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The Canadian Entomologist.

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No. 11.

NEW SPECIES OF NORTH AMERICAN MYRMELIONIDÆ.

BY ROLLA P. CURRIE, WASHINGTON, D. C.

IV.

Brachynemurus brunneus, new species.

Male.—Length, 40 mm.; expanse of wings, 55.4 mm.; greatest width of anterior wing, 6.4 mm.; length of antenna, 7 mm. Slender, prevailing colour fuscous, markings luteous; sparsely clothed with black and white hairs, more thickly so on abdomen.

Face scarcely convex; lower part luteous; covered above by a broad piceous band which encircles the antennæ; furrow between face and inner orbit of the eye fuscous. Circumocular area luteous, except along vertex, where it is mostly dark fuscous, and near the maxillary palpiger, where there is a fuscous spot. Clypeus* luteous, rather short. Labrum transverse, luteous; rounded laterally and narrowed anteriorly, emarginate in front. Mandibles piceous, black at tips.

Maxillary palpi of moderate length, luteous, tinged with piceous apically, the fifth joint especially so; first two joints short, subequal in length, the first one about as broad as long, the second less broad; third joint somewhat longer than first two together, perceptibly curved, enlarged apically; fourth joint straight, considerably shorter than third; fifth joint somewhat longer than third, subcylindrical, notched at tip.

Labial palpi about same length as maxillary or slightly longer, luteous, more or less tinged with piceous apically; first joint about twice as long as broad; second joint somewhat more than twice as long as first, slightly curved, enlarged apically; third joint about same length as second, fusiform; tip narrowed and notched.

Maxillary palpigers luteous, clouded with piceous. Labium and labial palpigers luteous; mentum luteous, clouded with piceous posteriorly, with a long black bristle; in front a longitudinal median black

*One male specimen, labelled "Dunsmuir, Cal., Wickham," has a faint transverse fuscous line or series of dots separating the face from the clypeus. The female specimens have a fuscous clouding on each side of clypeus.

line passing between the labial palpi to the basal portion of the labium. Gula luteous, clouded with darker.

Antennæ somewhat clavate, as long as head and thorax, fuscous, darker before tip, sparsely covered with very short stiff black hairs; first two joints piceous, luteous at articulations; a luteous crescent bounds base of first joint in front.

Vertex elevated behind, rounded; luteous; in front, on depressed portion, dark fuscous; behind, on elevated portion, two dark fuscous bands*, the posterior irregular and spread out each side so as to approach, sometimes to meet, the anterior band. Behind this a median, oval, black or rufo-piceous spot.

Pronotum dark fuscous; a longitudinal median luteous line and one each side†. Sides of pronotum luteous, divided by a fuscous line‡. Lateral carinæ luteous. Below luteous, marked on each side with dark fuscous.

Mesonotum fuscous; lobes moderately elevated; anterior lobe with a longitudinal median line and a dot or two luteous; each lateral lobe marked with two luteous lines on its inner side; a luteous spot or two also near articulation of wing; posterior lobe with a longitudinal median luteous line, sides and rear of the lobe also margined with luteous. Sides and beneath fuscous, marked with luteous.

Metanotum fuscous; anterior lobe margined in front with luteous, with a longitudinal median luteous line; patterned similarly to mesonotum, the inner luteous line of lateral lobe forming a rough triangle, the apex of which is near middorsal line. Sides and beneath fuscous, marked with luteous.

Abdomen fuscous, articulations luteous; segments luteous above, especially at base, with a longitudinal median fuscous line.

Appendages one-half the length of seventh segment, slender, arcuate for their posterior halves, somewhat flattened laterally; fuscous, luteous near tips; clothed with coarse black bristles; there is the usual triangular fuscous plate between the appendages below; this plate is luteous apically.

*In one male specimen, collected at Dunsuir, California, by Mr. H. F. Wickham, the anterior band is very indistinctly separated from the fuscous depressed portion of the vertex.

†This line is usually most distinct in front of the transverse furrow, where it becomes a good-sized spot; it is interrupted at the furrow and in the male specimens is only faintly indicated behind it.

‡This line is divided into two parts in the females.

Legs of moderate size, luteous, with black and pale hairs and spines; dotted with piceous at bases of the spines, these dots sometimes coalescent in places; tibiæ piceous at bases and apices, each with a transverse piceous line on basal half externally. Tibial spurs longer than first tarsal joint, slightly curved, rufo-piceous; spurs of anterior and middle tibiæ longer than those of posterior. Tarsal joints piceous at their apices, the third and fourth especially so; claws a little more than half the length of last tarsal joint, moderately curved, rufo-piceous.

Wings of moderate size, hyaline. Venation hairy. Pterostigma whitish, fuscous on inner side. Apical third or more of veins of intercostal series forked. Veins light brown or fuscous, interrupted irregularly with paler; the subcostal vein darker, with a distinct luteous mark between each transversal.

Anterior wings marked as in *B. niger**, but the markings less extended and light brown in colour. Posterior wings almost immaculate. Posterior borders of both wings fringed with fine hairs.

Female.—Length, 31 mm.; expanse of wings, 58.5 mm.; greatest width of anterior wing, 6.3 mm.; length of antenna, 6 mm.

Antennæ more clavate than in male; first joint luteous behind, the following joints luteous at articulations, especially the basal ones. The luteous markings are more extended and distinct than in the males. A luteous spot or band is present between the antennæ.

Anterior fuscous band of the vertex continued posteriorly along the longitudinal median furrow; the posterior band appears like an irregular group of more or less coalescent fuscous spots, divided at the median furrow.

Abdomen somewhat shorter than wings, marked similarly to that of male, but there is little luteous on basal segments above except at middle of segments and at their articulations, the middorsal fuscous line hardly apparent†.

Tip of abdomen luteous, clouded with fuscous; clothed above with black hairs; superior parts split; inferior parts beset with coarse black spines; below two small cylindrical luteous appendages, three times as long as broad, with some very long black hairs or bristles.

Wing markings and veins somewhat darker than in males.

*CAN. ENT., XXX., 5, 1898, p. 136.

†Two of the females (co-types) have this line quite apparent, especially the specimen from Los Angeles, California, collected by Mr. D. W. Coquillett.

Type.—No. 4073, U. S. National Museum. One male specimen collected by the author at Fountain, Yellowstone National Park, August 10, 1896.

No. 4073a, U. S. National Museum. One female specimen collected by the author at Sage Creek, Wyoming, July 28, 1896.

