard, Insect Book, Pl. xiv,
Fig. 12. Larva feeds on willow. Connecticut (E. N.).

°*H. virescens* Klug. Larva feeds on *Betula*, *Salix*, and *Pyrus*.

H. scapularis Klug. Howard, Insect Book, Pl. xii, Fig. 20.
Larva feeds on white birch and elm. New Haven (B. H. W.);
Mt. Carmel, 24 June, 1904 (W. E. B.); Yalesville, 26 May, 1908
(B. H. W.).

H. humeralis Beauvois. Howard, Insect Book, Pl. xiii,
Fig. 9. Larva feeds on poison ivy. Connecticut (E. N.);
Branford, 26 July, 1905 (H. W. W.); Southington, 12 July,
1910 (W. E. B.).

°*H. miniata* Klug. Howard, Insect Book, Pl. xiv, Fig. 17.

°*H. sphinx* Kirby.

°*H. pectoralis* Leach. Howard, Insect Book, Pl. xiii, Fig.
14. Larva feeds on birch.

H. rubiginosa Beauvois. New Haven, 30 July, 1905, 8
August, 1907 (B. H. W.); Lyme, 3 July, 1910 (A. B. C.).

°*H. coccinea* Fabricius.

H. rubra Klug. Howard, Insect Book, Pl. xiii, Fig. 19.
Stonington, 26 August, 1906 (J. A. Hyslop).

SCHIZOCERINÆ.

Schizocerus LePeletier.*Key to Species.*

1. Abdomen wholly or for the most part yellow or rufous..... 2
 Abdomen wholly black or with a lateral yellow or rufous band 3
2. Prothorax black; body black, with supraclypeal area, clypeus, labrum, middle and hind coxæ and trochanters, front tibiæ and basal segments of tarsi, metanotum and basal plates sometimes, and abdomen, except apices of saw-guides sometimes, yellow; wings infuscated. Length 8 mm. **privatus**
 Prothorax wholly or in great part rufous; body in female rufous, with clypeus, labrum, mandibles, antennæ, square area about ocelli, lower orbits, two spots on pectus, legs except front tibiæ and their tarsi in front, basal plates, and saw-guides, black; wings infuscated. Male has body black, with prothorax in great part, tegulæ, knees of all legs, front and middle tibiæ, and abdomen except at apex, yellow or rufous; wings smoky, clearer at apex. Length 7-8 mm. **plumiger**
3. Collar more or less pale..... 4
 Collar entirely black; body wholly black, with legs below knees, pale, usually more or less infuscated; antennæ elongate, and more or less infuscated; wings smoky. Length 7 mm. **ebenus**
4. Tegulæ and collar narrowly margined with white; body black, with collar, tegulæ, legs below knees, and a broad margin on apex of each abdominal tergite, white, more or less suffused with rufous; head and thorax metallic black, and densely covered with fine, white setæ; wings hyaline, veins brownish. Length 7 mm. **sericeus**
 Tegulæ and collar broadly yellow; body black, with prothorax, tegulæ, mesonotum more or less on each side, front and middle legs below the knees, tip of posterior femora, base of their tibiæ more or less, and a band along lateral margins of abdomen more or less, yellow; wings hyaline, veins and stigma black or brown. Length 6-7 mm. **zabriskiei**

S. privatus Norton. Stonington, 9 August, 1906 (J. A. Hyslop).

°**S. plumiger** (Klug). Howard, Insect Book, Pl. xiv, Figs. 1 and 6.

°**S. ebenus** Norton. Larva feeds on sweet potato.

°**S. sericeus** Norton.

S. zabriskiei Ashmead. Howard, Insect Book, Pl. xii, Fig. 12. Larva feeds on purslane. Westville, 20 June, 1905 (W. E. B.); New Haven, 26 June, 1905, 3, 8 September, 1910, 6 August, 1911 (W. E. B., H. L. V., B. H. W.); Hamden, 24 July, 1910 (B. H. W.); Branford, 30 June, 1911 (W. E. B.).

ACORDULECERINÆ.

