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## A PRELIMINARY LIST OF ACRIDIIDÆ OF ONTARIO.

BY E. M. WALKER, B. A., TORONTO.

Since the last of my "Notes on Some Ontario Acridiidae" were printed, five species have been added to the list, and the number of localities for those already recorded has been considerably increased. I think, therefore, that it will make the notes more complete to conclude them with a full list of the species of this family known to occur in the Province, with their distribution as hitherto recorded.

Only a small portion of the territory included in the Province of Ontario has been at all thoroughly explored by entomologists, but I do not believe there are very many native species of Acridiidae not included in the present list. Doubtless, however, some of the Manitoba and Minnesota forms extend into the north-western part of Ontario, while it is extremely probable that there are unrecorded species in the south-west, and possibly a few in the east and extreme north.

The five species referred to above are as follows :

TRYXALIS BREVICORNIS, Linn.

*Gryllus brevicornis*, Linn. Syst. Nat., ed. 12, II., 692 (1767).

*Tryxalis brevicornis*, Fabr. Syst. Ent., 279 (1775).

*Pyrgomorpha brevicornis*, Walk. Cat. Derm. Salt. Brit. Mus., III., 500 (1870).

*Opsomala punctipennis*, Serv. Orth., 590 (1839).

Two males of this southern species were taken just above Point Pelee, in an open marsh bordering a creek, on Aug. 8, 1901. They were very active, and leaped several times among the sedge before they were caught.

This species has a very interesting distribution, being found from Long Id. and Indiana south to the Gulf of Mexico, and through Texas to Honduras and Brazil.

ORPHULELLA PELIDNA, Burm.

*Gomphocerus pelidnus*, Burm. Handb. Ent., II., 650 (1838).

*Stenobothrus maculipennis*, Scudd. Bost. Jour. Nat. Hist., VII., 458-459 (1862).

*Stenobothrus propinquans*, Scudd. Ibid., VII., 461 (1862).

*Orphula pelidna*, McNeill. Proc. Dav. Acad. Nat. Sc., VI., 235-239 (1897).

*Orphulella pelidna*, Scudd. CAN. ENT., XXXI., 179-187 (1899).

I found this species in large numbers in a tract of open marsh land bordering the St. Clair River, just north of Sarnia. This piece of land was dry when I visited it, but in the early summer was covered with water. *O. pelidna* was found in the more bare places, where the ground was dry and somewhat cracked. The males produced a rapid, rattling sound when flying, like the various members of the Oedipodinae, but the sound did not last more than about a second. Although the grass was long where they occurred, they always alighted on the ground.

TRIMEROTROPIS HURONIANA, Walk.

*Trimerotropis huroniana*, Walk. CAN. ENT., XXXIV., 1 (1902).

This species has been fully described under the above reference, so that it need only be alluded to here.

PAROXYA FLORIDANA, Thom.

*Caloptenus floridanus*, Thom. Bull. U. S. Geol. Surv. Terr., I., No. 2, 68 (1874).

*Paroxya atlantica*, Scudd. (pars). Proc. Bost. Soc. Nat. Hist., XIX., 29, 88 (1887).

*Paroxya floridana*, Smith. Cat. Ins., N. J., 412 (1890).

This insect was found in considerable numbers in a sedgy swamp bordering a small stream at Arner, Ont. It is a southern form.

MELANOPLUS BRUNERI, Scudd.

*Melanoplus Bruneri*, Scudd. Rev. Mel. 164, 1897.

On Sept. 2, 1902, while collecting at Dwight, in Northern Muskoka, at the close of a fortnight's canoe trip in Algonquin Park, I captured a single specimen of a *Melanoplus*, which I at once recognized as new to Ontario. There was not time to make a thorough search for more specimens, and none were found. The specimen is a male and agrees in nearly all respects with *M. Bruneri* as described in Scudder's Revision. The chief point in the description which does not fit my specimen is the statement that the interspace between the mesosternal lobes is more than twice as long as broad in the male, whereas in my specimen it is slightly less than twice as long as broad. The male cerci appear more upcurved

than is represented in Scudder's figure, which it otherwise resembles pretty closely.

*M. Bruneri* is a western species, having been reported from Alberta, Washington, Idaho, Montana, Colorado and Nebraska.

In the list I have used the abbreviations Caulf. and Walk. in reference to the following two articles, respectively:

Caulfield, F. B.: A sketch of Canadian Orthoptera. Rep. Ent. Soc., Ont., XVIII., 59-72 (1888).

Walker, E. M.: Notes on some Ontario Acridiidae, CAN. ENT., XXX., 122-126 (1898); Ibid., XXX., 258-263 (1898); Ibid., XXXI., 29-36 (1899).

The names of new localities are given in italics.

#### I.—TETTIGINÆ.

1. *Nomotettix cristatus*, Scudd. Toronto (Caulf.).
2. *Tettix granulatus*, Kirby. Ottawa, Ont., generally, to L. Superior (Caulf.); Toronto, L. Simcoe, Muskoka (Walk.); *Six-mile Lake*, Aug. 24, 1898; *Sarnia*, Aug. 12, 1901; *Southampton*, Aug. 20, 1901; *Johnson's Harbour, Bruce Co.*, Aug. 22, 1901; *Stokes Bay, Bruce Co.*, Aug. 27, 1901; *Tobermory*, Aug. 24, 1901; *Owen Sound*, Aug. 31, 1901; *North River and Island Lake, Algonquin Park*, Aug. 24, 28, 1902.
3. *Tettix acadicus*, Scudd. Lake of the Woods (Scudd., Daws., Rep. Geol., 49 par., 345, 1875).
4. *Tettix ornatus*, Say. Ont. generally (Caulf.); Toronto (Walk.); *Sarnia*, Aug. 16, 1901.
- 4a. *Tettix ornatus*, var. *triangularis*, Scudd. Ottawa, Ont., generally (Caulf.); Toronto (Walk.); *Southampton*, Aug. 29, 1901; *North River, Algonquin Park*, Aug. 20, 1902.
5. *Tettix Hancocki*, Morse. } Sudbury (Morse, Journ.
- 5a. *Tettix Hancocki*, var. *abbreviatus*, Morse. } N. Y. Ent. Soc., VII., 200-201, 1889); *Toronto*, May, Sept., Oct.; *Lake Simcoe*, Aug., Sept.; *Little Eagle Harbour, Bruce County*, Aug. 23, 1901; *Dwight, Muskoka*, Sept. 2, 1902.
6. *Tettix obscurus*, Hanc. De Grassi Pt. (Hancock, Tet. N. A., 89, 1902); *Toronto*, April; *Goderich*, Aug. 19, 1901; *Owen Sound*, Aug. 31, 1901.
7. *Tettix gibbosus*, Hanc. Toronto (Hanc., Tet. N. A., 90, 1902); *Lake Simcoe*, July 5, 1901. NOTE.—Species 5, 6 and 7 were included in *T. ornatus* in my "Notes on some Ontario Acridiidae."

8. *Paratettix cucullatus*, Scudd. Ont. generally (Caulf.); Toronto (Caulf., Walk.); Chatham, Aug. 10, 1901. NOTE.—*P. rugosus*, Scudd., is reported by Caulfield from Sudbury, but probably incorrectly, as it is a southern species.
9. *Tettigidea parvipennis*, Harris. Ottawa, Ont., generally, to L. Superior (Caulf., *polymorpha*); Ont. (Walk.); Pt. Pelee, Aug. 7, 1901 (nymphs); Arner, Aug. 8, 1901 (nymphs); Owen Sound, Aug. 31, 1901; North River, Algonquin Park, Aug., 1902 (nymphs); North Bay, Sept. 12, 1900.
- 9a. *Tettigidea parvipennis*, var. *pennata*, Morse. Ottawa, Ont., generally, to L. Superior (Caulf., *lateralis*); Toronto, L. Simcoe, (Walk.).