Co-types.—Collection, U. S. National Museum. One male collected at Dunsmuir, California, by Mr. H. F. Wickham; one male collected in Los Angeles County, California, in September, by Mr. D. W. Coquillett; two females with no labels; one female from Los Angeles County, California, collection of D. W. Coquillett.

The female of this species resembles *B. niger*, but is lighter coloured, the wing markings are lighter and less extended, and the labial palpi are normal.

A BRIGHT RED PARASITE OF COCCIDÆ.

BY T. D. A. COCKERELL, N. M. AGR. EXP. STA.

Aphycus Howardi, n. sp.—♀. Length about 1 mm.; entirely bright scarlet, except the brown antennal club, sage-green eyes, and white tarsi; with the apical portion dusky. Wings dull hyaline, with a dark cloud ending at stigmal vein, whitish just beyond and hyaline at tip. Scape not dilated, club about or almost as long as the four joints before it. Mesonotum and scutellum with numerous short white hairs, mesonotum with no naked spots; mesopleura very delicately shagreened, with no longitudinal impressions.

Hab.—Mesilla Park, New Mexico; bred from *Eriococcus Tinsleyi*, Kkll., on *Atriplex canescens*; collected by Prof. J. D. Tinsley. Emerged August 6th, and some days following. The colour of this beautiful little *Aphycus* is just like that of *Perdita luteola* when reddened by cyanide, and I should certainly have considered it as due to the same cause, had I not seen the species alive. The original type is now in the U. S. Nat. Museum; two or three others were bred after the description had been written. *A. Howardi* is named after Dr. L. O. Howard, in recognition of his valuable work on the parasites of Coccidæ. He has now in press a revision of the genus *Aphycus*, and the present insect was found just too late to be included in it. He has very kindly informed me that it is distinct from all the species known to him or published by others, and has given me some notes on its specific peculiarities.

NEW SPECIES OF SAPROMYZIDÆ.

BY D. W. COQUILLET, WASHINGTON, D. C.

Genus SAPROMYZA.

1. Wings hyaline, unmarked. 3.
 Wings brown along the costa, the small and the posterior crossveins; body and its members, except the wings, yellow, antennal arista brown, second joint of hind tarsi sometimes black; three pairs of dorso-centrals, one of acrostichals, and two sternopleural macrochæte. 2.
2. Costa and apex of wing, from the base to beyond apex of fourth vein, broadly bordered with brown, which is widely separated from the brown of the crossveins; second joint of hind tarsi yellow, third antennal joint oval, one and one-third times as long as wide, arista with a scarcely perceptible pubescence. Length, 3.5 mm. Chiric Mts., Ariz. A female specimen collected May 31, 1897, by Mr. H. G. Hubbard. Type No. 4082, U. S. Nat. Museum. *Hubbardii*, n. sp.
 Costa and apex of wing, from slightly beyond humeral crossvein to beyond apex of fourth vein, broadly bordered with brown, which is connected with the brown of the small crossvein, and sends a spur which almost reaches the hind crossvein; second joint of hind tarsi yellow, third joint of antennæ elongate oval, almost twice as long as wide, arista short plumose. Length, 3 mm. Oswego, N.Y. A female specimen collected August 1, 1895, by Prof. Chas. A. Sheldon. Type No. 4083. *Sheldoni*, n. sp.
 Costa and apex of wing, from tip of auxiliary vein to beyond apex of the fourth, broadly bordered with brown, except a short space between the apices of the second and third veins, where the brown is very narrow; the brown sends a spur to the small crossvein and another which almost reaches the brown of the hind crossvein; second joint of hind tarsi black, third antennal joint oval, one and one-half times as long as broad, arista short plumose. Length, 3.5 mm. New Bedford, Mass. A male specimen collected by Dr. Garry de N. Hough. Type No. 4084. *Houghii*, n. sp.
3. Face, pleura and scutellum destitute of round black spots. 4.
 Face marked with one, pleura and scutellum each with two black spots; yellow, an ocellar dot, first two joints of antennæ, spot on lower edge of face, one near middle of mesopleura, another on front end of sternopleura, one on each side of middle of scutellum,

- and a basal one on each side of the third, fourth and fifth abdominal segments, black; a brown dorsal line on the last three abdominal segments, and indications of one on the mesonotum; two pairs of dorso-centrals, no acrostichals, one sternopleural macrochaeta; third antennal joint oval, one and one-half times as long as wide. Length, 3 mm. Biscayne Bay, Fla. A female specimen collected by Mrs. A. T. Slosson. Type No. 4085. *Slossonæ*, n. sp.
4. Mesonotum opaque black or yellowish. 5.
 Mesonotum polished black; black, highly polished, the first two antennal joints, base and lower edge of the third, base of arista, lower edge of front above the antennæ, halteres, femora, tibiæ, middle and hind tarsi and base of first joint of the front ones, also the front coxæ, yellow; four pairs of dorso-centrals, one of acrostichals, and one sternopleural macrochaeta; third antennal joint scarcely tapering toward the tip, two and one-half times as long as broad, arista short plumose, wings strongly tinged with yellow. Length, 4 mm. Vancouver Island, British Columbia. Two male specimens collected by Mr. C. Livingston. Type No. 4086. *Livingstoni*, n. sp.
5. With three pairs of dorso-central and two sternopleural macrochaetæ. 6.
 With only two pairs of dorso-central and one sternopleural macrochaeta; yellow, the front except the lower edge, the mesonotum, scutellum, metanotum, and a vitta on upper part of the pleura, black, opaque bluish-gray pruinose, a black spot on each side of the third, fourth, fifth and sixth segments of the abdomen; third joint of the antennæ oval, one and one-half times as long as wide, arista long plumose. Length, 3 mm. Onaga, Kansas. A female specimen collected by Mr. F. F. Crevecoeur. Type No. 4087. *Crevecoeuri*, n. sp.
6. Antennal arista long plumose, body very robust, wings tinged with yellow, scarcely more than twice as long as the abdomen. 7.
 Antennal arista bare, body slender, wings unusually long, over four times as long as the abdomen; black, gray pruinose; the antennæ, front legs, and middle and hind femora, brown; middle and hind tibiæ and their tarsi, yellow, halteres whitish; wings not tinged with yellow, third antennal joint only slightly tapering toward its tip, nearly twice as long as wide. Length, 3.5 mm. White Mts., N. H. One male and five females, collected by the late H. K. Morrison. Type No. 4088. *brachysoma*, n. sp.