Acordulecera Say.*Key to Species.*

1. Pronotum entirely white or luteous..... 2
Pronotum either wholly black or piceous, the collar a narrow, pale margin 7
2. Mesothorax luteous with black markings..... 3
Mesothorax black 6
3. Front impressed about median ocellus, producing a more or less distinct pentagonal area; median fovea triangular and distinct; head black, antennæ fuscous; clypeus, labrum, mandibles, thorax except a spot on each lobe and apex of scutellum, legs, and abdomen, luteous; wings hyaline, costa, veins, and stigma luteous; saw-guides retracted. Length 5 mm.media
Front not impressed about median ocellus; median fovea wanting 4
4. Antennæ wholly black..... 5
Antennæ with the two basal segments white; clypeus, labrum, and mandibles, white, remainder of head black; remainder of body luteous, except a black spot on each lobe of mesonotum and the scutellum; wings hyaline; third segment of antennæ but little longer than fourth; saw-guides retracted. Length 4-5 mm.biclinia
5. Front with short, fine pubescence, so that head appears glossy black; pubescence of antennæ black, antennæ black; head black, with labrum, clypeus, and mandibles white; thorax, except scutellum and a spot on each lobe of mesonotum, legs and abdomen luteous; saw-guides exerted, and broadly, roundly truncated at apex; third segment of antennæ about as long as the fourth and fifth together. Length 4 mm.minima
Front with long pubescence which conceals glossy black of head and gives it a hoary appearance; antennæ black, with white hairs; head black, with labrum and mandibles white; prothorax luteous; mesonotum and scutellum black; pleuræ and pectus piceous; legs and abdomen luteous; wings hyaline; saw-guides retracted; third segment of an-

tennæ about as long as the fourth and fifth together.

Length 5 mm. **maxima**

6. Antennæ pale; wings hyaline; body black, with clypeus, labrum, and mandibles, white; prothorax, legs, venter of abdomen and four basal segments of tergum, luteous; antennæ densely hoary, pubescent; saw-guides retracted, teeth of saws rounded; antennæ with third segment but little longer than fourth; front not impressed about median ocellus; median fovea wanting. Length 4 mm.

dorsalis

Antennæ black; wings more or less infuscated; body black, with clypeus, labrum, mandibles, prothorax, legs, venter of abdomen, and four basal tergal segments at middle and sides, yellow or luteous; head hoary with pubescence; saw-guides exerted, convex above and below, and broadly rounded at apex. Length 5 mm. **maura**

7. Antennæ wholly white..... 8

Antennæ wholly black or fuscous..... 9

8. Front with a median furrow; median fovea wanting; body black, with clypeus, labrum, mandibles, antennæ, tegulæ, legs, basal half of venter, and a large triangular spot on middle of dorsum of abdomen at base, white or luteous; head covered with very fine, white pubescence, appearing bare when viewed from before; notum and pleuræ with fine pubescence; saw-guides with two sides parallel and obliquely truncated to a point at apex above. Length 5 mm. **mellina**

Front without a median furrow; median fovea indicated by a minute pit; body black, with antennæ, clypeus, labrum, mandibles, collar narrowly, tegulæ, legs, and basal half of abdomen, greenish white or luteous; head and antennæ covered with long, black pubescence; pubescence of notum short, sparse, and white; saw-guides broadly convexly rounded at apex. Length 4-5 mm. **mixta**

9. Pronotum wholly black..... 10

Pronotum piceous, margined with luteous; body black, with clypeus, labrum, mandibles, pronotum, and dorsum of abdomen, more or less piceous; tegulæ, legs, and venter of abdomen, luteous; head and thorax densely covered with long pubescence; third segment of antennæ about as long as fourth and fifth together; saw-guides broadly rounded at apex, with a distinct scopa. Length 5 mm. **munda**

10. Antennæ with third segment considerably longer than fourth 11

Antennæ with third, fourth, and fifth segments subequal; body black, with clypeus, labrum, mandibles, tegulæ, legs, and disk of abdomen at base, luteous; head and thorax covered with fine, white pubescence; cell R₄ about as

