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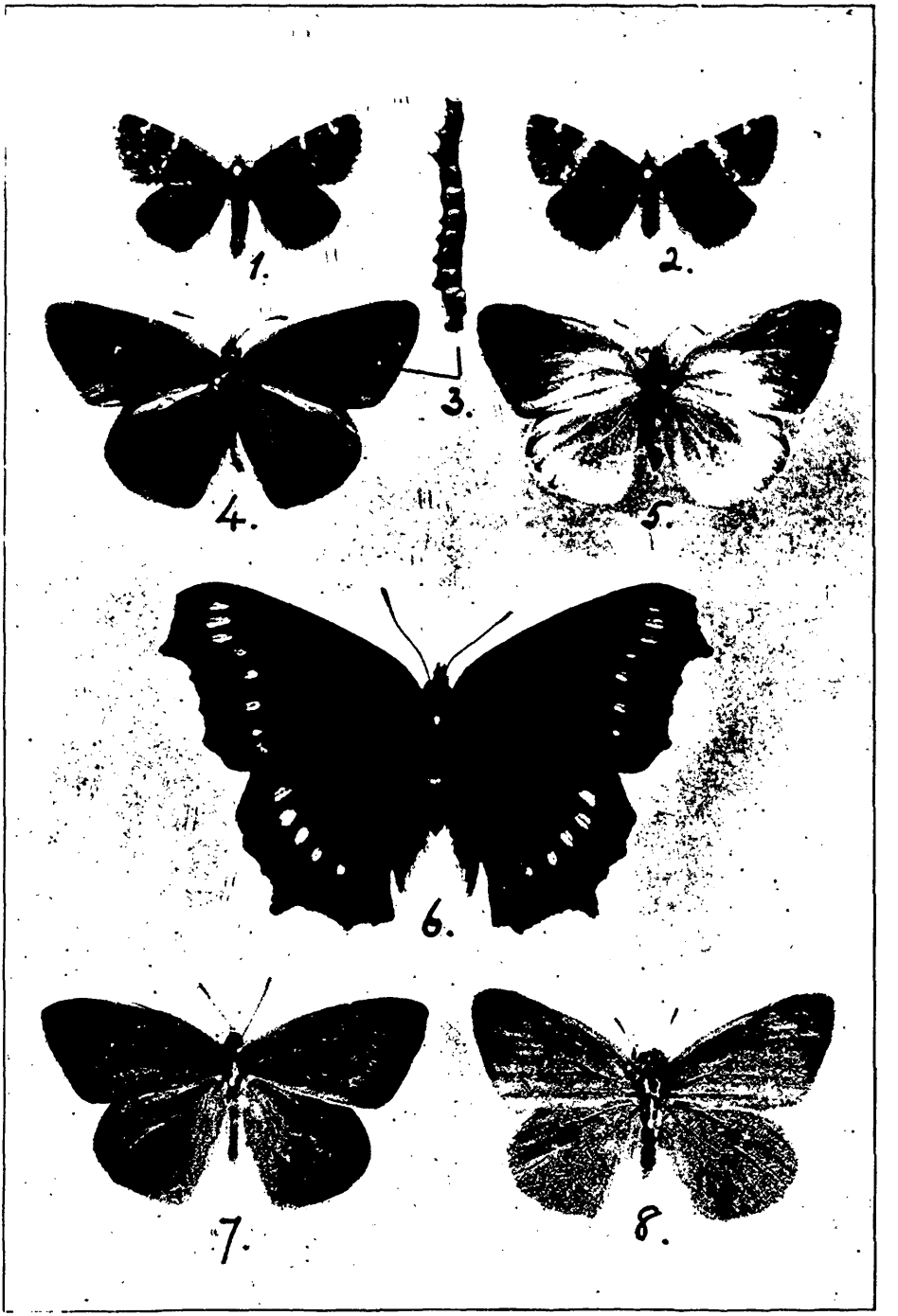

A RARE ABERRATION OF VANESSA ANTIOPA, ETC.

The Canadian Entomologist.

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A RARE ABERRATION OF VANESSA ANTIOPA.

BY HENRY H. LYMAN, MONTREAL.

In figure 6 of the accompanying plate we have a fair representation of a most interesting aberration of Vanessa Antiopa. This differs from the normal form in the most striking manner, all yellow of the border and the yellow markings on the costa above being replaced by deep brown. Below, the border and the few yellow markings of the normal form are of a very smoky hue, though by no means as dark as above.

It was taken by Mr. C. D'B. Green, at Boundary Creek, B. C., on 23rd August, presumably in 1895. Mr. Green knocked the specimen down with his hat, as he had no net, and it was thus slightly damaged, but is in very good condition considering the manner of its capture. The specimen is a ♀. A somewhat similar aberration is described by Dr. Strecker in his "Butterflies and Moths of North America" as being in his collection as follows: "‡ ab. b. ♀—With the border on upper side of primaries black instead of yellow," from which I judge that in that case the secondaries were normal. Of course for *black* we should probably read *dark brown*, as I do not believe that any specimen of Antiopa has ever been seen with a really black border.

If this aberration should be found to recur and to become entitled to be considered a variety, I would suggest the name Hippolyta, a queen of the Amazons of whom Antiopa was another queen.

The other figures on the plate are as follows:

No. 1—Brephos Infans, Moeschl., ♂.

No. 2— " " " ♀.

No. 3— " " " blown larva.

These illustrate Mr. T. Dwight Brainerd's paper on the preparatory stages of this species, CAN. ENT., XXIX., 272.

No. 4—Colias Philodice, Scud., ♂, var. Melanic.

No. 5— " " " ♀, " Albinic suffused.

Described by Mr. T. Dwight Brainerd, CAN. ENT., XXVIII., 305.

No. 7—Colias Interior, Scud., ♂, from Cartier, Ont.

No. 8— " " " ♀, " the Adirondacks.

These illustrate my paper on the life history of this species, CAN ENT., XXIX., 249.

NEW AND LITTLE-KNOWN BEES.

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

Chelynia rubiflori, n. sp.—♀. Eight mm. long, black, with sparse grayish and white pubescence. Head almost as large as thorax, quadrate, produced behind the eyes, cheeks very broad; cheeks, vertex and face very strongly and closely punctured; region of antennæ with some dull white hair; ocelli in a triangle; antennæ rather short, black, last joint compressed, funicle longer than first flagellar joint, first flagellar joint conspicuously longer than second or third; clypeus broad and low, punctured all over, its anterior margin bearing a small tooth at each side, and in the middle a long, narrow projection, like the thoracic spine of some species of *Oxybelus*. Mandibles black, stout, obscurely bidentate at the obliquely truncate ends. Labrum greatly produced, hollowed beneath, sides parallel, end truncate. Tongue very long, linear; maxillæ greatly elongated; penultimate joint of labial palpi broadened at apex, shorter than the last; basal joint not quite half, but more than one-third, length of second; maxillary palpi small, three-jointed, the joints subequal. Thorax rather small, strongly and closely punctured; base of metathorax coarsely wrinkled, bounded by an obtuse rim. Tegulæ black, punctured. Wings smoky, nervures and stigma black, stigma well-formed but small; marginal cell long, with an obtuse apex away from costa; two submarginal cells, second receiving first recurrent nervure at a distance from base nearly equal to length of first transverso-cubital nervure, and second recurrent very near the apex. Legs black, with thin whitish pubescence. Abdomen punctured, with obscure silvery pile towards the end; hind margins of segments with white hair-bands, very broadly interrupted on the first three segments, on the first reduced to lateral patches. Venter with a fairly abundant white scopa.

Hab.—Seattle, Washington State. (T. Kincaid.) Two at flowers of *Rubus ursinus*, May 14.

In describing this extraordinary bee I have given the generic as well as specific characters. Provancher placed his genus *Chelynia* among the Panurgine Andrenidæ, but the insect now described is an Apid allied closely to *Heriades*, and especially to *Ashmeadiella*. This circumstance, and the fact that Provancher's *C. labiata* does not exhibit the remarkable clypeal process, might seem to throw doubt on the generic identification; but the large head, the extraordinary labrum, etc., are all as Provancher describes, and it seems very improbable that he could have had another genus before him.