## II.—TRYXALINÆ.

10. *Tryxalis brevicornis*, Linn. Pt. Pelee, Aug. 8, 1901.
11. *Orphulella pelidna*, Burm. Sarnia, Aug. 12, 13, 15, 1901.
12. *Orphulella speciosa*, Scudd. Toronto, Lake Simcoe (Walk.); Rond Eau, Sept. 15, 1899; Arner, Aug. 9, 1901; Sarnia, Aug. 12, 16, 1901. (The *Orphula aequalis* of my former paper.)
13. *Chlœaltis conspersa*, Harris. Rat Portage (Caulf.); Nepigon (Caulf., Walk.); Toronto, Lake Simcoe, Clear Lake, Kingsville, Severn River (Walk.); Rond Eau, Sept. 15, 1899; Pt. Pelee, Aug. 7, 1901; Arner, Aug. 9, 1901; Sarnia, Aug. 12, 1901; Goderich, Aug. 18, 1901; North River, Algonquin Park, Aug., 1902; North Bay, Sept. 12, 1900.
- 13a. *Chlœaltis conspersa*, var. *prima*, Morse. Lake Simcoe (Walk.).
14. *Chlœaltis abdominalis*, Brun. Severn River (Walk.)
15. *Stenobothrus curtipennis*, Harris. Ottawa, Ont., generally, to the north of L. Superior (Caulf.); Ont. (Walk.); Toronto: Lake Simcoe; Clear Lake, July 27, 1897; Niagara, Sept. 26, 1898; Rond Eau, Sept. 14, 1899; Pt. Pelee, Aug. 7, 1901; Arner, Aug. 9, 1901; Chatham, Aug. 10, 1901; Sarnia, Aug. 12, 16, 1901; Walpole Id., River St. Clair, Aug. 13, 1901; Goderich, Aug. 18, 1901; Southampton, Aug. 20, 29; Johnson's and Little Eagle Harbours, Bruce Co., Aug. 22, 23, 1901; Tobermory, Aug. 24, 1901; Owen Sound, Aug. 30, 31, 1901; Severn River, Aug. 17, 1878; Lake Muskoka, Aug. 27, 1899; Algonquin Park, Aug., 1902; North Bay, Sept. 12, 1900.
- 15a. *Stenobothrus curtipennis*, var. *longipennis*, Scudd. Same localities as preceding.

16. *Mecostethus lineatus*, Scudd. Toronto, Lake Simcoe, Aurora, (Walk.); *Point Pelee*, Aug. 8, 1901; *Sarnia*, Aug. 12, 16, 1901; *Stokes Bay, Bruce Co.*, Aug. 27, 1901.
17. *Mecostethus gracilis*, Scudd. Lake Simcoe, Aurora (Walk.). In my "Notes" I stated that this species had precisely similar haunts to those of the preceding. Further collecting has shown that although often found together, *gracilis* prefers comparatively small open places in swampy woods, whereas *lineatus* occurs in large, open, sedgy marshes.

## III.—OEDIPODINÆ.

18. *Arphia tenebrosa*, Scudd. Nepigon, Sudbury (Caulf.).
19. *Arphia sulphurea*, Fab. Ont., generally (Caulf.); Toronto (Caulf., Walk.); *Sarnia*, Aug. 16, 1901 (larva).
20. *Chortophaga viridifasciata*, De Geer. Ottawa, Ont., generally, to north of L. Superior (Caulf.); Hamilton, Grimsby, Toronto, Lake Simcoe, Clear Lake (Walk.); *Rond Eau*, Sept. 15, 1899 (nymphs); *Arner*, Aug. 9, 1901 (nymph); *Walpole Id.*, Aug. 13, 1901 (nymphs); *Goderich*, Aug. 19, 1901 (nymph).
- 20a. *Chortophaga viridifasciata*, form *infusata*, Harris. Same localities as preceding.
21. *Encoptolophus sordidus*, Burm. Toronto, Hamilton, Niagara, Lake Simcoe (Walk.); *Rond Eau*, Sept. 14, 1899; *Arner*, Aug. 9, 1901 (nymphs); *Sarnia*, Aug. 16, 1901; *Goderich*, Aug. 19, 1901 (nymphs); *Southampton*, Aug. 20, 1901 (nymph).
22. *Camnula pellucida*, Scudd. Nepigon, Clear Lake, Lake Simcoe, Toronto (Walk.); *Rond Eau*, Sept. 14, 1899; *Point Pelee*, Aug. 7, 1901; *Sarnia*, Aug. 12, 1901; *Walpole Id.*, Aug. 13, 1901; *Goderich*, Aug. 19, 1901; *Southampton*, Aug. 20, 1901; *Johnson's and Little Eagle Harbours, Bruce Co.*, Aug. 22 and 23, 1901; *Tobermory*, Aug. 24, 1901; *Stokes Bay*, Aug. 27, 1901; *Owen Sound*, Aug. 30, 1901; *Severn River*, Aug. 15, 17, 1898; *Lake Muskoka*, Aug. 27, 1899; *North River, Algonquin Park*, Aug., 1902; *North Bay*, Sept. 12, 1900.
23. *Hippiscus tuberculatus*, Pal. de Beauv. Nepigon (Caulf., Scudd., Psyche, VI., 304, 1892); Ottawa (Harrington, Ann. Rep. Ent. Soc., Ont, 1883, 17); Toronto, London (Walk.); *Sault Ste. Marie*, June 7, 10, 1889.
24. *Dissosteira carolina*, Linn. Ont., generally, to Lake Superior (Caulf.); *Rat Portage, Muskoka, Lake Simcoe, Toronto, Hamilton* (Walk.);

- Rond Eau*, Sept. 14, 1899; *Pt. Pelee*, Aug. 7, 1901; *Arner*, Aug. 9, 1901; *Chatham*, Aug. 10, 1901; *Sarnia*, Aug. 12, 1901; *Walpole Id.*, Aug. 13, 1901; *Southampton*, Aug. 20, 1901; *Goderich*, Aug. 19, 1901; *Tobermory*, Aug. 24, 1901; *Owen Sound*, Aug. 30, 1901; *Severn River*, Aug., 1898; *North River, Algonquin Park*, Aug., 1902; *North Bay*, Sept. 12, 1900.
25. *Spharagemon collare*, Scudd., race *Wyomingianum*, Morse; *Rond Eau* (Walk.); *Pt. Pelee*, Aug. 7, 1901. (The specimens from *Pt. Pelee* average distinctly larger than those from *Rond Eau*.)
26. *Spharagemon bolli*, Scudd. *Toronto* (Morse, *Psyche*, VI., 291, Walk.); *Stony Lake*, Peterboro Co. (Walk.); *Rond Eau*, Sept. 15, 1899; *Pt. Pelee*, Aug. 7, 1901; *Arner*, Aug. 9, 1901; *Sarnia*, Aug. 16, 1901. (The specimens from *Rond Eau*, *Pt. Pelee* and *Arner* are much larger than those from the other more northern localities.)
27. *Scirtetica marmorata*, Harris. *Sparrow Lake*, Gravenhurst, *Severn River* (Walk.); *Lake Muskoka*, Aug. 27, 1899.
28. *Trimerotropis maritima*, Harris. *Toronto Id.*, *Kingsville* (Walk.); *Rond Eau*, Sept. 14, 1899; *Pt. Pelee*, Aug. 7, 1901; *Walpole Id.*, Aug. 13, 1901; *Sarnia*, Aug. 12, 14, 1901.
29. *Trimerotropis huroniana*, Walk. *Southampton* (Walk., CAN. ENT., XXXIV., 1).
30. *Circotettix verruculatus*, Kirby. *Ottawa* (Caulf.); *Rat Portage*, *Molson*, *Jackfish*, *Stony Lake*, *Lake Simcoe*, *Aurora*, *Gravenhurst* (Walk.); *Southampton*, Aug. 21, 29, 1901; *Johnson's and Little Eagle Harbours*, *Bruce Co.*, Aug. 22, 23, 1901; *Tobermory*, Aug. 24, 1901; *Stokes Bay and Burke Id.*, *Lake Huron*, Aug. 27, 1901; *Owen Sound*, Aug. 31, 1901; *Severn River*, Aug. 14, 1898; *Lake Muskoka*, Aug. 27, 1899; *North River, Algonquin Park*, Aug., 1902; *North Bay*, Sept. 12, 1900.
- ACRIDINÆ.
31. *Schistocerca Americana*, Drury. *London* (Moffat); *Toronto* (Walk.).
32. *Podisma glacialis*, Scudd. *Sudbury* (Scudd., Rep. Ent. Soc., Ont., XXVI., 63); *North Bay* (Walk.).
33. *Podisma variegata*, Scudd. *Lake Simcoe*, *Muskoka* (Walk.); *Tobermory*, Aug. 24, 25, 1901; *North River, Algonquin Park*, Aug. 21, 27, 1902.
34. *Melanoplus Bruneri*, Scudd. *Dwight, Muskoka*, Sept. 2, 1902.

