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## HEMIPTERA FROM MUSKOKA LAKE DISTRICT.

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This list is presented as a slight contribution to our knowledge of the geographical distribution of the North American Hemiptera. As our literature of this order is by no means overburdened with faunal lists, I trust that the present will find sufficient excuse for its appearance in the matter it contains. I have made every effort to have the list as accurate and complete as possible, under the circumstances. The material was accumulated during a brief collecting tour in the Muskoka Lake District of Canada, in the interval from July 25th to August 3rd, 1888. The particular localities being in the vicinity of Bracebridge, along the Muskoka River to the Lake, and some of the adjoining islands, and along the road from Bracebridge to South Falls.

For the information of such as are not conversant with the physical features of this beautiful Lake District, I will add that it lies in the metamorphic belt reaching eastward from the Georgian Bay. The surface is somewhat rugged, with bold, rocky bluffs from one hundred to two hundred feet in height, skirting the river and lowlands; the latter presenting a good depth of soil, which is elsewhere very thin, in many places quite insufficient to cover the rocks. Coniferæ, poplars, birches, and a few oaks form the bulk of the timber on the rocky highlands, with the addition of maple, hickory, beech, basswood, etc., on the deeper soils. The undergrowth is largely hazelnut, with blueberry, raspberry, viburnum, spiræa, and other bushes interspersed. Away from the cultivated areas very little grass is to be found; but carex, cypreus and glyceria take its place to a large extent. The bane of this land is the ever-recurring "bush-fire," and to an entomologist a "burned district" is a wilderness indeed.

The Hemiptera taken were largely such as might have been expected from this locality, but were more numerous in individuals than I had

anticipated; the Homoptera especially, seemed proportionately more numerous than farther south, and included many rarities.

I am indebted for a number of the species here enumerated, to the kindness of Mr. A. H. Kilman, who was one of our party, and who passed over to me any luckless Hemipter that perchance found lodgment in his indefatigable umbrella. To Mr. P. R. Uhler, I am under renewed obligations for the determination of some of the more difficult forms, especially in the Capsidæ.

#### HETEROPTERA.

##### *Scutelleridæ.*

*Homæmus ænifrons* Say. Occasional on sedges and weeds on the lowlands.  
*Eurygaster alternatus* Say. Abundant with the last.

##### *Corimelænidæ.*

*Corimelæna atra* Am. and Serv. One nymph taken.  
*Corimelæna pulicaria* Germ. A single example.

##### *Pentatomidæ.*

*Podisus spinosus* Dall. Taken here as elsewhere on trees and bushes, but more rarely than the next.  
*Podisus modestus* Dall.  
*Neottiglossa undata* Say. Common.  
*Cosmopepla carnifex* Fab.  
*Mormidea lugens* Fab. One example.  
*Euchistus fissilis* Uhl.  
*Euchistus tristigmus* Say. Occasional.  
*Banasa calva* Say. Abundant on the arbor-vitæ.

##### *Coreidæ.*

*Alydus curinus* Say. Frequent on flowers of the Canada thistle in old fields.  
*Protenor Bulfragei* Hagl. = *Tetrarhinus Quebecensis* Prov. One nymph swept from weeds.

##### *Berytidæ.*

*Neides muticus* Say. Common.  
*Corizus punctiventris* Dall. Larger and darker coloured than examples from Buffalo.  
*Corizus nigristernum* Sign. Less abundant than the preceeding. At Buffalo it is the common form.

*Lygæide.*

- Nysius grœnlandicus* Zett. Scarce.  
*Cymus luridus* Stål. Three examples, swept from a low swampy spot by the roadside, near South Falls.  
*Cymus angustatus* Stål. Not common.  
*Cymus clavicularis* Hahn. Abundant everywhere on the lowlands.  
*Blissus leucopterus*, Say. One brachypterous example, swept from the borders of an oat field on Muskoka river, near the lake.  
*Geocoris borealis* Dall. Taken with the preceding. This appears to be but a dark variety of *G. bullatus* Say.  
*Ligyrocoris sylvestris* Linn. Very abundant in the cultivated districts.  
*Peliopelta abbreviata* Uhl. One small, short-winged example captured.