Ashmeadiella Holtii, n. sp.—♂. Length nearly 6 mm., head and thorax black, abdomen and legs mostly ferruginous. Head nearly as large as thorax, eyes very large; face about square, covered with snow-white pubescence, as also are the cheeks; vertex punctured, with thin pale mouse-coloured pubescence; antennæ short, flagellum dull ferruginous beneath; mandibles ferruginous, tridentate, the outer tooth long, slender and black. Thorax not very closely punctured, the pubescence white beneath and at the sides, grayish above. Tegulæ amber colour. Wings short, quite clear. Legs ferruginous with white pubescence; anterior coxæ and femora and middle coxæ and femora more or less blackened. Abdomen punctured, ferruginous; first segment black at base, and dorsal middle of second and third segments suffused with blackish; no distinct hair-bands, but apex largely clothed with white hair; apex with four teeth, the median ones somewhat further from each other than from the lateral.

Hab.—College Farm, Mesilla Valley, New Mexico, May 2, 1895. Collected by Mr. Alfred Holt. Allied to *A. bigeloviæ*, but very distinct by the red abdomen.

Halictus olympiæ, n. sp.—♀. Nearly 10 mm. long, black. In structure, colour, the shiny surface, the white patches on the abdomen, etc., this agrees with *H. pectoraloides;* it differs, however, in being considerably larger, and much broader in every way; the abdomen is very broad, and the head is transversely oval, with an extremely broad face. The abdomen, including the first segment, is very distinctly punctured. The antennæ are proportionately longer than in *pectoraloides*, and the mesothorax is more closely punctured. The base of the metathorax is covered with quite regular, strong, longitudinal ridges. The tegulæ are shining, piceous, with a brown spot and a pale edge. Wings slightly smoky, nervures and stigma dark brown. Hind spur of hind tibia with numerous short teeth.

Hab.—Olympia, Washington State, June 26, 1896. (T. Kincaid.) Also from Olympia, Mr. Kincaid sends what may be called *H. olympyiæ*, var. *subangustus*. It differs from the type by the narrower and more hairy face, the translucent pale testaceous tegulæ, and the narrower basal enclosure of the metathorax. It is possible that *subangustus* is a distinct species, but I think it is only a variety.

Halictus Kincaidii, n. sp.—♀. About 8 mm. long, black. This is another species of the type of *pectoraloides*, from which it differs thus:

It is more robust, with a broader abdomen; the wings are quite smoky; the pubescence of the face and thoracic dorsum are mouse colour; the face is perceptibly broader; the tegulæ are piceous and *punctured all over*; the mesothorax is dull and strongly and closely, though irregularly, punctured; the enclosure of the metathorax is somewhat more strongly subreticulately wrinkled; the bases of the abdominal segments are dullish, but there is no well-defined punctuation.

Hab.—Olympia, Washington State, June 13, 1895.

H. similis, Smith, which Mr. Kincaid took at Olympia in May and June, differs from *Kincaidii* at once by its honey-coloured (instead of piceous) stigma, broader head, and impunctate tegulæ. From *H. olympiæ*, *similis* is readily known by the impunctate abdomen, and the hind spur of hind tibia pectinate with four teeth, instead of dentate-serrate. The spur is also pectinate in *Kincaidii*. *H. similis*, it may be remarked, differs from *H. arcuatus* by the impunctate first abdominal segment and the larger second submarginal cell, etc. *H. olympiæ*, v. *subangustus*, is much like *arcuatus*, but is readily known from it by its broader face and dark stigma.

Halictus Lerouxii, var. *ruborum*, n. var.—♀. Somewhat smaller than usual; pubescence all strongly tinged orange or yellowish-rufous; tegulæ reddish-brown (or sometimes quite dark), distinctly punctured along the margin; tarsi mostly, and hind tibiæ behind, clear ferruginous. Hind spur of hind tibia pectinate with about nine teeth, only the first three large.

Hab.—Seattle, Washington State, May 14, on *Rubus ursinus*. (T. Kincaid.) This looks like a distinct species, but other *Lerouxii* from Seattle are intermediate between it and the type, having the legs dark, but the pubescence and tegulæ of *ruborum*. Some *Lerouxii* from Olympia (Kincaid) are hardly larger than *coriaceus*, but the broad face still distinguishes them.

It may be remarked here that Mr. Kincaid takes at Olympia not only *H. Lerouxii* and *H. coriaceus*, but also *H. sisymbrii*, Ckll., a species hitherto reported only from New Mexico. I have also identified from the Olympia material *H. fasciatus*, Nyl., Rob., and *H. confusus*, Sm., Rob.

Halictoides Tinsleyi, n. sp.—♀. Six mm. long, black, with rather sparse dirty-white pubescence. Head rather small, facial quadrangle about square, face and cheeks quite hairy; antennæ very short, wholly dark, flagellum quite thick; vertex appearing coarsely granular from the

very close punctuation, clypeus with lateral projecting angles; tongue apparently rather short, nearly as in *Hemihalictus*; mesothorax dull and granular from the excessively close punctures; base of metathorax semi-lunar, with fine longitudinal plications or striæ; tegulæ piceous. Wings smoky, iridescent, nervures and stigma black or piceous; stigma rather small, basal nervure noticeably but not abruptly bent; second submarginal cell about as long as the first, receiving the first recurrent nervure at less than one fourth from its base, and the second (at a right angle) about one-sixth from its tip. Legs black, with whitish hairs; hind legs with a rather abundant scopa, carrying considerable yellow pollen. Abdomen hardly punctured, except that the first segment near its base exhibits large scattered punctures; hind margins of segments pallid; apical half of abdomen pruinose with pale hairs.

Hab.—Five taken by Prof. J. D. Tinsley at flowers of *Gymnolomia multiflora*, in Soledad Canon, Organ Mts., New Mexico, 7,000 feet alt., Sept. 25, 1897. I am not quite sure about the generic position of this little bee. The tongue suggests *Hemihalictus*, but the wings are entirely those of *Halictoides*, and differ from *Hemihalictus*. I sent an example of *H. Tinsleyi* to Mr. W. J. Fox, who kindly compared it with Cresson's types of "*Panurgus*," and writes that it "is apparently different from any here. It is not *fimbriatus*, which has the abdomen much more hairy. It may be the ♀ of *nigrifrons*, but I am inclined to think not." (*Litt.*, Nov. 5, 1897.)

ON THE DIPTEROUS GENUS EUSIPHONA.

BY D. W. COQUILLETT, WASHINGTON, D. C.

At the time of establishing this genus, in my recent revision of the Tachinidæ, I had only two specimens before me; in both of these the wings are bent backward in such a manner as to prevent a critical examination of the lower calypteres, but as the specimens otherwise agree quite closely with the Tachinid genus Gymnophania, I concluded to place the present genus next to it. The recent examination, however, of a perfect specimen from Mr. Charles Robertson, of Carlinville, Illinois, reveals the fact that the lower calypteres are extremely small, being, in fact, rudimentary, and this genus must therefore be transferred from the Tachinidæ to the superfamily Acalyptrata. In all the essential characters it agrees with the family Agromyzidæ, and its proper place is evidently in the vicinity of the genus Desmometopa, from which it will be readily recognized by the strongly convex front and the excessively long, bristle-like proboscis.

SOME INDIANA ACRIDIDÆ.—IV.

BY W. S. BLATCHLEY, INDIANAPOLIS, IND.

Since the publication of the third paper of this series in the CANADIAN ENTOMOLOGIST for August and September, 1894, my time has been so fully occupied with other duties that but little opportunity has been presented for the collection and study of Indiana Orthoptera. Notes have been made and specimens taken only of such species as came readily to hand during field work in geology. A better knowledge of the distribution over the State of many of the Acrididæ has, however, been gained, and seven species and one variety have been added to the number formerly listed, and to my private collection. Of these, one species and variety have been described as new by Prof. A. P. Morse, a second is described for the first time in the present paper, and a third has before been taken only in Montana and Nebraska.