35. *Melanoplus atlanis*, Riley. Ottawa (Caulf., Fletch., Rep. Exp. Farms, Can., 1888, 63); Sudbury (Scudd.); Rat Portage, Nepigon, Severn R., L. Simcoe, Toronto (Walk.); *Rond Eau*, Aug. 14, 1899; *Pt. Pelee*, Aug. 7, 1901; *Sarnia*, Aug. 12, 1901; *Goderich*, Aug. 19, 1901; *Southampton*, Aug. 20, 1901; *Tobermory*, Aug. 24, 1901; *Johnson's and Little Eagle Harbours*, Aug. 22, 23, 1901; *Owen Sound*, Aug. 30, 1901; *Lake Muskoka*, Aug. 27, 1899; *North River, Algonquin Park*, Aug., 1902; *North Bay*, Aug. 12, 1900.
36. *Melanoplus Dawsoni*, Scudd. Toronto, Severn R. (Walk.).
37. *Melanoplus islandicus*, Blatchl. Toronto, Aurora, Lake Simcoe, Severn R., near Lake Kabinakagami (Algoma) (Walk.); *Southampton*, Aug. 20, 21, 1901; *Johnson's and Little Eagle Harbours*, Aug. 22, 23, 1901; *Tobermory*, Aug. 24, 1901; *North River and Island Lake, Algonquin Park*, Aug. 19-28, 1902; *North Bay*, Sept. 12, 1900.
38. *Melanoplus fasciatus*, Walk. Lake of the Woods (Scudd., Daws., Rep. Geol., 49 par., 343); Toronto, Lake Simcoe, Stony Lake (Walk.); *Point Pelee*, Aug. 7, 1901; *Johnson's and Little Eagle Harbours*, Aug. 22, 23, 1901; *Tobermory*, Aug. 24, 1901; *North River, Algonquin Park*, Aug. 23-31, 1902.
- 38a. *Melanoplus fasciatus*, var. *volaticus*, Scudd. Lake Simcoe (Walk.); *Johnson's Harbour*, Aug. 22, 1901, 3 ♂♂.
39. *Melanoplus femur-rubrum*, DeGeer. Ottawa, Ont., generally, to north of L. Superior (Caulf.); Ont. (Walk.); *Rond Eau*, Sept. 14, 1901; *Pt. Pelee*, Aug. 7, 1901; *Arner*, Aug. 9, 1901; *Chatham*, Aug. 10, 1901; *Sarnia*, Aug. 12, 1901; *Walpole Id.*, Aug. 13, 1901; *Goderich*, Aug. 19, 1901; *Southampton*, Aug. 20, 1901; *Johnson's and Little Eagle Harbours*, Aug. 22, 23, 1901; *Tobermory*, Aug. 24, 1901; *Stokes Bay and Burke Id., L. Huron*, Aug. 27, 1901; *Owen Sound*, Aug. 30, 1901; *Lake Muskoka*, Aug. 27, 1899; *North River, Algonquin Park*, Aug. 25-31, 1902; *North Bay*, Sept. 12, 1900.
40. *Melanoplus extremus*, Walk. Algoma, near portage between Lake Kabinakagami and the Matawishguia River (Walk.)
41. *Melanoplus coccineipes*, Scudd. Sudbury (Scudd., Rep. Ent. Soc., Ont., XXVI., 64).

42. *Melanoplus minor*, Scudd. Toronto (Walk.)
43. *Melanoplus collinus*, Scudd. Toronto, Lake Simcoe, Severn R., Hawk Lake (Walk.); *Rond Eau*, Sept. 14, 1901; *Pt. Pelee*, Aug. 7, 1901; *Arner*, Aug. 9, 1901; *Sarnia*, Aug. 12, 1901; *Lake Muskoka*, Aug. 27, 1899; *Dwight, Muskoka*, Sept. 2, 1902; *North River* and *Big Joe Lake, Algonquin Park*, Aug. 25-31, 1902; *North Bay*, Sept. 12, 1900.
44. *Melanoplus bivittatus*, Say. Lake of the Woods (Scudd., Daws., Rep. Geol., 49 par., 343); *North Bay* (Walk.).
45. *Melanoplus femoratus*, Burm. Ont., everywhere (Caulf.); Ont., *North Bay* (Walk.); *Niagara, Rond Eau*, Sept. 14, 1899; *Pt. Pelee*, Aug. 7, 1901; *Arner*, Aug. 9, 1901; *Chatham*, Aug. 10, 1901; *Sarnia*, Aug. 12, 1901; *Walpole Id.*, Aug. 13, 1901; *Goderich*, Aug. 19, 1901; *Southampton*, Aug. 20, 1901; *Johnson's and Little Eagle Harbours*, Aug. 22, 23, 1901; *Tobermory*, Aug. 24, 1901; *Stokes Bay* and *Burke Id., L. Huron*, Aug. 27, 1901; *Owen Sound*, Aug. 31, 1901; *Lake Muskoka*, Aug. 27, 1899; *Algonquin Park*, Aug. 1902.
46. *Melanoplus punctulatus*, Uhl. Toronto, L. Simcoe (Walk.).
47. *Paroxya floridana*, Thom. *Arner*, Aug. 9, 1901.

#### THE NORTHWEST (CANADA) ENTOMOLOGICAL SOCIETY.

##### YOUNG FOLKS' PRIZE COMPETITION.

1. For best collection of injurious and beneficial insects, Dr. James Fletcher will give a prize of \$2.50, or a standard book on insects.
2. For best general collection of insects, \$1.50.
3. For best collection of pressed plants, in which noxious weeds and grasses and their characteristics must be a feature, Dr. Fletcher will give a prize of \$2.50, or a book.
4. For best general collection of plants, \$1.50.

Of these prizes, two will be given by Dr. Fletcher, and two by the N.-W. Entomological Society. The awarding will take place in Calgary immediately prior to the annual meeting of that Society. Further prizes may be given should the exhibits deserve them.



## NEW GENERA AND SPECIES OF N. A. FULGORIDÆ.

BY E. D. BALL, STATE AGRICULTURAL COLLEGE, FORT COLLINS, COLO.

*Anotia Kirkaldayi*, n. sp.—Form and general appearance of *Amalopota Fitchi*, but broader and less definitely marked. Form of *A. Burnetii*, but with a sharp head and blunter elytra. Length, including elytra, 6.5 mm.

Vertex slightly broader than in *Burnetii*, inclined upward, nearly flat, not rounding over at apex as in that species; elytra broader towards apices than in *Burnetii*; venation very similar, but with the median nervure not forked beyond the cross-vein, and the first branch of the post-costal nervure coming off close to the cross-vein and at nearly right angles to the nervure. Costal appendix larger than in *Burnetii*, obliquely truncate posteriorly.

Colour: pale creamy, slightly tinged with testaceous, a pale testaceous stripe runs from the eye forward to the apex of vertex, and another from below the eye downward to the front; elytra milky subhyaline, a faint smoky or testaceous spot near base, a smoky transverse band half way to apex of clypeus, another partial band extending to the sutural margin, down the median to the cross nervure, and then out that to the post-costal; beyond this nearly all the nervures are broadly smoky margined, leaving a light patch in each anteapical cell and a light spot on apex of each apical nervure; the costal margin beyond the middle, the costal nervures, the apical margin, the apical nervures, except their apices and a section of the postcostal beyond the cross nervure, testaceous.

Described from a single specimen collected by the author, at Ames, Iowa.