- broad as long; transverse part of M_2 received near its middle; wings infuscated; saw-guides broad, and broadly rounded at apex. Length 3 mm. *minuta*
11. Front wings with transverse part of M_2 given off near middle of cell R_4 12
 Front wings with transverse part of M_2 given off nearer to vein R_5 than to the middle of cell R_4 ; body black, with clypeus, labrum, and mandibles, white, infuscated with piceous; legs, except tips of tarsi, and bases of wings, greenish white or luteous; head and thorax covered with fine, white pubescence; cell R_4 distinctly longer than broad; wings usually more or less infuscated; saw-guides broadly rounded at apex. Length 4 mm. *saginata*
12. Wings infuscated on basal half; front wings with cell R_4 about as broad as long; head dilated behind the eyes; body black, with clypeus and labrum more or less white; legs except more or less of the tarsi, and basal half of tergum of abdomen more or less, white; head and thorax covered with fine, white pubescence; saw-guides very broad and squarely truncated at apex. Length 4 mm. *maculata*
 Wings wholly hyaline; front wings with cell R_4 much longer than broad; body black, with labrum, mandibles, legs, and bases of wings, white; head and thorax covered with short, white pubescence; head not dilated behind the eyes. Length 4 mm. *marina*
- ° *A. media* MacGillivray.
 ° *A. biclinia* Konow.
 ° *A. minima* MacGillivray.
 ° *A. maxima* MacGillivray. Larva feeds on *Quercus alba*.
A. dorsalis Say. Larva feeds on black oak. Connecticut (E. N.).
A. maura MacGillivray. New Haven, 6 July, 1904 (H. L. V.).
 ° *A. mellina* MacGillivray.
 ° *A. mixta* MacGillivray.
 ° *A. munda* MacGillivray.
 ° *A. minuta* MacGillivray.
A. saginata Provancher. Yalesville, 17 June, 1907 (B. H. W.); Hamden, 14 June, 1911 (W. E. B.).
 ° *A. maculata* MacGillivray.
 ° *A. marina* MacGillivray.

XIPHYDRIIDÆ.*

Key to Genera.

Radial and radio-medial cross-veins present**Xiphydria** p. 168
 Radial cross-vein present, radio-medial wanting ..**Konowia** p. 169

Xiphydria Latreille.

Key to Species.

1. Abdomen in great part black..... 2
 Abdomen in great part red or yellow..... 4
2. Antennæ black; posterior tarsal claws with a moderate-sized tooth 3
 Antennæ white at apex; posterior tarsal claws with a minute tooth; body black, with two small spots above antennæ, orbits extending in a line behind eyes, base of mandibles, two lines on vertex, four lines on notum, a spot before the wings, and seven spots on each side of the abdomen, white; legs honey-yellow; wings hyaline. Length 10 mm.
maculata
3. Legs rufous or yellow; third antennal segment about twice as long as second; body in female black, with a spot on clypeus, sometimes wanting, line beneath eyes, sometimes interrupted, two spots behind ocelli, posterior orbits, collar, and spot on each side of each abdominal segment, white; tegulæ and legs, honey-yellow. Male has white spots on first four abdominal segments. Length 13 mm.
canadensis
 Legs black, with bases of tibiæ and tarsi white; third antennal segment subequal in length to second; abdomen with white spots on four basal segments. Length 11 mm.
tibialis
4. Head, thorax, and legs in great part, black; body in female black, with two pale spots behind ocelli, and bases of tibiæ and tarsi, white; abdomen red. Male uniformly dark brown, with a yellow spot on pleuræ and inner orbits, or sometimes entirely reddish yellow. Length 12 mm. **attenuata**
 Head, thorax, abdomen, and legs, honey-yellow; tips of mandibles, spot on vertex, a line above bases of antennæ, lines on neck, sutures of pleuræ, sides of basal plates, and dorsum of following abdominal segments except at middle, brownish. Length 10 mm.**erythrogastra**

* In the preparation of the tables dealing with this and the following families free use has been made of the manuscript of a paper by Dr. J. Chester Bradley, "A revision of the cell R₅ group." The portion of this paper dealing with the Siricidæ has been published since this manuscript was submitted, under the title, Siricidæ of North America, in *Journal of Entomol. and Zool.*, 1913, vol. 5, pp. 1-35.

X. maculata Say. Howard, Insect Book, Pl. xii, Fig. 25. Larva bores in maple. Connecticut (E. N.); Wallingford, 1, 25 June, 1910, (D. J. Caffrey).

°*X. canadensis* Provancher. Howard, Insect Book, Pl. xiv, Fig. 34. Larva bores in white birch.

°*X. tibialis* Say.

X. attenuata Norton. Larva bores in birch. Connecticut (W. H. P.).

°*X. erythrogastra* Ashmead.

Konowia Brauns.

°*K. basalis* (Say). *Xiphydria basalis* Say.

Abdomen black, with the two basal segments honey-yellow, more or less mixed with black; legs, except the posterior tibiae and tarsi, honey-yellow; wings hyaline. Length 8-9 mm.

°*K. walshii* (Westwood). *Xiphydria walshii* Westwood.

