

The Canadian Entomologist.

VOL. XXV.

LONDON, OCTOBER, 1893.

No. 10.

WASHINGTON TENTHREDINIDÆ AND UROCERIDÆ.

BY ALEX. D. MACGILLIVRAY, ITHACA, N. Y.

The specimens on which the present paper has been based were collected by Mr. Trevor Kincaid, of Olympia, Washington. They were all collected near that city except a few, which were taken along the Skokomish River. Great credit is due Mr. Kincaid for bringing together so large a collection. The specimens are deposited in the entomological collection of Cornell University.

TENTHREDINIDÆ.

Trichiosoma † *triangulum*, Kirby.

3 ♂ ♂, June 6, 22, 23, 1892. They agree perfectly with Norton's description of this species, except the apical segments of the antennæ, which are entirely black.

Zarea americana, Cress.

2 ♀ ♀, April 17 and May 23, 1892.

Hylotoma abdominalis, Leach.

1 ♀, May 3, 1892. Skokomish River.

Hylotoma Macleayi, Leach.

1 ♀, May 11, 1892.

Euura abbiricta, Cress.

1 ♀, Skokomish River, May 8, 1892.

Nematus castaneus, Kirby.

A single female, which in all probability belongs to this species, has two broad black bands on the lateral lobes of the mesothorax and two less distinct bands on the median lobe; the square spot on the vertex is fuscous, a small spot between the antennæ and the base of the sinus from

† The following is omitted from Cresson's synopsis. It will probably prove to be a variety of *triangulum* and not the European species.

vitellina, Linn.

1882. *Trichiosoma*, Kirby, List Hymen., Brit. Mus., I., 70.

Habitat.—Vancouver's Island, Rocky Mountains, (Europe).

above the antennæ to the clypeus is black; the clypeus is distinctly emarginate, and just beyond the middle of the second submarginal cell there is a small fuscous speck.

Nematus luteolus, Nort.

Two males, which I think belong here, have a broad margin to the abdominal segments; the margin is broadest on the middle segments, almost interruptedly transversely fasciate, the apex of the abdomen and the entire venter honey-yellow.

Nematus, Sp.

There are six species in the collection which are probably new; in the present state of the genus it seems best to leave them undescribed.

Messa atra, sp. nov.

Head, labium, mandibles, antennæ, thorax, abdomen, coxæ except at apex, and femora at middle, black; clypeus acutely emarginate, labium broadly rounded; head and thorax sericeous; middle mesothoracic lobe with a central groove on its anterior half; abdomen black, apical segment above slightly rufous; coxæ black, at apex fuscous; femora at base and apex white, with a broad median black band; anterior and middle tibiæ fuscous, darker beneath, hind tibia black, at base white; spurs fuscous; anterior and middle tarsi at base fuscous, apex black, hind tarsi black; wings hyaline, veins piceous, stigma lighter at base. Length, 7 mm.

1 ♀, April 14, 1892. Related to *salicis*, Ashm., but differs by its rounded labium and black abdomen.

Dolerus borealis, sp. nov.

Body stout, black, except the two lateral lobes of the mesothorax, which are reddish-brown; head, thorax and pleuræ densely coarsely punctured; antennæ slender, third and fourth joints subequal; clypeus deeply emarginate; two feeble longitudinal sinuses on the vertex each side of the ocelli; body densely sericeous, especially around the mouth and on the legs; inner tooth of claw stout, distinct; wings slightly fuscous, veins, costa and stigma black. Length, 11 mm.

2 ♀ ♀, May 22, 1892.

Dolerus sericeus, Say.

3 ♀ ♀, May 11, June 6, 1892, and April 20, 1893. This last specimen measures 12 mm., and the wings are clearer than in typical specimens, but otherwise I can find no distinguishing character.

Blennocampa atrata, sp. nov.

Shining black; antennæ as long as head and thorax, third joint more than twice as long as fourth; clypeus truncated, labium small, triangular; femora at apex, front and middle tibia before, hind tibia, except at apex, and basal membrane, smoky white; wings transparent, slightly washed with yellowish, veins, costa and stigma black, transverse marginal nervure received a little beyond the middle of the third submarginal cell. Length, 7 mm.

1 ♀, May 7, 1893.

Monophadnus atricornus, sp. nov.

Shining black, impunctate; head entirely black, apex of clypeus slightly emarginate; antennæ as long as head and thorax, third joint one-third longer than fourth; tegulæ, apex of all the femora, the tibiæ and front and middle tarsi, except at apex, white; apex of all the tibiæ, the apex of the front and middle tarsi and the whole of the hind tarsi, infuscated or black; wings hyaline, slightly smoky, iridescent, costa and stigma brownish; transverse marginal nervure bowed, received near the apex of the third submarginal cell. Length, 7 mm.

2 ♀ ♀, May 18, 1892; April 30, 1893. Most closely allied to *M. tilia*, Nort.

Hoplocampa pallipes, sp. nov.

Head ferruginous; antennæ, small square spot between antennæ, apex of mandibles, spot at ocelli, black; clypeus emarginate, labrum rounded; antennæ not pilose or hairy; thorax light ferruginous, prothorax and collar narrowly margined with black, tegulæ and pleuræ testaceous; abdomen short, broad, broadest at middle; the basal plates, the venter, a narrow lateral margin, and the three apical segments ferruginous, the remainder of the dorsum black, in one specimen the basal plates are black; legs entirely ferruginous, sericeous; wings hyaline, veins luteous. Length, 5 mm.

3 ♀ ♀, Skokomish River, May 8th.

Monostegia Kincaidii, sp. nov.

Head, antennæ, labium and mandibles black; face sericeous; antennæ reaching to base of thorax, flattened, third joint scarcely longer than fourth; clypeus slightly emarginate; thorax black, prothorax narrowly margined with white; abdominal segments one to five with basal whitish bands, broadly interrupted at middle, segments three to six very narrowly tipped with white; legs black, apex of anterior femora

and tibia beneath white, middle and posterior tibiæ densely sericeous; wings hyaline, slightly obscure, veins black, costa and stigma brownish, first branchial and second submarginal cells with a black dot. Length, 7 mm.

1 ♂, 7 ♀ ♀, April 17, 1892, on the catkins of *Salix flavescens*, and May 7th, 1893. Two specimens with the venation of *Harpiphorus* probably belong here.

Labidia opimus, Cress.

1 ♂, June 25, 1892.