7. Thorax and entire insect yellow, a black spot in middle of occiput above the neck, a light yellow fascia above the antennæ, bordered above and below with brown; third antennal joint only slightly tapering to the tip, one and two-thirds times as long as wide. Length, 5 to 5.5 mm. Los Angeles Co., Cal. (H. C. Fall); Corvallis, Oregon (A. B. Cordley), and Seattle, Wash. (O. B. Johnson). Two males and four females. Type No. 4089. . . . *flavcola*, n. sp.
- Thorax, scutellum, occiput and upper half of front, brown, bluish-gray pruinose; a yellow fascia above the antennæ, bordered above and below with brown, face yellowish, a U-shaped brown mark in the middle and a black line extending obliquely from each antenna to the occiput near the oral margin; antennæ, proboscis, palpi, halteres and legs yellowish, front side of femora sometimes marked with a gray vitta, apex of tibiæ and a faint ring near base of each, brown; abdomen yellowish, bases of the third, fourth and fifth segments, brown; third joint of antennæ slightly tapering to the apex, nearly twice as long as broad. Length, 5 to 6.5 mm. Dist. Colum. Four males and twenty females, collected by the writer in June, 1894. Type No. 4090. *magna*, n. sp.

Genus LAUXANIA.

1. Submarginal cell at the small crossvein less than three-fourths as wide as the length of the hind crossvein, wings more than three times as long as wide, hyaline or yellowish. 2.
- Submarginal cell at the small crossvein wider than the length of the hind crossvein; black, the first two joints of antennæ, base of arista, and first three joints of the middle and hind tarsi, yellow; front and face polished, the lateral margins narrowly white pruinose; antennæ linear, more than twice as long as the head, the third joint eight times as long as wide, arista rather long plumose; body polished, mesonotum thinly gray pruinose; wings twice as long as wide, smoky-brown, the posterior margin gray. Length, 3.5 mm. Florida (Mrs. A. T. Slosson), and Georgia (H. K. Morrison). One male and six females. Type No. 4091. *latipennis*, n. sp.
2. Antennal arista brown, long plumose, its base yellow; black, the first two joints of antennæ, base of the third, bases of tibiæ, first joint of front tarsi and first three joints of the others, yellow; antennæ slightly tapering toward the apex, one and one-half times as long as head, the third joint five times as long as broad; face with a

median vitta, spot near the oral margin each side of the middle, and the narrow lateral margins, whitish pruinose; front slightly polished, the broad lateral margins, except on their lower part, thinly gray pruinose; body polished, two vittæ on the mesonotum, scutellum and front part of pleura thinly gray pruinose; wings tinged with yellow. Length, 3 mm. Lake Worth, Fla. (Mrs. A. T. Slosson), and Georgia. Three males and nine females. Type No. 4092..... *facialis*, n. sp.

Antennal arista white, short plumose, its base yellow; black, the first two joints of the antennæ, base of the third, halteres, front coxæ, front femora and broad apices of the others, all tibiæ, and the middle and hind tarsi except their apices, yellow; antennæ slightly tapering toward the apex, slightly longer than the head, the third joint four times as long as wide; front and face polished, the latter whitish pruinose near the lower part of each eye; body polished, mesonotum and scutellum with a strong coppery lustre, thinly brownish pruinose; wings tinged with yellow. Length, 3.5 mm. Santa Cruz Mts., Cal. A male specimen, collected by Mr. A. Koebele. Type No. 4093..... *albiseata*, n. sp.

Genus PACHYCERINA.

Yellow, an ocellar spot, tip of antennæ, the arista, apical half of palpi and three vittæ on the mesonotum, black; antennæ almost as long as the head, slightly tapering to the tip, the third joint three and one-half times as long as wide; front and sides of face polished, middle of face thinly whitish pruinose, body polished, wings hyaline, slightly tinged with yellow. Length, 3.5 mm. St. Augustine, Fla. Two female specimens, collected by Mr. C. W. Johnson. Type No. 4094..... *clavipennis*, n. sp.

Genus TRIGONOMETOPUS.

Yellow, two vittæ on the front, four on the mesonotum, the upper side of the scutellum and the metanotum, brown, antennal arista white, with a very short pubescence; head subopaque, mesonotum and scutellum opaque, abdomen somewhat polished; wings hyaline, small and posterior crossveins bordered with brown, two circular brown spots on the last section of the third vein, the outer one almost directly in front of the posterior crossvein. Length, 3.5 mm. Colorado. A female specimen. Type No. 4095. *punctipennis*, n. sp.

CLASSIFICATION OF THE HORNTAILS AND SAWFLIES, OR
THE SUB-ORDER PHYTOPHAGA.BY WILLIAM H. ASHMEAD, ASSISTANT CURATOR, DEPARTMENT OF
INSECTS, U. S. NATIONAL MUSEUM.

(Paper No. 6.)

FAMILY XII. --NEMATIDÆ.

This family is very sharply separated from the *Selandriidæ*, *Dineuridæ* and the *Tenthredinidæ* by having only one marginal cell in the front wings, while from the *Hylotonidæ*, *Lophyridæ*, *Perreyiidæ* and the *Pterygophoridæ*, which also have only one marginal cell, it is readily distinguished by pteropterological and antennal characters, and especially by the basal nervure in front wings uniting with the subcostal vein far from the origin of the cubitus.

Our species have been subjected recently to a thorough revision by Mr. C. L. Marlatt, in a work entitled: "Revision of the Nematine of North America, etc. Technical Series No. 3, U. S. Department of Agriculture, Washington, 1895."

Mr. Marlatt's "Revision" is typical of the best kind of systematic work, and the Department of Agriculture is to be congratulated on publishing works of such a high degree of merit.

The publication by our Government of technical works, on special groups of insects of an economic importance, is an excellent feature in the present administration and one that I trust will become permanent. These publications not only contribute towards filling a void in our literature, draw attention of our farmers, fruit-growers and laymen to the necessity and importance of the study of insects, but also act as a stimulant to our students, and greatly advance systematic and economic entomology.

In his revision Mr. Marlatt followed Konow and placed the genera *Dineura* and *Hemichroa* with the *Nematine*. In this I cannot agree, since they seem to me to have very little affinity, if any, with this group. Their affinities are almost equally divided between the *Selandriidæ* and the *Tenthredinidæ*, but with characters sufficiently distinct to justify one in placing them in a family by themselves.