The publication of McNeill's "Truxalinæ of North America" and of Scudder's "Revision of the Melanopli," especially the latter, has made necessary a number of changes in the synonymy of the species previously accredited to the State. A new list of all Acrididæ mentioned in this and the former papers, with their present nomenclature, is, therefore, appended. It is to be hoped that the papers as published have added something of value to the knowledge of the habits and geographical distribution of this interesting group of insects.

ACRIDIDÆ.

TRUXALINÆ.

1. ORPHULA PELIDNA (Burm).* The Spotted-winged Grasshopper.

Gomphocerus pelidnus Burm., Handbuch II., 1838, 650.

Stenobothrus pelidnus Thos., Syn. Acrid., 1873, 95.

Orphula pelidna Rev. Trux., N. A., 1897, 235.

Stenobothrus maculipennis Scudd., Bost. Jour. Nat. Hist., VII., 1862, 458.

Orphula maculipennis Morse, Psyche, VII., 1896, 326.

Stenobothrus propinquans Scudd., Bost. Journ. Nat. Hist., VII., 1862, 461.

This species has been described or mentioned under the above names by many different persons, and no attempt is made to give a com-

*When the author of a species referred it to a different genus from that to which it is now recognized as belonging, his name is enclosed in a parenthesis.

plete synonymy. That given by McNeill, loc. cit., is faulty and misleading to beginners, in that the name *Gomphocerus* is wrongly used for *Stenobothrus* in a number of the references.

Although it is said to occur in abundance in the United States east of the Rocky Mountains, I did not meet with this species in Indiana during ten years collecting until the 27th of last July, when I found it in abundance about the margins of a small lake in one of the valleys among the sand dunes of Lake County.

It uses both the wings and legs in flight, and when close pressed often burrows into the fallen grass in an attempt to escape detection. Of twenty-one specimens taken but three were females, and they were of the green variety. Five of the males were also partly green, the remainder being brown and fuscous.

2. MECOSTETHUS LINEATUS (Scudder.)

Arcyptera lineata Scudd., Bost. Jour. Nat. Hist., VII., 1862, 462.
Id., Am. Nat., II., 1868, 118. (Song of.)
Id., Proc. Bost. Soc. Nat. Hist., XI., 1868, 8. (Note of set to music.)
Id., Dist. Ins. of N. Hamp., 1874, 373.
Smith, Rep. Conn. Bd. Agri., 1872, 381.
McNeill, Psyche, VI., 1891, 66.

Stethophyma lineata Thos., Syn. Acrid., 1873, 98.
Id., Ninth Rep. St. Entom., Ill., 1880, 104.
Fernald, Orth. N. Eng, 1888, 38.
Bruner, List Neb. Orth., 1893, 23.
Morse, Psyche, VII., 1894, 105.

Mecostethus lineatus Morse, Psyche, VII., 1896, 327, 444, figs. 13–13b.
McNeill, Rev. Trux. N. Am., 1897, 254, figs. 22a, 22b.

The range of this species as given by McNeill is "N. Eng. to N. Ill. and Iowa." He also adds that it is a "rare species, reported but a few times." The above synonymy includes all references to it by American writers. Some of these references, as those of Thomas, Smith, and Fernald, were based on Scudder's writings, the author not having collected it in person. The only definite localities from which it has been recorded are: Norway, Me.; Williamstown and Andover, Mass.; Valley of the Red River of the North, by Scudder; North Haven and

Thompson, Ct., and Readville, Sherburn and Newtonville, Mass., by Morse; and Iowa side of Mississippi, opposite Watertown, Ill., by McNeill. Bruner also reports it as "occurring in the timbered parts of the eastern half of Nebraska," a fact which McNeill seems to have overlooked.

It was noted for the first time in Indiana on July 13th, 1894, when a single male was secured from open ground near the side of a tamarack swamp, just north of Kewanna, Fulton Co. On the following day it was found in small numbers in a boggy meadow between two spurs of another tamarack swamp, just west of Lear's Lake, in the same county. The males were very wild, taking to flight when a person was a dozen yards or more away. They used the wings only in escaping, flying swiftly and noiselessly for 50 to 100 feet and alighting on the stems of tall grass. The only way in which I could effect their capture was by running after them and swooping them with the net as they arose or before they had time to arrange their legs for the upward impetus at the beginning of a new flight. But two females were seen. They were much darker and more bulky and lubberly than the males, and being in a more open place, where the grass was shorter, were easily taken. The species probably occurs in the vicinity of tamarack swamps and peat bogs throughout the northern half of Indiana, though it was not noted about several which have been visited in the last three years.

OEDIPODINÆ.

3. PSINIDIA FENESTRALIS (Serville.) The Long-horned Grasshopper.

Oedipoda fenestralis Serv., Hist. Nat. des Orth., 1839, 726.
Thos., Syn. Acrid., 1873, 118.
Locusta fenestralis Harris, Ins. Inj. Veg., 1862, 177.
Psinidia fenestralis Stal., Recens. Orth., I., 1873.
Sauss., Prod. Oedipod., 1884, 161.
Fern., Orth. N. Eng., 1888, 44.
Beut., Bull. Am. Mus. Nat. Hist., VI., 1894, 303, Pl. VIII.
Morse, Psyche, VIII., 1897, 111, fig. 28.
Locusta cucerata Harris, Ins. Inj. Veg., 1862, 180.
Oedipoda cucerata Scudd., Bost. Journ. Nat. Hist., VII., 1862, 472.

This handsome little Acridian has been mentioned by numerous other writers under the names given above, but it is not thought best to give the full synonymy in this connection. The species evidently occurs

from the Atlantic to the Rocky Mountains, wherever there are extensive sand-covered areas, having been reported from Colorado and Canon Cities, by Uhler; from north-west Nebraska, by Bruner; from Illinois, by McNeill; and from various points on the Atlantic coast between Maine and Louisiana, by Harris, Scudder, Smith, Morse, and others.

In Indiana, it has been noted only in Lake and Porter counties in the sandy area bordering Lake Michigan, where it was first taken July 27, 1897. It is most common along the beach within one-half mile of the lake, in company with *Trimerotropis maritima* (Harris) and *Spharagemon wyomingensis* (Thos.), though a few specimens were taken on sandy ridges five miles from the lake shore. It has a quick, short flight, and always chooses a bare, sandy spot on which to alight. Unless it is carefully "marked down" it is then very difficult to distinguish, since its colours harmonize so perfectly with its surroundings. By keeping an eye on it, and stealthily approaching, it can be readily taken by throwing the net quickly over it just as it is in the act of rising. The male makes a slight rattling sound as it flies, but the movement of the female is noiseless. The majority of the specimens seen had the inner wings a bright red at base, though variations in colour, from light yellow to deep red, were frequent.

ACRIDINÆ.

4. MELANOPLUS EXTREMUS (Walker.)

Caloptenus extremus Walker, Cat. Dermap. Salt., IV., 1870, 681.
Melanoplus extremus Scudd., Proc. U. S. Nat. Mus., XX., 1897, 287, Pl. XVIII., fig. 10.
Pezotettix junius Dodge, Can. Ent., VIII., 1876, 9.
Melanoplus junius Scudd., Proc. Bost. Soc. Nat. Hist., XIX, 1878, 286.
Caloptenus junius Scudd., Can. Ent, XX., 1880, 75.
Caloptenus parvus Provancher, Nat. Canad., VIII., 1876, 110.

This species has also an extensive synonymy, the above being but a small portion, showing the names under which it has heretofore been known. It is an insect of northern range, Walker's type being recorded from Arctic America. According to Scudder "it probably occurs throughout the larger part of Canada and the northernmost United States. It has also been recorded from several points in Alaska."

