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REMARKS ON THE HEMIPTEROUS FAUNA OF
OHIO WITH A PRELIMINARY RECORD
OF SPECIES.

HERBERT OSBORN, OHIO STATE UNIVESITY.

If there is any need of an apology for the study of a local fauna it would seem to be sufficient to call to mind the numerous problems in geographical distribution, life zones and dispersal which are presented by every group of animals and for the solution of which complete records of local faunae become indispensable. At first sight it may seem less essential to secure such records for the different parts of a large area having primarily one faunal zone but the facts reveal that in many cases the distribution of particular species presents peculiar limitations, and the recognition of these is essential in any consideration of more general groups. While the study of remote and exceptional localities may give more striking and immediate returns an extended and systematic study of particular groups must be the basis for final conclusions regarding many of the more obscure laws. Such a study as has been made of the *Odonata* in this state by the lamented Prof. Kellicott is a good example of what is needed in other groups.

The present paper is admittedly incomplete, in fact, is presented simply as a preliminary to the study of this fauna which it is expected to pursue and its purpose is to interest, if possible, collectors in different parts of the state, without whose assistance the work must necessarily be very slow. We may safely assume that the fauna of the state will present some marked differences if we compare the area bordering the lake

shore, the elevated south eastern part and the southwestern valley portion and it is particularly desirable to accumulate material from these different areas. It is hoped that we may be able to give a careful survey to these areas as well as the central part of the state within the next few years but collections from any parties especially in these areas will be most thankfully received.

But little labor is necessary in the collecting or preparation for sending. The greater number are easily caught in a sweep-net from grass and low herbage; and the bush and tree inhabiting species by beating over an umbrella. As soon as killed in the cyanide bottle they may be packed in pill boxes between sheets of tissue paper and then they are ready for transmission by mail or for indefinite preservation—the work of sorting, separating species and mounting being done at any convenient time. Date of capture and the food plant if possible of determination should accompany each lot as these add immeasurably to the value of the collection.

Aside from the few months work which has been possible to me, the University collections contain a number of species collected by Mr. Hine and these furnish the basis for the preliminary record here presented.* Aside from records made by Prof. C. M. Weed of *Aphididæ* and of various injurious species by Prof. Webster scarcely any records occur in literature, the only one of Say's species which can be counted as referred to the state being one which is given for "near Lake Erie and in Indiana."

The list as it stands however may serve to show the general nature of the fauna and as a basis for future additions. The number will certainly be largely increased by another season's collection.

*As the printing of this paper was deferred from last Annual Report it has been possible to add a number of records made during the season of 1899.

HOMOPTERA.

CICADIDAE.

Cicada tibicen Linn. Columbus. Common, widely distributed.

Cicada pruinosa Say. Columbus.

Tibicen septem decem, L. "Seventeen year cicada". Represented by different broods in various parts of the state.

Tibicen rimosa, Say (?) Probably one of the varieties of this species.

MEMBRACIDAE.

Entilia sinuata, Fab. Columbus. Usually rare. Occurs on wild sunflowers and other weeds.

Publilia concava, Say. Columbus. Hanging Rock. Often abundant. Occurs in colonies on *Helianthus* and other compositae.

Ceresa diceros, Say. Columbus, Sandusky, Castalia, abundant on various plants, especially in woods.

Ceresa hubalus, Fab. Columbus, Castalia, Sandusky. Widely distributed, abundant. Often injurious to orchard trees.

Ceresa basalis Walk. (?) Medina. Fairly common in northern U. S.

Thelia bimaculata Fab. Columbus. Common on Black Locust.

Thelia uhleri, Stal. No locality. Not rare in various parts of northern U. S.

Thelia crataegi Fitch. Columbus. Usually rather rare. Occurs on thorn.

Contributions from the Department of Zoology and Entomology Ohio State University, No. 2.

Thelia turriculata Emmons. "Ohio" (Kellicott vide Goding).