Abdomen piceous, with the middle segments margined at sides with white; legs fulvous, with the tips of the tarsi fuscous; antennae fuscous, with the bases luteous; head black, with two spots behind the ocelli and a line on the lower and posterior orbits, white; collar narrowly, the sides and under surface of the prothorax, and two spots on the mesonotum between the wings, white. Length 9 mm.

SIRICIDÆ.

Key to Subfamilies.

- Measured on vein M, free part of M_2 is midway or much nearer to the free part of R_4 than to the radial cross-vein; antennae filiform, with at least seventeen segments; anal cerci present in maleSIRICINÆ p. 169
- Measured on vein M, free part of M_2 is opposite the radial cross-vein, or always much nearer to the radial cross-vein than the free part of M_4 ; antennae thickened at middle, never with more than fourteen segments; anal cerci wanting in maleTREMECINÆ p. 172

SIRICINÆ.

Key to Genera.

1. Cornus at apex of abdomen of female constricted at base, spear-shaped; front wings with free part of Cu_2 usually

- wanting, sometimes represented by a small spur; head with a white spot behind the eyes 2
- Cornus at apex of abdomen of female either shouldered or not, but never constricted at base and spear-shaped; front wings with free part of Cu_2 distinct; head without a white spot behind the eyes; posterior tibiae with two apical spurs **Sirex** p. 170
2. Posterior tibiae with two apical spurs; ovipositor about as long as the abdomen, and always much shorter than the body **Urocerus** p. 171
- Posterior tibiae with only a single apical spur; ovipositor always much longer than the abdomen, and sometimes longer than the body **Xeris** p. 171

Sirex Linnæus

Key to Species.

1. Abdomen blue-black 2
- Abdomen more or less red..... 3
2. Legs blue-black; abdomen short, cornus short and shouldered, ovipositor projecting but little beyond its tip; body steel-blue, with first pair of legs below knees dark ferruginous; wings violaceous. Length 35 mm. (female) **edwardsii**
- Legs rufous; cornus elongate, pointed, not shouldered at base, diminishing gradually in size; body black, with legs beyond trochanters, and base of ovipositor, yellow or rufous; wings hyaline or nearly so, sometimes with a spot below the stigma and apex of the wings infuscated. Length 16-30 mm. (female) **cyaneus**
3. Wings violaceous; body blue-black, with legs beyond knees, sometimes the whole of the legs, abdomen beyond first or second segment, cornus, and ovipositor, red; cornus somewhat convex at sides but not distinctly shouldered. Length 28 mm. (female) **nigricornus**
- Wings hyaline or yellowish, apical margins sometimes somewhat infuscated 4
4. Legs entirely blue-black 5
- Legs with posterior femora rufous; body bluish, with posterior legs more or less, and abdomen beyond second or third segment, rufous; wings hyaline or nearly so. Length 15-30 mm. (male) **cyaneus**
5. Abdomen entirely rufous beyond basal plates or first segment; antennæ and posterior tarsi sometimes marked with rufous. Length 20 mm. **nigricornus**
- Abdomen blue-black, with only the fifth or sixth segment rufous (male) **edwardsii**

♂ **S. edwardsii** (Brullé). *Urocerus edwardsii* Brullé. Howard, Insect Book, Pl. xiii, Fig. 3.

S. cyaneus (Fabricius). *Urocerus cyaneus* Fabricius. Howard, Insect Book, Pl. xiii, Fig. 12. Larva bores in spruce and fir. Connecticut (E. N..)

° **S. nigricornus** (Fabricius). *Urocerus nigricornus* Fabricius. Howard, Insect Book, Pl. xii, Fig. 21.

Urocerus Geoffroy.

Key to Species.

1. Abdomen entirely black; body black, with antennæ more or less at middle, a large spot behind each eye, a spot on each side of the seventh abdominal segment, and basal half of tibiæ and tarsi, white; wings strongly infuscated. Length 27 mm. **albicornis**
Abdomen wholly or in part yellow or rufous. 2
2. Wings yellowish hyaline; body black, with antennæ yellow, or yellow at base and brownish toward tip, sometimes black in male; tibiæ and tarsi brown or yellow, posterior tibiæ and tarsi black in male; basal plates, and abdominal segments one to seven more or less yellow. Length 35 mm. **flavicornis**
Wings strongly infuscated or violaceous; body black, with antennæ more or less at apex, and basal half of posterior tibiæ and the metatarsi, white; abdomen usually with first and third or fourth apical segments reddish yellow, or at times with entire abdomen reddish yellow. Length 20 mm. **cressoni**

U. albicornis Fabricius. Howard, Insect Book, Pl. xii, Fig. 24. Larva bores in spruce, hemlock, and fir. Connecticut (E. N.).