Macrophya californica, Nort.

Three females, two from the Skokomish River, May 5th, on *Ribes bracteosum*. These specimens do not agree perfectly with Norton's description, but they differ more among themselves than from the description. The interrupted band on the abdomen and the black spot on the hind coxæ are wanting, in one specimen the abdomen is reddish-brown, and the antennæ, except the basal segment, entirely black.

Macrophya oregona, Cress.

1 ♀.—Differs from Cresson's description only in having a small white spot on basal plates.

Macrophya magnifica, sp. nov.

Black; labrum, clypeus, mandibles, except at tip, palpi, cheeks, an elongate spot on inner orbits above the antennæ, spot beneath the antennæ, the carina above the base of the antennæ, tegulæ, a broad band on collar, subinterrupted at middle, a large spot on each thoracic pleura, the scutellum, lines on the sides of the thorax and at the base of the wings, the edges of the basal plates, a band extending along the edge of the abdomen from the basal plates to the apex of the seventh segment, band broadest on the venter, legs, except a line above and the apex of the posterior femora, which are black, olive-white; antennæ, sternum, venter except the lateral yellow band, and back of the head, black; the five apical segments of the abdomen and the saw reddish-brown; the basal segment of the antennæ large, globular, the third as long as the fourth and fifth together; wings slightly infuscated, veins black, the costa and stigma at base brownish; lanceolate cell with a straight cross-nervure. Length, 12 mm.

1 ♀, June 4, 1892.

Strongylogaster pacificus, sp. nov.

Female.—Black; head and pleuræ covered with a dense sericeous pile; third and fourth antennal joints subequal; sinus at sides of ocelli almost reaching the back of the head; head and thorax remotely and coarsely punctured, the palpi, the tegulæ, the front angles of the thorax, the coxæ except at base, the trochanters, the front femora, the apical half of the middle and hind femora, the front and middle tibiæ, the basal half and apex of the hind tibia, and the front and middle tarsi, white; abdomen, except the basal plates and the first segment, which are black, honey-yellow; apex of the abdomen with a whorl of black hairs, concealing the saw, the venter honey-yellow, with a narrow black band along each side; wings transparent, their base and the costa yellow, the stigma brown, its lower edge lighter, lanceolate cell without oblique cross-vein, hind wings with two middle cells. Length, 6–8 mm.

Var.—Black markings of the legs less distinct, dorsal abdominal segments 3–5 with a small fuscous spot at middle, segments 6–9 with a transverse black band, covering almost the entire segment, apex black.

Male.—Does not differ except in wanting the whorl of hairs at the apex of the abdomen and in having all the legs white.

14 ♂ ♂, 3 ♀ ♀, May 18–22, 1892; April 30, May 7, 1893; a single male from the Skokomish River.

Strongylogaster pr. nativus, sp. nov.

Female.—Black, antennæ short, third and fourth joints subequal; clypeus and labrum dirty white; head sparsely punctured, thorax impunctate; the tegulæ, the front angles of the thorax the coxæ except at base, the trochanters, the apex of the femora, the front and middle tibiæ (in some specimens slightly clouded), the base of the posterior tibia, and the base of the front and middle tarsi, waxen white; abdomen black, venter and pectus black, the venter margined each side with a yellow band, in some specimens these bands coalesce on the venter and form a narrow margin on the dorsum; wings hyaline, yellowish at base, veins black, the apex of the costa and stigma black, lanceolate cell open, with a perpendicular cross-nervure, in some wings the cross-vein is represented only by points on the longitudinal veins, hind wings with two middle cells. Length, 9 mm.

Male.—Smaller, not so robust, legs whitish-yellow, except the posterior tibiæ and tarsi, which are fuscous; a narrow margin to abdominal segments 2–5, and the apex of the abdomen yellow.

1 ♂ and 15 ♀ ♀, April 20 and May 19–23.

Tenthredo Barnstonii, Kirby.

1 ♂, poor condition; the legs are entirely ferruginous, the hind legs are darker than the anterior ones.

Tenthredo nigricostata, Prov. ●

1 ♀, July 22, 1892. This is probably the same as *erythromera*, Prov.

Tenthredo xanthus, Nort.

1 ♀, May 21st. The light spot above the coxæ and the black lines on the tergum are wanting. There is a black dot above the base of the antennæ.

Tenthredo scaevola, Cress.

2 ♀ ♀, May 7, 1893.

Tenthredopsis transversa, sp. nov.

Black; clypeus white; palpi, tegulæ, collar, narrow elongated spot from tegulæ, apices of the coxæ, the femora, except a black line above, the front and middle tibiæ, a line on the hind tibia beneath, the front and middle tarsi beneath, the venter, a narrow margin to abdominal segments 2-5, and the apex of the abdomen, yellow; the basal membrane and very narrow margin to abdominal segments 6-8, white; the clypeus slightly emarginate, the vertex finely punctured; the thorax impunctate; antennæ long, slender, black, segments 3-5 equal; wings transparent, veins black, costa and stigma lighter at base; hind wings with two distinct middle cells. Length, 8 mm.

2 ♂ ♂, May 18, 1892; May 7, 1893.

Tenthredopsis ruficornis, sp. nov.

Black; the clypeus, the labrum, the mandibles, except at tip, a spot between the antennæ, two spots above the antennæ, the cheeks, a broad postocular band, an interocular band, broader from opposite antennæ below, continued narrowly to the postocular band, the prothorax, tegulæ, a spot below the tegulæ, a trapezoidal spot on pleuræ, a spot above posterior coxæ, a slender line above this spot, front and middle coxæ, and posterior coxæ, except two longitudinal black lines, waxen white; antennæ, except two basal joints, black, honey-yellow above; cenchri, abdomen, except immediate base of basal plates, and legs, except coxæ, honey-yellow; clypeus scarcely emarginate, labrum rounded; segments 3-5 of antennæ subequal; wings yellowish-hyaline, veins fuscous, costa and stigma honey-yellow; hind wings with one or two middle cells. Length, 11 mm.

1 ♀, May 22, 1892. This may prove to be a variety of *Tenthredo ruficoxa*, Prov.

Lyda olympia, sp. nov.

