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No. 3

NEW OR LITTLE KNOWN SPECIES OF APHIDIDÆ.

BY JOHN J. DAVIS, BUREAU OF ENTOMOLOGY, WASHINGTON, D.C.

(Continued from page 51.)

Wingless viviparous female. (Pl. IV, figs. 11-13.)

Macrosiphum venæfuscæ, n. sp.

Body uniformly pale green. Antennæ blackish, excepting segments I, II, and the extreme base of III, which are pale greenish brown; placed on prominent frontal tubercles; sparsely setose; 1 to 3 circular sensoria in a row on basal portion of segment III; filament of segment VI longest; total length greater than that of body. Beak just reaching to coxæ of third pair of legs. Eyes black. Basal half of femur with a slight greenish tint, the distal half pale brown; tibia and tarsus blackish. Cornicles black, reaching to or a little beyond tip of cauda; distal end plainly reticulated and noticeably constricted; gradually tapering, the tip being much narrower than base. Cauda approximately one-half the length of cornicles, ensiform, and sparsely hairy.

Measurements from specimens mounted on slides in balsam: Length of body 2.55-2.75 mm., average 2.67 mm.; width of body 1.20-1.35 mm., average 1.30 mm.; length of middle tibia 1.70-2.24 mm., average 1.98 mm.; length of hind tibia 2.44-3.02 mm., average 2.76 mm.; length of hind tarsus 0.135 mm.; length of cornicles, average 0.942 mm.; length of cauda, average, 0.516 mm. Antennal measurements as follows:

ANTENNAL SEGMENT NO. 1m.

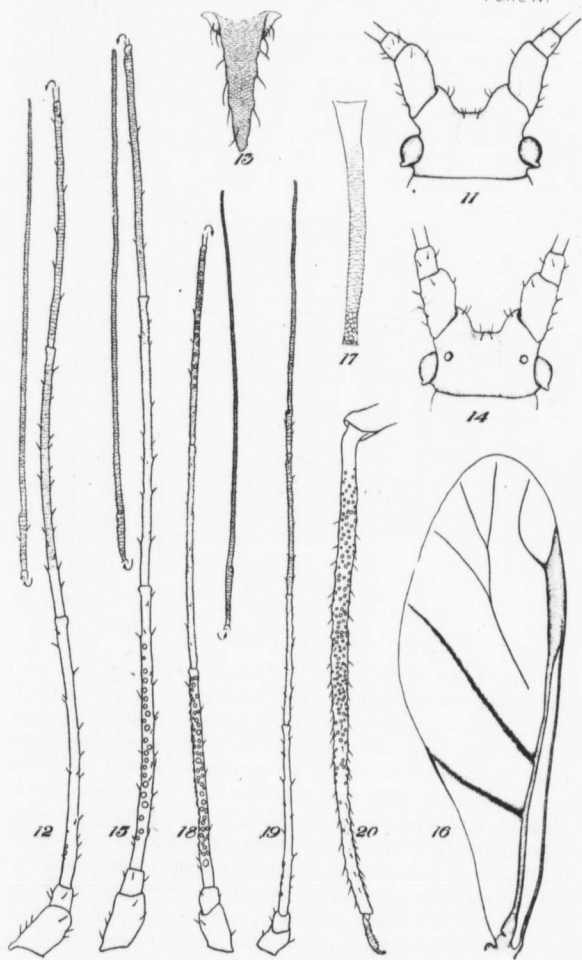
I.	II.	III.	IV.	V.	VI. (base)	VI. filament
mm.	mm.	mm.	mm.	mm.	mm.	mm.
0.209	0.104	1.043	1.026	0.922	0.191	1.391*
.209	.096	1.043	1.043	.956	.200	1.565
.191	.087	.922	.835	.713	.....	.....
.226	.096	1.069	1.061	.922	.191	.....
.217	.096	1.069	1.078	.922	.191	.....
.203	.104	1.113	1.078	.930	.217	.....
.217	.096	1.113	1.018	.922	.209	.....
.226	.096	1.165	1.165	.922	.209	.....
.....	.....	1.061	1.078	.904	.200	1.391†
.....	.....	1.069	.974	.887	.191	1.465†

*Slightly shriveled at extreme tip.

†Extreme tip apparently broken off.

Winged viviparous female. (Pl. IV, figs. 14—17.)

Head and thoracic plates very pale yellowish brown. Antennae placed on prominent frontal tubercles; very long, being about one and one-half times the length of the body; sparsely setose; black, excepting segments I, II, and extreme base of III, which are concolorous with head; filament of segment VI longest; 14 to 24 (usually about 19) circular sensoria more or less in a row on segment III, and the usual distal ones on segments V and base of VI. Eyes black. Fore wings with the first anal and cubitus blackish, with a conspicuous fuscous border; other veins brownish and slender; media 1 and media 2 normally branching at one-half the distance where media 3+4 branches to the tip of wing. Femur pale green, excepting distal third, which is dark brown; tibia dark brown, with the tip black; tarsus black. Abdomen pea green in colour. Cornicles black, reaching to a little beyond tip of cauda, cylindrical and tapering toward tip, the base being nearly twice the diameter of the apex; distal end reticulated. Cauda concolorous with abdomen, ensiform, sparsely hairy, and approximately one-half the length of cornicles.



MACROSIPHUM VENAEFUSCAE, n. sp.

Measurements from specimens mounted in balsam on slides: Length of body 2.13—2.63 mm., average 2.38 mm.; width of body, average, 0.98 mm.; length of forewing, average, 4.10 mm.; width of forewing, average, 1.47 mm.; length of middle tibia, average, 2.05 mm.; length of hind tibia, average, 2.87 mm.; length of hind tarsus, average, 0.117 mm.; length of cornicles, average, 0.93 mm.; length of cauda, average, 0.45 mm. Antennal measurements as follows:

ANTENNAL SEGMENT NO. 1m.

I.	II.	III.	IV.	V.	VI. (base)	VI. filament
mm.	mm.	mm.	mm.	mm.	mm.	mm.
0.226	0.035	0.953	1.026	0.817	0.209	.....
.217	.087	.947	1.043	.....	.....	.....
.226	.087	1.026	1.113	.922	.182	.....
.217	.087	1.026	1.130	.956	.....	.....
.226	.035	.991	1.026	.904	.191	.....
.226	.104	1.036	1.113	.974	.191	1.803
.209	.087	1.078	1.113	.991	.200	1.731
.217	.087	1.036	1.043	.991	.226	.....
.209	.104	1.036	1.043	.956	.226	.....

Winged male. (Pl. IV, fig. 18.)

Entire body brownish pink to light red. Antennæ black, excepting segments I and II, which are a dusky reddish brown to blackish; very sparsely setose; placed on prominent frontal tubercles; total length greater than that of body; filament of segment VI longest; segment III with 53 to 67 circular, somewhat tuberculate sensoria, irregularly placed; segment IV bare of sensoria; segment V with 17 to 26 sensoria, not including the usual distal sensorium, somewhat regularly placed, and the usual distal ones on segment VI. Eyes blackish; ocelli prominent. Legs black, excepting basal half or third of femur. Wings as in winged viviparous female. Cornicles black, reaching a little beyond tip of cauda, cylindrical, and slightly larger at base than at apex; distal end

reticulated. Cauda concolorous with abdomen, ensiform, sparsely hairy, and about one-third the length of cornicles.

Average measurements from specimens recently mounted on slides in balsam: Length of body 2.23 mm., width 0.82 mm.; length of wing 4.20 mm., width 1.66 mm.; length of middle tibia 2 mm., of hind tibia 2.48 mm., of hind tarsus 0.116 mm., of cornicle 0.67 mm., of cauda 0.203 mm.

Antennal measurements as follows:

ANTENNAL SEGMENT NO. 1m.

I.	II.	III.	IV.	V.	VI. (base)	VI. filament
mm.	mm.	mm.	mm.	mm.	mm.	mm.
0.156	0.087	0.852	0.869	0.782	0.208	1.478*
.....	.....	.843	.869	.765	.....	.....
.174	.087	.904	1.026	.869	.200	.....
.156	.078	.895	.974	.878	.191	1.565
.174	.096	.904	.956	.749	.182	.....
.174	.096	.939	.930	.740	.182	.....
.165	.096	.922	1.051	.791	.182	.....
.174	.096	.939	1.069	.835	.191	1.548

* Extreme tip appears to be broken off.