It may be well here also to call attention to the position Mr. Marlatt assigned one of his species, viz., *Pachynematus gregarius*. Dr. Dyar*, in describing the larva of this species, expressed surprise at the position

*Journ. N. Y. Ent. Soc., Vol. V., p. 30.

assigned the imago by Mr. Marlatt, since the larva was so different from other *Pachynematus* larvæ he had bred. He says: "I was much surprised that the flies should belong to *Pachynematus*. The larvæ of this genus are solitary grass feeders, whereas a larva very similar to this species is described as that of a species of *Pristiphora*."

On making a careful study of the type, I find it really belongs to the genus *Micronematus*, Konow, and has nothing to do with *Pachynematus*. This result was a great surprise to me, because Mr. Marlatt, in speaking of the genus *Micronematus*, says: "This genus seems to be of doubtful value, and at least has no American representative."

The genus, as my table shows, is a good one, falling near *Pristiphora*, where Dyar would have it placed from larval characters, and it is quite evident that Marlatt misinterpreted some of Konow's characters, since the genus as tabulated by him cannot be recognized.

The family *Nematidæ*, as here defined, may be divided into two subfamilies as follows:

Table of Subfamilies.

Lanceolate cell widely contracted at the middle and closed	Subfamily I., Cladinæ.
Lanceolate cell petiolate	Subfamily II., Nematinae.

Subfamily I.—CLADINÆ.

The species belonging to this subfamily are readily distinguishable by the widely-contracted lanceolate cell, the contracted part uniting with the submedian vein and leaving a closed cell at base.

To this group belong five genera distinguishable by the aid of the following table:

Table of Genera.

Second submarginal cell receiving both recurrent nervures	4.
Second and third submarginal cells each receiving a recurrent nervure, or if the first transverse cubitus is wanting it is the first and second submarginal cells which receive the recurrent nervures.	
Male characters	2.
Female characters.	
Antennæ somewhat compressed, with a sharp projection at tip of basal joint, the third joint with a sinus beneath at the middle, so that the joint is narrower at middle than at the base or tip	Cladius, Illiger.
Antennæ normal, cylindrical, not compressed, claws cleft.	

- Third joint of antennæ slightly curved or slenderer at the middle, with a short projection at the base, not longer than the fourth. Trichocampus, Hartig.
- Third joint of antennæ simple, uniformly thickened. Priophorus, Latreille.
2. Antennæ simple, or at most with the third joint alone forked. . . . 3. Antennæ with joints 3-5 and sometimes 6-7 with a more or less prominent branch at apex. Cladius, Illiger.
3. Antennæ with the third joint bent or a little slenderer at the middle, and usually with a short blunt process beneath; second recurrent nervure in hind wings interstitial or uniting with the cubitus *beyond* the second transverse cubitus. . . . Trichocampus, Hartig.
- Antennæ simple, the third joint uniformly thickened; second recurrent nervure in hind wings joins the first submarginal cell *before* the second transverse cubitus. . . . Priophorus, Latreille.
4. Front wings with four submarginal cells; claws bifid.
 ♀ with the abdominal segments 7-8 not carinate; ♂ with the last abdominal segment entire, without a median furrow. Camponiscus, Newman.
- Front wings with three submarginal cells (rarely with four); claws simple.
 ♀ with dorsal abdominal segments 7-8 with median carinæ; ♂ with the last dorsal abdominal segment with a median furrow. Anoplonyx, Marlatt.

Subfamily II.—NEMATINÆ.

This subfamily is distinguished from the *Cladiniæ* by the distinctly petiolated lanceolate cell, the anal vein being always absent at base; the second submarginal cell, or the first if the first transverse cubitus is wanting, always receives both recurrent nervures, or the second recurrent is interstitial with the second transverse cubitus.

About a dozen genera are known, readily distinguished by the aid of the following table:

Table of Genera.

- Costal transverse nervure interstitial with the apex of the basal nervure or placed a little beyond it. 10.
- Costal transverse nervure never interstitial with the apex of the basal nervure, always placed somewhat before it.
- Claws bifid or cleft. 5.

Claws with a small or short tooth beneath, a little beyond the middle, and which projects nearly at a right angle. 2.

Claws simple, without a tooth.

First and third submarginal cells small, nearly equal, united shorter than the second; clypeus emarginate. Gymnonychus, Marlatt.

2. Clypeus anteriorly truncate or at most only slightly emarginate; first transverse cubitus often wanting. 3.

Clypeus anteriorly distinctly emarginate; first transverse cubitus always distinct.

Marginal cell in hind wings at apex pointed, with an appendage, the second recurrent nervure usually uniting with the first submarginal (first discal) cell, at about two-thirds its length. Pachynematus, Konow.

3. Marginal cell in hind wings at apex pointed, *with* an appendage; head with the frontal area most frequently wanting, rarely distinct. . . . 4.

Marginal cell in hind wings pointed, *without* an appendage; head with the frontal area distinct.

Second recurrent nervure in hind wings received by the first submarginal cell at about two-thirds its length, or a little before, rarely very near its apex; last dorsal abdominal segment in ♂ with a carina extending to apex. Lygaeonematus, Konow.

4. Hind wings with the second recurrent nervure received by the first submarginal cell at about two-thirds its length or a little before, rarely beyond; frontal area wanting; sheaths of ovipositor rounded at apex; last dorsal segment in ♂ with the carina, if present, not extending to the apex. Pristiphora, Latreille.

Hind wings with the second recurrent nervure received by the first submarginal cell near its apex or almost interstitial with the second transverse cubitus; frontal area more or less defined; sheaths of ovipositor roundly truncate from below; last dorsal segment in ♂ triangularly produced. Micronematus, Konow.

5. Front wings with four submarginal cells, or if with three only the first transverse cubitus is wanting or subobsolete. 6.

Front wings with three submarginal cells, the third transverse cubitus wanting; second recurrent nervure in hind wings usually interstitial or uniting with the cubitus a little beyond the first closed submarginal cell; frontal area more or less defined. Euura, Newman.

(= Cryptocampus, Hartig.)

6. Middle mesothoracic lobe medially more or less depressed and *with* a distinct median grooved line or furrow; marginal cell in hind wings pointed at apex, but *with* a distinct appendage. 8.

Middle mesothoracic lobe convex, *without* a distinct median grooved line, with a more or less median carina posteriorly; if this groove is at all present, only slightly indicated anteriorly; marginal cell in hind wings pointed at apex, but *without* a distinct appendage.

Male characters. 7.