Ferruginous, shining; segments 10-24 of antennæ, spots at base of antennæ and narrow line between, beneath the ocelli, prothorax, metathorax above and on sides, basal plates, the sutures of the venter, and the apex of the abdomen, black; cheeks, clypeus, interior orbits and between the antennæ, yellowish; antennæ twenty-four-jointed, first and third segments subequal, third segment three times as long as fourth; posterior femora infuscated at base, otherwise the legs entirely ferruginous; front tibia with a single side spur; wings yellowish-hyaline, veins yellowish, stigma darker at base, third submarginal cell broader and slightly longer than second, second branchial cell without cross-nervure; hind wings with apparently three closed cells. Length, 14 mm.

1 ♂, June 11, 1892. This may be *bucephala*, Cress.

URO CERIDÆ.

Oryssus occidentalis, Cress.

1 ♀, the head is wanting, but the specimen without much doubt belongs to this species. The two basal abdominal segments are black.

Urocerus albicornis, Fabr.

1 Female.

Urocerus apicalis, Kirby.

1 ♂. The last dorsal abdominal segment is flattened.

Urocerus Behrensi, Cress.

1 ♀, probably belongs here, the wings are entirely fuscous, the apex of the antennæ and all the tarsi are yellow.

Urocerus flavipennis, Kirby.

3 ♀ ♀. One from the Skokomish River, Aug. 7. Only one specimen has the spots on the side of the abdomen, another has the antennæ entirely yellow.

Urocerus indecisus, sp. nov.

Antennæ, head, thorax, basal plates, first and apex of the last abdominal segment, a band each side below, and all the legs except the two apical segments of the tarsi, black; the remainder of the abdomen and tarsi brown; antennæ twenty-two-jointed; wings slightly fuscous, the veins black, the second transverse cubital vein with a stump of a vein on the inner side; cornus long, suddenly narrowed at apex, apex with several teeth. Length, 16 mm.; alar expanse, 26 mm. 1 ♂.

Urocerus riparius, sp. nov.

Black; clypeus, labrum, mandibles except at tip, spot behind the eye, joints 3-9 of the antennæ, prothorax, apex of the front and middle femora, their tibiæ and tarsi, the base of the hind tibia and metatarsus, the two apical segments of their tarsi, and abdominal segments three to six, yellow; antennæ twenty-one-jointed, the yellow band on the antennæ is clouded with fuscous and varies in width; wings yellow, slightly clouded, veins black. Length, 22 mm.; alar expanse, 33 mm. Two males, one from Skokomish River, May 3.

DESCRIPTIONS OF THE LARVÆ OF CERTAIN
TENTHREDINIDÆ.

BY HARRISON G. DYAR, NEW YORK.

Hemichroa americana, Provancher.

(The alder saw-fly).

Described as a *Dineura*, but the lanceolate cell is contracted in the middle, not petiolate. The second recurrent nervure is received very near the end of the second submarginal cell, almost at the intersection of second and third submarginal cells.

♂.—Shining black, the legs brownish-yellow, all the coxæ, the apical third of posterior tibiæ and posterior tarsi black. Wings smoky, but hyaline along the outer margin. Nervures and stigma black.

♀.—Head and body yellowish-brown; antennæ, eyes, metathorax and legs as in the ♂, black, or all the femora more or less black. Black markings somewhat variable.

A smoky spot in the centre of the second submarginal cell in both sexes.

15 ♂♂, 8 ♀♀.—Bred from larvæ on *Alnus serrulata*, at Woods' Holl., Mass., and Rhinebeck, N.Y.

Eggs.—Laid in saw cuts opening below on the petiole and base of midrib of a leaf. The cuts are in one or two rows, along one or both sides of the rib, nearly contiguous.

First stage.—Eating a little hole or slit through the leaf. Head rounded, higher than wide, pale brown, eye black; width, 0.3 mm. Body curved into an S shape outside of the hole in the leaf, through which the larva readily moves. Translucent honey-yellow, annulate, scarcely shining; the alimentary canal gives a greenish tinge by transparency.

Second stage.—Much as before. Width of head, 0.4 mm. Body rather dark honey-yellow, greenish tinged. Two transverse rows of subconical tubercles are seen on each segment, bearing minute setæ which are blackish.

Third stage.—Head brown, shining, eye black, mouth dark; width, 0.55 mm. Body greenish-yellow, rather sordid and only slightly shining. Thoracic feet slightly marked with black and traces of lateral and broken substigmatal black lines appear, most distinct centrally. Setiferous tubercles blackish.

Fourth stage.—Head minutely pilose, blackish-brown, eye black; width, 0.75 mm. Thoracic feet pale. Body marked as in the next stage, but the tubercles are larger in proportion, and the subventral black patches are rounder and more evidently cover the anterior and posterior patches of tubercles.

Fifth stage.—Head brownish-black; width, 1.0 mm. Practically as in the next stage. The body tubercles are tinged with brownish.

Sixth stage.—Head well-rounded, slightly acute at vertex, not conspicuously flattened before; shining black, sparsely pilose; width, 1.4 mm. (or as large as 1.7 mm. in some ♀♀). Thoracic feet spreading, black, pale at the joints. Abdominal feet present on joints 6-12 and 13 posteriorly (22 feet). Body smooth, subannulate or creased, not shining. Colour subtranslucent greenish-ochre, with an even, continuous, black lateral line, and a geminate interrupted subventral one. Two transverse rows of smooth, inconspicuous, concolorous, setiferous tubercles on each segment, of moderate size and arranged subventrally in the black patches in clusters. Venter pale. Joints 2 and 13 posteriorly of a darker ochre. The larvæ rest on the edge of a leaf, and lash the posterior part of their bodies vigorously when disturbed, holding on to the leaf by the thoracic feet.

Seventh stage.—The larvæ do not feed in this stage, but enter the ground soon after moulting. Head as before, its width the same (1.4-1.7 mm.) Body much the same, but smooth. The tubercles are represented by elliptical watery areas in three rows on each segment, with rudimentary setæ. The colour is a rather opaque yellow, with no shade from the alimentary canal. The black marks are the same.

Cocoon.—Formed beneath the ground; thin, crusty and brittle; elliptical and of uniform texture, brown in colour. Size, 8x4 mm.

Pupa.—Much like the mature insect, but with rudimentary wings. All brownish-yellow, the legs, cases and antennæ darker, eyes blackish.

The flies emerged in August.

Cræsus latitarsus, Norton.

(The white birch saw-fly.)