Wingless oviparous female. (Pl. IV, figs. 19-20.)

Colour of head and thoracic segments between pale cadmium yellow and chrome yellow. Antennæ blackish, excepting segments I and II, which are dusky, and extreme base of III, which is pale; sparsely setose; filament of segment VI longest; 4 to 7 circular sensoria in a row on segment III and the usual distal one on segments V and base of VI. Eyes dark red. Beak reaching to coxæ of second pair of legs. Femur pale, becoming dusky at tip; tibia brownish, with the tip black; tarsus black. Hind tibiæ entirely black, conspicuously swollen, and bearing numerous (about 200 to 260) small, irregularly shaped and irregularly placed sensoria on the basal three-quarters; the sensoria are closely placed and

many are coalesced. Abdomen pale green, the segments posterior to the cornicles usually concolorous with thorax. Cornicles concolorous with abdomen at extreme base, the tip black, and the remainder brownish to blackish; not reaching to tip of cauda; cylindrical, the top only slightly narrower than base; the distal end reticulated. Cauda concolorous with abdomen and with a slight duskiness, the tip blackish; ensiform; very sparsely hairy; less than half the length of cornicles.

Average measurements from specimens on slides in balsam, made soon after mounting: Length of body 2.55 mm., width 1.31 mm.; length of middle tibia 1.31 mm., of hind tibia 1.75 mm., of hind tarsus 0.135 mm., of cornicle 0.80 mm., of cauda 0.35 mm. Antennal measurements as follows:

ANTENNAL SEGMENT NO. 1m.

I.	II.	III.	IV.	V.	VI. (base)	VI. filament
mm.	mm.	mm.	mm.	mm.	mm.	mm.
0.122	0.078	0.513	0.513	0.547	0.174	0.956
....	....	.748	.542	.547	.165	.939
....	....	.887	.574	....	....	....
.130	.087	.817	.565	.591	.156	....
....	....	.852	.591	.574	....	....
....	....	.869	.582	.626	....	....

Described from specimens collected at La Fayette, Ind., on crested wild buckwheat (*Polygonum cristatum*), September 4 and 6, 1911, and on curled leaf dock (*Rumex crispus*), October 13, 1911, and October 26 and November 19, 1912. We have also collected it on *Polygonum cristatum* at Lancaster, Wis., September 26, 1911, and have received it from Mr. W. J. Phillips, who collected it "from a vine in clover field" at Warsaw, Ind., August 18, 1911. Mr. J. T. Mouell also collected this species at St. Louis, Mo., October 4, 1911, on *Rumex*. The viviparous females occur on the *Polygonum*, while the males and oviparous females occur in the

fall of the year only, on *Rumex*, on which plant the eggs are laid. The details of this migration from *Polygonum* to *Rumex* have not been worked out.

Macrosiphum tiliaë (Monell).

When in Madison, Wis., the past fall (September 10, 1912) the writer found this rather rare species not uncommon on basswood (*Tilia americana*), both green and pink viviparous females, as well as the sexes, being observed. Previous to this collection, he had found this species on only two occasions—July 23, 1908, at Chicago, Ill., only a single winged viviparous female being taken, and July 12, 1909, at the same place, only two wingless viviparous females being obtained.

Winged viviparous female. (Pl. V, figs. 21—23.)

(Described from specimens obtained at Madison, Wis.)

Green Form: Head pale brownish; eyes black. Antennæ placed on prominent tubercles as shown in illustration; black, excepting segments I and II, which are concolorous with head; reaching beyond tip of body; filament of segment VI much the longest, being about twice the length of III; segment III bearing 11 to 16 circular sensoria in a row; segments V and base of VI with the usual distal sensoria. Beak reaching just to coxæ of second pair of legs. Thorax dark green. Wings with narrow brownish veins. Media₁ and media₂ branching at about one-half the distance from where media₃₊₄ branches to tip of wing; this, however, not being a constant character. Abdomen pale green, immaculate. Cornicles black, reaching a little beyond tip of cauda, noticeably widened at base, and slightly constricted near tip; the tip plainly reticulated. Cauda pale green, ensiform, sparsely covered with moderately long hairs, and about one-third the length of cornicles. Anal plate rounded.

Average measurements from four specimens in balsam: Length of body, not including cauda, 2.63 mm., length including cauda 2.79 mm.; width of body 1.01 mm.; length of wing 4.10 mm.; width of wing 1.40 mm.; length of cornicle 0.88 mm., of cauda 0.28 mm. Antennal measurements as follows:

ANTENNAL SEGMENT NO. 1m.

I.	II.	III.	IV.	V.	VI. (base)	VI. filament
mm.	mm.	mm.	mm.	mm.	mm.	mm.
0.194	0.097	0.890	1.064	0.948	0.251	.....
.194	.097	.871	1.026	.910	.232	1.587*
.194	.097	.871	.948	.890	.232	1.548*
.194	.097	.890	1.045	.968	.232	.....
.213	.097	1.006	1.122	.968	.213	.....
.194	.097	1.006	1.142	.....	.....	.....
.....	.....	.697	.735	.755	.194	.....
.....	.....	.697	.774	.755	.194	1.316†

* Extreme tip broken off.

† Extreme tip is shriveled.

The *pink form* is similar to the foregoing excepting as follows: Thorax dark reddish green and abdomen decidedly pinkish. Cauda concolorous with abdomen.

Wingless viviparous female.

Described from two specimens collected at Chicago, Ill.

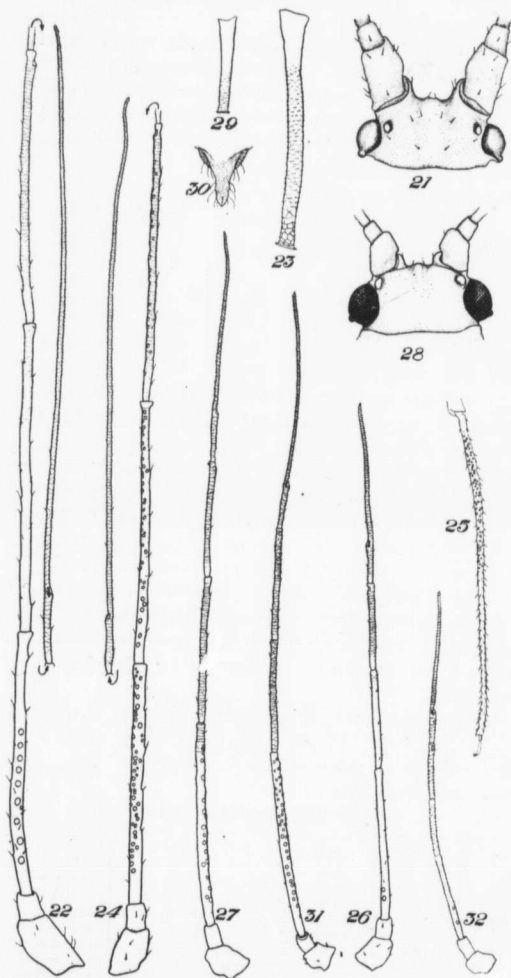
Head yellowish green. Eyes blackish. Ocelli absent. Antennæ black, excepting the two basal segments, which are concolorous with head; the filament of segment VI broken off in all specimens at hand, hence the relative length of segments can not here be given; segment III with two or three small, circular, inconspicuous sensoria near base. Legs with femora pale yellowish, excepting distal end, which is dark brown; tibiæ and tarsi dark brown to black. Abdomen pale green. Cornicles black, excepting at extreme base, where they are pale green; otherwise as in winged form. Style pale yellowish; otherwise as in winged form.

Measurements: Length of body not including style 2.44 mm., to tip of style 2.60 mm.; width 1.04 mm.; length of cornicles 2.2 mm.; of cauda 0.62 mm.

Winged male. (Pl. V, fig. 24).

Described from one specimen collected September 10, 1912, at Madison, Wis.

No colour notes made. This form differs from the winged



MACROSIPHUM TILIAE AND MYZUS LYCOPERSICI.

viviparous female as follows: It is a smaller individual. Antennæ much longer than body, relatively longer than in the viviparous form; segment III bears 60 to 70 irregularly placed circular sensoria, segment IV bears from 45 to 50, segment V with 29 to 31, not including usual distal one, more or less in a row, and segment VI bare, with the usual distal ones.