Female characters.

Antennæ rather widely separated at base, with a convex prominence between, which is margined superiorly; last dorsal abdominal segment short, rounded at apex. . . Pontania, Costa.

7. Last dorsal abdominal segment with a small blunt, more or less awl-shaped, projection. Pontania, Costa.

8. Male characters. 9.

Female characters.

Frontal area more or less well defined; mesonotum and pleura shining, smooth, or at most sparsely punctate; last dorsal abdominal segment not long, squarely truncate or very slightly rounded at apex.

Last ventral segment at apex *without* a median sinus or incision.

Legs normal, the hind tarsi not thickened. . . Pteronus, Jurine.

Legs with the hind tibiae and tarsi more or less thickened, the former longitudinally sulcate. . . Holcocnema, Konow.

Last ventral segment at apex *with* a median sinus or incision. Nematus, Jurine.

Frontal area wanting; mesonotum and pleura opaque, with very dense and fine punctures; last dorsal abdominal segment almost as long as wide, at apex rounded or triangularly produced; last ventral segment triangularly produced. . . Amauronematus, Konow.

9. Last ventral segment at apex obtusely, triangularly produced or truncate.

Last dorsal abdominal segment at apex medially, *with* a rounded or truncate projection. Pteronus, Jurine.

Last dorsal abdominal segment at apex truncate, *without* a projection.

First dorsal abdominal segment not deeply incised; terminal ventral plate only about twice as long as wide; frontal area more or less distinct.

- Hind tibiæ and tarsi somewhat thickened, the former with a longitudinal sulcus *Holcocnema*, Konow.
 Hind tibiæ and tarsi normal *Nematus*, Jurine.
 First dorsal abdominal segment with a deep median incision ; terminal ventral plate more than twice as long as wide ; frontal area wanting *Amauronematus*, Konow.
10. Hind femora and tibiæ somewhat thickened, the tarsi normal *Hypolaepus*, Kirby.
 Hind tibiæ towards apex and first joint of the tarsi strongly compressed and very broad *Croesus*, Leach.

FAMILY XIII.—DINEURIDÆ.

This group has heretofore been classified with the *Nematidæ*, but from which it is readily separated by having two marginal cells in the front wings. It appears to me, however, to be more closely allied to the *Selandriidæ*, and especially to the *Tenthredinidæ*, than to the *Nematidæ*, and probably was evolved from the latter. The basal nervure uniting with the subcostal vein some distance from the origin of the cubitus separates it from the former, while the short oviform abdomen and the venation of the front wings distinguish it from the latter.

Two subfamilies have been recognized, separated as follows :

Table of Subfamilies.

- Lanceolate cell contracted near the middle, closed at base Subfamily I., *Hemichroinæ*.
 Lanceolate cell petiolate Subfamily II., *Dineurinæ*.

Subfamily I.—HEMICHROINÆ.

This subfamily in having the lanceolate cell contracted at or near the middle, and in the *habitus* of the species, closely resembles the *Hoplocampinæ* in the family *Selandriidæ*, and suggests the possibility of its being the phylum from whence that family originated.

The genera may be recognized with the aid of the following table :

Table of Genera.

Costal transverse nervure not interstitial, placed much before the apex of the basal nervure ; third submarginal cell more than twice as long as the first ; claws bifid.

Second submarginal cell receiving both recurrent nervures, or the second recurrent is interstitial ; first recurrent nervure in hind wings *not* twice the length of the first transverse cubitus, the anal cell longly petiolated *Hemichroa*, Curtis.

- Second and third submarginal cells each receiving a recurrent nervure; first recurrent nervure in hind wings more than twice the length of the first transverse cubitus, the anal cell longly petiolated.....Opisthoneura, Ashm., n. g.
(Type O. Crevecoeuri, Ashm.)
- Costal transverse nervure interstitial with the apex of the basal nervure; third submarginal cell not twice as long as the first: claws simple.....Marlattia, Ashm., n. g.
(Type H. laricis, Marl.)

Subfamily II.—DINEURINÆ.

The petiolated lanceolate cell readily distinguishes this subfamily from the former. In general appearance the species included in it recall those to be found in the *Blennocampinæ*, the only marked structural difference being the venation in the front wings.

Only two genera are at present known, separated by the characters made use of in the following table:

Table of Genera.

- Transverse radius oblique and joining the third submarginal cell *beyond* its middle; claws of hind legs with a small, subapical tooth.....Dineura, Dahlbom.
- Transverse radius straight and interstitial with the second transverse cubitus, or very nearly, the latter itself being interstitial (or nearly) with the second recurrent nervure; claws bifid.....Mesoneura, Hartig.

THE FREEZING OF INSECTS.

BY HENRY H. LYMAN, MONTREAL.

In the 22nd Report of the Entomological Society of Ontario, being that for 1891, there appeared a paper from my pen under the title "Can Insects Survive Freezing?"

I have recently come across further records of observations upon this subject, and deem them of sufficient interest to be republished in the CANADIAN ENTOMOLOGIST.

In looking over an interesting book of travels entitled "A Journey from Prince of Wales's Fort in Hudson's Bay to the Northern Ocean, undertaken by order of the Hudson's Bay Company for the discovery of

copper mines, a north-west passage, etc., in the years 1769, 1770, 1771 and 1772, by Samuel Hearne," published in 1796, I came across the following interesting notes on page 307 :

"FROGS, GRUBS, AND OTHER INSECTS.

"Frogs of various colours are numerous in those parts as far north as the latitude 61°. They always frequent the margins of lakes, ponds, rivers and swamps ; and, as the winter approaches, they burrow under the moss, at a considerable distance from the water, where they remain in a frozen state till the spring. I have frequently seen them dug up with the moss (when pitching tents in winter) frozen as hard as ice, in which state the legs are as easily broken off as a pipstem, without giving the least sensation to the animal ; but by wrapping them up in warm skins, and exposing them to slow fire, they soon recover life, and the mutilated animal gains its usual activity ; but if they are permitted to freeze again, they are past all recovery, and are never more known to come to life. The same may be said of the various species of spiders, and all the grub kind, which are very numerous in those parts. I have seen thousands of them dug up with the moss when we were pitching our tents in the winter, all of which were invariably enclosed in a thick web, which Nature teaches them to spin on those occasions ; yet they were apparently all frozen as hard as ice. The spiders, if let fall from any height on a hard substance, would rebound like a gray pea ; and all the grub kind are so hard frozen as to be as easily broken as a piece of ice of the same size ; yet, when exposed to a slow heat, even in the depth of winter, they will soon come to life, and in a short time recover their usual motions."