Thelia univittata Harr. Sandusky.

- Thelia godingi* VanD. Wauseon (Hine), Van Dugee.
Credit it to black cherry and scrub-oak.
- Telamona reclivata* Fitch. Wauseon. Food plant
basswood.
- Telamona monticola* Fab. Sandusky, Georgesville,
Fairly common.
- Telamona ampelopsidis* Harr. Columbus (?) Usually
common on *ampelopsis*.
- Telamona concava* Fitch. Columbus.
- Telamona fasciata* Fitch. Columbus. Common.
- Telamona spreta* Godg. Reported by Prof. Webster
as occurring on *Ampelopsis quinquefolia* at
Wooster.
- Heliria strombergi* Godg. Jeffersonville.
- Archasia beltragei* Stal. Wauseon. Usually rare on
Oak.
- Similia camelus* Fab. Columbus. Sometimes occurs
in abundance.
- Acutalis calva* Say. Columbus, Abundant.
- Cyrtolobus fenestratus* Fitch. Columbus. Rare.
- Cyrtolobus vau* Say. Columbus, Wauseon. On Oaks.
- Cyrtolobus trilineatus* Say. Columbus.
- Atymna castaneae* Th. Ashtabula, On Chestnut.
- Atymna querci* Fitch. Sandusky, Newark, Columbus.
Abundant on oaks and may sometimes be
found in large numbers on grass or other plants
beneath oak trees.
- Ophiderma salamandra* Fairm. Columbus. Usually
rather rare. Hanging Rock, 5, 29, '99.
- Vanduzea arquata* Say. Columbus. Abundant on
Black Locust.
- Carynota mera* Say. Columbus. A common species
of wide range in U. S. On Hickory.
- Enchenopa binotata* Fab. Columbus, Georgesville.
Common on thistles and other weeds.
- Campylenchia curvata* Fab. Columbus, Castalia.
Abundant over large part of U. S. Feeds as

larva on clover and probably many other plants.

Microcentrus caryae Fitch. Common on hickory. Northern U. S. Adults in August.

FULGORIDAE.

Scalops sulcipes Say. Castalia. Ranges over U. S. east of Rocky Mountains. On grassy lowland.

Ormenis pruinosa Say. Columbus. Common to large area in U. S. On orchard trees and various shrubs.

Ormenis septentrionalis Fab. Medina, Georgesville, Columbus, Wauseon. Common, especially southern U. S.

Amphiscepa bivittata Say. Medina, Castalia. Common. Occurs on low herbage, wider, distributed in U. S.

Helicoptera sp. (*nova* Say or near) Medina. Common.

Bruchomorpha dorsata Fitch. Wauseon. Seldom plentiful but generally distributed.

Bruchomorpha oculata Newm. Columbus. Rather rare in grassy lowland.

Otiocerus degeeri Wauseon. Not abundant. Occurs on forest trees.

Otiocerus amyotii Rocky Fork. Rather common in forest or on hickory or other trees.

Otiocerus stolli Wauseon. Fairly plentiful. Occurs from Atlantic west to Iowa at least.

Lamenia vulgaris Fitch. Wauseon. Very common in eastern U. S., west to Missouri River. Feeds on willow, thorn, beech, etc.

Stenocranus dorsalis Fitch. Columbus. Abundant in grassy lowland.

Stenocranus lautus VanD. Sandusky, Columbus, Rocky Fork, Georgesville. Common.

Stobera tricarinata Say. Common, widely distributed in U. S.

Liburnia puella VanD. Georgesville, Columbus, Rocky Fork, Sandusky. Common.

Pissonotus ater VanD. Columbus. On water willow in October. (Hine.)

CERCOPIDAE.

Lepyronia quadrangularis Say. Rocky Fork. Very common over large part of U. S. from Atlantic to Rocky Mountains, on low herbage.