*Capsidæ.*

- Brachytropis calcarata* Fall.  
*Trigonotylus ruficornis* Fall.  
*Miris affinis* Reut.  
*Collaria Meilleurii* Prov. These four species were not uncommon where cultivation had prepared the way for them. The latter was just coming to perfection.  
*Hadromena pulverulenta* Uhl. (MS.) Two examples.  
*Dionmmatus congrex*. Uhl. Rare.  
*Phytocoris eximus*. Reut. Occasional.  
*Phytocoris pallidicornis* Reut. Abundant, and of large size.  
*Phytocoris colon*. Say. One example.  
*Neurocolpus nubilus* Say. Common, and as a rule, deeply coloured.  
*Calocoris rapidus* Say. A single specimen.  
*Melinna modesta* Uhl. Beaten from pine trees.  
*Lygus pabulinus* Linn.  
*Lygus pratensis* Linn.  
*Lygus flavonotatus* Prov. A few taken.  
*Lygus inoitus* Say. Common.  
*Lygus intersectus* Uhl. (MS.) Abundant.  
*Coccobaphes sanguinariis* Uhl. Not uncommon on maple and beech trees, especially near South Falls.  
*Pœciloscytus unifasciatus* Fab. Numbers taken on the cultivated uplands south of Bracebridge, and elsewhere.  
*Pœcilocapsus lineatus* Fab. Rare.

- Largidea opaca* Uhl. (MS.) Smaller and slighter than New York examples.
- Camptobrochis grandis* Uhl. Common. Apparently of nocturnal habits, as I took several flying around the candle at our camp; some of these individuals were extremely dark, even approaching an almost uniform piceous black; others were as pale as those taken near Buffalo.
- Neoborus Petitii* Uhl. (MS.) Several pale examples.
- Fulvius anthocoroides* Uhl. One example.
- Monalocoris filicis* Linn. Common everywhere on ferns.
- Hyaliodes vitripennis* Say. This neat little species was taken frequently on pines, and occasionally on other trees and bushes.
- Pilophorus amœnus* Uhl. Common on pine trees.
- Globiceps flavomaculatus* Fab. One example taken. This species was erroneously cited as occurring at Buffalo, in my list of Capsidæ from that locality (CAN. ENT., xix., p. 72. 1887). The insect there referred to was the next, which superficially resembles the *flavomaculatus*.
- Mimoceps gracilis* Uhl. (MS.) A few swept from grass and weeds near a rivulet among the hills.
- Mecomma gilvipes* Uhl. (MS.) Three examples taken with the preceding.
- Macrolophus seperatus* Uhl. Three examples.
- Stiphrosoma stygica* Say. Scattering.
- Labops hesperia* Uhl. A few brachypterous examples swept from an oat field on the flats near the mouth of the river.
- Idolocoris agilis* Uhl. Common on the lowlands.
- Orthotylus alternatus* Uhl. Common on bushes, especially the hazelnut.
- Macrotylus guttatus* Uhl. (MS.) One example of this elegant little Capsid was swept from briars growing on a rocky hillside near the river.
- Rhinocapsus Vanduzeei* Uhl. (MS.) Not uncommon among rank weeds in damp situations.
- Psallus variabilis* Fall. A single example.
- Psallus antennatus* Uhl. (MS.) Several taken.
- Plagiognathus obscurus* Uhl.

*Agalliaestes associatus* Uhl. One example of the typical form occurred to me while sweeping near South Falls.

*Anthocoridae.*

*Dolichomerus elongatus* Reut.

*Dilasia fuscata* Reut. Two examples taken from a log of hard maple; they occurred under loose bark where there was a slight fungoid growth.

*Triphleps insidiosus* Say. Common.

*Anthocoris musculus* Say.