The custom of commemorating the distinguished workers in Hemiptera in the naming of the Derbidæ seems to me to be a good one, and I am pleased to add to this list the name of our colleague, whose careful nomenclatural work will place our Hemipterological classification at once upon a sound basis of fact such as it would not have otherwise enjoyed for years to come.

*Anotia Sayi*, n. sp.—Resembling *Burnetii* in form, but much larger, as large as *Otiocerus*. Costal appendage very long; colour yellowish; elytra white, with a transverse fuscous band before the middle. Length, 11 mm. to the tip of elytra.

Vertex but little rounded above, the apex slightly rounder than in *Kirkallayi*. Second joint of antennæ very large, consisting of a long, flat plate thickest on the margins and studded with fine knobs; elytra very large, venation as in *Burnetii* nearly, the outer branch of the median nervure straight, the cross nervures at the apices of the elytra in a straight line; costal appendage as long as the second joint of antennæ, strap-shaped towards apex, the posterior margin nearly straight, anterior margin sloping off to the base of the costa; the whole appendix curved back across the corium, with the apex on the claval suture.

Colour: pale straw; eyes black; elytra milky at base, a fuscous band at one-third the distance from base, beyond this subhyaline, with the nervures faintly brown as far as the apical nervures. Posterior margin of appendage, and sometimes a spot near the outer corner of scutellum, fuscous.

Described from two females collected at Albion, N. Y., by E. P. Van Duzee.

*Patara Vanduzeei*, n. sp.—Form and general appearance of *guttata*, but with a smaller front and different venation; brownish purple, with a light line on vertex and pronotum, and light dots around the apex of elytra. Length, 4.75 mm.

Vertex and front together semicircular, about equally margining the eye all around as seen from side, front rising abruptly from clypeus, compressed, the margin slightly thickened; vertex expanded posteriorly; pronotum slightly carinate, broad and nearly parallel margined; venation closely resembling *guttata*, but with four cells between the postcostal and the median before the apical cell. There is a reflexed veinlet from the median into the anal area, and two reflexed veinlets from the outer branch of the mediastinal to the costal. This branch is interrupted just before the apex, making it appear as if the reflexed vein was the end of the nervure.

Colour: vertex white, front and antennæ brownish testaceous; pronotum brownish fuscous, with a broad, median, light stripe; scutellum bright testaceous, sometimes with a pale stripe; elytra brownish purple, the tuberculate nervure of clavus white, a light spot on the apex of each apical nervure and a broad one on the inner reflexed one. Nervures bright testaceous, the three cross nervures before the apical cells fuscous.

Described from three females in the collection of E. P. Van Duzee, from Gowanda, N. Y. The adding of this name to the list is peculiarly

appropriate, in that it adds that of one of our strongest Hemipterists, and at the same time the name of one who has contributed much to our knowledge of the American Derbidae.

*Cenchrea Heidemanni*, n. sp.—Resembling *dorsalis* in form, but larger and lighter coloured: pale orange yellow, with the elytra white. Length, 7.25 mm.

Vertex broad, slightly angled with the broad, parallel margined front, margins with distinct, slightly serrate carina; pronotum with the lateral margins broad, wing-like, posterior margin deeply, angularly emarginate; scutellum weakly tricarinate; elytra long; venation simple, all three veins with long narrow forks, the apices of the mediastinal not as strongly angled as in *dorsalis*, the claval nervure and the basal half of the mediastinal tuberculate, the posterior half of costal and the whole apical margin finely serrate.

Colour: pale orange yellow; elytra milky white, below pale.

Described from one female from Effingham, Kansas, collected by E. P. Van Duzee, and another from Washington, D. C., from Otto Heidemann. This is only one of the many fine specimens that Mr. Heidemann has turned over to me for study.

Neither this nor the preceding genus has before been recognized in our fauna. They were both founded on species from St. Vincent Island.

*Cenchrea Uhleri*, n. sp.—Size and form of *Lamenia Californica* nearly, slightly longer and narrower, much smaller than *Heidemanni*; pale creamy or slightly testaceous yellow, the elytra margined with fuscous. Length, 5 mm.

Vertex distinctly longer than in *Californica*, shorter and broader than in *Heidemanni*, definitely angled with front; front widening slightly below to the large clypeus; elytra long, strictly parallel margined; male plates long, strap-like, slightly widening towards apex.

Colour: pale creamy yellow, slightly washed with tawny, the abdominal segments both above and below black, with light margins; elytra creamy, a round fuscous spot just before the apex of costa, and usually a brownish or fuscous submarginal stripe along the costa, a brownish line along the sutural margin; the tip of the wing often tawny.

Described from six specimens from D. C. and Md. (Heidemann), two from Effingham, Kansas (Van Duzee), and three from Onaga, Kansas (Crevecoeur).

*Lamenia obscura*, n. sp.—Form and general appearance of *vulgaris* nearly, usually slightly smaller and paler. Readily separated on the male genitalia. Length, 4 mm.

Vertex short, sloping, half wider than long, separated from front by a slight carina; front rather broad, nearly flat, a faint median carina; clypeus convex in both diameters, rather prominent; median carina much elevated, acute; elytra about as in *vulgaris*, not as strongly sinuate on costa.

Colour: slaty black, pruinose, giving this species a powdered gray appearance. Head black, the carinate margin of vertex in front pale, lateral carinae of pronotum pale. Elytra slaty at base, smoky, subhyaline at apex, a spot on costa, where the mediastinal nerve touches it, and the two transverse nervures at the bases of the apical cells light. Legs pale; rostrum pale, apical segment black.

Genitalia: last ventral segment in male transverse, not enlarged, posterior margins straight; plates widely separated at base by an equilaterally triangular notch, their inner margins confluent from the apex of notch to the upturned tips, together transversely convex, forming a long, nearly parallel margined trough with a rounding apex. Their apices are furnished with long slender teeth set at right angles to the plate. In the normal position these teeth cross each other and close the end of the trough.

Described from twenty-two specimens taken at Greeley, Colo., by the author, and two specimens from How Creek and Lake Worth, Fla., in the collection of Mr. Heidemann.

*Lamenia inflata*, n. sp.—Form of *vulgaris* nearly, slightly longer and narrower, dark smoky brown, paler on pronotum and face. Length, 4.5 mm.

Vertex rather narrow, rounding to the retreating front; front full, without a median carina; elytra long and narrow, distinctly notched at the junction of the mediastinal and costa; venation as in *Californica*.

Colour: vertex, front and pronotum pale testaceous brown; clypeus smoky brown; elytra dark smoky brown, the costal incision and the transverse nervures before the apex faintly marked with light; legs and rostrum pale.

Genitalia: last ventral segment in the male longer than wide, convex, thickened, the posterior margin sinuate; plates distant from each

other at base, long, flat, narrow at base, gradually widening to the bluntly rounding apices, the apical spines just touching each other.

Described from eight specimens in the author's collection taken in Hayti by R. J. Crew.

*Peltonotellus rugosus*, n. sp.—Form and general appearance of *histrionicus* nearly, the vertex shorter and the venation reticulate. Length: ♀, 3.5 mm.; ♂, 2.5 mm. Width: ♀, 1.3 mm.; ♂, .9 mm.

Vertex shorter than in *histrionicus*; clypeus continued in same plane as front at the base, then sloping sharply backwards, the basal portion overhanging the rest in the form of a bluntly-pointed tubercle; elytra short, truncate; venation distinct, the veins raised and densely reticulate.

Colour: gray or fuscous maculate, a broad, pale yellow median stripe on vertex; pronotum and scutellum margined by four pairs of black dashes; vertex with a pair of ocellate spots at base, and the margins mostly dark lined; front pale yellow, sometimes irregularly washed or marked with dusky, lateral compartments black, with the pustules white; clypeus black, the base and a line down to the apex of the tubercle light; lateral areas of pronotum and scutellum dark, with pustules light; elytra brownish fuscous, nervures light; abdomen above with a narrow median and three pairs of lateral stripes, the two outer pairs broad and pustulate; below, pale straw in the female, the femora spotted and the tibiæ lined with fuscous, the anterior pair much the heaviest. In the male the legs are always red, with more or less of fuscous marking. In some specimens the whole under surface, including clypeus, is bright red.