U. flavicornis Fabricius. *Urocerus abdominalis* Harris. Howard, Insect Book, Pl. xiii, Figs. 17 and 24. Connecticut, (E. N.); Hamden, 15 June, 1911 (A. B. C.).

U. cressoni Norton.

Xeris Costa.

° **X. caudata** (Cresson). *Urocerus caudatus* Cresson. Howard, Insect Book, Pl. xiii, Fig. 29; and Pl. xiv, Fig. 36.

Body black, with a spot behind the eyes and the collar more or less, white; the legs entirely obscure, luteous or brownish; the ovipositor reddish brown; wings subhyaline, more or less stained with fuscous. Length 23 mm.

TREMECINÆ.

Tremex Jurine.

***T. columba** Linnæus. Howard, Insect Book, p. 70, Fig. 41; Pl. xii, Figs. 27 and 23; Pl. xiii, Fig. 31.

Body varying from almost entirely black with yellow triangular marks on the abdomen, to almost yellow with a narrow apical black margin; antennæ usually yellow; legs usually pale, femora black above in dark individuals; wings varying from strongly infuscated to yellowish hyaline. Length 18-40 mm. Larva bores in maple, elm, apple, pear, beech, oak, and sycamore.

Connecticut (E. N).; New Haven (Bolton); East Hartford (W. E. B.).

CEPHIDÆ.

Key to Genera.

1. Radial cross-vein always shorter than first abscissa of radial sector, the two converging toward the radio-medial cross-vein 2
Radial cross-vein subequal in length to or shorter than first abscissa of radial sector, the two subparallel; base of radial sector sometimes atrophied; posterior tibiæ with two preapical spurs**Janus** p. 172
2. Posterior tibiæ with one preapical spur..... 3
Posterior tibiæ with two preapical spurs 4
3. Flagellum with first two or three segments usually distinctly contracted; posterior tarsal claws bifid**Macrocephus** p. 174
Flagellum never with first two or three segments distinctly contracted, distinctly thicker in the middle than at base or apex; posterior tarsal claws broadly expanded at apex and slightly emarginate between the two portions
Adirus p. 173
4. Abdomen of male with two apical ventral segments with fringes or brushes of bristles, sometimes placed in deep scars; saw-guides of female, as seen from above, widened at apex**Trachelus** p. 174
Abdomen of male with ventral apical segments sometimes with short hairs, never with fringes or brushes of bristles; saw-guides of female, as seen from above, with their sides parallel and not widened at apex**Cephus** p. 174

Janus Stephens.

Key to Species.

1. Front wings with base of radial sector always present..... 2
Front wings with base of radial sector always atrophied;

body black, with labrum, a line at base of wings and another on scutellum, and a triangular spot on metathorax, white; legs (except a white line on underside of tibiae, and posterior tibiae and tarsi which are black) and first and second abdominal segments, rufous; wings entirely hyaline.

Length 9 mm. **abbreviatus**

2. Front wings hyaline, with a fuscous spot below the stigma; body black, with tegulae, collar, metathorax in part, and basal third of tibiae, white; three basal segments of abdomen, and legs, except parts named and posterior tibiae and tarsi in female which are black, rufous. Length 8 mm. **integer**

Front wings hyaline, with a fuscous spot in cells R_3 and M_1 ; body in female black, with a spot on mandibles, palpi, collar, stripe on pleurae, spot on coxae, and trochanters, straw-white; four basal segments of abdomen, and legs below trochanters, yellow-red. Male with antennae ferruginous, and base of abdomen more or less black.

Length 9 mm. **bimaculatus**

° **J. abbreviatus** (Say). *Cephus abbreviatus* Say. *Phyllæcus integer* Riley. Howard, Insect Book, p. 71, Fig. 43; Pl. xii, Fig. 22. Larvæ bore in the stems of willow and poplar.

* **J. bimaculatus** (Norton). *Cephus bimaculatus* Norton. Farmington (E. N.).

J. integer (Norton). *Cephus integer* Norton. *Cephus flaviventris* Fitch. Currant Stem Girdler. Larva tunnels in the pith of currant. Windham, New Haven (W. E. B.); New Haven, 21 May, 1913 (B. H. W.).

Adirus Konow.