In Dr. H. Guard Knaggs's *Lepidopterist's Guide*, on page 49 of the 1871 edition, under the heading of "Ailments of Larvæ," I find the following :

"Frost Bite. It is well known that larvæ, which have been so stiffly frozen that they might have been easily broken, have afterwards recovered. The chief thing to be remembered in the treatment of such cases, is that the thawing should be effected very gradually—rapid thawing being dangerous."

NOTES ON JASSINI, WITH SOME NEW SPECIES.

BY C. F. BAKER, ALABAMA POLYTECHNIC INSTITUTE, AUBURN, ALA.

Tinobregmus vittatus, VanD.—This species occurs from Virginia to Brownsville, Texas, where it is frequent. The male differs most remarkably from the female. It is smaller and the elytra equal the abdomen in length. In the male the head and all below, with bases of femora, hind tibiae entirely and tips of elytra are black; the pronotum and elytra except tips are milky white. The hind tibiae equal the whole body in length.

Neocoelidea, G. & B.—The description of this genus requires amending somewhat, on account of the discovery of a number of new species evidently congeneric with *tumidifrons*, and in consequence of a study of a large series of specimens of the type species. The anteapical cell in the wing is a monstrosity; there are two apical cells besides the costal or supernumerary, the first sometimes peduncled. All of the species are not as robust as *tumidifrons* and *lactipennis*, but resemble *Thamnotettix* in form, having longer elytra. The elytra always lack a distinct appendix and sometimes possess but three well-defined apical cells. VanDuzee's *Jassus lactipennis* belongs in this genus. *Tumidifrons* is found also in Texas.

Neocoelidea lineata, n. sp.—Female. Length 7 mm. Vertex broadly obtusely rounded. Colour pale greenish-yellow. Apex of vertex with a small black spot; the disc with a median longitudinal darkened area which extends across the pronotum, becoming gradually broader posteriorly and forking on the scutel. Elytra subhyaline, slightly obscured, somewhat darker along the internal border and at apex. Veins of wings except second sector strong and dark. Tergum with a longitudinal black band narrowing to a point behind and visible through the closed elytra. Ovipositor rufous. Last ventral segment very long and truncate or more or less sinuate behind, and slightly notched at centre.

Male.—Length 5.5 mm. Colour orange yellow. Length of valves twice entire breadth at base, alternate and parallel-sided beyond middle.

Prof. A. P. Morse collected this species in abundance at Ashland, Oreg., Sept. 7th. There were in the lot but few males to many females.

Neocoelidea obscura, n. sp.—Female. Length 5.5 mm. Proportionally rather broad across base of elytra. Vertex obtusely rounded. Straw coloured; apex of vertex with a small black spot. Elytra nearly hyaline. Tergum with a subobsolete trace of black at base. Vertex, pronotum and scutel with faint traces of two parallel light lines, which are very

faintly edged with reddish. Veins of wings, except second sector, very distinct and brownish. Last ventral segment very long, white, hind margin evenly rounded.

Male.—Length 5.5 mm. While slightly shorter, the male is not narrower, and this makes it appear more robust than the female. The reddish borders are more prominent, and the veins of the elytra are conspicuously brown, the latter being a very rare character in this genus. The valves are once and a half as long as wide at base, the sides evenly oblique to the acute tip, scarcely incurved.

There are several females in my collection from Prescott, Ariz. (Kunzé), and in the National Museum a male from Texas, and a female from Marble Valley, Cal. (Koebele).

Neocoelidea rubrolineata, n. sp.—Size and form of *obscura*, to which it is closely related. The two parallel white lines on the vertex, pronotum and scutel, are very distinct. Vertex obtuse, but rather strongly produced, its apex without a black spot. Colour above shading into reddish on the vertex, where it contrasts strongly with the white lines, giving the vertex the appearance of being rubrolineate. Inner margin of elytra somewhat darker. Wings with all the veins whitish.

Male.—Slightly smaller than the female, and brighter coloured. Valves large, long, parallel-sided, tumid, and apex bluntly rounded.

Described from one male and five females in the Herbert H. Smith collection, taken at Corumba and Chapada, Brazil, in March, April, May.

Neocoelidea pallida, n. sp.—Female. Length 5 mm. Vertex strongly produced and subacute. Colour very pale faded yellowish throughout, the elytra subhyaline. Veins of wings, except second sector basally, distinct and brownish. Last ventral segment long, subtruncate. Male somewhat smaller, valves as in *lineata*.

This species was abundant near Tucson, Ariz., in May and June (Kunzé). Prof. Morse also found it at Palm Springs, Cal., on July 12th. This small weak form seems to be common in the South-west. It has a singular lack of salient characters. It can be readily separated from the other species by its size, lack of markings, and form of vertex.

Neocoelidea modesta, n. sp.—Female. Length 7 mm. Large and robust, but with the usual elongate elytra. Pale sordid yellowish throughout, the elytra subhyaline, the vertex with a small black spot at apex. The last ventral segment is twice the length of the preceding, and very broadly notched to half its length.

Described from three females in the Herbert H. Smith collection, taken at Chapada, Brazil, in June and August.

Neocoelidea Barrettii, n. sp.—Female. Length 6 mm. Vertex moderately produced, obtuse. Colour pale lemon-yellow. Tip of vertex with a small black spot; from this, extending backward to the tip of the clavus, is a conspicuous longitudinal brown band; the sides of this band are darker, and incurved twice on the vertex, once on the pronotum, once on the scutel, and twice on the clavus; it terminates in a brown spot on either side just beyond tip of clavus. Scutel with a black spot on either side of the centre. Elytra subhyaline, slightly smoky within at tip. Wings milky white, with a median longitudinal fuliginous band. Tergum with a median longitudinal black band.

Male somewhat smaller and more strongly coloured, the valves as in *lineata*.

Described from several specimens collected near Vera Cruz, Mexico. Named in honour of Mr. O. W. Barrett, a collector who shows promise of doing something noteworthy on the Mexican fauna. This is the most striking North American species of the genus.

Neocoelidea bimaculata, n. sp.—Female. Length 6.5 mm. With the colour and very much the general appearance of *modesta*, but smaller, slenderer, and with two brown commissural spots on clavus, one at base, the other at tip. The vertex is proportionately more produced. Last ventral segment somewhat longer than preceding, depressed either side of median line, the hind margin slightly produced and minutely notched at middle.