*Tingitidae.*

*Galeatus Peckhami* Ashm. (*Sph. erocysta Peckhami*, Ent. Am., vol. iii., p. 156). Swept from low weeds—probably a dwarf vaccinium or a species of aralia, which were growing together—among pines on a rocky island. I am indebted to Mr. Uhler for this generic reference. The three examples taken agree in every respect with Mr. Ashmead's description, and I think there can be no doubt of their identity.

*Corythuca arquata* Say. (?). The small form, which is probably a distinct species, occurred abundantly on birches everywhere. I have taken it from osier bushes at Machias, N. Y., also at Pine Swamp, near New Haven, Ct. If distinct it would seem to be the northern analogue of *C. arquata*.

*Corythuca marmorata* Uhl. One example.

*Aradidae.*

*Aradus quadrilineatus* Say.

*Aradus rectus* Say.

*Reduvioidea.*

*Coriscus subcoleoptratus* Kirby.

*Coriscus inscriptus* Kirby. Common.

*Coriscus ferus* Linn.

*Sinea diadema* Fab. Scarce.

*Opsicætus personatus* Linn. Bracebridge. One example.

*Hydrobatidae.*

*Hygrotrechus remigis* Say.

*Limnotrechus marginatus* Say. Abundant in favorable localities.

*Limnoporus rufoscutellatus* Latr. One example.

*Metrobates hesperius* Uhl. Muskoka Lake. On pleasant afternoons, when the surface of the water was smooth, these insects would congregate in immense numbers, closely covering an area of several yards in extent. A breeze, sufficient to slightly ruffle the surface, would quickly disperse them, but whither I failed to discover, as I was unable to detect any along the shore. The majority of the specimens taken were immature; they differ from the adult in having five, pale yellow spots in addition to the pronotal—one on the centre of the metanotum, one above each anterior, and another before each posterior coxa.

*Salididae.*

*Salda interstitialis* Say. Common along the shores of the river and lake.

HOMOPTERA.

*Cicadidae.*

*Cicada canicularis* Harris. The familiar shrilling of this species was frequently heard in the heat of the day among the tree tops.

*Membracidae.*

*Enchenopa binotata* Say. Apparently rare.

*Ceresa bubalus* Fab. Common, but mostly of the small dark coloured variety, with blunt thoracic horns.

*Ceresa diceros* Say. Occasional.

*Telamona coryli* Fitch. Abundant on the hazelnut. The females are frequently of an almost uniform brownish-ferrugineous, with but slight indications of the pale bands, thus approaching closely the next, from which it probably is not distinct.

*Telamona tristis* Fitch. Common with the preceding.

*Telamona fagi* Fitch. One example.

*Telamona redivata* Fitch. Three examples. Variable both in colour and form of the crest; this being sometimes sharply angled behind, or again obtusely rounded; and the posterior edge may be either sloping or almost vertical. The present examples are very dark in colour, the pale areas being much obscured by fuscous punctures.

*Carynota marmorata* Say. Numbers taken from a small poplar bush (probably *P. grandidentata*), on the uplands south of Bracebridge.

My examples correspond with Say's short description, except that the tip of the thorax extends to, and in some cases beyond, the apical areole. According to the characters given by Say, it must belong here and not to *Cyrtosia*, where it is placed by Dr. Fitch.

*Smilia camelus* Fab. Two examples beaten from oaks.

*Cyrtosia vau* Say. Not infrequent on trees.

#### FULGORIDÆ.

##### Sub-family *Cixiide*.

*Cixius stigmatus* Say. Not common.

*Cixius pini* Fitch. Occasional on various low bushes; rarely on pine. Near Buffalo I have taken it only on vaccinium.

*Oliarus quinquelineatus* Say. More abundant than the preceding forms.

##### Sub-family *Delphacide*.

This family was well represented, but I have not studied the material taken.

##### Sub-family *Achelide*.

Two undetermined species of this family occurred in single examples.

##### Sub-family *Derbide*.

*Otiocerus Coquerbertii* Kirby. Not uncommon on maple and beech trees.