Eggs.—Laid closely along the midrib or larger veins on the under side of the leaf, about half enclosed in median saw-cuts which are distended by the eggs so that they lie obliquely in contact. Soft, translucent white; seen to be very minutely punctured under a magnification of 60 diameters. Size, 1.4x.6 mm.

First stage.—Eating holes through the leaf, which soon become confluent; lashing the body. Head round, a little higher than wide, full at vertex; shining black; width, 0.4 mm. Body light shining greenish. Tubercles very obscure, not setiferous, only the subventral ones distinct and nearly concolorous. Thoracic feet blackish; the segments of body obscurely annulate.

Second stage.—Head very smooth, even brownish-black, pale above the mouth; width, 0.55 mm. Body olive-green, the subventral ridge and feet blackish. No setæ seen.

Third stage.—Head black; width, 0.75 mm. Much the same.

Fourth stage.—Head, 1.05 mm. wide. Markings much as before.

Fifth stage.—Head round, full at vertex, well rounded, not pointed, without trace of sutures; flattened in front over clypeus, with a few slight clypeal dents. Entirely shining black; width, 1.6 mm. Body indistinctly 4-annulate, watery shining smooth; no dots, but minute black setæ represent them. Thoracic feet large, spreading, black, pale centrally. Abdominal feet present on joints 6-11 and 13 (20 feet), with a medio-ventral eversible gland, posterior to each pair on joints 6-10. These glands are longer than the feet, when everted, are coloured rather darker than the body. When disturbed the larva throws its body up over its head and the ventral glands are quickly everted and retracted. Ground colour honey-yellow heavily shaded with greenish black, the yellow appearing on joint 2 anteriorly, stigmataly and on the abdominal feet.

Sixth stage.—Width of head, 2.2 mm. As before, but smooth; no setæ seen. Joint 2; the dorsal and stigmatal irregular bands and abdominal feet honey-yellow, leaving the black shading most distinct subdorsally

and substigmata, forming a series of very black subdorsal patches or spreading largely over the body. At the end of this stage the larva enters the earth without moulting.

Cocoon.—Formed beneath the ground; elliptical, rather thick, firm, opaque, black. Size, 11 x 4.5 mm. Imago appeared August 1. Larvæ found on the leaves of *Betula populifolia* at Woods' Holl., Mass., and Plattsburgh, N. Y.

Fenusa varipes, St. F.

(The imported alder leaf-miner.)

Abundant on *Alnus serrulata* at Woods' Holl., Mass., causing the leaves to turn brown and fall.

Egg.—A slight circular swelling in the leaf, visible on both surfaces, 0.5 in diameter. The egg is thin, delicate, milky white, about 0.3 mm in diameter, inserted under the epidermis by a saw cut.

First stage.—Mines under the upper epidermis usually less than 1 mm. in diameter, rarely as large as 1.5 mm., starting from the egg puncture. Head much flattened, broader than long, mouth parts projecting, the lateral lobes bulging, pale watery brownish; width, 0.25 mm. Body flattened, deeply incised, joint 2 wide, joints 3-4 rapidly tapering, the rest of even width, joint 13 rounded. Feet imperceptible with a lens. Colour translucent watery, scarcely whitish, alimentary canal green. Length, 1 mm.

Second stage.—Like the preceding stage, but thoracic segments larger and body more deeply incised. Milky translucent, the alimentary canal green, head brownish, 0.3 mm. wide. Feet very rudimentary, but visible. Cervical shield present, large, not very distinct. Burrow about 3 mm. diameter.

Third stage.—As before. Width of head, 0.4 mm.; diameter of burrow, about 6 mm.

Fourth stage.—Much as in the next stage. Cervical shield covering the anterior half of joint 2, very faintly brownish, as are the thoracic feet. Head rather paler than in the next stage, 0.55 mm. wide. Burrow about 10-12 mm. in diameter.

Fifth stage.—Head much flattened, mouth projecting in front, clypeus occupying the central third of what is the upper surface; lobes rounded, projecting laterally; ocellus nearly central. Colour honey-brown, paler, almost whitish toward vertex, which is withdrawn beneath joint 2; mouth dark brown, eye black; width, 0.75 mm. Abdominal feet very rudi-

mentary, present on joints 5-12 (none on joint 13). Thoracic feet small, almost lateral, indistinctly jointed, faintly brownish, not used. Body flattened, rounded, of nearly even width, segmental incisures distinct and broad, segments faintly 3-annulate. Colour shining whitish, subtranslucent, the alimentary canal green. No anal plate, but a very large, bisected, brownish cervical shield. No tubercles nor setæ distinguishable. Burrows large, spreading from 28-35 × 14-9 mm., often becoming confluent with others over the whole leaf, transforming the upper surface into one continuous brown blister.

Sixth stage.—On attaining this stage the larvæ burst through the upper epidermis and fall to the ground, eating nothing after the moult. Head slightly darker than body, shining, mouth brown, eye dark brown; width, 0.75 mm. Body shining pale yellowish-white, with no discolourous shade from the alimentary canal. On joints 5-12 two watery transverse areas on each segment, the anterior composed of two dorsal dots, the posterior of two elongate pyriform subdorsal patches, slightly elevated and connected over the dorsum. Feet concolorous. Length, about 5.5 mm.

Pupa.—Formed in an elliptical cell in the ground; entirely pale yellowish, the eyes brown-black.

(TO BE CONTINUED.)

DESCRIPTION OF THE PREPARATORY STAGES OF NEMOPHILA SCUDDERI, PACK.

BY H. H. LYMAN, MONTREAL.

Eggs laid July 9-10. Round, considerably flattened at base, honey-yellow, shining, under a microscope very slightly and irregularly pitted, $\frac{1}{16}$ of an inch in diameter.

Hatched July 17-18, egg period eight days.

Young larva.—Length, about one-tenth of an inch. Head brown, rather lighter below. Body, dull greenish-yellow, with lead coloured warts and long hairs of a brown colour.

I failed to observe the first moult, but the following description was taken on August 16th, just before what I believed to be the second moult. Length, $\frac{1}{8}$ to $\frac{3}{8}$ inch. Head small, slightly and obtusely bilobed, black and shining, with a few hairs about mouth parts.

Body above generally dark, but occasionally rather light in colour, with 10 or 12 warts on each segment. These warts are round, black and

shining, clothed with dense tufts of black hairs, mixed with reddish-brown ones on the top of the 5th to the 9th segments. Below greenish-black, feet and prop-legs concolorous and semi-transparent.