Antennal measurements as follows:

ANTENNAL SEGMENT NO. 1m.

I.	II.	III.	IV.	V.	VI. (base)	VI. filament
mm. 0.155	mm. 0.077	mm. 0.853	mm. 0.968	mm. 0.948	mm. 0.175	mm. 1.800
.155	.077	.832	.910	.968	.193	1.800

Wingless oviparous female. (Pl. V, fig. 25).

Described from one specimen collected September 10, 1912, at Madison, Wis.

Head very pale brownish. Antennæ black, excepting segments I and II, which are concolorous with head; total length greater than that of body; filament of segment VI much the longest; segment III with a single inconspicuous circular sensorium near base; the usual sensoria at tips of segments V and base of VI. Thorax and abdomen pale greenish yellow. Hind tibia swollen and bearing a large number of irregularly placed, circular sensoria. Cornicles blackish, pale at base; reaching a little beyond tip of cauda. Cauda concolorous with abdomen. Otherwise as in the wingless viviparous female.

Measurements from one specimen in balsam: Length of body not including cauda 2.17 mm.; length including cauda 2.30 mm.; width 1.006 mm.; cornicle 0.89 mm.; cauda 0.51 mm. Antennal measurements as follows:

ANTENNAL SEGMENT NO. 1m.

I.	II.	III.	IV.	V.	VI. (base)	VI. filament
mm. 0.193	mm. 0.096	mm. 0.774	mm. 0.794	mm. 0.813	mm. 0.213	mm. 1.490
.193	.096	.794	.813	.832	.213	1.432

Through the kindness of Mr. J. T. Monell the writer has had an opportunity of examining the type slide of this species—Monell No. 151. On the slide are two winged viviparous females, and the head and antennæ of one wingless viviparous female, all mounted in balsam under one cover glass. The data on these specimens follow:

Winged viviparous female: Antennæ with 12 to 15 circular sensoria in a row on segment III and the usual distal ones on V and base of VI. Cornicles reaching beyond tip of cauda, long, cylindrical, widened noticeably at base, slightly constricted near tip; the tip plainly reticulated. Wing veins narrow, the branching media obscured. Measurements as follows: Length of body not including cauda 2.51 and 2.63 mm. respectively; length of cornicles 0.968 mm., of cauda 0.278 mm.; length of hind tibia 2.98 mm. Antennal measurements as follows:

ANTENNAL SEGMENT NO. 1m.

I.	II.	III.	IV.	V.	VI. (base)	VI. filament
mm. 0.193	mm. 0.037	mm. 0.968	mm. 1.045	mm. 0.987	mm. 0.232	mm.
.193	.037	.948	1.045	1.006	.232	.....
.193	.097	.948	1.084	.968	.213	1.761
.....	.....	.987	1.084	.968	.213	1.703*

* Shriveled at tip.

Wingless viviparous female. Segments III of the two antennæ bear 3 and 5 small circular sensoria respectively, near the base, and the usual distal sensoria on V and base of VI. Antennal measurements as follows:

ANTENNAL SEGMENT NO. 1m.

I.	II.	III.	IV.	V.	VI. (base)	VI. filament
mm. 0.193	mm. 0.097	mm. 1.064	mm. 1.026	mm. 0.968	mm. 0.232	mm.
.193	.097	1.064	1.045	.929	.232	1.819

NOTES ON THE WINTER AND EARLY SPRING
COLEOPTERA OF FLORIDA, WITH DESCRIPTIONS OF NEW SPECIES..

BY W. S. BLATCHLEY, INDIANAPOLIS, IND.

(Continued from p. 66).

Ora hyacintha, sp. nov.

Elongate-oval, strongly depressed. Nearly uniform testaceous, feebly shining, the thorax, scutellum, front tibiae and apex of hind femora in some specimens more or less infusate. Head broad, finely and sparsely punctate; eyes small, coarsely granulate, separated by more than twice their own diameters; antennae slender, half the length of body, the second joint much stouter and slightly longer than third, the two united shorter than fourth, which is subequal to those which follow. Thorax twice as wide as long, sides broadly rounded, base bisinuate; front angles rounded, hind ones obtuse, disc finely and sparsely punctate and with a small irregular impression each side of middle. Elytra conjointly one-half longer than wide, distinctly wider than thorax, margins strongly flattened and reflexed; disc widely, shallowly but obviously bisulcate, finely, sparsely and irregularly punctate. Prosternum with a very thin, blade-like process between the front coxae; middle and front femora stout, hind ones greatly enlarged; under surface minutely and rather densely punctate, very finely pubescent. Length 5.5—6.5 mm. Width 3.5 mm.

Described from 16 specimens taken from the southeastern shore of Lake Okeechobee, March 6 and 7. They were found only in and beneath the hollow stems of decaying water hyacinth (*Piaropus crassipes* Mart.) next to the water's edge. When the stems were broken open the beetles would emerge and jump about in a grotesque manner. Supposing they were some form of Halticini, I recorded them at the time as "flat jumping Chrysomelids." From other described species of *Ora* they differ especially in the uniform dull yellow colour and more distinct sulcations of elytra.

The genus *Ora* is closely allied to *Scirtes*, differing mainly in the prosternum being prolonged in a very thin lamina between the front coxae, and in the margins of the thorax and elytra being strongly flattened and reflexed. The hind coxae are also separated posteriorly by an intercoxal process.

March, 1914

Cyphon perplexus, sp. nov.

Oblong-oval, subdepressed, rather thickly clothed with short, suberect yellowish hairs. Uniform pale brownish yellow; feebly shining; elytra each with an indistinct oblique dusky spot on basal fourth. Antennæ with five outer joints dusky, second joint stouter and slightly shorter than third, the two together equal to or slightly longer than fourth. Head finely and rather densely granulate-punctate; eyes small, widely separated. Thorax twice as wide as long, sides straight and parallel, hind margin bisinuate, front one less strongly so, all the angles distinct but obtuse; disc very finely, evenly and rather sparsely punctate. Elytra more than one-half longer than wide conjointly, one-third wider at base than thorax, sides parallel for two-thirds their length, thence gradually converging to apex; disc punctate like the thorax, the punctures somewhat coarser. Under surface very finely and rather densely punctate. Length 2—2.5 mm.; width 1.5 mm.

A common insect on the flowers of an Ericad (*Andromeda nitida* Bart.) also beaten from oak, myrtle, etc. Described from 36 specimens taken at Dunedin, January 19–March 21; Lake Istokpoga, February 25; Kissimmee River, February 19; Sanford, April 4; Eustis, April 6; Ormond, April 14.

Smaller and paler than *C. variabilis*, sides more parallel, upper surface much more finely, sparsely and evenly punctate. The second and third joints of antennæ are each distinctly shorter than the fourth, while in *variabilis* the three joints are subequal in length.

4608.—**Buprestis sulcicollis** Lec. One specimen beneath bark of dead pine. St. Petersburg, January 20.

4617.—**Melanophila notata** Lap. & Gory. One beaten from pine. Ormond, April 6.

4658.—**Chrysobothris chrysoela** Ill. Single specimens of this small and very handsome species were beaten from oak at Lake Istokpoga, February 25; Fort Myers, March 10; Sanibel Island, February 25.

Plateros flavoscutellatus, sp. nov.

Elongate-oblong, depressed, wider behind. Black, feebly shining; thorax yellow with a large subquadrate black spot which is divided along the middle by a very narrow yellow line, this line extending back along the edges of the suture to beyond the middle

of elytra; scutellum, narrow side margins of elytra from humeri to or beyond the middle, and bases of front and middle femora, also yellow. Antennæ strongly compressed, the second joint very small, one-third the length of the third, the latter as broad at apex as long, one-half the length of fourth. Thorax subpentagonal, concave, sides straight, strongly reflexed and slightly diverging from apex to base, the hind angles acute and prolonged beyond the union of basal and side margins; disc irregular, the median line distinct only on basal half. Elytra as wide at base as thorax, feebly but distinctly widened behind the middle; alternate intervals but slightly elevated; cells small, subquadrate, males with the sixth ventral widely and deeply emarginate and the antennæ more distinctly serrate than in the female. Length 5.5—7 mm.

Described from 14 specimens taken by beating at Dunedin, March 27—April 1; Sanford, April 3; Eustis, April 6; Ormond, April 11—13.