Described from twenty-four specimens collected in various parts of Colorado.

*Peltonotellus bivittatus*, n. sp.—Resembling *quadrivittatus* in general form and colour, the front much narrower and black lined. Size of *rugosus*.

Vertex three times as wide as its median length, two-thirds the length of the pronotum, front long and narrow, space between the lateral carinæ nearly twice as long as its middle width, only one-fourth wider in the middle than at the ends; clypeus abruptly rounding back, nearly right angled with front; elytra either coriaceous and only about half the length of the abdomen, venation indistinct, or else subhyaline, and much longer than the abdomen, the nervures distinct.

Colour: striped yellow and black, the yellow shading out to green on the vertex and front, a median line, broad in front, narrowing out behind, extending from the vertex to the tip of the abdomen, and a pair of oblique lines rising under the eyes and meeting the median line on the last abdominal segment, yellow; vertex green, margin and pair of spots at base black; front green, the lateral carinae deep shining black; pustules on lateral areas of pronotum and scutellum black, lateral carinae of scutellum and a pair of stripes just within them black; legs pale yellow.

Described from two specimens from Colorado, four from Nebraska, three from Kansas, and one from Iowa. One Kansas specimen was received from Crevecoeur; all the rest were collected by the author.

*Kelisia salina*, n. sp.—Form of *pallidula* nearly, but longer and narrower, resembling *crocea*, but much smaller, pale, with the carinae of front margined with black. Length, 3.5 mm.

Vertex strongly carinate, one-third longer than wide, as long as the pronotum; front broader proportionally than in *crocea*, the margin slightly and regularly rounding, but little narrowed above; elytra long and closely appressed behind, the apex broadly rounded; venation as in *crocea*, the third apical nervure twice forked, the nervures studded with coarse dark hairs.

Colour: front pale smoky, the carinae light, narrowly margined with black, which extends into the lateral foveae of the vertex; basal part of vertex creamy; pronotum pale, with more or less of smoky clouding on the disc; scutellum creamy, often trilineate with pale. Legs and all below, except ovipositor and a few spots along margin, pale in the female, abdomen all dark in male.

Described from twenty-four specimens from various places in Colorado.

*Kelisia parvula*, n. sp.—Size of *pallidula* nearly, but with broader elytra, a shorter species than *salina*, with an unmarked front; front and above entirely pale. Length 3.25 mm.

Vertex weakly carinate, broad, but little longer than wide, rounding to front; front as in *salina*; elytra longer than abdomen, broad at apex; venation distinct, nervures strong and slightly setigerous, the third apical veinlet but once forked near the apex.

Colour: pale straw or whitish; vertex and scutellum tinged with orange, the abdomen in male smoky brown and black.

Described from one female from Coolidge, Kansas, and a pair from Ames, Iowa, all collected by the author.

MEGAMELANUS, n. gen.

Resembling *Megamelus*, but with the front of equal width above and below and the vertex sharply angled in front. Resembling *Delphacinus*, but with the side keels of the pronotum attaining the hind margin. Vertex 5-angular, but with the lateral foveæ depressed and their inner carinæ strong and meeting at the sharp apex, giving it the appearance of being acutely triangular; front broad, nearly rectangular, median carina distinct, not forked, a trifle the widest in the middle, the lateral margins gently evenly curving, the apical margin carinate just above the deep clypeal suture; clypeus small, rounding, without carinæ; pronotum shorter than vertex, strongly tricarinate, the lateral pair just inside and parallel with those on vertex, extending to the posterior margin; elytra commonly brachypterous, covering the second abdominal segment. In the macropterous form long and broadly rounding posteriorly; venation nearly as in *Megamelus*.

Type of the genus *M. bicolor*.

*Megamelanus bicolor*, n. sp.—General appearance of *Delphacinus mesomelas*, but with a sharper vertex and straight lateral carinæ on pronotum. Length: macropterous form, 3 mm.; brachypterous, ♀, 2.5 mm.; ♂, 1.6 mm.

Vertex flat, acutely triangular on the disc, slightly longer than the pronotum, more than half its length in advance of the eyes; median carina weak, obsolete before the middle; face slightly acutely angled with the vertex; front nearly half longer than wide, the carinæ sharp, narrow; pronotum sharply carinate, slightly emarginate posteriorly; elytra one-third longer than the vertex and pronotum in the brachypterous form, their apices rounding; nervures simple, distinct, distinctly longer than the abdomen in the macropterous form, broadly rounding at apex, anteapical cells variable, apical veinlets straight and simple.

Colour: females varying from a pale to a very bright straw colour, male pale straw colour; elytra nearly white, the abdomen both above and below clypeus and under side of thorax black. Legs black, the tip of both femora and tibiæ pale, tarsi pale.

A few males were found that mimic the females in size and colour. These were mostly parasitized, and it is possible that the others had been.

Described from twenty-five specimens from various parts of Colorado, and one female from California.

BOSTERA, n. gen.

Resembling *Stobera*, but with a much broader vertex and front; vertex and front broader than in *Laccocera*, front bicarinate. Head transverse, wider than pronotum; vertex parallel margined, over three times as wide as long, not extending in front of eyes; front six-angled, widest at the lower corner of the eye, where it is a trifle wider than its median length, two and one-half times as wide as at apex, median carina forking at one-fourth its length from the apex and regularly diverging until its forks inclose over half the width at base; clypeus bearing an acutely-tipped, cone-shaped tubercle; antennae very large, prominent, basal joint flat, second flat above, rounding below and tuberculate; pronotum transverse, slightly angularly excavated behind, lateral carinae curving around behind eyes, not reaching the posterior margin; elytra about as in *Stobera*, obliquely truncate behind, nervures with setigerous tubercles; tarsal spur broad, short, almost spoon-shaped.

Type *B. nasuta*.

The remarkably broad head, bicarinate front, and the "nose" on the clypeus, render this a very distinct and easily-recognized genus.

*Bostera nasuta*, n. sp.—Slightly resembling *Laccocera vittatipennis*, but with a much broader head; pale creamy yellow, with a black band at apex of elytra and another before it. Length, 5 mm.

Vertex evenly rounding to the slightly-retreating front, slightly shorter than pronotum, not at all in advance of the eyes; elytra much longer than abdomen, as broad as in *S. tricarinata*, obliquely truncate at apex, the outer angle acute.

Colour: pale creamy yellow, the vertex and front shading to brownish on a line below the eyes. This line is margined below with white, which again shades out into brownish fuscous on the clypeus. Scutellum orange; elytra subhyaline, a spot on the suture before the apex of clavus; a band on apex and an oblique stripe before it, dark smoky brown or fuscous.

Genitalia: male plates strap-shaped, their inner margins notched before the apex; apical margins obliquely, roundly excavated, their outer angles acute, upturned.

Described from ten examples from Holly, Antonito and Fort Collins, Colo., all collected by the author.



## A NEW BEE OF THE GENUS BOMBOMELECTA.

BY T. D. A. COCKERELL, EAST LAS VEGAS, N. M.

*Bombomelecta Arizonica*, n. sp.—♀. Length about 11 mm., black; head, thorax and legs with dull white hair, having a faint yellowish tinge; black hair on cheeks, lower sides of face, labrum and mandibles; hair of pleura, except its upper part, black; a conspicuous band of black hair between the wings; hair of anterior legs long and black, but the tarsi more or less silvery, and the femora with a conspicuous tuft of white hair near the end behind; middle tibiae and tarsi largely silvery-white on the outer side, but the white and black pubescence are mixed, so as to produce a speckled effect; hind tibiae and tarsi similar, except that the tibiae have the outer apical half black; tegulae large, black, punctured; wings pale brownish, nervures piceous; abdomen heart-shaped, with sparse black hair, and conspicuous clear-cut patches of white hair; first segment with a broad band of yellowish-white erect or suberect hairs, interrupted in the middle; first to fifth segments with lateral patches of appressed snow-white hair, that on the second segment broad and deeply notched behind. Clypeus shining and strongly punctured; front rough and dull; antennae black, fairly long, last joint truncate; labrum about as broad as long; maxillary palpi six-jointed, the last joint minute; mandibles rather slender, with a low tooth on the inner side about the middle; scutellum with two short pyramidal spines; pygidial plate long and very narrow; apical ventral segment considerably but very narrowly produced; claws of hind legs bifid, not dilated. Spurs black, gently curved.