After second moult.—Length, $\frac{3}{8}$ to $\frac{7}{8}$ inch. Same as before, except that the skin is blacker and there are some rather long tufts or pencils of hair on the hind segments, and there is a patch of foxy hair on the top of the 5th, 6th and 7th segments. Feet black.

After third moult.—Length, $\frac{5}{8}$ to $1\frac{1}{8}$ inch. Head black, slightly and obtusely bilobed.

Body black, the warts, 10 or 12 on each segment, are black and shining, and arranged in a transverse row of 10, with two in front of the general line in the middle, thus The warts are furnished with radiating tufts of bristles, which are either black, foxy-red or yellowish, according to their position. Those on the top of the 5th, 6th and 7th segments are foxy-red, and those on the two lowest lateral rows of warts and the lower hairs of the third row are of a yellowish-brown colour. The rest of the hairs are black, and those towards the anal extremity are rather longer than the others. Feet black, prop-legs dark, with a small wart, with a few short bristles on the outside of each; segments without prop-legs have small warts underneath.

Passing 4th moult September 6th.—

After fourth moult.—Length at rest, $\frac{3}{4}$ inch; in motion, $\frac{7}{8}$ inch. Colours the same as before, but with more foxy-red, which now extends from the 5th to 9th segments inclusive, and is not confined to the top, but extends down to meet the lighter coloured hairs along the sides, so that the black hairs are confined to the upper part of the 2nd to 4th and 10th to 13th segments, and a few along the sub-dorsal region on the 7th to 9th segments.

Began spinning up about 14th September. A very slight cocoon is made by drawing together leaves or frass with a few threads, and some of the hairs from the body woven in. In this the caterpillar lies sluggishly for several days before casting its skin and becoming a pupa.

Pupa.—Length, $\frac{1}{2}$ to $\frac{5}{8}$ inch, rounded head and pointed tail, dark brown in colour.

So slight were the cocoons that nearly all the pupæ slipped out of them.

Though most of the larvæ went on to pupation, a few seemed determined to hibernate full grown, and so were placed in a box in an out-house, but did not survive.

On 9th October I left home for a few days, but before doing so placed the pupæ in the cellar, as I did not expect the imagos to emerge till spring; but on examining the cage on 22nd October, after my return, I found that two or three had emerged in a crippled condition. I thought this might be caused by the dryness of the house, so tried to moisten the air by putting a wet sponge in the cage and in other ways, but they still continued to emerge crippled, and some only partially emerged.

On the 29th October I found one which had emerged, but the right wing cover was still adhering to the wing. I removed it with difficulty, many of the scales coming off with it, but none of the wings developed at all.

Mr. Winn suggested that perhaps the trouble arose from the absence of the cocoon, slight as it is, and I therefore tried the experiment of placing the pupæ in empty cocoons of *Halesidota caryæ*. This seemed to improve matters, and I succeeded in getting a few perfect specimens. One perfect female emerged and was left in the cage with two males for two days, in the hope of securing another lot of eggs, a large box of plantain having been brought into the house for feeding purposes. I was unable to watch these specimens, but as I did not suppose that a virgin female could pass two days with two males without being impregnated, I put the males in a cyanide bottle and the female in a pill box. A supply of eggs was secured, but they proved to be sterile.

About a dozen of the pupæ enveloped in the *Halesidota* cocoons, showing no sign of disclosing the imagos, were later placed again in the cellar in the hope and expectation of their maturing in the spring, but all were found to be dead on the return of that season. The larvæ fed readily on plantain, but were at all times very sluggish. Unlike most larvæ with which I have had anything to do, the faces were not cast in moulting in the usual manner, but remained attached to the skin.

In one case which was watched, the skin split along the side of the fore-part of the body. The larva rested for a time, and gathered strength for a further effort. The skin split further along and the larva again rested. Another effort, and the head was withdrawn, and then the caterpillar struggled out of the old skin. Immediately after the casting of the old skin the head and warts are honey-yellow, the latter with black points, and the skin is translucent, but dark in colour. The bristles are rather matted together, the tufts on top usually crossing each other, the under

surface is decidedly light. The hairs, which later became foxy-red, are then light-coloured.

This species was described as *Nemeophila Selwynii*, by the late Henry Edwards, in *CAN. ENT.*, XVII., 65, but there can, I think, be no doubt that it is identical with that described in *Proc. Ent. Soc., Phil.*, III., 113, by Dr. A. S. Packard, under the name of *Plactarctia Scudderi*, as follows:—

“♂.—Brownish-black. Sides of the prothorax, orange. Two whitish bands on the forewing; one lying just under the base of the median nerve, as long as the thorax; the other transverse running from just above the internal angle to the outer third of the costa. The middle of the patagia is whitish, and there are two curved narrow lines on each side of the meso-scutum. The tips of the palpi, and the ends of the femora above, and the tibiae and tarsi are very pale yellowish-white, concolorous, with the bands on the thorax and primaries.

Secondaries entirely brownish-black, and concolorous with the forewings.

Length of body, .45; length of primaries, .65 inch.”

Mr. Scudder's specimens were collected on the Saskatchewan River, but the best known locality is Nepigon, on the north shore of Lake Superior.

When I visited that place in 1890, July 9–11, in company with Mr. Fletcher, this species was just in season and fairly abundant, and I obtained over a dozen specimens in fine condition.

It is, however, a most difficult species to collect in good order, as the scales come off so easily that if two are in the cyanide bottle together, they damage each other immediately.

I do not think that the fact of so many of these larvæ passing through all their stages during the one season at all indicates a second brood under natural conditions, as their transformations were doubtless accelerated by being brought to a milder climate and kept in the house.

Last year Mr. Fletcher again visited Nepigon and secured eggs of this species and bred it to imago, and has informed me that while one specimen completed its transformations that season and gave the moth in the autumn, the rest of them hibernated when two-thirds grown on the surface of sod merely hidden beneath the leaves, close to the ground, but without any silken tent or cocoon. After awakening in the spring and before eating they measured exactly $\frac{5}{8}$ of an inch (average).

Mr. Samuel Henshaw kindly compared for me a specimen from Nepigon with the specimens in the Cambridge Museum, and found that while

the specimens varied slightly in regard to the whitish transverse band on primaries, which is a variable feature, in other respects, both colorational and structural, as far as they could be compared they did not differ.