*Otiocerus Degeerii* Kirby. Beaten from oak and beech trees. Another small and probably undescribed form occurred, which I had the misfortune to lose while in the field.

*Anotia* sp. One example taken among bushes on the bank of the river at Bracebridge. It is, perhaps, a variety of *Bonneti* Kirby.

*Lamenia vulgaris* Fitch. Abundant and of large size.

##### Sub-family *Isside*.

*Bruchomorpha ocalata* Newm. Abundant in damp grassy localities, especially on the lowlands. One example has the elytra fully developed. They are long and narrow, somewhat surpassing the

abdomen in length; sides parallel, not widened at tip; of a deep smoky-brown colour, almost opaque. Nerves very strong and simple, the radial and two ulnar nerves run straight and undivided to the transverse nerve, which crosses the elytra a little beyond the tip of the clavus, forming three large cells on the base of the corium; the second ulnar is forked at the transverse nerve, the first ulnar is twice forked beyond the transverse, and between this and the radial is a short nerve from the transverse to the costa; these forming seven apical cells, of which the medial is small and triangular, and the next inner the largest and rectangular; the claval nerves unite beyond the middle, the resulting nerve joining the claval suture just before its apex.

*Peltonotus histrionicus* Stal. One example. Occurs also at Buffalo.

*Cercopidae.*

*Lepyronia quadrangularis* Say. Rare.

*Aphrophora quadrinotata* Say. Very abundant on the lowlands, but mostly immature; the imagines were just beginning to appear.

*Aphrophora parallella* Say. Common on pines.

*Aphrophora saratogensis* Fitch. Rather more abundant than the preceding, with which it occurred and which it greatly resembles; it is, however, readily distinguished by the more obtuse head, clearer markings, and concolorous punctures.

*Clastoptera obtusa* Say. Very common on the blueberry.

*Clastoptera proteus* Fitch. With the last.

*Bythoscopidae.*

*Idiocerus pallidus* Fitch. Abundant on willows, birches, etc.

*Idiocerus suturalis* Fitch. On low poplar bushes near the river; even more abundant than the preceding.

*Idiocerus lachrymalis* Fitch. Numbers of this, our largest species, occurred on birch and other trees.

*Idiocerus alternatus* Fitch. Scarce. It is with slight misgivings that I place this insect here, although I believe future study will justify the reference.

*Agallia novellus* Say. As abundant at Muskoka as in New York; on grass and weeds.



*Agallia flaccida* Uhl. But few of this common species were seen at Muskoka.

*Agallia siccifolia* Uhl. Not uncommon in dry pastures.

*Pediopsis viridis* Fitch. Apparently rare.

*Pediopsis variabilis* Fitch. Examples occurred of varieties *A.* and *C.* of Fitch, and a single specimen of a uniform ferrugineous, with pale yellow elytra crossed from the shoulder to the apex by a broad ferrugineous band.

*Pediopsis minor* Fitch. Two examples.

*Pediopsis fenestratus* Fitch. A common species on birch trees.

#### *Tettigonide.*

*Oncometopia costalis* Fab. Very abundant among coarse weeds and grass, particularly near South Falls, where the pretty striped nymphs occurred with the newly developed imagines.

*Diedrocephala coccinea* Forst. Not uncommon on blackberry bushes.

*Diedrocephala mollipes* Say. Common.

*Diedrocephala novæboracensis* Fitch.

*Helochara communis* Fitch. Common.

*Euacanthus orbitalis* Fitch. A few examples taken.

*Gypona 8-lineata* Say. The form named *flavilineata* by Dr. Fitch occurred abundantly on various trees and bushes. I place this variety with *8-lineata* Say, as it seems impossible, on a superficial examination, to find any constant characters for separating the two forms, although they have every appearance of being distinct species. Some of the examples taken exhibit no indications of the yellow lines on the head, pronotum and scutellum, while all are extremely variable in the elytral venation. A careful study of our northern species of *Gypona* is needed.