Aphrophora paralella Say. Columbus (?) Common, eastern U. S. west to Ill. and Ark.

Aphrophora quadrinotata Say. Medina, Ashtabula. Common. Atlantic west to Rocky Mountains.

Clastoptera obtusa Say. Georgesville, Columbus. Abundant on willow.

Clastoptera proteus Fitch. (Loc. ?) A common species over larger part of U. S. and like preceding species represented by many varieties.

BYTHOSCOPIDAE.

Macropsis apicalis O. and B. Columbus. Hanging Rock. On honey locust. Usually very abundant where this plant occurs.

Bythoscopus distinctus VanD. Columbus, Ashtabula. Common.

Bythoscopus variabilis Fh. On *Hamamelis*. Ashtabula July 19 '99 (R. C. Osburn).

Agallia sanguinolenta Prov. Columbus. Abundant everywhere.

Agallia quadrinotata Prov. Columbus (Nymphs). A common species eastern U. S.

Agallia constricta VanD. Wooster. Usually common south.

Agallia novella Say. Columbus. Nymphs. Common eastern U. S.

Pediopsis gleditschiae O. and B. Hanging Rock. Columbus. Abundant on Honey Locust.

- Pediopsis viridis* Fh. Ironton. Columbus. An abundant species on willows.
- Idiocerus suturalis* Fitch. Wauseon.
- Idiocerus snowi* G. and B. Sandusky, Columbus. Common on willows.
- Idiocerus alternatus* Fitch. Columbus.
- Idiocerus verticis* Say. Columbus.

TETTIGONIDAE.

- Aulacizes guttata* Sign. Georgesville, Columbus. A southern species reaches its northern limit probably in central Ohio.
- Tettigonia bifida* Say. Medina, Castalia. Common.
- Tettigonia hieroglyphica* Say. Widely distributed.
- Tettigonia tripunctata* Fitch. Columbus, Rocky Fork, Ashtabula.
- Tettigonia similis* Wdw. Wooster. Common over eastern U. S., Maine to Iowa.
- Diedrocephala versuta* Say. Georgesville, Ironton. A common southern species. Not recorded for Columbus or farther north in the state.
- Diedrocephala coccinea* Forst. Columbus. Common over U. S.
- Diedrocephala mollipes* Say. Columbus, Georgesville, Castalia (H. O.) Wooster in matted grass (C. W. M.) Abundant everywhere in U. S. and probably ranges over most of North America. Injurious to grass.
- Diedrocephala angulifera* Walk. Sandusky. In coarse grasses of lowland.
- Helochara communis* Fitch. Columbus, Georgesville. Abundant from Atlantic to Pacific Ocean.
- Gypona octolineata* Say. Columbus, Georgesville. Abundant on great variety of plants.
- Gypona rugosa* Spang. Wauseon. Rare. Probably southern in distribution.
- Gypona bimaculata* Wdw. Castalia. Common in low land.

Gypona melanota Spang. Castalia. Rare. Occurs to east and west.

Gypona scarlatina Fh. Castalia. Common in low land.

Penthimia americana Fh. Sandusky, Wauseon. Common over large area in U. S.

JASSIDAE.

Acocephalus albifrons Linn. Kelley Island, Lake Erie, Castalia, Ashtabula. Usually rather rare, Maine to Indiana and Michigan.

Xestocephalus pulicarius Van D. Columbus. A plentiful little species. Atlantic to plains.

Parabolocratus viridis, Uhl. Castalia, Columbus. Common.

Platymetopius acutus, Say. Rocky Fork, Ironton, Waterloo. Common Maine to Rocky Mts.

Platymetopius frontalis Van D. Columbus, Castalia. Less common than preceding.

Deltocephalus sayi, Fitch. Columbus, Rocky Fork. Common in grassy woods.

Deltocephalus weedi Van D. Columbus, Rocky Fork. Abundant in Southern States, occurs north to central Iowa, and Ohio, in grass.