*Hab.*—Tempe, Arizona, end of March, 1902, visiting flowers of *Sphaeralcea variabilis*. The flowers were also visited by *Halictus* and the honey-bee. This species is particularly interesting because in form, pubescence and colour it almost exactly imitates *Melecta grandis* from Algeria, a specimen of which I possess through the kindness of Mr. Vachal. The only obvious superficial difference is in size, the Algerian bee being considerably the larger. The significance of this appears when we recall that Tempe was selected as the location of the experimental date-palm orchard, because its climate most resembles that of Algeria and other parts of North Africa, the home of the date. *B. Arizonica* completely breaks down the supposed difference in pubescence between *Melecta* and *Bombomelecta*; among the known species it is closest to *B. Alfredi*.

CLASSIFICATION OF THE FOSSORIAL, PREDACEOUS AND  
PARASITIC WASPS, OR THE SUPERFAMILY  
VESPOIDEA.

BY WILLIAM H. ASHMEAD, A. M., ASSISTANT CURATOR, DIVISION OF INSECTS,  
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(Paper No. 9.—Continued from p. 231.)

FAMILY XXXII.—Bethylinæ.

1830. Proctotrypides, Family (*partim*), Leach. Edinb. Ency.,  
IX., p. 145.  
1830. Mutillidæ, Family (*partim*), Leach. *Opus cit.*, p. 147.  
1839. Cenopectera, Tribe 6, Haliday. Hym. Syn., p. iii.  
1839. Bethyllidæ, Family 20, Haliday. *Opus cit.*  
1877. Cenopectera, Tribe 12, Förster. Ueber d. Syst. Werth d.  
Flugelg., p. 20.

This family was first defined by that astute British systematist, A. H. Haliday, who, as early as 1839, very correctly placed the family among the Fossores.

In 1893 the writer, in his Monograph of the North American Proctotrypidæ, followed the views of Prof. Westwood, and treated these insects as a subfamily in the Proctotrypidæ. Since that time, however, the extensive studies I have made into all families of the Hymenoptera have given me a much broader and more thorough knowledge of the families and their affinities, and I am now convinced that Haliday was right, that these insects are allied to the fossorial wasps, and have nothing to do with genuine Proctotrypoids; they are clearly allied to the *Chrysididæ*, through the *Cleptinæ* and *Ameriginæ*, and to the *Sapygidæ*, *Tiphidæ*, *Cosilidæ*, *Thynnidæ*, *Myrmosidæ* and *Mutillidæ*,—all *parasitic* families.

The family *Trigonalidæ*, too, which is usually classified with the terebrant Hymenoptera, also belongs to the same category, being undoubtedly allied to the *Bethylidæ* and the *Sapygidæ*, the two-jointed trochanters, the long multiarticulate antennæ, and the superficial resemblance to genuine ichneumonids having misled most systematists as to its true position.

In this connection it may be well to call special attention to the new Bethylid genus, *Probethylus*, discovered by Mr. E. A. Schwarz, in Arizona, with 23-jointed antennæ, and to the genus *Sclerogibba*, Stefani,

with 26-jointed antennæ, since these genera differ so widely in antennal characters from others in the group, and apparently emphasize the affinities between these wasps.

## Table of Subfamilies.

- Wingless forms . . . . . 3.
- Winged, the hind wings with a lobe at base; front wings with one or two basal cells.
- Head not oblong . . . . . 2.
- Head oblong.
- Antennæ inserted at the clypeus, usually 12- or 13-jointed, rarely 23- or 26-jointed; front femora usually more or less swollen . . . . . Subfamily I.—Bethylinæ.
2. Head globose or rounded; front wings with a lanceolate stigma; front tarsi in ♀ never chelate; antennæ in ♀ 13-jointed, in ♂ 10-jointed . . . . . Subfamily II.—Emboleminæ.
- Head transverse or subquadrate; front wings usually with a large stigma; front tarsi in ♀ frequently chelate; antennæ 10-jointed in both sexes . . . . . Subfamily III.—Dryininæ.
3. Front femora much swollen.
- Head oblong; antennæ usually 12- or 13-jointed, alike in both sexes, rarely 23-26-jointed. . . . . I.—Bethylinæ
- Head transverse or subquadrate, or globose.
- Head globose; antennæ in ♀ 13-jointed; front tarsi normal . . . . . II.—Emboleminæ.
- Head transverse or subquadrate; antennæ 10-jointed; front tarsi in ♀ chelate . . . . . III.—Dryininæ.

## SUBFAMILY I.—Bethylinæ.

This subfamily may be divided into two very distinct tribes :

## Table of Tribes.

- Antennæ 23- to 26-jointed . . . . . Tribe I.—Sclerogibbini.
- Antennæ 12- to 13-jointed . . . . . Tribe II.—Bethylini.

## TRIBE I.—Sclerogibbini.

In this tribe only two genera are known, and they are easily recognized from other Bethylids by the multiarticulated antennæ, the antennæ being 23- or 26-jointed. In the Bethylini the antennæ are never more than 13-jointed.

## Table of Genera.

1. Males..... 2.

Females.

Wingless.

Antennæ 26-jointed; ocelli wanting ( $\sigma$  unknown)..... (1) *Sclerogibba*, Stefani.  
(Type *S. crassifemorata*, Stef.)

2. Front wings with a closed marginal cell *without* discoidal cells; antennæ 23-jointed ( $\varphi$  unknown)..(2) *Probethylus*, Ashmead, g. nov.  
(Type *P. Schwarzzi*, Ashmead, MS.)

## TRIBE II.—Bethylini.

The antennæ are 12- or 13-jointed, alike in both sexes. Among the females, wingless forms are common, and in many cases are totally different from the males, so that the sexes are not easily correlated.

Many of them, too, were it not for their oblong heads, could be easily mistaken for apterous females in the families Thynnidae and Mutillidae.

## Table of Genera.

1. Males..... 18.

Females.

Wingless forms..... 2.

Winged forms..... 10.

2. Head *with* ocelli..... 9.  
Head *without* ocelli; antennæ 13-jointed..... 3.
3. Metathorax quadrate or nearly, not much constricted at the base.. 5.  
Metathorax not quadrate, much constricted or strangulated at base.. 4.
4. Scutellum present; mandibles 3- or 4-dentate; maxillary palpi 6-jointed..... (1) *Pristocera*, Klug.  
(Type *Bethylus depressa*, Fabr.)  
Scutellum wanting; mandibles 3-dentate; maxillary palpi 6-jointed..... (2) *Isobrachium*, Förster.  
(Type *Omalus fuscicornis*, Nees.)
5. Scutellum present; metathorax quadrate or trapezoidal..... 6.  
Scutellum wanting; metathorax rounded off posteriorly..... (3) *Ecitopria*, Wasmann.  
(Type *E. crassicornis*, Wasm.)
6. Mandibles 2- or 3-dentate; maxillary palpi 4-jointed..... 7.  
Mandibles 4-dentate; maxillary palpi 5-jointed..... (4) *Scleroderma*, Latreille.  
(Type *S. domesticus*, Latr.)