In extenuation of the insufficiency of my notes on the earlier stages, I would say that the larvæ were carried all across the continent and back again to Montreal.

A NEW SPECIES OF OLIGOLOPHUS.

BY NATHAN BANKS, SEA CLIFF, N. Y.

Very few Phalangids have been collected on our mountains, and so it is not surprising that a new species of a genus which in Europe lives in high altitudes should be found on Mt. Washington, New Hampshire. Early in September, 1893, Mrs. Annie T. Slosson kindly sent me several vials of arachnids from the White Mts., and among them a vial from Mt. Washington containing six specimens of a beautiful new species of *Oligolophus*. It differs from the other American species which have been referred to that genus in lacking spines to the femur of the palpus, thus resembling some alpine European forms.

Oligolophus montanus, nov. sp.

Length—♂, 4.5 mm.; ♀, 7. mm.; femur I., 2.5 mm.; femur II., 5. mm.; leg II., ♂, 30. mm.; ♀, 27. mm.

Cephalothorax without the median points, but with some small denticles in front of the eye-tubercle, a sublateral row each side, a few just behind the lateral pore, two or three on the margin a little further along, some at the posterior angle, one or two at the side of the eye-tubercle, a transverse row on an elevated ridge just behind the eye tubercle, and on each abdominal segment about nine denticles. All these denticles are black and arise from little white pits. The eye-tubercle is not large, canaliculate, and with two rows of about five denticles above. The palpi are clothed with short, stiff, black hairs, but no spines. The femur cylindrical, slightly curved, and enlarged at tip on the inner side; patella about half as long as femur, but broader and a little swollen at tip; tibia similar to patella, but a little longer; tarsus much more slender, a little curved, and about as long as tibia and patella together, claw smooth.

Legs short, the fourth pair about as long as the second, no false articulations in any of the tibiæ; metatarsus I. with two false articulations; the superior edges of coxæ I., II. and III. each bear a spine; the trochanters have some denticles on the anterior and posterior sides, the femora have about five rows of denticles; and there are two rows on

the under side of tibia I. in the ♂; the legs have many short hairs, and there are small spines at the ends of the joints.

The dorsum is dirty-white or gray, with a broad brown or blackish vase-mark. On the cephalothorax, the vase-mark covers nearly the whole surface; on the abdomen it grows narrower on the second and quite suddenly enlarging on the third segment; then gradually narrowing to the tip of the abdomen. The white or gray of the sides contains a few black spots. Venter dirty-white, with black spots; legs pale yellowish-brown; mandibles white, with a large brown spot above on the basal joint, and some smaller ones on the second joint. Femur of palpus almost wholly brown, some small spots on patella and tibia, tarsus pale.

The outline of the vase-mark from the cephalothorax to the enlargement on the abdomen is very sharp and distinct, and in the darker specimens it is bordered with white. Sometimes there is a paler stripe through the vase-mark.

Locality—Mt. Washington, New Hampshire; collected by Mrs. Annie T. Slosson.

NOTES ON A POLYMORPHIC PAPILO.

BY WM. H. EDWARDS, COALBURGH, WEST VA.

For two or three years past Mr. David Bruce, in S. W. Colorado, has been taking *Papilio Bairdii* in company with a very different form, *P. oregonia*, as we have called it, and also with the form I described recently as *P. Hollandii*, which last is in general like *Bairdii*, but has the abdomen either with a broad stripe of yellow or almost completely yellow, instead of spotted yellow in rows, as in the *Asterias* group, and as in typical *Bairdii*. And from what Mr. Bruce has seen on the ground, he has become satisfied that all these three forms are but one species. It is a remarkable case of polymorphism, the more so that it is not confined to one sex only, and that the two main forms belong to what have been considered two different sub-groups, namely, *Bairdii* to the *Asterias* group, and this *Oregonia* to the *Zolicaon* and *Machaon* group. Of course, breeding is the final test in such a case. In 1892, Mr. Bruce obtained a large number of eggs from a ♀ of *Bairdii* confined over the food plant. This, by the way, is not one of the umbelliferæ, but of the compositæ, a strange plant for butterflies of either of these sub-groups to deposit their eggs on, *Artemisia dracunculoides*. And both these forms lay on it, passing by the umbelliferæ every time. Yet, the larvæ in confinement

have been reared on carrot, fennel and parsnip. The eggs spoken of hatched before Mr. Bruce left Colorado in September, and he brought the larvæ to his home at Brockport, N. Y., and enclosed them over a bed of growing carrots in his garden, under a wire gauze screen or box. In this way he got upwards of forty pupæ, but discovered soon that almost all had been stung by *Asterias* parasites. Out of the lot there were but three healthy pupæ, two of which produced *Bairdii* in the spring of 1893, and one a ♀ *Oregonia*, which Mr. Bruce sent me. But a few of the larvæ when half grown had been sent to Mrs. Peart, near Philadelphia, and from these she got four pupæ. These yielded in spring of 1893 one *Bairdii* and one very large and well-marked ♀ *Oregonia*, which also I now have. The other two pupæ are going over to 1894, as is often the case with the western *Papilios*, they running in the pupa stage for two years.

In 1893 Mr. Bruce was again upon the ground, and devoted his time largely to getting at the facts in this case. On the 23rd July he sent me two eggs of the *Oregonia*, as before, laid by a confined female. I sent one to Mrs. Peart, and she reared the larva and got a pupa 23rd August. Out of this, 8th September, came a ♂ *Bairdii*. The other egg produced a larva which died soon after third moult.

On 7th August, Mr. Bruce sent me twenty-four eggs of the *Oregonia*, obtained as before. The larvæ from these died off rapidly, and at all stages: seemed not to like their food. I treated them exactly as I have heretofore treated larvæ of *Papilio*, but I obtained only five pupæ. Some of the larvæ were certainly killed by the others, their bodies sucked dry, and this indicated, I think, a dislike to the food given. From the five pupæ up to date (21st September) have emerged four *Bairdii* imagos, 2 ♂, 2 ♀.

Thus imagos of *Bairdii* have come from eggs laid by the *Oregonia*, and in two instances *Oregonias* have come from eggs laid by *Bairdii*. As to *Hollandii* none of the *Bairdii* so far obtained are of that form, and its relationship to *Bairdii* is still but a matter of conjecture.

I am not satisfied that the form we are calling *Oregonia* is identical with the type form found in Oregon and Washington; am inclined to think it is not, and intended to propose the name *Brucei* for it. But, until more examples of the real *Oregonia* can be seen, I can come to no final conclusion.