While our species of *Plateros* are, in most collections, badly mixed and, as LeConte says, "are almost undistinguishable," this one is easily separated from all others by the colour as described, especially the yellow scutellum, and by the greatly prolonged hind angles of the thorax. According to Mr. Schwarz, to whom specimens were sent for examination, it is "a common Florida species which stands in the U. S. National Museum as *P. timidus* var.?"

4824.—***Pyractomena borealis*** Rand. On the evening of Feb 19, while at our second camp, which was on an island in Kissimmee Lake, I noted a firefly or two over a damp meadow near the tent. Getting my net, I sallied forth, eager for prey. The only specimen which I was able to capture was one which, instead of flashing its light intermittently, turned it on apparently to stay and flew in a wide half circle out over the lake and back within twenty feet of where I stood. I traced its entire flight by the steady constant light. It is a male, the only specimen of its kind I took, and seems to be the same as our northern specimens of the above name. I can find no record of a firefly thus emitting a constant instead of an intermittent light. This it continued to do while in the bottle until it succumbed to the fumes of the cyanide.

Attalus zebraicus, sp. nov.

Oblong, subdepressed, distinctly dilated behind. Occiput and

major portion of thorax black, shining; front of head and a large triangular space each side of base of thorax reddish; elytra dull yellow, each with an oblique black stripe reaching from humerus to near the suture at middle, and an oblong lateral black spot on apical third; antennæ dusky, legs dull yellow, abdomen blackish. Length 2.3—2.5 mm.

Taken by sweeping at Sanford, March 29; Ormond, April 3-6. Allied to *scincetus* Say but shorter, more dilated behind and with distinct and constant colours as described. The oblique black stripe of elytra is curved outward at its posterior end and in some specimens almost touches the lateral black spot.

5170.—**Enoclerus lunatus** Spin. Four specimens from flowers of the thistle (*Carduus horridulus* Pursh.). Sarasota, February 16—March 4; Sanford, March 24.

Catorama porosum Fall. A dozen or more specimens were taken by beating oak when the trees were in blossom. Dunedin, March 21—30; Sanford, March 29; Ormond, April 13. One of the Ormond specimens is 4 mm. in length.

5325.—**Eutylistus tristriatus** Lec. One specimen beaten from Spanish moss. Dunedin, March 21.

Eutylistus fallax Fall. One taken by sweeping. Lake Istokpoga, February 23. This and the two preceding species were identified for me by Mr. H. C. Fall.

Rhipidandrus fulvomaculatus Dury (Mss.) Sixty or more specimens of this, about 30 of *Cis hirsuta* Casey, several of *Cis creberrimus* Mellie and *Ceracis sallei* Mellie were sifted from decaying woody fungi at the base of a pine. Dunedin, January 24.

5485.—**Euparia castanea** Serv. Three specimens from a nest of small brown ants, beneath the bark of a decayed oak stump. Sanford, January 16.

Aphodius campestris Bl. A third specimen was taken near Dunedin, February 11. The two types were from Sarasota.

5560.—**Aphodius concavus** Say. A single example of this large species was taken at Sanford, January 13. I cannot find that it has been before recorded from Florida.

5928.—**Cremastochilus squamulosus** Lec. One from beneath bark of pine log in company with several red and black ants. Sarasota, March 3.

6106.—**Ancylocera bicolor** Oliv. Four examples of this handsome Cerambycid were taken by beating oak when in blossom. Bassenger, February 28; Sanford, March 28; Eustis, April 6.

6134.—**Æthecerus hornii** Lac. One from flowers of the farkleberry (*Vaccinium arboreum* Marsh). Ormond, April 6.

Euryptera flavatra, sp. nov.

Elongate, slender. Head yellow, the occiput and labrum piceous; thorax yellow with a black median stripe; scutellum piceous; elytra, basal two-thirds yellow, apical third black; basal joints of antennæ and under surface black; apical half of antennæ and legs piceous, the coxæ and tibiæ paler. Eyes large, broadly and deeply emarginate on the inner border. Antennæ half the length of body, second joint very small, third twice as long as fourth. Thorax bell-shaped, flattened above, as wide at base as long, hind angles scarcely prolonged, the black median stripe finely pubescent and densely granulate-punctate, the sides densely clothed with long prostrate yellow hair. Elytra coarsely and rather densely punctate, the yellow portion with long, semi-erect yellow hairs, the black portion with similar black hairs. Side pieces of meso- and meta-sterna finely and densely punctate; abdomen minutely and very sparsely punctate. Hind coxæ contiguous. Length 7.5 mm.

One specimen swept from the flowers of the hoary lupine (*Lupinus diffusus* Nutt.) near Dunedin. March 19. Very different from all other described Lepturids by the colour. The transition from the bright yellow basal to the shining black apical portion of elytra is abrupt.

6462.—**Lypsimena fuscata** Lec. One beaten from a dead oak near Eustis, April 7.

6562.—**Lema cornuta** Fab. One swept from hoary lupine near Dunedin, March 29.

Chlamys nodulosa Bl. This species, described in the Canadian Entomologist, January, 1913, I found to be quite common at Dunedin, Lake Istokpoga and Sanford. It, therefore, probably occurs throughout Central and Southern Florida on oak, myrtle and other foliage. February 25—April 14.

(To be continued.)

A NEW SPECIES OF ORTHOPTERA, FORMING A NEW GENUS AND FAMILY.

BY E. M. WALKER, TORONTO.

While collecting on Sulphur Mountain, Banff, Alberta, on June 29th, 1913, Mr. T. B. Kurata and the writer captured two specimens of a peculiar wingless thysanuriform insect, which at once struck me as very remarkable on account of their possessing an ovipositor like that of the Tettigonidæ (Locustidæ). The two specimens, both females, are of about the same size, and, judging by the size and appearance of the ovipositor, are probably mature. They were found running about like centipedes under the stones of a talus-slope at an altitude of about 6500 feet. Considerable search was made for more specimens, but without success.

A study of these specimens shows that they are genuine Orthoptera, but of a very generalized type and cannot be placed in any of the known families of this order. Their appearance is somewhat suggestive of the termites, or, still more, of the nymphs of the Plecoptera, but that they are true Orthoptera is at once apparent, in spite of the total absence of wings, on an examination of the mouth-parts, the cervical and thoracic sclerites and the ovipositor.

This insect forms the type species of a new genus, *Grylloblatta*, and a new family, *Grylloblattidæ*.

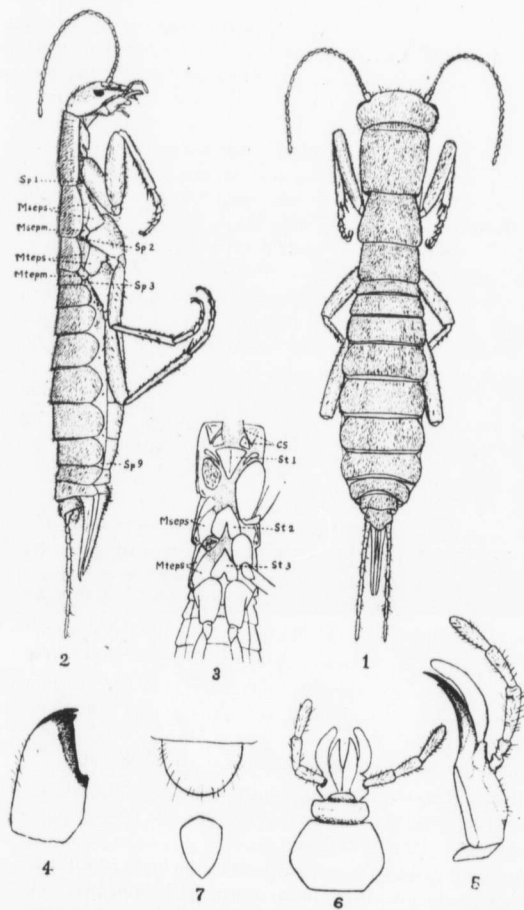
Grylloblattidæ, new family, and **Grylloblatta**, new genus.