Mr. C. H. Bollman evidently found it near Bloomington, Monroe County, Indiana, since Scudder mentions a specimen so labeled as

occurring in the U. S. Nat. Museum. It first came to my notice in the State on August 8, 1897, when it was found near DeLong, Fulton County, in an open peat bog which was surrounded on all sides by a heavy growth of tamarack, *Larix americana* Michx. But about a dozen specimens were secured, all of which were of the short-winged form, *M. e. junius*, the measurements of male being: length of body, 18 mm.; of tegmina, 11 mm.; of hind femora, 11.5 mm.

When disturbed they gave several short, quick leaps, and then burrowed as far as they could into the dense mass of sphagnum moss which everywhere covered the bog.

5. MELANOPLUS ANGUSTIPENNIS (Dodge.) The Narrow-winged Grasshopper.

Caloptenus angustipennis Dodge, Can. Ent., IX., 1877, 111.
Thos., Rep. U. S. Ent. Comm., I., 1878, 43.

Melanoplus angustipennis Bruner, Bull. Wash. Coll. Lab. Nat. Hist., I., 1885, 138.
Id., Bull. 28, U. S. Div. Ent., 1893, 24, fig. 12.
Scudd., Proc. U. S. Nat. Mus., XX., 1897, 305, Pl. XX., fig. 6.

This is a western species which has not heretofore been recorded east of Kansas and Iowa. According to Bruner, it ranges from North Dakota to Texas, and west to Yellowstone, Montana. He also states that it is increasing rapidly in numbers, and is likely in places to become a serious pest.

It is one of the most common grasshoppers about the south shore of Lake Michigan, occurring in company with *M. atlanis* (Riley), *Spharagemon wyomingensis* (Thos.), and others over a large part of the sandy area within five miles of the lake. It seems to prefer such barren localities to those more promising in plant food, since Bruner mentions its partiality for "old breakings and well-fed pastures of many years' use."

To a cursory observer *angustipennis* bears a general resemblance to *atlanis* (Riley), but may be readily distinguished by its blue tibiæ, the lack of a notch at the apex of the last abdominal segment of the male, and the different shape of the male cerci. The dark spots along the middle line of the tegmina of the Indiana specimens are larger and more numerous than one would expect to find after reading the descriptions of Dodge

and Scudder. Its habits, moreover, are not arboreal, as observed by Bruner, since it was more often found on the ground than on the scant vegetation growing in the area which it inhabited.

6. PAROXYA SCUDDERI sp. nov.

The smallest known member of the genus, the body of the male averaging but 17 mm. in length. Antennæ relatively short, 9.5 mm. in both sexes. Tegmina reaching slightly beyond tip of abdomen in male, shorter than abdomen in female.

Male with posterior lobe of pronotum, tegmina, and upper and outer faces of all the femora a uniform light wood brown; occiput and anterior lobes of pronotal disc darker. A broad black stripe extends from eye along the upper half of the lateral lobes of pronotum as far as the posterior transverse sulcus, where it ends abruptly, the posterior lateral lobe being uniform in colour with the disc. Below this black stripe is one of ivory white, brightest on the head. Metapleurite also ivory white. Face grayish olive, flecked or tinged with yellowish. Proximal two-thirds of antennæ the colour of the tegmina; distal third darker. Palpi and prosternal spine yellow. Sternites of thorax olive brown; those of abdomen yellow, as also the lower face of all the femora. Hind tibiæ pale glaucous (the proximal third sometimes light brown), with a black spot at geniculation; the spines eleven in number in the outer series, with their distal thirds black.

Female darker; the tegmina sometimes obscurely and sparingly flecked with fuscous, covering three-fourths or more of the abdomen; the yellow of under side dull or wanting.

Supra-anal plate of male very short, triangular, with a short, basal, triangular sulcus, in which rest the furcula. These consist of a pair of flattish, oblong, subequal plates with their inner edges attingent except at the apices, where they slightly diverge. Cerci strongly incurved, narrowed at the middle, the proximal half stouter than in *P. hoosieri*, the distal third flattened and rounded apically.

Average measurements: Length of body, male 17 mm., female 24 mm.; antennæ, male and female, 9 mm.; tegmina, male 13 mm., female 14.5 mm.; hind femora, male 11.5 mm., female 13.5 mm. Five males, 4 females.

This graceful-bodied species was found in small numbers on July 27, 1897, about the grassy margins of a pond in the sand dune region

north of Miller's, Lake County, Indiana, and within one-half mile of the shore of Lake Michigan. On the following day a single pair were taken from a similar locality near Tolleston, in the same county, and about four miles from the lake, but still within the sand-covered area. It was usually found clinging to the stems of the tall rushes and grasses common in such locations, and when disturbed the males used the wings in a noiseless flight, while the females depended upon their leaping powers to escape. When closely followed, they would attempt to hide by burrowing in the fallen grass.

The form is more closely allied to *P. atlantica* Scudder, than to either of the other two known species of the genus, but its smaller size, longer cerci, and the different shape of the male furcula at once distinguish it. I take pleasure in naming it in honour of Mr. S. H. Scudder, who in the past has rendered me much aid in my study of Acrididæ, and who has done far more than any other man towards putting the study of North American Orthoptera on a substantial basis.

TETTIGINÆ.

7. TETTIGIDEA ARMATA Morse.

Tettigidea armata Morse, Journ. N. Y. Ent. Soc., III., 1895, 107.

This species was described from specimens collected by me in Vigo County. It was formerly confounded with *T. lateralis* Say, but is distinguished by having the anterior margin of the pronotum produced in a sharply pointed cusp, instead of being rounded or obtusely angulate, and in having the dorsum of pronotum strongly rugulose, with the median carina sharp and distinct. One pair, *in coitu*, were taken June 20, 1894, from the wooded margin of a large pond in the lowlands of the Wabash River. It has also been taken about the margin of a lake near Waterloo, DeKalb County, and, according to Morse, near Dallas, Texas.

7a. TETTIGIDEA ARMATA DEPRESSA Morse.

T. armata depressa Morse, *loc. cit.*, 107.

This differs from the above in that the pronotum only reaches the tip of the hind femora instead of much surpassing them. A single female in my collection from Vigo County served as one of Morse's types, the others being from Florida and Louisiana. According to Hancock (Trans. Am. Ent. Soc., XXIII., 1896, 242), *Tettigidea acuta* Morse, occurs at Chicago and Riverside, Illinois. It is therefore, doubtless, a resident of Indiana.

* * *

NOTES ON SOME OF THE SPECIES MENTIONED IN THE PREVIOUS PAPERS.

TRUXALIS BREVICORNIS (L.) (C. E., XXIII., 75; XXVI., 221.)

This well-marked species occurs sparingly about the borders of marshes in Lake County, so that its range includes the whole State.

CHLOEALTIS CONSPERSA Harris. (C. E., XXIII., 75; XXVI., 222.)

The males of this species, which before had been rarely met with, were found in numbers in low, rather dry woods along the borders of streams in Montgomery County, in July, 1895. A female was taken at dusk on the evening of July 21, in the act of ovipositing in the end of a partly decayed oak log. Three eggs were found in the bottom of the cavity in which the abdomen was inserted.

HIPPISCUS TUBERCULATUS (Pal. d. Beauv.) (C. E., XXIII., 81.)

This is the *H. phœnicoptera* of my first paper. In Indiana it has been found only in the driftless limestone area of the southern half of the State, being especially common in Monroe and Franklin counties. Adults have been taken as early as April 20th, and as late as August 15th. It frequents timothy meadows, upland pastures, and roadsides, and when in flight is very conspicuous owing to its large size and bright red inner wings. In suitable localities, the young of this species, as well as those of *Arphia sulphurea* (Fab.) and *Chortophaga viridifasciata* (DeGeer) are, on bright days in midwinter, often to be seen together in numbers jumping vigorously about. If their presence at such a season comes to the attention of a newspaper reporter, the press of the entire State is apt to teem with notices of a coming grasshopper plague, of which the youngsters are said to be the advance guard.

SPHARAGEMON WYOMINGENSIS (Thos.) (C. E., XXXVI., 218.)