Male slightly smaller, the valves rather large and long, gradually evenly narrowed to obtuse points.

Described from a male and female in the Herbert H. Smith collection, taken at Chapada, Brazil, in August.

Neocoelidea Smithii, n. sp.—Female. Length 8 mm. Pale yellowish with faint touches of reddish on sides of front, pronotum, scutel, and along commissural margin of clavus. Elytra shining yellowish, subhyaline, with four dark spots on inner margin, three on clavus and one beyond; with a complete transverse decoloured band before transverse nervures, which is edged before near costa with a dash of red; with another partial decoloured band beyond transverse nervures which is edged near costa with fuliginous. Costal margin of elytra and first sector of wings greenish. Wing subhyaline, with a median row of three fuliginous spots; veins pale

brown, excepting first sector. Last ventral segment but little longer than preceding, hind margin truncate, with the lateral angles somewhat produced.

Described from a single specimen from Brazil in the Herbert H. Smith collection. It is the largest and finest known species in the genus. It is most nearly related to *gratiosus*, Spang., which is also an undoubted *Neocoelidea*.

Paracoelidea, n. gen.—With the venation and other characters of *Neocoelidea*, but with the clypeus strongly and very conspicuously tuberculate. This is a character unique in the tribe *Jassini* and very rare in the subfamily *Jassinæ*. The elytra are elongate as in *Thamnotettix*. Type, *Paracoelidea tuberculata*, n. sp.

Paracoelidea tuberculata, n. sp.—Female. Length 5 mm. Vertex rather strongly produced and subacute, as in *Neocoelidea pallida*. Colour pale yellowish. The elytra subhyaline and faintly yellowish, with the internal margin and apex slightly infusate. Tergum medially black. Wing with the third sector and its forks strongly brown, the other veins pale. Last ventral segment twice length of preceding, hind margin truncate.

Male somewhat more highly coloured. The valves are about twice as long as entire breadth at base, tapering to obtuse tips, sides rounded below, somewhat constricted at two-thirds of length.

Described from several specimens from New Bedford, Mass. (Hough), several from Washington, D. C. (Coquillett), a number from the vicinity of Baltimore taken on pine (Uhler), and one female collected by myself at Auburn, Ala.

Terulia magna, n. sp.—Female. Length 14 mm, breadth across base of elytra 5 mm. Ocelli equidistant from eyes and median line. Front with a fine, sharp median carina. Clypeus with a narrow median callosity and with apex somewhat emarginate. Clavus without transverse nervures. Colour ferruginous throughout, including the subcoriaceous elytra; front a little lighter, vertex darker before tip. The strong carina on propleura, and some indistinct markings on fore and middle legs, reddish. Hind legs lineate with black. Last ventral segment depressed on either side of a strong median ridge, the hind margin acutely produced medially, then broadly incurved to the prominent lateral angles.

Described from a single female in the Herbert H. Smith collection, taken at Para, Brazil, in July. This species is nearest *ferruginea* (Stal.), but differs in size and various minor characters. It is the largest described species in the genus.

Petalopoda annulipes (Spang) —There is a specimen of this curious Jassid in the Herbert H. Smith collection, taken at Santarem, Brazil.

TWO NEW SPECIES OF LECANIUM FROM CANADA.

BY T. D. A. COCKERELL, N. M. AGR. EXP. STA.

Lecanium (Eulecanium) caryarum, n. sp. - ♀. Scale (after producing young) somewhat variable in form, from long. 6, lat. $3\frac{1}{2}$, alt. $2\frac{2}{3}$ mm., to long. $5\frac{1}{2}$, lat. $4\frac{1}{3}$, alt. $3\frac{1}{4}$ mm., the more swollen individuals probably affected by parasites; outline in transverse section nearly hemispherical, in longitudinal section more or less low-pyramidal, with the posterior slope considerably the shortest, the apex of the pyramid marked by a more or less prominent boss, sometimes inclined to be double. Colour of scale dark chestnut; sides pitted and plicate to a variable degree.

Antennae rather unusually long and slender, about $348\ \mu\mu$ long; formula 37 (12) 465; 3 is about $83\ \mu\mu$ long, 7 about $50\ \mu\mu$; 1 with two short bristles, 2 with two long bristles near the end, 4 with a very long bristle, 5 and 6 each with a rather short bristle, 7 with two whorls of rather short bristles.

Tarsus about $\frac{2}{3}$ length of tibia; tibia $116\ \mu\mu$ long, tarsus (without claw) about $74\ \mu\mu$. Digitules long; thorax of claw extending far beyond its tip, one a little shorter and stouter than the other. Length of anal plates about $150\ \mu\mu$. Width of mouth-parts about $166\ \mu\mu$.

Hab.—Very abundant on twigs and branches of a magnificent tree of *Carya alba*, on the grounds of Mr. C. Thonger, at Niagara, Ontario, June 17th, 1898 (J. Fletcher).

There is an unfortunate confusion about Fitch's *L. carya*. The original description, published in 1856, is as follows: "Large, very convex, oval, black fading to chestnut brown, in May dusted over with a white powder." Long. 0.40, lat. 0.25 inch. This agrees tolerably well in some respects with a species found by Mr. King, which will be described in a future paper.

Signoret, however, describes a quite different *L. carya*, based on specimens sent to him as that species by Fitch. This is only 6 mm. long, and has 6-jointed antennae. It is closely allied in all respects to the European *L. corni*. What I take to be this species was found by Mr. G. B. King, at Methuen, Mass., on *Gleditschia*. This *Gleditschia* insect, however, agrees even better with Signoret's account of *L. cynosbati*, Fitch, and my present opinion is that *cynosbati*, Fitch, and *carya*, Sign. (not Fitch, 1856), are one species.

L. caryæ, var. *canadense*, Ckll, must stand as *L. canadense*. *L. caryarum*, above described, is well distinguished from all these species, especially by its antennæ.

Lecanium (Eulecanium) macluratum, n sp.—♀. Scale long. $4\frac{1}{2}$, lat. 3, alt. 3 mm., very dark chestnut brown, shiny, smooth dorsally, pitted round the margin; in transverse section narrower than a half circle, in longitudinal section with the outline of a half circle, except that the margin is produced caudally.