Body elongate, slender, depressed, thysanuriform; head blattoid, somewhat flattened, obliquely attached to the prothorax; epicranial suture distinct; antennæ arising close to the fronto-clypeal suture, shorter than the body, with 26 to 29 segments; eyes small, widely separate; ocelli absent; labium with glossæ and paraglossæ separate and well differentiated. Thoracic nota flattened, quadrate, decreasing in size caudad; meso- and meta-episterna well developed, oblique, each with a horizontal fold, apparently dividing it into two parts; epimera small; sternal plates small, separated by considerable areas of soft cuticle; thoracic stigmata two, the first close to the hind margin of the prothorax, the second upon the mesepimeron. Legs cursorial; coxæ large, especially the first pair; femora, tibiæ and tarsi with a few slender scattered spines, tibial spurs two, an outer

and inner, the latter the larger; tarsi 5-jointed, without pulvilli. Abdomen with 10 segments; tergites not overlapping the sternites, separated by a well-developed pleural membrane; abdominal stigmata on the pleural membrane of segments 1-7, very minute and difficult to see; cerci about as long as the hind tibiae, slender, cylindrical, 8-jointed; ovipositor exerted, composed of 3 pairs of elongated processes or valves, the upper pair slightly longer, the middle pair slightly shorter than the lower pair; inner valves exposed in lateral view, each valve fitting into a groove on the corresponding valve of the lower pair, but not connected with the upper pair.

***Grylloblatta campodeiformis*, n. sp.**

Body uniform honey-yellow, covered with minute pubescence. Head flattened, rounded; nearly as broad as long, broadest across the eyes, which are ovo-triangular, about as broad as long and distant from the lateral margin by a little less than their transverse diameter; facets about 70, slightly irregular in size and arrangement; antennae reaching back to about the hind margin of the metathorax, filiform, very slightly tapering; first segment somewhat flattened, about two-thirds as wide as the eye and as long as segs. 2-3, which are together equal to segs. 4, 5 and 6, distad of which the segments gradually increase in length to about seg. 16, shortening again slightly towards the apices; clypeus as broad as the space between the middle of the basal joints of the antennae and somewhat more than twice as broad as long, lower margin nearly straight; labrum semi-ovate, the free margin regularly convexly curved; mandibles with a basal, apical and subapical tooth (maxilla and labium, see pl. VI, figs. 5, 6). Pronotum transversely feebly convex, slightly longer than broad, anterior margin gently arcuate, posterior margin nearly straight and subparallel, antero-lateral angles slightly rounded, postero-lateral angles rectangulate; a straight transverse groove just behind the anterior margin. Mesonotum scarcely three-fourths as long as the pronotum, somewhat constricted at base, expanding slightly caudad, the straight posterior margin somewhat greater than the length, the lateral margins deflected, arcuate in lateral view; postero-lateral angles well rounded. Metanotum almost four-fifths as long as the mesonotum, somewhat less than twice as broad as long, feebly expanding



GRYLLOBLATTA CAMPODEIFORMIS, n. gen. et. sp.

caudad; lateral margins and postero-lateral angles as in the mesonotum. Prosternal plate triangular, mesosternal and metasternal plates somewhat V-shaped, all separated by considerable areas of soft integument, which is covered by the large coxæ. Front coxæ stout, slightly shorter than the pronotum and longer than the middle and hind coxæ, the middle pair being the shortest; each coxa with a distinct ridge separating the ventro-anterior and postero-lateral surfaces. Fore and middle femora and tibiæ all of nearly the same length, each being about as long as the pronotum; front tarsi slightly shorter, middle tarsi slightly longer than the corresponding tibiæ; hind femora, tibiæ and tarsi of nearly the same length, distinctly longer than the corresponding parts of the other two pairs of legs. Abdomen widening from base to segment 5, which is slightly wider than the head, narrowing again rapidly in the last 3 segments. Cerci with 8 cylindrical segments, which gradually lengthen distad. Ovipositor slightly shorter than the hind femora, somewhat compressed, in profile tapering rapidly from the base, the basal depth being about one-third of the length; upper valves nearly straight, lower and inner valves distally up-curved, apices of all acute.

MEASUREMENTS (lengths in millimetres).

	Body ex. ov.	Ant-enn.	1st fem.	1st tib.	1st tar.	2d fem.	2d tib.	2d tar.	3rd fem.	3rd tib.	3rd tar.	Ovip.
Type.....	30	8.5	2.8	2.25	2.6	2.5	2.5	2.75	3.4	3.6	3.4	3.0
Cotype.....	30	9.0	2.6	2.25	2.6	2.5	2.3	3.0	3.2	3.5	3.4	3.3

Type ♀ and cotype ♀: Sulphur Mt., Banff, Alta., 6500 ft., June 29th, 1913, in the collection of the University of Toronto.

The family Grylloblattidæ differs from all the other families of non-saltatorial Orthoptera in the possession of a large exerted ovipositor of the Tettigonid type. Among other differential characters possessed by these families are the following:

In the Hemimeridæ the tarsi are 3-jointed, the coxæ small and widely separated, the cerci unjointed, and the abdominal sternites are overlapped by the tergites.

In the Blattidæ, the general form of the body is much broader, the head is scarcely visible from above and is much narrower than the pronotum, which is usually broader than long; the antennæ are longer than the head and thorax, setaceous and generally consist of

a larger number of small segments; the cerci are flattened and distally tapering.

In the Mantidæ, the eyes are larger and much more prominent, the antennæ setaceous, the front legs raptorial and the front femora nearly always spinose along the outer edge; the prothorax is usually elongated and the cerci are much shorter than the hind femora.

In the Phasmidæ the prothorax is smaller than the mesothorax, the meso- and metathorax are both greatly elongated, the coxæ small and short, pulvilli are present and the cerci are unsegmented and shorter than the hind femora.

From the families of saltatorial Orthoptera the Grylloblattidæ differ in the generalized structure of the hind legs, the five-jointed tarsi and the jointed cerci.

Gryllobatta is thus seen to combine characters possessed by several different Orthopterous families, but to be amply distinct from all of them. On the whole, it appears to be most nearly related to the Blattidæ, though the general form of the body is most like that of the Forficulidæ. It resembles the Blattidæ very closely in the form of the head, the depressed body and cursorial legs, but the form of the body is less specialized and the peculiarities of the blattid leg, such as the greatly enlarged and closely approximated coxæ with the correlated reduction of the sternal plates, though present in *Gryllobatta*, are much less marked than in the cockroaches. The scattered tibial spines and five-jointed tarsi are also characters that are common to both families. The simple antenniform cerci recall those of *Campodea*, and are probably of a more primitive type than the short flattened cerci of the Blattids.

The position of the base of the antennæ close to the fronto-clypeal margin is another primitive character in which *Gryllobatta* resembles the Plecoptera.

On the other hand, *Gryllobatta* appears to be more specialized than the Blattidæ in the absence of styli and the presence of the Tettigonid type of ovipositor. Apart from these latter features this genus is distinctly more primitive than any of the other families of Orthoptera, as far as external features are concerned.

Of the three families of saltatorial Orthoptera, *Gryllobatta* is most like the Gryllidæ in the depressed form of the body and shape

of the head, but resembles the Tettigonidæ much more closely in the structure of the ovipositor the inner valves of which, as in this family, are nearly as long as the other two pairs. The antennæ, however, in length and in number, size and form of the segments are most like those of the Locustidæ (Acrididæ).

The presence of the Tettigonid type of ovipositor in so primitive a form as *Grylloblatta* seems to indicate that this type of ovipositor was present in the earliest saltatorial Orthoptera and that the Tettigonidæ are therefore, in this respect, the most primitive of the modern saltatorial families.

If this conclusion is not accepted, then one at least of the following assumptions must be made:

- (a) That *Grylloblatta* is a degenerate descendant of saltatorial forms, which, like the mole-cricket, has secondarily lost its power of leaping.
- (b) That the adaptations for leaping have been independently acquired in the Tettigonidæ on the one hand, and the other families of saltatorial Orthoptera on the other, i.e., *Grylloblatta* and the Tettigonidæ represent a distinct line of descent from those which have culminated in the Gryllidæ and Locustidæ.
- (c) That the resemblance between the ovipositors of the Tettigonidæ and *Grylloblatta* is due to convergence.

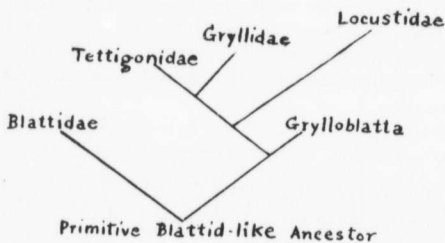
The first assumption is clearly untenable on account of the evident relationship between the Grylloblattidæ and the other non-saltatorial Orthoptera, particularly the Blattidæ, with which they share the 5-jointed tarsi and jointed cerci, both of these being primitive characters not present in any of the saltatorial Orthoptera.