Deltocephalus nigrifrons, Forbes. Columbus, Rocky Fork. Exceedingly abundant over large part of the United States.

Deltocephalus inimicus, Say. Columbus. Abundant everywhere in blue grass, etc.

Deltocephalus flavicosta, Stal. Columbus. Rather rare, occurs southward probably to southern South America.

Deltocephalus sylvestris O. & B. Columbus. In grassy timber land.

Athysanus curtisii, Fitch. Columbus, Rocky Fork. Abundant in grasses.

Eutettix lurida Van D. Rather rare.

- Eutettix seminudus*, Say. Columbus, Ironton.
Common.
- Eutettix cincta* O. & B. Wooster. Rather common west to Iowa.
- Eutettix strobi* Fitch. Columbus. Common. Atlantic to plains. Larae occur on *Chenopodium* causing purple spots on leaves which they mimic in color.
- Phlepsius humidus* Van D. Georgesville. In low, moist places along river beds.
- Phlepsius irroratus* Say. Columbus. Abundant and very widely distributed in United States.
- Scaphoideus immistus* Say. Columbus. Common.
- Scaphoideus auronitens* Prov. Columbus. One specimen.
- Scaphoideus scalaris* Van D. Columbus one specimen.
- Scaphoideus intricatus* Uhl. Rare. One specimen Columbus.
- Thamnotettix clitellarius* Say. Columbus. Common. Often observed on orchard trees.
- Thamnotettix longula* G. and B. Columbus. Common.
- Thamnotettix melanogaster* Prov. Columbus. Abundant in lowlands, probably feeds on sedges.
- Thamnotettix fitchii* VanD. Columbus. Common in low land.
- Limotettix striola* Fall. Columbus, Georgesville. Common.
- Limotettix exitiosa* Uhl. Columbus. Often abundant. Sometimes destructive in fall wheat and grass land.
- Chlorotettix galbunata* VanD. Georgesville, Common.
- Chlorotettix unicolor* Fh. Ashtabula.
- Chlorotettix tergatus* Fh. Wooster, Ashtabula.
- Jasius olitorius* Say. Columbus. Common.
- Gnathodus punctatus* Thunbg. Columbus. Common.
- Gnathodus impictus* VanD. Columbus. Rather rare.
- Cicadula 6-notata* Fall. Columbus. Abundant.
- Cicadula variata* Fall. Columbus.

Cicadula punctifrons Fall. var *americana* VanD.
Columbus. Sandusky. Ironton. On shrubby
willow.

Alebra albostriella Fall. Columbus.

Dicraneura fieberi Mel. Columbus.

Dicraneura abnormis Columbus.

Empoasca sp.

Empoasca mali LeB. Columbus. Abundant on apple
and many other plants.

Typhlocyba comes vitis Harr. Columbus. Abundant
on grape everywhere.

Typhlocyba comes basilaris Say. Columbus.
Common on grape.

Typhlocyba comes comes Say. Columbus. Common.

Typhlocyba comes maculata Gill. On sycamore.
Columbus.

Typhlocyba vulnerata Say. Columbus. Abundant.

Typhlocyba querci Fitch. Wauseon.

Typhlocyba querci var *bifasciata*. Columbus.
Wauseon. Common.

Typhlocyba hartii Gill. Columbus. Rare.

Typhlocyba obliqua Say. Columbus. Common.

Typhlocyba rosae Harr. Columbus, (Weed) Common.

Typhlocyba trifasciata Say. Columbus. Common.

PSYLLIDAE.

Pachypsylla celtidis-mammae Very abundant on Hack-
berry. Columbus, Sandusky.

Pachypsylla celetidis gemma Wooster, 10-2-'98.
(C. W. M.)

APHIDIDAE.

Siphonophora circumplex. Wooster, 3-16-'97. (C.
W. M.) From Easter lilies in greenhouse.