The *Spharagemon oculatum* Morse, of my third paper has since been determined by Prof. Morse to be identical with the species described by Thomas under the above name. It occurs in sandy localities in the northern part of Indiana, being especially common in the immediate vicinity of Lake Michigan. It reaches maturity about July 10th, and may be taken until mid-October.

TRIMEROTROPIS MARITIMA (Harris.) (C. E., XXVI., 218.)

Since my former mention of this species it has been found to be very common along the south shore of Lake Michigan, in Lake, Porter, and

LaPorte counties. It flies rapidly for long distances, and unless carefully marked down, is very difficult to detect. It varies in colour from very light gray to a dark gray mottled with brown; the darker specimens being found at some distance from the lake, where there was a scattering vegetation, the light-coloured ones on the pure sand of the immediate shore. It was seen nowhere more than a half mile back from the water margin, and then only on the bare crests of the highest sand ridges and dunes.

MELANOPLUS OBOVATIPENNIS (Blatchley.) (C.E., XXIII., 80; XXVI., 241.)

In Scudder's recent monograph of the Melanopli, this species is transferred from *Pezotettix* to *Melanoplus*. It has been recently found in Marion, Franklin, and Crawford counties, and therefore probably occurs in high, dry woodlands over the southern part of the State. It is also recorded by Scudder, from Kentucky, Missouri, and near Dallas, Texas.

MELANOPLUS BLATCHLEYI Scudder. (C. E., XXIII., 81; XXVI., 243.)

This is the species formerly known as *Pezotettix occidentalis* Bruner. In Scudder's revision it was also transferred to the genus *Melanoplus*, in which the name *occidentalis* was preoccupied.

It is found from June 15th to November 1st, in open woods. On October 25th, 1897, two specimens were taken in Marion County, from the side of a hackberry tree, *Celtis occidentalis* L. This is the most eastern point at which it has been noted in the State.

MELANOPLUS DIFFERENTIALIS (Uhler.) (C. E., XXIII., 99.)

The general range of this species is southern, but specimens have been taken in Lake County, in the extreme north-western part of the State. It is very common in the Wabash valley.

MELANOPLUS PUNCTULATUS (Uhler.) (C. E., XXIV., 30; XXVI., 245.)

This is the *M. griseus* Thos., of my former papers, Scudder having determined that to be a synonym of Uhler's species.

It has proven to be of more general distribution over the State than at first supposed, having been taken in Vigo, Putnam, Montgomery, Fulton, and Marion counties. With the exception of those formerly noted as found in the tamarack swamp in Fulton County, where it was frequent, but one or two specimens have been taken each season, and they in damp localities in late autumn. On October 25, 1897, two specimens were

secured from the trunks of trees in a low, dense woods in Marion County. They were about four feet from the ground, and one of them was beneath a chunk which was leaning against the tree.

PAROXYA HOOSIERI (Blatchley.) (C. E., XXIV., 31 ; XXVI., 244.)

On account of distinctive characters pertaining to the abdominal appendages of the male, Scudder regards this as a valid species. It has been taken about swamps in Vigo, Fulton, and Marshall counties, Indiana, and near Oberlin, Ohio. On September 22, 1894, I was much surprised to find, near the border of a marsh in Vigo County, a female of this species and also one of *Chlœaltis conspersa* Harr., a few inches apart on the stump of a downy poplar, *Populus heterophylla* L., each with the abdomen buried to the full length in the wood, but no eggs could be discovered. Nothing has been recorded concerning the habits of oviposition of the members of the genus *Paroxya*, and it would be surprising if they, like the *Chlœaltis* mentioned, should seek wood rather than earth as the receptive matrix for the eggs.

A REVISED LIST OF THE ACRIDIDÆ KNOWN TO OCCUR IN INDIANA.

ACRIDIDÆ.

TRUXALINÆ.

1. *Truxalis brevicornis* (Linn.) Short-horned Grasshopper.
2. *Syrbula admirabilis* (Uhler.) Handsome Grasshopper.
3. *Chlœaltis conspersa* Harris. Sprinkled Grasshopper.
4. *Dicromorpha viridis* (Scudder.) Short-winged Green Grasshopper.
5. *Orphula pelidna* (Burm.) Spotted-winged Grasshopper.
6. *Mecostethus lineatus* (Scudder.)
7. *Stenobothrus curtipennis* (Harris.) Short-winged Brown Grasshopper.
8. *Ageneotettix scudderi* (Bruner.)

OEDIPODINÆ.

9. *Arphia xanthoptera* (Burm.)
10. *Arphia sulphurea* (Fab.) Yellow-winged Grasshopper.
11. *Chortophaga viridifasciata* (DeGeer.) Green-striped Grasshopper.
12. *Encoptolophus sordidus* (Burm.) Clouded Grasshopper.
13. *Hippiscus tuberculatus* (Pal. de Beauv.) Coral-winged Grasshopper.
14. *Hippiscus rugosus* (Scudder.) Clumsy Grasshopper.
15. *Dissosteira carolina* (Linn.) Quaker or Black-wigned Grasshopper.
16. *Spharagemon bolli* Scudder.
17. *Spharagemon wyomingensis* (Thomas.)

18. *Psinidia fenestralis* (Serville.) Long-horned Grasshopper.
19. *Trimerotropis maritima* (Harris.) Maritime Grasshopper.

ACRIDINÆ.

20. *Leptysma marginicollis* (Serville.) Slender-bodied Grasshopper.
21. *Schistocerca americana* (Drury.) American Grasshopper.
22. *Schistocerca alutaceum* (Harris.) Leather-coloured Grasshopper.
23. *Melanoplus atlanis* (Riley.) Lesser Grasshopper.
24. *Melanoplus scudderi* (Uhler.) Scudder's Short-winged Grasshopper.
25. *Melanoplus viridipes* Scudder. Green-legged Grasshopper.
26. *Melanoplus obovatipennis* (Blatchley.) Obovate-winged Grasshopper.
27. *Melanoplus femur-rubrum* (DeGeer.) Red-legged Grasshopper.
28. *Melanoplus extremus* (Walker.)
29. *Melanoplus angustipennis* (Dodge.) Narrow-winged Grasshopper.
30. *Melanoplus blatchleyi* Scudder.
31. *Melanoplus gracilis* (Bruner.) Graceful Grasshopper.
32. *Melanoplus minor* (Scudder.)
33. *Melanoplus collinus* Scudder.
34. *Melanoplus differentialis* (Uhler.) Lubberly Grasshopper.
35. *Melanoplus bivittatus* (Say.) Yellow-striped Grasshopper.
36. *Melanoplus punctulatus* (Uhler.) Mottled Grasshopper.
37. *Paroxya hoosieri* (Blatchley.) Hoosier Grasshopper.
38. *Paroxya scudderi* Blatchley.

TETTIGINÆ.

39. *Nomotettix cristatus* (Harris.) Crested Grouse Grasshopper.
39a. *Nomotettix cristatus carinatus* (Scudder.)
40. *Tettix ornatus* (Say.) Spotted Grouse Grasshopper.
40a. *Tettix ornatus triangularis* Scudder.
41. *Tettix granulatus* (Kirby.) Sprinkled Grouse Grasshopper.
42. *Tettix arenosus* Burm. Grizzly Grouse Grasshopper.
43. *Paratettix cucullatus* (Burm.) Hooded Grouse Grasshopper.
44. *Tettigidea lateralis* (Say.) Black-sided Grouse Grasshopper.
45. *Tettigidea parvipennis* (Harris.) Small-winged Grouse Grasshopper.
45a. *Tettigidea parvipennis pennata* Morse.
46. *Tettigidea polymorpha* (Burm.)
47. *Tettigidea armata* Morse.
47a. *Tettigidea armata depressa* Morse.

NOTES ON COLLECTING "AT LIGHT."

BY A. W. HANHAM, WINNIPEG, MAN.

(Continued from page 36.)

July 23rd: Lots of things at light, but mostly common species already recorded. A fresh Peridroma occulta was taken, and more Plusia striatella and Deva purpurigera.