7. Mandibles 2-dentate.....8.  
Mandibles 3-dentate... (5) *Dissemphalus*, Ashmead.  
(Type *D. xanthopus*, Ashm.)
8. Maxillary palpi normal ; labial palpi 3-  
jointed..... (6) *Ateleopterus*, Förster.  
(Type *A. Försteri*, Kirchner.)  
Maxillary palpi deformed ; labial palpi 3-  
jointed..... (7) *Apenesia*, Westwood.  
(Type *A. amazonica*, Westw.)
9. Antennæ 12-jointed ; maxillary palpi 4-  
jointed..... (8) *Cephalonomia*, Westwood.  
(Type *C. formiciformis*, Westw.)
10. Front wings *with* a stigmated marginal vein and a marginal cell, the  
radial vein always well developed..... 13.  
Front wings *without* a stigmated marginal vein and marginal cell, the  
radial vein not at all or only slightly developed, sometimes wholly  
absent..... 11.
11. Front wings *with* a short linear marginal vein and a short radius.. 12.  
Front wings *without* a marginal and a radial vein.  
One basal cell ; antennæ 13-jointed... (6) *Ateleopterus*, Förster.  
No basal cell ; antennæ 12-jointed.. (8) *Cephalonomia*, Westwood.
12. Two basal cells about of an equal length.  
Antennæ 13-jointed..... (9) *Laelius*, Ashmead.  
(Type *L. trogodermatis*, Ashm.)  
Antennæ 12-jointed..... (10) *Bethylus*, Latreille.  
(Type *B. cenopterus*, Latr.)
13. Basal vein *with* a branch directed backwards, sometimes forming a  
small closed cell ; parastigma usually present..... 17.  
Basal vein *without* such a branch ; no parastigma.  
Front wings with an *incomplete* or open marginal cell..... 14.  
Front wings with a complete marginal cell ; antennæ 13-jointed.  
With *one* discoidal cell..... (11) *Sierola*, Cameron.  
(Type *S. testaceipes*, Cam.)  
With *two* discoidal cells..... (12) *Eupsenella*, Westwood.  
(Type *E. agilis*, Westw.)
14. Mesonotum *without* furrows, or the furrows are incomplete and  
indistinct..... 16.

- Mesonotum *with* distinct, complete furrows . . . . . 15.
15. Antennæ 13-jointed, maxillary palpi 6, labial palpi 3-jointed.  
 Scutellum bifoveate at base . . . . . (13) *Mesitius*, Spinola.  
 (Type *M. Ghilianii*, Spin.)  
 Scutellum not bifoveate at base, but with a transverse grooved  
 line.  
 Maxilla bilobed at apex . . . . . (14) *Epyrus*, Westwood.  
 (Type *E. niger*, Westw.)  
 Maxilla trilobed at apex . . . . . (15) *Calyzoa*, Westwood.  
 (Type *C. staphylinoides*, Westw.)
16. Antennæ 12-jointed . . . . . (16) *Anoxus*, Thomson.  
 (Type *A. boops*, Thoms.)  
 Antennæ 13-jointed.  
 Scutellum bifoveate at base . . . . . (13) *Mesitius*, Spinola.  
 ? = *Dolus*, Motsch.  
 (Type *M. Ghilianii*, Spinola.)  
 Scutellum with a transverse grooved line at  
 base . . . . . (14) *Epyris*, Westwood.  
 (Type *E. niger*, Westw.)
17. Antennæ 12-jointed . . . . . (16) *Perisemus*, Förster.  
 (Type *P. Triareolatus*, Först.)  
 Antennæ 13-jointed . . . . . (17) *Goniozus*, Förster.  
 (Type *G. clavipennis*, Först.)
18. Front wings *with* a distinct marginal cell, the radius always long,  
 sometimes forming a closed marginal cell . . . . . 23.  
 Front wings *without* a distinct marginal cell, the radius wanting or  
 very short . . . . . 19.
19. Front wings *with* a short linear marginal vein and a short radius . . 21.  
 Front wings *without* marginal and radial veins . . . . . 20.
20. Antennæ 12-jointed . . . . . (8) *Cephalonomia*, Westwood.  
 Antennæ 13-jointed.  
 Front wings with *one* basal cell . . . . . (6) *Ateleopterus*, Förster.  
 Front wings with *two* basal cells . . . . . *Scleroderma*, Klug.
21. Two basal cells in front wings.  
 Antennæ 13-jointed . . . . . *Laelius*, Ashmead.  
 Antennæ 12-jointed . . . . . *Bethylus*, Latreille.
22. Front wings with an *incomplete* marginal cell . . . . . 22.  
 Front wings with a complete or closed marginal cell.

- Antennæ 13 jointed.  
*One* discoidal cell . . . . . (11) *Sierola*, Cam.  
*Two* discoidal cells . . . . . (12) *Eupsenella*, Westwood.
23. Basal nervure *without* a backward directed branch; no parastigma . . . 24.  
 Basal nervure *with* a branch directed backwards; a parastigma . . . 27.
24. Mesonotum *without* furrows, or the furrows very indistinct . . . . . 26.  
 Mesonotum *with* furrows distinct . . . . . 25.
25. Antennæ 13-jointed, simple, not ramose.  
 Scutellum bifoveate at base; maxilla terminating in *two* lobes . . . . . (14) *Epyris*, Westwood.  
 Scutellum with a transverse furrow or fovea at base; maxilla with three lobes . . . . . (13) *Mesitius*, Spinola.  
 Antennæ 13 jointed, *ramose* . . . . . (15) *Calyza*, Westwood.  
 (Type *C. staphylinoides*, Westw.)
26. Antennæ 12-jointed; eyes hairy . . . . . (16) *Anoxus*, Thomson.  
 Antennæ 13-jointed.  
 Mandibles long, slender, bifid at apex . . . . . (7) *Apnesia*, Westw.  
*Laelius*, Ashmead.  
 Mandibles 4- to 6-dentate.  
 Scutellum bifoveate at base . . . . . (13) *Mesitius*.  
 Scutellum with a transverse grooved line or furrow at base . . . . . (14) *Epyris*, Westwood.
27. Antennæ 12-jointed . . . . . (16) *Perisimus*, Förster.  
 Antennæ 13-jointed . . . . . (17) *Goniozus*, Förster.

## A TORTOISE-BEETLE NEW TO QUEBEC.

BY THE REV. THOS. W. FYLES, LEVIS, P. Q.

In July last I noticed that the leaves of the burdocks on the Heights of Levis were riddled as if from a discharge of small shot. On examination, I found that the damage to the leaves was caused by numerous larvæ of a species of *Cassida*. The creatures were there in strength, each supporting, by means of the forked prolongation of its anal segment, its "stercoraceous parasol." Towards the end of the month the grim-looking pupæ were to be seen, bristling round their edges with white branched spines, and attached to the leaves by a natural cement. In the present month (August) the beetles have appeared. They are about eight millimetres in length and five millimetres in breadth. The elytra and the thoracic shield are pea-green and are closely indented.

The body-colour is dark brown, approaching to black. The antennæ are moniliform and somewhat clavate; for part of their length they are pale green and for the rest light brown. The thighs are brown, and the tibiæ and tarsi are pale green. The tarsi are four-jointed.

This insect, I take it, is the *Cassida viridis* of Linnæus, advanced from Europe. It is in such numbers that it is evidently well established—is come to stay; and, as it feeds on the burdock and Canada thistle, nobody, I presume, will object to its advent.

### HYDRŒCIA NELITA, STRECKER.

BY HENRY H. LYMAN, MONTREAL.

In Supplement No. 1 to his work "Lepidoptera, Rhopaloceres and Heteroceres, Indigenous and Exotic," dated Sept. 15th, 1898, Dr. Herman Strecker described a species under the above name as follows:

"At first glance might be taken for a small *Nitela*, but it is a darker, warmer colour, more towards a rich chestnut. The t. p. is not so conspicuous, and is much more upright, and its course is rather from the costa outwardly oblique than inwardly oblique. One example has the space from the base to t. p. chestnut brown, exteriorly the t. p. is accompanied by a broad, paler ashen shade, beyond which the brown again prevails. In another the whole wing is brown, the t. p. only being discernible on the closest inspection. Beyond what I have mentioned, the differences between this and *Nitela*, excepting size, are not very marked. Expands one inch. Types, two examples from Chicago, Illinois."

When I attended the annual meeting of the A. A. A. S. at Pittsburg, at the end of June and beginning of July last, I took with me, among other things, two of my types of *Gortyna Ærata*. When I showed my specimens to Dr. Holland, he immediately expressed the opinion that these two belonged to *Necopina*, showing that he also saw the close resemblance to that species.