Siphonophora avenae. Wooster, O, 5-26-'98. (F. M.
W.) Winged males and young in heads of rye.
Givens, 6-5-'98. (S. A. Powell.) On wheat
heads in great numbers.

- Siphonophora rudbeckiae* Fitch. Columbus. (weed.) A common species on Rudbeckia.
- Aphis brassicae* Linn. Common cabbage plant-louse. Everywhere common.
- Aphis mali*. Common apple plant-louse.
- Aphis gossypii*. "Cucumber plant-louse." Often very abundant and destructive. Lawrence Co., 9-28-'98. Destructive to strawberries on several premises. Bradrick 11-17-'98. On strawberry plants. (Webster.)
- Myzus cerasii* L. Columbus, (Weed.) On cherry Often very plentiful.
- Myzus ribis* L. Columbus. (Weed)
- Myzus persicae*. Common. "Peach Aphis."
- Myzus persicae niger* Sm. 8-22-'98. Waterville. Seriously abundant on roots of peach trees. (Webster.)
- Lachnus strobi* Fitch. Columbus, (Weed.)
- Lachnus dentatus* LeB. Columbus, (Weed.)
- Lachnus pini* L. Columbus, (Weed.)
- Malanoxanthus salicti* Harr. Columbus, (Weed.)
- Malanoxanthus salicis* Linn. Columbus, (Weed.)
- Schizoneura imbricator* Fitch. Common Beech blight.
- Schizoneura lanigera* Haussem. Common Apple root louse. Lakewood, 8-12-'96. On trunks of apple, especially injured parts. (C. W. M.) Ravenna, (F. M. W.) Wooster (C. W. M.)
- Schizoneura americana* Elm leaf gall-louse.
- Schizoneura tessellata* Fitch. Zanesville, 11-5-'96. Infesting "English Alder" (Webster.)
- Pemphigus smilacinus* O. and S. On smilax, Rocky Fork.
- Pemphigus vagabundus* Fh Vagabond gall. Columbus, Sandusky. Very plentiful at Cedar Point, summer of 1899.
- Colopha ulmicola*. Common Cocks comb gall on elm leaves.

Phylloxera vastatrix Planch. Grape Phylloxera. On hickory. Columbus.

ALEYRODIAE.

Aleyrodes sp. Very abundant, autumn of 1898, on Sycamore and other trees at Columbus.

Aleyrodes sp. Ada, 8-12-'96. Complained of as doing slight injury to strawberry (Webster.)

COCCIDAE.

Orthezia insignis Doug. Columbus in Greenhouse.

Orthezia americana? Georgesville. (Fullmer.)

Dactylopius citri Rossi. Mealy bug of greenhouse.

Dactylopius adonidum L. Wooster, 3-1-'98. [C. W. M.] On roots of plum and Carolina poplar in insectary. Wooster, 3-16-'98. On clover roots in insectary. [C. W. M.] Wooster, 1-19-1900. At present feeding on following plants in insectary, Canna, Barberry, Rose, Onion, Tobacco, Poplar [W. N.]

Lecanium hesperidum L. "Oleander scale."

Lecanium oleae Bern. Columbus.

Lecanium celtidis. Sandusky.

Lecanium nigrofasciatum Pergande, Cleveland, O. 12-24-'99. [F. M. W.] Thick on Norway maple.

Lecanium coffeae Walk. [Is the same as hemispherium.] Wooster, [W. N.] 1-1-1900. On *Pteris* sp. in greenhouse. Wooster, 9-7-'97. [F. M. W.] On chrysanthemum in insectary. Ashland, O. 3-10-'97.

Lecanium persicae Syracuse, 4-24-'96. Dresden 12-21-'96. (Webster.)

Lecanium armenicum Craw. Painesville, 2-5-'97. On spanish chestnut. (Webster.)

Pulvinaria acericola W. & R. Columbus.