July 24th: This was an evening for the Ichthyura, over a dozen being captured, also some Schizura. Dryopteris rosea was still out, and several fresh Mamestra purpurissata came in. The absence of Plusias and the abundance of "snout" moths is noted in my diary. The Coleoptera were strongly represented by a large Necrophorus.

July 25th: A Catocala briseis — the first Catocala of the season — made things lively until it found its way into one of my bottles. Plusias reappeared, and Noctua plecta increased my local list. A large number of nice things in "Micros" were attracted and secured.

July 27th: This was the last evening that I record any abundance of things at light, and the following deserve mention: Pheosia dimidiata (1), Crambidia pallida (sev.), Orgyia leucostigma (sev.), Parorgyia plagiata (sev.), Ichthyura vau (6), Arctia Saundersii (3), Acronycta impressa (sev.), Noctua collaris (sev.), Carneades flavicollis (sev.), Rhynchagrotis alternata (sev.), Homohadena badistriga (1; two or three of this striking-looking species were taken earlier in the month), Mamestra nimbosa (2), Plusia æreoides and bimaculata were still showing themselves, and Hadena niveivenosa and Mamestra meditata were common. Tricholita semiaperta, of which I secured several, added a handsome species to my collection, and a fresh lot of Phasiane mellistrigata were taken, apparently a second brood.

August 4th: A pair of Catocala briseis and a fine Plusia balluca showed up among the things captured this evening; a second specimen of the latter visited me, but after a flying inspection of my quarters, wandered outside and was no more seen.

August 31st: After an absence from the city of three weeks I once more started my light trap. My catch included a dozen or so "Micros" (some desirable), a new Geometer (carpet), and the following species of Noctuidæ: Rhynchagrotis placida, Agrotis saucia and ypsilon, Noctua fennica (very worn), Feltia venerabilis (sev.), Carneades tessellata, Anytus sculptus (a beauty), Hadena mactata, Hillia algens (several nice examples), Nephelodes minians (worn), Hydræcia nictitans, Caradrina extimia, Nonagria sp. (1, not yet named), Cosmia infumata (sev.), Orthosia

ferruginoides and euroa, Xanthia togata, Cirrœdia pampina, Litholomia napæa (some beauties), Lithomia germana, and Calocampa nupera, cineritia and curvimacula.

Sept. 1st: I commenced the month by adding three species to my collection: Carneades velleripennis (a pair), Hydræcia obliqua (1) and Xylina capax (a pair). A specimen of Plusia Putnami gave me a surprise; it was very fresh, but small.

Sept. 16th: Besides some common species, I noted this evening the capture of Glæa inulta, Hydræcia sera, Xanthia togata, Litholomia napæa, and Xylina Georgii and laticinerea. Hadena devastatrix and Drasteria erechtea turned up again, very fresh specimens.

My last records are:

Sept. 21st: Hydræcia cerina (1; new to list).

Sept. 23rd: A very small specimen of Agrotis saucia, and a worn Feltia subgothica.

Sept. 24th: Orgyia leucostigma and Leucania juncicola (one each).

Some evenings early in the month water beetles, and especially a small water "bug," were abundant at light. I generally used an ordinary lamp with a good-sized burner; sometimes a "Wanzer" lamp, and on a few occasions I had the two lit at the same time; both lamps had shades. The trouble with the "Wanzer" was that things often got into the flame, and now and then succeeded in putting it out, or making it smoke badly. My custom was towards dusk to light the lamp and put it on the edge of a table close to the window—which I had wide open—leaving a little space between the tablecloth and the window sill; (lots of things flew or dropped down on the floor which would otherwise have sneaked out of the window). I tried the window sill for the lamp, but found there was often too much wind for it there, and on rainy nights that position was out of the question. The house being a new one, the walls of my room are not papered, so that the moths when they rested there were very conspicuous, and it was possible to tell at a glance, in most cases, what they were; whether Bombyces, Plusias, Geometers, etc., and to select the most desirable first.

I used a net as seldom as possible, for fear of overturning the lamp, and also because—I think it was on the second evening of my venture—I caught the end of a setting-board with my net, and sent it flying from a high shelf to the floor, to the destruction of its contents and the loss of my temper. It was only sometimes for the Sphingidæ that I found a net was necessary. Besides two large glass bottles or jars (charged with cyanide,

of course), I had three or four small ones in use, with which I did most of the capturing, bottling from off the lamp shade, the table, walls, etc. It was often necessary to put these bottles over some good thing sitting on the floor, the window sill, or the shelves of my bookcase, and to have that number in constant use. As soon as the specimen covered or bottled was quiet, it was transferred to one of the large bottles, and the small one was ready for use again. I found it desirable to take up my carpet, owing to the quantity of insects that came in in July, and which littered the floor; often trodden under foot during the evening (some good things came to grief in this way), or succumbing to the dry heat of the room during the night or following day. I had to make "sweeps" of the slain occasionally, they made such a mess; an examination of the dustpan before consignment of its contents to the fire, sometimes revealed some specimen worth keeping; it was in this way that I secured two out of the four specimens taken of Tapinostola variana. On some evenings I think all the mosquitoes of the neighbourhood found their way in at my window, and assisted in making things lively for me; and the number of things flying about the room, or dashing around the lamp, was quite bewildering, and not conducive to coolness. Besides these pests (the mosquitoes) several species of Ichneumonidæ put in an appearance, on some evenings in numbers; and while they did not seem to be attracted to the lamp particularly, they kept on the move about the room, making considerable noise on the walls and ceiling. Perhaps the worst visitors of all were some of the large Dytiscidæ and Lachnosterna fusca. In September several kinds of water-flies came to the light in numbers.

Some peculiarities of this mode of collecting were noticed, and may be worth mentioning. One thing I observed particularly, when I put in a good long evening at it, was the occasional lull, of greater or lesser duration, when hardly anything seemed to be moving outside, judging by the scarcity of things coming in; then all of a sudden a fresh lot, of all kinds and conditions, would come swarming about the lamp. Some nights there would be a succession of the same species, one after the other, for a short time, as if they had been playing at "Follow my leader," and then not another would be seen that night. Again, a species would come in one evening in fair numbers, and then never show up again; others just one or two only in the same way. Two most striking examples of the latter were Ianassa lignicolor and Noctua plecta; in both cases three specimens were taken within a few minutes, and no others were seen on that or other evenings. Other species, again, appeared to occur in about

the same numbers on favourable or poor nights, and in some cases were on the wing for nearly a month. Some nights nothing was moving until much later than usual, and I had been on the point of "closing up" for the evening—my patience being exhausted—when some things would come along amply repaying me for the previous barrenness. There was quite a difference, too, in the way in which the light appeared to affect different species; some would dash around the lamp until they got their wings singed; others would fly in and sit down quietly on the table, as if inviting capture; some seemed only anxious to get out of the glare, and would settle quietly on the floor or the hanging tablecloth; some (chiefly Noctuids) could not make themselves scarce quickly enough, which they did by getting behind the cases, books, or on my shelves, and staying there; others were very restless and kept on the move until captured. In some few cases it appeared as if my visitors had but looked in to make an inspection, for after a turn or two about the room or lamp, they beat a retreat in a very businesslike manner; but I also noticed that some things which came dashing in, when they retraced their steps (?) did so with a very sober or hesitating flight, as if not sure of their way. As a rule, the Bombycidæ, Plusiæ, and Geometridæ behaved very well, not being very wild, and they soon sought resting places on the walls, etc., seldom attempting to secrete themselves.

Besides the moths taken at light on the evening in which they came into my room, I usually had another good catch the following morning, and took more specimens again about dusk the next evening. On quitting work, or rather pleasure, for the evening, I would first close my window, leaving the blind half up, then put out the light and retire, carefully shutting the door. In the morning nearly everything in the way of "Micros," Geometers and Bombyces—also any Plusias overlooked the previous evening—would be found congregated on and about the window, on the blind or table cloth. (On July 2nd one of my captures in this way was a beautiful thing, and the only one seen, Dasyspoudæa Meadii.) The Noctuids generally appropriated the holes and corners, but the majority of them did not show themselves in the morning. After picking and choosing what I wanted, I opened the window and freed the rest. I put on the fly blind to ventilate the room, keep out the flies, and keep in any moths still there. Towards dusk the Noctuids, which had hidden themselves during the daylight, would come from their retreats and they were easily bottled off the window or fly blind, where they gathered.