I must not omit to say that at all stages the larvæ of these two forms are indistinguishable.

THE CLOVER-LEAF WEEVIL, *PHYTONOMUS PUNCTATUS*
(FABR.) IN ITALY.

BY F. M. WEBSTER, WOOSTER, OHIO.

When Dr. J. A. Lintner prepared his first annual report in 1882, he, with the aid of Drs. Hagen and Le Conte, failed to discover any record of the clover-destroying habit of this species in Europe, and it was supposed at that time that this was a newly acquired habit, and occurring only in this country. Indeed, Dr. Le Conte failed to learn anything whatever in regard to the food habits of this species. As it has now entered into the Mississippi Valley and is rapidly pushing its way westward, it will be of interest to those who will have to deal with it in future to know that its taste for clover was not of American origin, but had been observed in its native home many years ago. It is a matter of surprise to me that nothing is said, by Italian observers, that gives the least hint of injury by the larvæ, which is, with us, by far its most destructive stage. Nor do I find that Sig. Piero Bargagli, from whose very useful work, *Rassegna Biologica di Rincofori Europei*, I have taken the following extract, anywhere mentions the larva of this species, which he considers under the name *Hypera punctata*, Fab.

Here in Ohio, I find that the larvæ prefer the white clover to the red, and some unsatisfactory observations of mine, made quite recently, make me feel rather suspicious that the food of the adult may include plants other than clover. At Chautauqua Lake some years ago, I observed the adults in quite numbers floating about in the water, into which I supposed they had either dropped or been blown from the trees. But if this were so, what were they doing there?

(From *Rassegna Biologica di Rincofori Europei*, p. 97-8, 1883-87.)

During the years 1867-70, *Medicago sativa* and *Trifolium* were very much damaged in Lombardy and Bologna by this insect; and on the 4th of June, 1868, Mr. Antonio Villa, in *Relazione sugli insetti che devastano il Trifoglio, Milano, 1868*, and again in *Sull' insetto distruttore del Trifoglio, Milano, La Lombardia, 13 giugno, 1868*, directed the attention of the agriculturists of the district of Milan to the damage proven to have been done in the districts of Melegnano and Crema, attributing the extraordinary development of this species to the remarkable drouth, followed by excessive heat, causing the destruction of carnivorous insects which were hostile to this and other species. Various remedies were

employed for destroying the pests, among the most successful being the flooding of the meadows, rolling after the cutting of the clover, and, finally, collecting with small bags or nets.

In his second article, the eminent Mr. Villa stated the fact that, in the appendix to the work of Génè (*De quibusdam insectis Sardinia novis au. minime cognitis, Mem. R. Accad. Sc. Torino, Ser. I., Vol. 39, Ser. 11, Vol. I.*), which had been prepared by Prof. Moretti, this species had been mentioned as among those having damaged clover. In pointing out how this insect had destroyed clover, Mr. Villa expressed the belief that an earlier attack had occurred, between the years 1834-35, in which the injuries done were similar in character to that of this species. The Station of Agricultural Entomology at Florence received notice, in June, 1879, that this insect had, in the Commune of Ferrara Erbagnana, destroyed a field of 5 ettari (about $11\frac{1}{3}$ acres) in extent. (See *Relazione intorno ai lavori della Stazione Entomologica agraria di Firenze*, by At Targioni-Tozzetti, in *Annali di Agricoltura del Ministero di Agricoltura e Commercio, Roma, 1879.*)

In the neighbourhood of Florence, besides having been found in the clover in spring, it was, nevertheless, observed in the winter among moss at the base of trees, and, though hibernating, during warm, sunny days would come forth and bask in the sun.

CORRESPONDENCE.

CHALCID PARASITE.

Sir,—I would like to record the occurrence of the following Chalcid parasite:—

Bred from eggs of *Ianassa lignicolor*, Walker, on oak (*Quercus alba*) forty-five examples of

CHAETOSTICHA PRETIOSA, Riley.

1879, Riley, CAN. ENT., xi., 161.

minutissimum, Packard.

1883, Pack., Proc. Bost. Soc. Nat. Hist., xxi., 37.

The insects varied in length from .35 mm. to .65 mm. In the males the abdomen was often black banded above or largely black. They appeared during the first part of August. Bred at Woods' Holl., Mass.

HARRISON G. DYAR.

CARTEROCEPHALUS PALÆMON.

Sir,—Mr. Thomas E. Bean, in an interesting article in the June number for this year, points out the identity of *Carterocephalus mandan*, Edw., and *C. palæmon*, Pall. I think he has well proven his position, and in the proper way, which is by a study of the geographical distribution, which will always show the intergrades between the two extremes of the series. The *Palæmon* of Middle Europe and the *Mandan* of the White Mountains of N. H. look different enough, but when the series is completed by material found between the two extremes there can no longer be a doubt as to their identity. In the species that fly from the Atlantic to the Pacific, and that also exist in Europe, it will be found that the Pacific Coast examples are far closer to the European ones than those individuals found on the Atlantic slope. (See Ent. News, Vol. I., p. 84.)

The fact that *Mandan* was identical with *Palæmon* was pointed out by Moschler in *Verhandlungen der Zoologisch-botanischen Gesellschaft in Wien*, Vol. 34, 1884, p. 283. My attention was called to this synonymy by Prof. E. Bergroth, of Tammerfors, Finland.

DR. HENRY SKINNER, Philadelphia, Pa.

VARIETY OF PRIONOXYSTUS ROBINIÆ.

Sir,—In looking over my specimens of this common moth, I find a singular form that I never met with before, nor do I know of any description that has appeared in any entomological publication of a varied form of *P. (Cossus) robinie*, unless it may be Walker's *plagiatus*, of which I have not seen the original description. The example that I wish to make note of is a female, and differs from the regular form only in the following respects:—The whole of the sub-central inner space of the secondaries, "edging on the discoidal cell," is semi-transparent orange, similar to that which is so characteristic of the male, but it is not quite so intense in brightness of colour. The specimen is in fine condition, and is unique in appearance, when I compare it with the many examples that I have taken during the past season and previously; hence I feel convinced that the form is remarkable enough to be burdened with a name of its own. I propose, therefore, to give it the name *P. robinie*, var. *quercus*, because the species is not restricted to the extermination of *Robinia pseudacacia* alone, but also does great damage to *Quercus alba, rubra and coccinea*. I have also found the pupa shells protruding from the trunks of *Fraxinus sambucifolia* in the same locality.