#### *Jasside.*

*Acocephalus vitellinus* Fitch. One example.

*Grypotes unicolor* Fitch. Not uncommon.

*Cicadula (Macrosteles) quadrilineata* Forbes. A few examples of this common species occurred on cultivated lands, Near Buffalo it is

quite variable, some individuals corresponding very closely with Mr. Uhler's description of *Jassus divisus*, with which this may prove identical.

*Thamnotettix eburata* n. sp. Form and aspect of *clitellaria* Say, to which it is closely related. Above brown with a large white discal spot, beneath white; venter marked with black and yellow ♂, or whitish ♀. Vertex pale yellow, whitish on the base, slightly suffused with ferrugineous on each side near the eye; a central impressed line extending about half way to the apex. Face whitish, slightly tinged with yellow. Antennæ white, setæ brown. Pronotum and scutellum dark ferrugineous or fuscous, the latter paler with a transverse impressed black line before the apex, behind which the edges are narrowly yellow, and slightly calloused. Hemielytra;—Clavus fuscous, the common disc with a large, obtusely cordate, ivory white spot which is slightly suffused with yellow; behind this spot is a dark area. Costal half of the corium milky white, almost opalescent, tip broadly fuscous; discal half brownish ferrugineous, paler posteriorly, and shading to fuscous along its junction with the white costal area. Beneath and legs white, immaculate; small spines at tip of the tibiæ and tarsal joints slightly embrowned; claws black. Venter black, posterior edge and disc of the segments yellow; the latter with a central black line, represented by dots on the three basal segments; convexum yellow; tergum black. Wings milky hyaline, veins faintly brownish. The female differs from the male in being somewhat paler, in having the discal spot of the elytra more yellowish, and the abdomen pale yellow or whitish. In the venation of the elytra and other structural features this species agrees very closely with *clitellaria*. The ♂ has the last ventral segment slightly concave posteriorly; valves obtusely triangular, black; plates white, sparsely covered with long concolorous hairs. The ♀ has the last ventral segment black, with the lateral margins pale; as in *clitellaria* it is deeply incised each side of the middle, leaving a central tongue, which is minutely emarginate at tip; pygofers pale, suffused with brown toward the central groove, and fringed with long pale hairs. Length, ♂ 5 mm.; ♀ 5½–6 mm. A male was swept from grass near a rivulet at Bracebridge; also taken in the vicinity of South Falls.

*Athasanus striola* Fall. Occurred abundantly near South Falls, on a low meadow overgrown with swamp grasses ; here they were of large size, measuring in some cases 6 mm. to tip of the elytra ; elsewhere, scattering and of normal size.

*Allygus irroratus* Say. Taken in moderate numbers. Both the normal form and the large variety, with the vertex produced and flattened, occurred together here as elsewhere ; the variety predominating in moist situations.

*Jassus immistus* Say. Common among low bushes and briars. This pretty insect seems to be congeneric with a form occurring near Buffalo, of which I have seen specimens in the National Museum labelled *Scophoideus jucundus* Uhl. A third and undescribed species occurred to me at Muskoka.

*Platymetopius acutus* Say. Moderately abundant.

*Deltocephalus debilis* Uhl. Rare. Occurs also at Buffalo.

*Deltocephalus configuratus* Uhl. Abundant here as elsewhere.

*Deltocephalus sayi*. Fitch. Scarce.

*Deltocephalus inimicus* Say. Very common on cultivated lands.

#### *Typhlocybidæ.*

Several species of these minute insects occurred ; but as the North American species have been but little studied they are omitted from the present list.

#### *Psyllidæ.*

*Psylla carpini* Fitch. Abundant on the blue beech.

#### *Aphididæ.*

Want of time precluded any attempt at collecting the *Aphididæ* and *Coccidæ*.

In addition to the 141 species here enumerated a number of doubtful forms were taken, belonging mostly to the Homoptera ; giving a total of something over 150 species as the fruits of ten days collecting.