A. trimaculatus (Say). *Cephus trimaculatus* Say. Howard, Insect Book, pl. xiii, Fig. 1.

Body shining black, with two spots on the inner orbits, the base of the mandibles, spots on the clypeus, all sometimes wanting, and a spot on each side of the fourth abdominal tergite, yellow; the whole of the anterior tibiae and the basal half of the middle tibiae white; wings varying from hyaline to infuscated. Length 15-18 mm. Larva bores in the stems of blackberry.

Connecticut (E. N.).

Macrocephus Schlechtendal.

°**M. bicinctus** (Provancher). *Cephus bicinctus* Provancher.

Body black, with the cheeks, a small spot on each side of the vertex, a spot on the sides of the metathorax, and the apex of the third and fifth abdominal tergites, white; tibiæ and tarsi brownish; wings hyaline. Length 12 mm.

Trachelus Jurine.

°**T. tabidus** (Fabricius). *Sirex tabidus* Fabricius.

Body black, with the mandibles except at apex, front margin of the clypeus, the front legs beyond the middle of the femora in great part, a band on each side of the abdomen, and a spot at the apex of the fifth and sixth sternites, yellow; wings somewhat infuscated. Length 9 mm.

Cephus Latreille.

°**C. graenicheri** Ashmead.

Abdominal tergites five and six with their apical three-fourths broadly yellow; body black, with the mandibles except at apex, the clypeus, cheeks, palpi, two spots beneath the wings, the legs except the trochanters and tips of the tarsi, a large spot on each side of the second abdominal tergite, practically the whole of the third tergite, a spot on each side and on the dorsum of the fourth, three-fourths of the apex of the fifth and sixth and the apex of the last segment, yellow; wings yellowish hyaline; saw-guides truncate at apex. Length 11 mm.

°**C. pygmæus** Linnæus. Howard, Insect Book, p. 70, Fig. 42.

Fifth abdominal tergite with its apical half and the apical margin of the sixth, yellow; body in female black, with the mandibles at base, the palpi, the legs beyond the knees, always more or less infuscated, the apical half of the third and fourth abdominal tergites, a spot at middle of the apex of the sixth, and the apical margin of the last segment, yellow; wings hyaline; saw-guides broadly rounded at apex. Male differs in having the clypeus, the cheeks, the coxæ, the trochanters and femora beneath, and a spot on the side of the second and fourth abdominal segments, yellow; length 9 mm. Larvæ infest the stems of wheat.

ORYSSIDÆ.

Oryssus Latreille.*Key to Species.*

1. Abdomen entirely black; edge of ridge concealing bases of antennæ not strongly reflexed; antennæ distant at base; legs marked more or less with white or reddish; wings hyaline, with a smoky transverse band beyond the middle. Length 8-12 mm.**sayi**
 Abdomen not entirely black..... 2
2. Abdomen with three apical segments red**sayi** var. **terminalis**
 Abdomen with six apical segments red**sayi** var. **occidentalis**

O. sayi Westwood. Larva bores in maple. Stonington, 26 June, 1906 (W. E. B.).

O. sayi var. **terminalis** Newman. Howard, Insect Book, Pl. xii, Fig. 26. Larva bores in maple. Hamden, 15 June, 1911 (W. E. B.); Stonington, 5, 17 June, 1914 (I. W. Davis).

°**O. sayi** var. **occidentalis** Cresson. Larva bores in sugar maple.

ICHNEUMONOIDEA.

From the standpoint of economic parasitology this is one of the most important groups of insects. It is represented in Connecticut by many species. Many of these will, no doubt, prove exceedingly useful in the hands of man when he has learned to breed and manage them for the purpose of controlling injurious insects.

The greatest care must be exercised in classifying the insects of this group, because the multiplicity of species and their close relationship make their recognition a difficult subject indeed. This group is so homogeneous that in order to classify its components a knowledge of the general appearance and character of the insects as a whole, or habitus, is quite essential. Habitus although sufficiently tangible to the experienced eye can not be satisfactorily described, so the beginner must have access to an authoritatively determined collection, or, such not being available, recourse must be taken to a study of the figures of von Vollenhoven in his two works, the Schetzen and Pinacographia.

Inasmuch as the Icheumonoid fauna of this state is imperfectly known, the keys in the following pages cannot be regarded as final, although in many cases they will lead the student to a satisfactory conclusion.

QL MacGillivray, Alexander Dyer,
568 1868-1924.
T3M3 Tenthredinoidea.
Ent.

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568
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