Sometimes I would get quite a number and variety from behind coats, etc., hanging on my door; a shake would often disturb half a dozen moths from the same garment.

After the Bombycidæ, my greatest success was with the Plusias. I am not certain whether more æreoides came to light than striatella. I did not bother much about the former; but my records of the latter show the taking of sixty specimens, of which nearly fifty were perfect. It was on the wing for about a month. The next in abundance was Putnami, and ampla was fairly common for about a week. Only one simplex came to light.

A few more observations, and I have done.

There is no doubt that, owing to the heavy rainfall during July, unusual for this climate, I had a much larger percentage of good or suitable evenings than would be the case in average years.

Another circumstance, perhaps accounting for the abundance of moths about during July, may have been the unusually heavy snowfall of the previous winter. The snow came at the end of October; during November it may be said to have snowed, more or less, every day, and there were no thaws to speak of during the winter to expose or uncover the earth. In the spring the snow disappeared very quickly, its departure being hastened by some heavy rains.

The weather during April and the early part of May was favourable to the development of vegetation and insect life. The end of May and the beginning of June, however, were on the cool side, and there were frosts on several nights. I hope, for the sake of comparison, that I may have the chance to collect here "at light" again next season.

SOME INSECTS, RARE IN CANADA, TAKEN AT HAMILTON BY MR. JAMES JOHNSTON.

Having some correspondence with Mr. Johnston, he, anticipating the interest I naturally felt in the entomology of my former residence, informed me of some things he had taken at Hamilton which were not to be got when I was a collector there; and they seemed to me to be of so much general interest that I desired him to make a note of them for publication. So, complying with my request, he has prepared the accompanying more extended statement on the subject. What a rapid change is taking place in the condition of the country! All my familiar and delightful hunting-grounds in that locality have been "improved out of existence." With cultivation comes a change in the flora, which produces

a change in the fauna, and in the insect fauna especially. So that future collectors will be able to form no correct idea of what was to be got by what is to be had. A thought that greatly impressed me was the persistent effort that insects are continually making to spread abroad and establish themselves in fresh territory. Most of these southern butterflies seem to have great difficulty in accommodating themselves to our shorter seasons. In the case of *Colias cæsonia* there should be no trouble about food plants, as one of these is *Trifolium;* but in the south-west it is double-brooded, and it may perish in the attempt to produce a second brood in this latitude, and it may take many years to bring it into harmony with its environment here.

In his catalogue of 1877, Mr. W. H. Edwards gives its habitat as Southern States, Mississippi Valley, Kansas, Texas, Arizona. And in 1888, CAN. ENT., Vol. XX., page 23, he says: "*Cæsonia* is a common butterfly in the Mississippi Valley and Gulf States; also in Southern California, and to the Isthmus." Then he adds: "I myself have never seen it on the wing." What an extent of territory it must have covered in the last ten years! It would be interesting to know the routes it has taken. The first Canadian examples of it that I saw were taken at Long Point, Lake Erie, twenty years ago or so. I also have not yet seen it on the wing.

The locality where I took my *Pamphila dion* was in a marsh at the west end of the city. The Rifle Club had its ranges on a piece of waste land there; and for convenience to reach the butts had constructed a board walk through an arm of the marsh, which was full of water and covered with cat-tail flags. Two clumps of a large flowering plant grew beside that board walk; the butterflies and the blossoms appeared together about the 1st of July, and from these blossoms I took all my *P. dion.* When the Rifle Range was moved to another locality that board walk was abolished, and from that time on I got no more specimens of *dion.* I was pleased to learn that Mr. Johnston had rediscovered it. I have not heard of its being taken anywhere else in Canada. I had been taking it for several years before I got its name. Specimens of it were given to the Canadian collection that went to the Centennial Exhibition at Philadelphia, and a promise made that its name should be procured. I got tired waiting, and sent specimens of it to Mr. W. H. Edwards, to find that it had been named only a few months previously from material obtained elsewhere. (CAN. ENT., Vol. XI., p. 238.)

Saperda candida had not been seen about Hamilton in my time.

J. ALSTON MOFFAT.

During the years of my collecting, 1896 leads in presenting rare

insects to this locality. Besides some Coleoptera and Lepidoptera not yet satisfactorily determined, the following species were taken :

COLEOPTERA.

Saperda concolor, Lec.—Several dozen last week in May and first in June. On Swamp Willow.

Saperda candida, Fab.—Thirty specimens, June 4th and some days later. Found on Thorn when hunting for *S. Fayi.*

DIURNALS.

Nisoniades propertius, Scud.—One, May 26th. On roadside. Differs only from one labeled British Columbia in my collection by being a finer specimen.

Papilio marcellus, Cram.—One June 4th, and one before and after that date. On Clover.

Libythea Bachmani, Kirt —One, June 4th. Saw another later on. On Poison Ivy.

Colias cæsonia, Stoll.—Twelve good and several poor specimens. First taken June 14th. Quite abundant until the end of the month. First saw it June 7th, but finding it very wild did not succeed in capturing a specimen until the 14th, when I took six. Last taken July 1st. Was most abundant on line of Grand Trunk Railway, between Hamilton and Stony Creek. Saw it on Toronto branch of same railway near Waterdown when out after *Phyciodes Batesii*, Reak., June 20th, but not so abundant.

Pamphila dion, Ed.—Seven, July 1st and following week. I have found this species not so fond of feeding as other Pamphilas. It seems to like to sit resting on the coarse swamp grass in damp places along the railway.

Satyrus alope, F.—One, fine, July 9th. On side of railway track, amongst weeds.

Junonia cœnia, Hub.—One, August 27th. Almost dead on roadside.

MOTHS.

Sphinx luscitiosa, Clem.—One, May 28th. Just fully matured, hanging to a weed near railway track.

Endropia serrata, Drury.—Five, July 15th. Amongst weeds on side of railway track.

I was in hopes of at least some of these reappearing in 1897, but in this I was disappointed, as not one of them was seen.

I did not do much hunting outside the farm on which I live, four

miles east from Hamilton, this year. Amongst the greatest pests that we had to contend with were the potato beetles (*Doryphora 10-lineata*, Say). Out of 8,000 tomato plants set out during the first week in June, fully 2,000 were destroyed by these beetles within four days. We came across some plants having as many as eighteen beetles on them. We have not hitherto been annoyed by their attacking our tomato plants to a very great extent, and can only account for their ravages this season owing to a slim crop of early potatoes in this neighborhood, the late ones not yet being above ground.

The Tomato Moth grubs (*Sphinx quinquemaculata*) were also very abundant and could have been had by the hundred. It appears that they have other enemies than Ichneumons, as I came across dozens of empty chrysalids, when picking the fruit in September, which had been rooted out and devoured by some animals, possibly skunks, certainly not mice, judging from the excrement lying about.

Terias lisa, Bd.—One, July 4th. The only rarity taken this season.

JAMES JOHNSTON, Hamilton, Ont.

THE LABELING OF ENTOMOLOGICAL SPECIMENS.

BY CHARLES STEVENSON, MONTREAL.