The second assumption is equally inadmissible, as the families of saltatorial Orthoptera form a decidedly natural group, the Gryllidæ and Tettigonidæ being particularly closely allied to one another.

The third assumption is less improbable, but the resemblance between the ovipositors of *Grylloblatta* and the Tettigonidæ is very close, and it seems more natural to regard them as truly related in this respect.

I am thus inclined to regard the ovipositor of *Grylloblatta* as nearly representing that of the common ancestor of the three families of saltatorial Orthoptera, the Tettigonidae having departed least from the original type as regards this structure. *Grylloblatta* has been derived from some primitive type of Blattid or Blattid-like ancestor.

These relationships are expressed graphically in the accompanying diagram.



EXPLANATION OF PLATE VI.

- Fig. 1. *Grylloblatta campodeiformis*, ♀ type, dorsal view.
 Fig. 2. Same, lateral view.
 Fig. 3. Same, ventral view of thorax and base of abdomen (front and middle legs of right side removed).
 Fig. 4. Same, mandible.
 Fig. 5. Same, maxilla.
 Fig. 6. Same, labium.
 Fig. 7. Same, labium (above), hypopharynx (below).

Sp.1, Sp.2, Sp.3, Sp.9, Spiracles; Mseps mesepisternum; Msepm, mesepimeron; mteps, metepisternum, mtepm, metepimeron, C. S., cervical sclerites; St₁, St₂, St₃, pro-, meso- and metasterna.

ANOTHER MIGRATION OF *ANOSIA PLEXIPPUS* FAB.

In the Canadian Entomologist, Vol. XLIV, pp. 366-367, 1912, the writer gave some observations on the autumn migratory bands of this butterfly witnessed by him in various parts of the country.

On October 28 and 29, 1913, these insects were present in myriads clinging to the limbs of trees about Fort Moultrie, on Sullivan's Island, near Charleston, S. C. The weather was cool for the latitude, but the butterflies did not seem to pay any attention to the temperature, winging their way about in the sunshine as is their habit farther north, finally drifting away. Judging from the numbers observed dead and cast up on the beach by the sea, not all of the migrants passed onward in safety. As usual, there were numerous individuals flying about after the migrating band had passed onward.

F. M. WEBSTER.

PROHIBITION OF THE IMPORTATION OF NURSERY STOCK INTO CANADA BY MAIL.

By an order in Council of December 4th, 1913, the Regulations under "The Destructive Insect and Pest Act" were amended as follows:

In Regulation 3, line 14, the words "Importations by mail shall be subject to the same Regulations" have been struck out and the following New Regulation, No. 18, has been passed:

"18. The importation of all nursery stock, including trees, shrubs, plants, vines, grafts, scions, cuttings, or buds, through the mails is prohibited, excepting greenhouse-grown florists' stock, cut flowers, herbaceous perennials, and bedding plants, which will be admitted provided that a detailed statement of the contents is attached to such parcels."

This Regulation will take effect on and after the first day of March, 1914.

C. GORDON HEWITT,
Dominion Entomologist.

Department of Agriculture,
Ottawa, Ont.,
December 10th, 1913.

THREE DIPTERA FROM THE MIOCENE OF COLORADO.

BY T. D. A. COCKERELL, UNIVERSITY OF COLORADO, BOULDER.

Atrichops hesperius, n. sp. (Leptidæ).

Length 6 mm., wing 5 mm.; robust, of the usual form: tarsi microscopically hairy, not at all bristly or spiny; wings clear or almost, the venation as preserved pale reddish. Venation as in *Atrichops crassipes* (Meigen), except as follows: Auxiliary vein reaching costa distinctly before middle of wing; end of subcostal cell larger; base of second posterior cell more oblique; anal cell not so broad. The anal cell is closed a short distance before the wing-margin. The long second submarginal cell has its lower side measuring about 2560 microns. The anterior cross-vein is about 290 microns from basal corner of discal cell. Florissant; Station B 13 (*S. A. Rohwer*).

The shape of the wings and the details of the venation place this species in *Atrichops* Verrall, rather than in *Atherix*. *Atrichops* has hitherto contained a single living Palæarctic species, so it is interesting to find it in the Miocene of America. It is less pubescent than *Atherix* (and in this the fossil also agrees) and the venation is on the whole less specialized.

Xylomyia moratula, n. sp. (Leptidæ).

Length 6 mm., wing about 5½; of the usual form; head and thorax black, abdomen light reddish; legs reddish brown; tibiae and tarsi not at all spinose or bristly; wings hyaline; venation as preserved light reddish. Venation like that of *X. maculata* (Meigen) with the same wide open second submarginal cell and arched upper side of second posterior cell, though the latter feature is not quite so extreme as in *X. maculata*. The anterior cross-vein is near to the base of the discal cell as in *X. maculata*; the closer fourth posterior cell is relatively narrow apically as in *X. marginata* (Meigen), but its side on the third posterior, though long, is shorter than its side on the discal cell, the reverse being true of *marginata*. The insect is therefore entirely of the type of *X. maculata*, as opposed to that of *X. marginata*, which is perhaps hardly congeneric.

The following wing measurements are in microns: Length of lower side of second submarginal cell about 1695; base of second submarginal to anterior cross-vein about 1570; level of end of upper

side of second submarginal basad of level of end of lower side, 400, and width of cell at this point 530; width of second submarginal 640 from end of lower side, 432; width of first posterior cell at apex 640, of second at apex 320, of third at apex 1250; discal cell on first posterior 960, on first basal 225; basal side of second posterior 160, of third posterior 272; closed apex of fourth posterior to wing margin about 240, of anal to wing margin apparently over 320, but margin at this point not visible; width of anal at level of basal corner of fifth posterior 480. Florissant; Station 13 (*S. A. Rohwer*.)

This genus has been referred by Osten-Sacken, Verrall and others to the Stratiomyidæ, but Williston places it in Leptidæ. The genera *Arthropeas* and *Arthropiella*, which Meunier places in a distinct family, are apparently related; they occur in Baltic amber. Verrall states that the larva of *Xylomyia* shows that it belongs with the Stratiomyidæ rather than with the Leptidæ. On the whole, it seems probable that *Xylomyia*, *Glutops*, *Arthroceras*, and probably the two amber genera, should together form a distinct family.

***Saropogon oblitescens*, n. sp. (Asilidæ).**

Wing about $7\frac{1}{2}$ mm. long; fourth posterior and anal cells closed; small cross-vein from base of second submarginal cell 1040 microns, but second submarginal cell over 1440 long (apex gone); second submarginal cell, so far as visible, narrow, parallel-sided, its width (depth) about 290 microns; small cross-vein 1230 microns from base of discal cell, and 800 from its apex; separation of second and third veins 1230 microns from origin of their common stem from first; fourth posterior cell closed about 130 microns from margin, anal the same distance, but apex of anal a much smaller angle than apex of fourth posterior; apical sides of discal cell very unequal, that on second posterior cell twice as long as that on third; apical angle of discal cell very much greater than a right angle. Wing clear, venation dark brown. Compared with *Saropogon dispar*, the fossil differs in having the fourth posterior and anal cells closed well before the margin, and the second posterior distinctly narrower, but otherwise the venation is about the same. The venation is in general very like that of *Selidopogon diadema*, but that has the second posterior cell more widely open, and the subcostal cell larger. Florissant (University of Colorado Expedition).

NEW GENERA AND SPECIES OF TENTHREDINIDÆ:
A FAMILY OF HYMENOPTERA.*

BY ALEX. D. MACGILLIVRAY, UNIVERSITY OF ILLINOIS, URBANA, ILL.

The following descriptions of new genera and species are a continuation of those of a previous paper:

Empria costata, n. sp.—Female: Body black with the collar, tegulæ, the legs beyond the knees for the most part, and the caudal margin of the abdominal segments, white; head with the post-ocellar area uniformly convex, the interocellar and ocellar furrows distinct; the clypeus tridentate, the median tooth as long as the lateral angles, broadly, shallowly emarginate at middle, the lateral angles rounded, the median ridge low, not reaching the dorsal margin of the clypeus; the third segment of the antennæ longer than the fourth; the sawguides slightly convex above, broadly, convexly rounded below at apex to a blunt point above, wings hyaline. Length 6 mm.