When, however, I showed them to Dr. J. B. Smith, he asked me if the flown specimen which Mr. Winn had given to Mr. Bird was of the same species, for if so, the species was *Nelita*, Strecker. I immediately arranged to visit Reading, in order to see the types of Strecker's species, and upon comparing the types of *Ærata* with them, I was forced to the conclusion that Dr. Smith was right.

I greatly regret having created a synonym, but I have sinned in the best of entomological company, and do not think I can be blamed for not having recognized in my beautiful bred specimens the species so inadequately described by Dr. Strecker from a pair of flown dwarfs.



## THREE NEW GOMPHINES.

BY JAMES G. NEEDHAM, LAKE FOREST, ILL.

Herewith I offer descriptions of three new species of dragon-flies of the subfamily Gomphinae of Odonata. Figures of the appendages of all will appear in my forthcoming handbook of the dragon-flies of North America.

*Gomphus lentulus*, n. sp.

Length 49 mm., abdomen 34 mm., hind wing 29 mm.

Colours obscure (due in part to fading of specimen); face obscure yellowish, shining; frons above and occiput and the ridges above the lateral ocelli yellow, the remainder of the vertex brownish. Prothorax brownish, with a double median spot of yellow on the dorsum. Thorax obscure yellowish, with a faint indication of a pair of narrow stripes of brown beside the middorsal carina, and of broader antehumeral and humeral stripes; a brown pale line on the third lateral suture. Legs black, hairy (male), with coxae, trochanters, external (dorsal) face of the tibiae and of the two basal segments of the tarsi yellow. Wings hyaline, costa yellow, stigma fulvous, covering 5-6 cells; antecubitals 13-14 on the fore wings, 9-10 on the hind wings; postcubitals 10-11 on all wings; no anal loop, but veins A1 and A2 are widely separated at base, and there is a single elongated cell between, as is usual in *G. villosipes*; between the anal triangle and this cell there is but one other cell bordering on the anal vein.

Abdomen brownish, broadly streaked with yellow longitudinally on segments 1-4, becoming suffused with rufous on segments 7-9; segment 10 and appendages yellow; segment 9 cut very obliquely at apex, longer on the dorsal side, its lateral margins little dilated. Superior appendages shorter than the inferiors, strongly divergent, straight, scarcely tapering, suddenly obliquely truncate on end, with an acute internal angle and a broad, black caruncle under the obtuse external angle. Inferior appendage roundly divided, its forks not wider apart than are the two superior appendages, straight, tapering to the darker coloured, sharply-upcurved tips.

A single male specimen, collected end of June, 1898, five miles north-east of Flora, Ill., Little Wabash River, by J. F. Garber, in the collection of Mr. Chas. A. Hart, who has very kindly offered me the specimen for description. It belongs to the subgenus *Arigomphus*, and *G. pallidus* is perhaps its nearest ally.

*Gomphus cavillaris*, n. sp.

Length 41 mm., abdomen 30 mm., hind wing 24 mm.

Face yellow, tinged with brown on the sutures and on the middle of the labrum. Vertex blackish, except the postocellar ridge and a narrow basal ring around each antenna. Occiput yellow, straight, or very slightly convex at its ends, with a thin fringe of black hairs.

Prothorax brown, with median and lateral spots of greenish yellow. Dorsum of the thorax greenish yellow, with a triangular median stripe of brown, divided on the carina, greatly dilated below, almost interrupted on the collar. Humeral and antehumeral stripes distinct, the latter isolated above. Sides greenish yellow, with narrow pale brown stripes on sutures. Legs entirely reddish beyond the trochanters, with black spines and black-tipped claws. Wings hyaline, costa yellow, stigma fulvous. Antecubitals of fore wing 9, of hind wing 7, postcubitals 6-7 on all wings; the 1st and 4th antecubitals of the hind wings hypertrophied.

Abdomen brown, with ill-defined middorsal stripe of yellowish green, disappearing on segments 8 and 9. Sides of segments 1 and 2, including the auricles and base of 3, greenish yellow; indistinct lateral paler marks also on 4-6; sides of 7-9 bright yellow inferiorly, superiorly fulvous; 10 brown, paler below; appendages brown. Apex of segment 8 cut very obliquely, longer on the dorsal side.

Appendages brown, the superiors scarcely longer than the inferiors, and scarcely more divergent, obliquely truncate, with the inner angle produced into a long, straight, posteriorly-directed point, the external angle also acute, short, situated at two-thirds their length. Viewed from the side, the external angle presents an inferior tooth, and beyond it on the outer margin are two other smaller teeth before the apex, one near the

tooth first named, with a distinct notch intervening, and the other near the apex; branches of the inferior appendage tapering, upcurved, their tips appearing outside the inner angle of the superiors.

Vulvar lamina of female completely divided into two short, broad lobes, and hind femora each with a double row of less numerous, much longer and stronger spines, otherwise similar to the male.

One male, Ft. Reed, Fla., 6th March, 1876, collected by Professor J. H. Comstock, and in the Cornell University collection; and a number of specimens of both sexes, Gotha, Fla., 27th and 28th February, collected by Miss Matilda Wichtendahl, and in the collection of Mr. C. C. Adams.

Our smallest species; as closely related to *G. militaris* as to any other.

*Ophiogomphus phaleratus*, n. sp.

Length 47 mm., abdomen 35 mm., hind wing 30 mm.

Face yellow, vertex black, except two rings on the base of each antenna, two minute crescents surrounding the lateral ocelli in front, the ends of the postocellar ridge and a spot on the rear, including the middle of this ridge; occiput yellow, with a thin fringe of brown hair on the straight hind margin.

Thorax thinly pubescent; prothorax brown, with a yellow twin spot on the middle and a larger yellow spot on each side. Dorsum of thorax with a moderate stripe of brown, divided by yellow on the middle of the carina, contracted on the collar; humeral and antehumeral stripes of brown, confluent above and below, around a narrow dividing line of yellow. Sides of thorax yellow, with narrow lines of pale brown on the sutures. Legs yellow, a blackish spot on the apical fourth of the femora above, tibiae and tarsi black, with a yellow stripe on the external face of the tibiae; knees yellow. Wings hyaline; costa yellow, stigma pale brown; antecubitals of the fore wing 31, of the hind wing 9, postcubitals of all wings 9-10.

Abdomen brownish, with a row of broad spots on the dorsum of segments 1-9, covering segment 1, restricted to the basal two-thirds of segments 2-9, best defined on the middle segments. Segment 10 wholly

yellow. Sides of segments 1-3 yellow, including the auricles; sides of 7-9 broadly yellow, with apical ventral angles bordered with black; appendages yellow.

Appendages yellow, the superiors one-third longer than the inferior, hardly as long as the 9th abdominal segment. Viewed from above, the superiors are arcuate, approximated at apex around an oval space, but not quite touching, smoothly rounded externally; the inferior shows an oval apical cleft, whose depth equals one-third the length of that appendage. Viewed from the side, the superiors are broad at base, suddenly contracted just beyond, and then cylindric and regularly declined to apex, with the superior margin regularly curving from base to apex; a straight row of half a dozen black denticles beneath the apical third; apex obtuse. Inferior declined at base and upcurved at apex, its superior margin forming a regular semicircular curve; apices hidden between superiors, each bearing a little superior tooth.

A single male specimen collected at Corvallis, Oregon, June 6th, by Prof. A. B. Cordley, by whose generosity the specimen is now in the collection of the writer.

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#### NOTES.

We regret to record the death of Mr. R. J. WEITH, of Elkhart, Indiana, which took place on Sunday, September 21st, after an illness of only two days, from appendicitis. Mr. Weith was born in Prussia, on the 15th of September, 1847. At the age of twenty-five he came to America, and after visiting many of the large cities in the east and south, finally settled at Elkhart, where he lived for about a quarter of a century. For many years he devoted himself to the study of entomology and the collection of insects, especially Hymenoptera, and made many notable captures.

Mr. OTIS W. BARRETT, formerly of Tacubaya, Mexico, is now at the Agricultural Experiment Station, Mayagüez, Porto Rico, and desires his correspondents to take note of his new address.

THE ANNUAL MEETING of the Entomological Society of Ontario will be held in London, on Wednesday and Thursday, October 29th and 30th.