During a visit to Great Britain a few years ago I looked over a number of the Entomological collections in the public Museums there. The specimens in them were labeled so as to show the order, sub-order, and family that they belonged to and their individual scientific names. With few exceptions there were no records of their geographical distribution, and when information of habitation was given it was of a wide nature, as North America, Asia, or Europe. Data of seasonal appearance or date of capture were entirely absent. Since then I have found that many collections on this side of the Atlantic are in the same condition, and private collections in particular. That such information should be wanting, especially in a public collection, is to be regretted; for however beautifully mounted, classified and correctly named the specimens may be, they are of little practical value. The biological student gets no more information than he would from any entomological publication containing plates, unless it be the identification of some rare insect. The reason that public collections are lacking in such data is because they have been built up from donations or by purchase — and until recent years the study of insects rarely consisted of more than collecting, mount-

ing, naming, and placing in classified order. This can be remedied by the present-day collector, professional or amateur. It seems strange that a method of labeling similar to what I shall illustrate has not become more general. On hunting up bibliographic references on the subject in my own library I found little instruction. In *The Entomologist's Useful Companion, by Geo. Samouelle, London, 1819*, the author directs that each specimen shall have a number corresponding with that of a catalogue having an account of the place where found, time of appearance, etc. The *Report of the Commissioner of Agriculture, U.S.A., for 1868*, contained an article on *Practical Entomology for Farmers' Sons*, recommending the same method, with the improvement of having the numbers on coloured disks; the different States or localities being represented by a certain colour. These methods are unsatisfactory, as they show nothing without the catalogue, and when a collection leaves the original owner's possession it is often divided up, and the catalogue is lost sight of. It is surprising that among the many handbooks and guides published there is so little mentioned on this subject. Even that indispensable work, *Entomology for Beginners, by A. S. Packard, M. D., Ph. D., New York, 1890*, recommends only the coloured number disks. The most satisfactory directions are those of Samuel H. Scudder in his *Butterflies, their Structure, Changes and Life Histories, New York, 1889*, namely: "Every pinned specimen, excepting such as illustrate anatomy only, should bear upon the pin a label giving the place and date of capture, and when necessary a number referring to a catalogue or note-book in which memoranda may be entered to any extent that may be desired." In other words, these particulars become part and parcel of the specimen, so that whenever the insect or object is moved, its history goes with it. In this way the collector makes his collection an index to his outdoor observation and study, and on leaving his possession will be of great interest as well as value to the next owner.

Each collector can devise a form of label for such purpose to suit his own taste as well as convenience. Disks of stiff paper the size of a ten cent piece make neat labels for those who write a small hand. On these, I put the catalogue reference number, the locality where found, the date of capture, and sometimes the distinction of sex, by using the usual astronomical signs in general use, namely, that of Mars ♂ for the male and of Venus ♀ for the female and the sign ☿ for the neuter or worker. By having different coloured paper for each locality, one can see at once all those belonging to the same district in a case.

The pin on which the specimen is fixed is passed through the centre of this disk, so as to allow it to rest about an eighth of an inch from the bottom of the drawer or case. This would not be practical in the low-setting method, to which many British entomologists still adhere—a method which should be condemned as putting the insect in easy reach of parasites and being an exhibition more of pins than of insects.

All this will make considerable extra labour, but will, after a time, be found well worth it; for the collector himself often forgets where or when he got a certain specimen. The name label could be made more interesting to non-entomologists by having the common local name, where known, under the scientific one, and would tend to make the study of insect life more popular.

A NEW SPECIES OF AEGIALITES.

BY THE LATE M. L. LINELL, WASHINGTON, D. C.

During his visit in 1896 to Robben Island, a low rock only 2,000 feet long, situated near the eastern coast of Sakhalin Island, in Okhotsk Sea, Dr. Leonhard Stejneger collected only two species of insects, both Coleoptera. One of them is a species of *Bembidium*, possibly new, but it should be compared with the numerous species from the mainland, which cannot be done at present. The other species belongs to the highly interesting genus *Aegialites*, and is described below as a new species.

Aegialites Stejnegeri, Linell, new species.

Elongate, convex, piceous; upper surface with faint greenish lustre. Antennæ piceous, apruptly clavate. Head broad, finely coriaceous and sparsely punctate. Eyes strongly prominent, very coarsely granulate. Thorax very narrow, distinctly longer than wide, a little broader at base than at apex, widest in front of middle; sides slightly arcuate; disc coriaceous, very sparsely and irregularly punctate, the median line impressed and a shallow fovea on each side. Elytra very short and ovate, abruptly and broadly pedunculate at the humeri, strongly rounded on the sides and very much wider behind the middle, the apices separately, strongly rounded; disc finely rugose, the striæ narrow, scarcely impressed, with small but distinct punctures, entirely effaced at apex. Pygidium and propygidium exposed. Prosternum smooth, meso- and metasternum vaguely rugose, side-pieces sparsely coarsely punctate. Abdomen cori-

aceous, nearly impunctate. Legs piceous, femora more or less testaceous.

Male.—Median and posterior tibiæ abruptly bent near the apex (as in the other species of the genus).* Length, 4 mm., male a little smaller.

Type No. 1390, U. S. N. M.

Five examples collected (Aug. 31, 1896) by Mr. L. Stejneger on Robben Island, Okhotsk Sea.

Intermediate in size between the two previously described species, and very distinct in form and sculpture.

BOOK NOTICE.

Scudder's Revision of the Melanopli.

One of the most important works on Entomology which has been issued by an American author in recent years is that entitled a "Revision of the Orthopteran Group Melanopli (Acridiidæ), with special reference to North American Forms," by Samuel Hubbard Scudder.† It is the more important because it deals with a representative North American group of insects whose members, between April and November, leap from our pathway in profusion whether we stroll through open woodland, sunny meadow, or along the roadside, and yet of whose classification and nomenclature the greatest confusion has heretofore existed. It was only another example showing the truth of the old saying that "the common things about us are those of which we are most densely ignorant."

True, of one of the members of the group, the "Rocky Mountain Locust," *Melanoplus spretus* (Thos.), more has, perhaps, been written than of any other insect on earth, yet it is but one of 207 of its kind which are described at length by Mr. Scudder. The others are scattered far and wide over the continent of North America, and the descriptions of the 92 species hitherto rightfully known to science were distributed through an almost equal range of literature. No better evidence of the need of the "Revision" is necessary than to know that after a careful examination of nearly 8,000 specimens, 7,000 of which belonged to the single genus Melanoplus, the author has in it reduced 47 supposed species to synonyms and has established 18 new genera and described for the first time 115 species.

With a group whose members are so closely akin as those of the

*Dr. Horn, while describing *A. Fuchsii* (Trans. Am. Ent. Soc., 1893, Vol. XX., p. 143), evidently did not have the male before him.

†Proc. U. S. Nat. Mus., XX., 1897, No. 1124, pp. 1-421. Plates I.-XXVI.

Melanopli it has heretofore been almost an impossibility for the specialist—let alone the tyro—to satisfy his conscience as to the status of a specimen which he might have in hand. The available literature was so scattered, and the different authors had seized upon so many different characters as representing what appeared to them the most striking structural features, that the whole mess was worse than a Chinese puzzle. By seizing upon the variations of the abdominal appendages of the male as the most salient features showing specific rank, and by publishing accurate drawings of two different views of the male abdomen of each of the 207 species, Mr. Scudder has done much to render possible the ready identification of each species—a task which otherwise would have been very difficult, owing to the size of the group and the close similarity of many of its members. Analytical keys to genera, and to species where the genus is not monotypic, are also given, and add much to the value of the work, as does also the full list of localities from which each species has heretofore been taken.

Taking into consideration its size and importance, the defects of the "Revision" are very few. The one thing which the tyro will find most lacking is a glossary of the technical terms. In a work of the kind these are necessarily numerous, and though they may be very plain to the author and to specialists, to the beginner they are often extremely confusing. Even a figure of a typical locust with all the parts named would have been a great aid. A tendency to multiply species can here and there be noted, as on p. 138, where *M. bivittatus* is separated from *M. femoratus* only by the colour of the hind tibiæ, which is an exceedingly variable character.

More might have been added along economical lines, but this is a work for the future which the student of the group can now take up with renewed energy. For before one can write of a species he must have a name to handle it by; something which in the case of many of the members of this group has heretofore been lacking. Now, by using a little care and accustoming himself to the technical terms, the student can, by the aid of the "Revision," soon bring order out of chaos, and label his Melanopli with correctness and dispatch. In conclusion, it may be said that any one who will use the work will soon conclude that the aim of the author, "to enlarge and systematize our knowledge of this important group as a basis for future studies," has been well and successfully accomplished. W. S. B.

Mailed March 5th, 1898.