Habitat.—New Haven, Connecticut. B. H. Walden, collector.

This species falls near *cava*, from which it differs in lacking the broad, convexly rounded median ridge of the clypeus and from *calda* in having the clypeus tridentate with the median tooth as long as the lateral angles.

Pseudoselandria, n. gen.—Front wings with the radial cross-vein, the media-cubital cross-vein, the free part of R_5 , and the free part of R^4 present; the free part of the second anal vein wanting; media not strongly angularly bent, the first abscissa of cubitus distinctly longer than the free part of M_4 ; costa dilated at apex; hind wings with the first anal cell distinctly petiolate and shorter than the cell in front of it; media separating from radius distinctly before the origin of the radial sector; claws with a minute erect tooth at base; antennæ with nine segments. Type *Pseudoselandria oxalata*, n. sp.

Related to the genus *Selandria*, from which it differs in that the claws have an erect tooth at middle and the media is not angularly bent at base.

* Contributions from the Entomological Laboratories of the University of Illinois, No. 37.

March, 1914.

Pseudoselandria oxalata, n. sp.—Female: Body black with the following parts whitish; the 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 four and five together; wings clear with the apex of radius strongly dilated and black. Length 7 mm.

Habitat.—Wisconsin, Dr. S. Granicher, collector.

Polyselandria, n. gen.—Front wings with the radial cross-vein, the medio-cubital cross-vein, the free part of R_5 , and the free part of R_4 , present; media not strongly, angularly bent; the first abscissa of cubitus distinctly longer than the free part of M_4 ; costa dilated at apex; hind wings with the first anal cell closed at the wing margin and longer than the cell in front of it; media coalesced with the radial sector for a short distance; claws with a minute erect tooth at base; antennæ with nine segments. Type, *Selandria floridana* MacG.

Closely related to *Pseudoselandria*, from which it differs in having the first anal cell of the hind wings closed at the wing margin and in having media of the front wings coalesced with radius for a short distance.

Dolerus tectus, n. sp.—Female: Body black; antennæ with the third segment slightly longer than the fourth; head with the vertical furrows obsolete, the front and vertex uniformly convex, the entire surface punctured, the postocellar area more densely and finely punctured than the posterior orbits, the posterior orbits without ridges or depressions, the antennal furrows indicated only near the antennal sockets; the scutellar appendage smooth, without punctures or striations; the median lobe of the mesonotum and the scutellum more closely punctured than the disk of the lateral lobes, the disk of the lateral lobes almost polished; the pleura closely, coarsely punctured; the impunctate area of the lateral lobes of the mesonotum extending to the median lobe; the wings fuliginous, the veins and stigma black. Length 10 mm.

Habitat.—New Haven, Connecticut. H. L. Viereck, collector.

A black species related to *polysericeus*, from which it differs in having the punctures on the scutellum similar in size to those of the lateral lobes of the mesonotum and from *colosericeus* and *monosericeus* in having the vertical furrows obsolete.

Dolerus inspiratus, n. sp.—Female: Body black with the entire prothorax, the tegulae, the median lobe of the mesonotum, the front legs below the knees, and abdominal segments one to six, rufous; head with a concave furrow from the vertical furrows to the lateral margin of the head behind the compound eyes, a distinct carina between the posterior orbits and the caudal aspect of the head; the postocellar area more closely and finely punctured than the posterior orbits: the posterior orbits with an impunctate area adjacent to the vertical furrows; the vertical furrows punctiform; the antennal furrows not indicated except adjacent to the antennal sockets; the scutellar appendage longitudinally striate; the impunctate area of the lateral lobes of the mesonotum not extending to the median lobe; the median and lateral lobes uniformly punctured, the punctures distant; the scutellum uniformly, closely punctured; the saw-guides slightly exerted, straight above, convex below, and convexly truncated to a point at apex above. Length 9 mm.

Habitat.—New Haven, Connecticut; A. B. Champlin, collector. Eagle Bend, Minnesota; J. P. Jensen, collector.

This species is related to *conjugatus* and *dysporus*, from both of which it differs in the arrangement of the punctuation of the posterior orbits and the postocellar area and also by the transverse brownish band on the prothorax and mesothorax.

Dolerus lesticus, n. sp.—Female and male: Body black with the entire prothorax, the dorsal and lateral portions of the mesopleurae, and the median lobe of the mesonotum, rufous; the third segment of the antennae subequal in length to the fourth; the vertex and the front uniformly and generally punctured; the antennal furrows slightly indicated adjacent to the antennal sockets; the vertex without furrows or carinae; the vertical furrows distinct,

twice as long as broad; the median lobe of the mesonotum and the scutellum uniformly, sparsely punctured; the lateral lobes of the mesonotum uniformly, sparsely punctured, their disk almost smooth; the mesopleura uniformly, coarsely, closely punctured; the saw-guides convex above and below, the two margins converging and obliquely truncated at apex above, the apex with a sparse scopa of long hairs; the wings slightly infuscated, the veins and the stigma brownish; the male differs in having the body entirely black and the ridge between the vertex and the caudal aspect of the head slightly carinated. Length 6 mm.

Habitat.—Durham, New Hampshire; Weed and Fiske, collectors. Hampton, New Hampshire; S. A. Shaw, collector.

A small species related to *collaris*, from which it differs in having the antennal furrows extending only a short distance from the antennal sockets.

Dolerus konowi, n. sp.—Female and male: Body entirely coal-black; antennæ with the third segment slightly longer than the fourth; the vertical furrows indicated only as a broad depression; the vertex with a shallow depression extending from the lateral ocelli behind the compound eyes; the front, the posterior orbits, and the postocellar area uniformly punctured, the punctures fine and close together; the vertex with an impunctate area adjacent to the vertical furrows; the antennal furrow faintly indicated adjacent to the antennal sockets; the appendage of the scutellum finely, transversely striated; the dorsal surface of the mesothorax finely, closely punctured except the disk of the lateral lobes, which contains a few distant punctures; the mesopleura closely and coarsely punctured; the pectus uniformly, finely punctured, not so densely as the head or notum; the body, except the abdomen, covered with short, white pile; the saw-guides straight above and gradually, convexly, obliquely rounded below and at apex to a point above; the saw-guides sparsely hairy below and at apex and densely above; wings infuscated, the veins and stigma brown; the male differs only in being smaller. Length 11 mm.

Habitat.—Olympia, Washington; Trevor Kincaid, collector.

This is a black species, which has been generally confused with the eastern *Dolerus sericeus* Say, which does not occur so far as my experience goes, upon the Pacific Coast. *Konowi* is readily differentiated from *sericeus* by the striations on the scutellar appendage. The difference between this species and *sericeus* was first pointed out to me several years ago by the late Pastor F. R. W. Konow, the German student of the Tenthredinoidea, for whom it is named.

Dolerus grænicheri, n. sp.—Female: Body black with the entire prothorax, the median lobe of the mesonotum, beneath the front wings, and the base of the front wings, rufous; the tegulae black; the antennal furrows hardly indicated adjacent to the antennae; the vertical furrows short, knife-like cuts; an indefinite furrow from the lateral ocelli to the corner of the compound eyes; no carina on the caudal margin of the head; the punctuation on the postocellar area and the posterior orbits dense and uniform; the scutellar appendage transversely striate; the impunctate area of the lateral lobes of the mesonotum distinct and extending to the median lobes; the scutellum more densely punctured than the median or lateral lobes, the median lobe more densely than the lateral lobes; the saw-guides straight above, convexly rounded below and at the apex to a point above, apex with a dense scopa of long hairs; the wings slightly infuscated, the veins and stigma brownish. Length 7 mm.

Habitat.—Layton Park, Milwaukee County, Wisconsin.

This species is named for its collector, Dr. S. Grænicher, who sent it to me. It is related to *unicolor*, *collaris*, and *lesticus*, from the first it differs in the type of punctuation found upon the head, from the second in the extent of the antennal furrows, and from the third in the shape of the saw-guides.

Astochus, n. gen.—Front wings with the radial cross-vein, the radio-medial cross-vein, the free part of R_4 and R_5 all present; the medio-cubital cross-vein joined to $R+M$ a considerable distance before the origin of M ; the free part of Sc_1 faint, located opposite the medio-cubital cross-vein; the free part of the second anal vein short, erect, transverse; the contraction of the third anal vein in-

licated by an elongate thickening; hind wings with the free part of R_4 present and the transverse part of M_2 wanting; antennæ with nine segments; the clypeus truncate; the compound eyes with their inner margins parallel and distant, the basal plates divided. Type, *Astochus fletcheri*, n. sp.