GEORGE A. EHRMANN, Pittsburgh, Pa.

OCNERIA DISPAR.

Sir,—I wish on behalf of the Entomological Society of Ontario to acknowledge the receipt of a box from Prof. C. H. Fernald, Ph. D., containing a complete life series of the Gypsy moth, *Ocneria dispar*. Linn., which the State of Massachusetts is making such a praiseworthy and heroic effort to exterminate. The exhibit is gotten up under the direction of Prof. Fernald, by order of the Gypsy Moth Committee, with a view to extending a knowledge of this most destructive insect. It consists of an egg mass as deposited by the female moth on the twig of a tree; two eggs exposed to view; six caterpillars, ranging from one that had just escaped from the egg to the full-grown larva, beautifully mounted; a male and a female pupa; a male moth with the wings spread, also one with the wings unspread; a female moth with the wings spread, and one unspread. A most instructive and important contribution to the Society's collection.

J. ALSTON MOFFAT, Curator.

NEW LOCALITIES FOR PAPILIO HOMERUS.

Sir,—It will doubtless interest your readers to know that, notwithstanding the fact that *Papilio homerus* has thus far only been accredited to a very limited habitat in the island of Jamaica, mainly along the valleys of the Sulphur and Devil's rivers, I have recently seen it in several localities in the *terra incognita* in the highland regions of the republics of Haïti and Santo Domingo. The mountain regions of the island known to Columbus as Espanola, or Hispanola as we have it, and which is now without a name as a whole—Haïti being the name of the French-negro republic to the west and Santo Domingo of the Spanish-negro republic to the east—are practically unknown to whites, many considerable areas never having been trodden by white men since the sanguinary expulsion of the French a century ago.

On a recent trip through this interior, in the interests of a newspaper syndicate, I visited a number of localities where there was growing the large creeper, apparently belonging or allied to the genus *Ipomæa*, which I had previously discovered was the food-plant of *Homerus*, and I was not, therefore, at all surprised to occasionally see examples of this most magnificent member of its genus sailing grandly overhead. I have no doubt that the patient collector who will go up into the Cibas range and carefully explore the deep ravines of the western slopes will be rewarded with a goodly number of this valuable species. *Homerus* is most difficult of

capture, its high flight and grandly rapid movements making it more of a problem in that respect than most of its moisture-seeking congeners. But the market value of the insect is such that, taken in connection with others to be captured in that region (*P. Machaonides* being among them), patience and hard living are sure to be well paid for. Should any collector feel like attempting such a trip into the heart of that Vaudoux-ridden region, I shall be glad to offer such suggestions as may occur to me as useful to him. I shall also be glad to hear from entomologists who are interested in the insect fauna of the Andean water-shed of the Amazon tributaries, in Bolivia, Peru and Brazil, a region which I propose visiting at an early date. Letters addressed as below will be promptly forwarded to me.

EUGENE MURRAY AARON,
Care of Geographical Magazine,
79 Nassau St., N. Y.

ARGYNNIS EGLEIS.

Sir,—With this I send you a piece of pine-cone with an egg of *Argynnis Egles* on it. Yesterday, August 8th, being an unfavourable day for collecting *Parnassius Clodius*, I went in an aimless way to find a new collecting ground. When passing along the brow of a rocky slope, I came to a *Pinus Murrayana* tree (also called *P. Contorta*), and saw a female *A. Egles* walking over sticks and burs that were lying on the ground beneath this tree. I halted for a moment to watch her, as she gave all the outward signs of a desire to oviposit; I had not to wait long, for she walked to a pine-cone and, seizing it with her legs, curled her body and fastened on an egg as far under the cone as she could reach. She then flew about two feet and oviposited twice in succession under a stick on a small stone, and on the piece of cone that I am sending you herewith. As I was standing almost directly over her, she flew to my left foot and oviposited several times under the shadow of my instep; she came and went several times to repeat her work. I lost a day's collecting, but felt amply repaid by the novelty of the knowledge I acquired. What the next female will teach me I cannot conjecture, but trust it will be no less surprising and interesting to the butterfly-loving world.

J. B. LEMBERT,

Summit of the Sierra Nevada, Cal.

[The egg arrived safely and duly hatched out; it will evidently hibernata without feeding.—Ed. C. E.]

PAPILIO CRESPHONTES.

I was much surprised at capturing a specimen of this Southern butterfly at Roach's Point, Lake Simcoe, on the 28th of August. The locality is about fifty miles north of Toronto, and is probably the most northern point that the butterfly has reached. The specimen was worn and somewhat damaged, but another nearly perfect one was seen and chased, but escaped capture.

C. J. S. BETHUNE.

THE GOLDEN HEPIALUS.

Sir,—I have made one very interesting capture this season—*Hepialus auratus*, Grote. This rare moth was taken early in July, at Lonesome Lake, in the Franconia Mountains, about 3000 feet above the sea.

In this quiet, lonely spot Mr. William F. Bridge and Dr. W. C. Prime have a log cabin on the bank of the lake. It was in the twilight, after the sun had gone down, that my golden prize came fluttering by the open window of the cabin, and was soon in the poison bottle. It is a fine specimen, unbroken, but with some of the scales rubbed from its delicate wings. Mr. Grote described this moth in CAN. ENT., Vol. X., p. 18, from a specimen taken in the Adirondacks by Mr. W. W. Hill, in July, 1877. Ten years later Mr. E. P. Van Duzee, our well-known Hemipterist, took a specimen at Lancaster, N. Y., not far from Buffalo, and recorded the capture in Entomologist, Vol. XX., page 100. I have seen no record of any other capture, though it is of course possible that the moth is included in private collections of which I know nothing. At any rate it is among our very rarest moths, and I am glad and proud to include it in our Franconia list.

ANNIE TRUMBULL SLOSSON.

OMISSION.

On page 224 of our September issue, between the fourth and fifth lines from the bottom of the page, the following lines were unintentionally omitted:

First and third antennal joints subequal in length, some
of the veins coloured with brown. *lcvigata*, Loew.

The Annual Meeting of the Entomological Society of Ontario will be held in the rooms, Victoria Hall, London, on Wednesday, October 11th, at 3 o'clock p.m., and also at 8 p.m.

Mailed October 5th.