Antennæ shorter than in *caryarum*, about as long as in *cynosbati*, 7-jointed, formula 3 (17) 25 (46). Sometimes the antennæ seem only 6-jointed, with a formula 3162 (45). In the normal (7-jointed) antennæ, 3 is about 62 $\mu\mu$ long, while 4 is less than half that length; 1 is about 42 $\mu\mu$ long, 7 the same.

Tibia 113 to 121 $\mu\mu$ long, tarsus (without claw) 85 to 90 $\mu\mu$, claw 23 $\mu\mu$. Claw digitules rather slender, extending considerably beyond its tip. Skin reticulated as usual in the subgenus.

Hab.—On twigs of osage orange, Niagara, Ontario, June 17, 1898 (J. Fletcher).

This scale has some considerable resemblance to *L. corylifex*, Fitch, which Mr. G. B. King has lately found at Lawrence, Methuen and Andover, Mass., on *Corylus americana*.

I will take this opportunity to record that I have just received *L. quercitrionis*, Fitch, from two new localities, on new food-plants, viz., (1) on elm, DuBois, Ill. (*Chas. C. Adams*), (2) on *Castanea pumila*, on the road to and near the Yosemite Valley, Mariposa Co., Calif. (*Alex. Craw*).

T. ENIOCAMPA ALIA, Gn., AT QUEBEC.

BY REV. THOMAS W. FYLES.

Fifty-nine eggs of this species were found on a twig of *Amelanchier Canadensis*, at the "Gomin," June 1st, 1897. They were laid in four rows—each row was about three-fourths of an inch long.

Egg.—Small, dull pink in colour, striated. The ridges branch into pairs a short distance from the apex, and number altogether about 33. Each ridge is regularly indented, so as somewhat to resemble a cord. Hatched in the afternoon of June 5th.

Young larva.—A half-looper. Length one-tenth of an inch. Colour greenish-yellow. Set thickly with brown warts, and sparsely with bristles.

Head large. Two hindmost pairs of pro-legs and the claspers very long. Moulded June 10th.

Larva after first moult.—Length two-tenths of an inch. Colour green. Dorsal line white; sub-dorsal white, with a chocolate line close below it. A second chocolate line below that. Side line white. On the segment next the head is a whorl of black dots, with a black bristle surmounting each dot. There is a similar whorl on the following segment. On each of the other segments there are along the back two pairs of black dots—the first pair nearer together than the second. Head ochreous. Feet green. Moulded June 15th.

Larva after second moult.—Length four-tenths of an inch. Head ochreous. Body colour dull green. Dorsal and sub-dorsal lines greenish-white. Spiracular line milk white, and broad. Between the sub-dorsal and spiracular lines the colour is brownish-green. Spiracles black. Moulded June 23rd.

Larva after third moult.—Length one inch. Head chestnut. Body colour brown. Dorsal, sub-dorsal and side lines interrupted, bluish, bordered with dark brown. Spiracular line milk white. Spiracles black. On either side of the dorsal line, on each segment, is a pale spot. Moulded June 28th.

Full-grown larva—Length one inch and a half to one inch and three-quarters. Plump; dull brown, rather mottled, lighter on the back. Dorsal, sub-dorsal and side lines somewhat interrupted; ochreous, edged with dark brown. Spiracular line dirty white. Spiracles black. Head light chestnut, with a brown spot on each side. Buried itself July 4th. Formed a cist with a slight web.

Chrysalis.—Rich mahogany brown.

Imago.—Somewhat variable in colour. The following is a description of the prevailing type: Expanse of wings, one and a half inches; length of body, seven-tenths of an inch; length of antennæ, nine-twentieths of an inch. Antennæ filiform. Colour of primaries, brownish-ash, with a gloss; fringe reddish. Along the subterminal line to within a short distance of the costa is a row of dark brown velvety spots. Reniform and orbicular stigmata dull brown, outlined with Indian-red. Inner line wavy; this and the elbowed line are Indian-red. The central shade is reddish-brown. On the basal half of the wing are some short, curved, Indian-red markings. On either side of the subterminal line is a row of small, but distinct, brown dots. Secondaries gray. The moths appeared in early spring.

BOOK NOTICES.

OUTDOOR STUDIES: a Reading Book of Nature Study.—By James G. Needham; 1 Vol., pp. 90. New York, Cincinnati, Chicago: American Book Company.

These are a series of stories of animal life, written in a charmingly interesting way, and designed to lead on a youthful reader to observe for himself the wonders of nature that are everywhere open to his view. It begins with an account of the common wild snapdragon, or "butter and eggs," and tells how the peculiar structure of the flower is designed for the visits of the bumblebees who come for the nectar and carry off the pollen as well. The next chapters are on Chipmunks; Galls and their makers; the Golden-rod and its visitors and tenants; Crows and their doings; Dragon-flies, which, as our readers may remember, have been special objects of the author's studies; Eye-spots on insects which aid in the protection of their owners; and Ant-lions. Any boy or girl who takes up the book and dives a little way into its pages will surely read on with delight, and when the little volume is closed, be anxious to sally forth and see if he (or she) cannot find some similar marvels of nature and learn their meaning while admiring their beauty.

The book is one of a series designed for the use of school children who are about to enter the high schools. It is beautifully illustrated with about ninety wood-cuts, the work of Mrs. Needham, the author's wife, and is provided with an index and a list of the scientific names of the animals and plants referred to in the text.

LEPIDOPTERA, RHOPALOCERES AND HETEROCERES, indigenous and exotic. Supplement No. 1. By Herman Strecker. (Printed for the author), Reading, Pa., 1898. 12 pp., 4to. Price, 25 cents.

It is now twenty-one years since Mr. Strecker published the last number of the above-named work; it was, therefore, an agreeable surprise to receive the first part of a new issue with the old familiar title page. This "Supplement No. 1" contains descriptions of fifty-one species of Heterocera, which have all, with one exception—a species from Brazil—been taken in North America; two-thirds of them are described from single examples. The author states in his preface that he found, on rearranging his collection of Noctuidæ, that he had a number of specimens which he was unable to identify, "either through the bibliography, or the examination of other collections, or by the aid of specialists," and consequently he took the matter in his own hands and issued this instalment of new descriptions. He explains also the difficulties that he met with in his endeavor to give figures of the species thus described, and how he was compelled to do without them. We certainly miss them very much, but as we are never likely to possess duplicates of anything that is unique in Mr. Strecker's collection, the want of them is not so serious. Under these circumstances it seems a pity that Mr. Strecker had not sent his descriptions to some entomological journal, such as the Transactions Am. Ent. Society, rather than to have published them in this form himself.