The broad space between the compound eyes, the margined antennal sockets, the divided basal plates, and the truncate clypeus places this genus near *Bivena* MacG.

The two species described herewith can be differentiated as follows:

Postocellar area longer than broad.....*fletcheri*
 Postocellar area broader than long.....*aldrichi*

Astochus fletcheri, n. sp.—Female: Body black with the antennæ somewhat infuscated, the legs below the trochanters, the abdomen beyond the basal plates, and the wings at base, rufous; the following parts: the clypeus, the labrum, a short, narrow line on the inner orbits, the margin of the pronotum, the tegulæ, a round spot on the mesopleura, two spots above the posterior coxæ, the underside of the front and middle coxæ, the stigma, yellowish-white; the third segment of the antennæ longer than the fourth; the labrum broadly rounded; the ocellar basin an elevated, flat, shield-shaped space; the frontal furrow short, broad, and deep, with the lateral walls high; the postocellar area longer than broad with a median furrow, deeper behind; the head and thorax polished; the wings infuscated behind the stigma; the saw-guides convex above and below, the sides gradually converging, squarely truncated at apex. Length, 10 mm.

Habitat.—Kaslo, British Columbia.

This insect was collected by the late Dr. James Fletcher on the 28th of May, 1906, and by him sent to Dr. J. Chester Bradley for identification and by Dr. Bradley given to me. It is fitting that it should bear Dr. Fletcher's name.

(To be continued.)

A PROTECTED BUTTERFLY.

We are accustomed to reading about certain species being *protected* from their enemies by nature owing to a resemblance to other insects that are distasteful; but *Parnassius apollo* now enjoys the unique distinction of being the only insect in the world whose life is guarded against his most ruthless destroyer—man. According to an interesting item in the Entomologist (London) for October, 1913, Vol. XLVI, p. 289, the capture of this butterfly has been forbidden throughout the German Empire by order of the Government. Owing to overcollecting, the species is said to have been exterminated in the mountains of Silesia and its existence is threatened elsewhere. It is not stated how long the close season is to last, but is to be hoped that in the meantime the market price will not be increased enough to warrant wholesale poaching, and that the men who secured the legislation will be rewarded by seeing this beautiful butterfly again brightening up the landscape it formerly had a place in.

A. F. WINN.

BOOK REVIEWS.

A REVISION OF THE ANTS OF THE GENUS *FORMICA* (Linné) Mayr.
By William Morton Wheeler.—Bull. Mus. Comp. Zool.
Harvard College. Vol. LIII, No. 10. Published Oct. 1913.
186 pages.

This revision of the boreal genus *Formica* by the eminent ant specialist, Dr. W. M. Wheeler, is sure to receive a hearty welcome. In it the author gives extensive descriptions of, and notes upon, all the known New World forms, now numbering 93, several of which are new, consisting of 31 species, 19 subspecies and 43 varieties, and brief descriptions of, and notes upon, the 53 Old World forms.

Seven groups are recognized.—(1) The Sanguinea group, containing thirteen forms of the palearctic and nearctic slave-maker, *sanguinea*, and six other species; (2) The Rufa group, containing eleven forms of the palearctic and nearctic *rufa* (all the nearctic

forms are western), twelve forms of the palearctic and nearctic *truncicola*, and nine other species; (3) the *Microgyna* group, consisting of seven forms of the nearctic *microgyna*, and six other species; (4) The *Exsecta* group, comprising four forms of the nearctic *exsectoides*, seven forms of the palearctic and nearctic *exsecta*, and two other species; (5) The *Fusca* group, including fourteen forms of *fusca*, the typical form of which is widely distributed throughout north and central Eurasia and boreal America, seven forms of the palearctic and nearctic *rufilabris*, nine forms of the palearctic and nearctic *cinerea*, and six other species; (6) The subgenus *Proformica*, including five forms of the nearctic *neogagates* and eight other species, some of them palearctic; (7) A new subgenus, *Neoformica*, erected to include the nearctic *pallidefulva* in its seven forms, and one other species, *F. moki* Wheeler.

Dr. Wheeler believes that North America must be the original home of the genus, because it has nearly double the number of species that Eurasia contains, "especially as it possesses representatives of the Eurasian groups of species besides two peculiar to itself (the *Microgyna* group and the subgenus *Neoformica*). Further, he regards the southern ranges of the Rocky Mountains in the United States as the centre of origin of the genus, for "nearly forty-two per cent. of the New World forms occur in Colorado and the adjacent portions of New Mexico," and the colonies of the individual forms are unusually numerous and flourishing on the mountain slopes of this territory.

Dr. Wheeler modestly makes only short references to the important discovery, in which he took a leading part, that many species, including *rufa* and *exsectoides*, form their colonies by temporary social parasitism in small colonies of *F. fusca* or in a few cases, another species. "The recently fecundated *rufa* female finds a home in a *F. fusca* colony and permits these ants to bring up her young. The *fusca* queen is either destroyed by the intrusive *rufa* or by her own offspring, so that when the *fusca* workers eventually die off a pure colony of *rufa* remains."

F. W. L. S.

ANIMAL COMMUNITIES IN TEMPERATE NORTH AMERICA, as illustrated in the Chicago Region. By Victor E. Shelford, Instructor in Zoology in the University of Chicago. The University of Chicago Press. 380 pages. 8vo. cloth, \$3.22, postpaid.

Until the beginning of the present century the study of animal ecology can scarcely be regarded as having been an organized science, and, although much has since been written upon the subject, most of the literature deals with problems of a more or less specialized character, or with particular groups of forms or types of locality.

The present work is of an unusually broad scope, treating, as it does, practically all the important types of animal communities represented in the Chicago district, the total area investigated being somewhat more than 10,700 square miles. It is a work of great interest and importance to the entomologist, as well as the student of general ecology, as insects play a dominant part in practically all of the land and fresh-water animal communities.

The first four chapters form an introduction to the study of animal ecology in general and to that of animal communities in particular. Chapter I deals with the general subject of the struggle in nature, the effect of man's relation to nature and the production of secondary or man-made communities, as distinct from primary or primeval communities. In Chapter II the general subject of ecology is discussed. The author emphasizes the "inadvisability of attempting to organize ecology on the basis of structure, as structural changes resulting from stimulation by environment are rarely of advantage or disadvantage to the animal, and the structure of motile organisms is not readily modified by the environment." It is the activities of animals that form the basis for the organization of ecology, not the morphological characters of the species, which are ecologically of little or no significance. The subject of animal communities and biota is also discussed at some length and a classification of communities is given. The chapter concludes with a classified list of the chief animal communities of the area investigated.

In Chapter III an analysis is given of the factors that enter into the composition of the animal environment. This includes a

short account of the physiographic history of the region about Lake Michigan and a description of the climate and vegetation of the area. A descriptive list of the localities studied is also given. Chapter IV treats of the conditions of existence of aquatic animals, both chemical and physical.

The special discussion of the various animal communities occupies the remainder of the book, except the last chapter. As the Chicago area lies on the borderland between the eastern forest region and the savanna or prairie region, a great variety of terrestrial communities are represented. Its position on Lake Michigan also gives variety to the aquatic conditions, practically all types of fresh-water communities being found within the area studied.

Much attention is given to the origin and development of each community and its subsequent fate, to the physiographic conditions of the environment, and the interrelations of the various forms which make up the community. At the end of last chapter are useful reference lists of the species of animals collected at the various stations representing the particular type of community discussed.

In the concluding chapter the author returns to the general subject matter and discusses suggestively the laws governing distribution, the relations of different communities to one another, and the relations of ecology to broader geographic problems. An appendix follows in which the general methods employed in the study of environment are described and brief directions given for the making of field observations and experiments. There is also a copious bibliography and a guide map of the Chicago district, and the numerous illustrations, which are of almost uniform excellence, represent a large number of the animals referred to as well as their habitats.

ERRATA.

"GREEN LANES AND BYWAYS," No. 11, Vol. XLV.—On page 358, in line 10, for "Cortiani" read CORITANI. In line 13—For "roads" read ROAD. On page 363—In line 8 for "there" read THEN.

Mailed March 13th, 1914.