Mytilaspis pomorum Bouche. Portage. East Cleveland. Very abundant on poplars, 7-29-'96. (C. W. M.)

- Mytilaspis citricola* Pack. On oranges in market.
- Parlatoria pergandei* Comst. Columbus.
- Chionaspis furfurus* Fitch. Westerville. Wooster on apple. 1-12-1900. (W. N.)
- Chionaspis pinifoliae* Fh. Columbus, Wooster on pines, austriaca. 1-19-1900. (Wooster.)
- Chionaspis biclavis* Comst. Columbus.
- Chionaspis corni* Cooly. Sandusky.
- Diaspis cacti* Comst. In greenhouse. Columbus.
- Diaspis rosae* Columbus. (Bogue.) Berlin Cross-roads, Jackson Co., 3-6-'97. Infesting raspberries. (Webster.) Wooster 12-7-'97, on raspberry. (C. W. M.)
- Diaspis bromeliae* Columbus. (Bogue.)
- Diaspis amygdali* Painesville. 8-16-'97. On flowering cherry received direct from Japan. (Webster.)
- Aspidiotus ancylus* Putnm. Columbus. Will, 5-18-'99. So abundant in spots in an Usage orange hedge as to kill the dwarfed tree. (C. W. M.)
- Aspidiotus forbesi* Johns. Columbus.
- Aspidiotus perniciosus* Comst. "San Jose Scale" Clinton Co., Catawba Id., etc, introduced. 39 localities recorded by Webster.
- Aspidiotus dichrospermi* Morgan. Columbus.
- Aspidiotus obscurus* Comst. Columbus. (Hine.) Catawba Island. 1-11-'97. (Owen.)
- Aspidiotus ficus* Ashm. Wooster. (Webster.) Columbus. In greenhouse.
- Aspidiotus nerii* L. Columbus. In greenhouse.

HETEROPTERA.

- Homaemus aeneifrons* Say. Ohio. Ordinarily rare.
- Eurygaster alternatus* Say. Ashtabula, July 19-'99, R. C. Osburn. Usually found on grasses in lowland.

CORIMELAENIDAE.

- Corimelaena atra* Am. et Sow. Columbus. Usually rather common.

Corimelaena lateralis Fab. Columbus. Common.
Corimelaena pulicaria.

CYDNIDAE.

Pangaeus bilineatus Say, No locality. Probably
 Columbus.

Canthophorus cinctus P. Beauv. Columbus. Not
 abundant.

PENTATOMIDAE.

Stiretrus anchorago Fab. No locality. Not common
 but widely distributed.

Perillus circumcinctus Stal. No locality.

Podisus cynicus Say. Georgesville. Not abundant.

Podisus spinosus Dallas. Columbus. Very common
 over most of U. S. Wooster. In breeding cage
 fed on aphid brassicae. Attacked and killed
 adult, *murgantia histrionica*. Adults and
 larvae destroying larvae of *Lina scripta*. On
 Carolina poplar feeding on larvae of *Ichthyura*
inclusa. (Webster.)

Brochymena arborea Say. No locality. Common to
 eastern U. S. generally.

Brochymena annulata Fab. Columbus. Common U.
 S. generally. Gypsum hibernating in grape
 leaves. (Webster.)

Neottiglossa undata Say. Columbus, Georgesville,
 Castalia.

Cosmopepla carnifex Fab. Columbus. Ashtabula
 July 19-'99. (R. C. Osburn.)

Mormidea lugens Oliv. "Ohio." Said to occur on
 mullein.

Euschistus fissilis Uhl. No locality, probably
 Columbus.

Euschistus tristigmus Say. Georgesville, Columbus.

Euschistus variolarius P. Beauv. Columbus, Castalia
 (H. O.) Ashtabula. (R. C. Osburn.)

Fidelity. (Webster.) Larvae observed de-

stroying larvae of unicorn prominent.
(Webster.)

Hymenarcys aequalis Say. Columbus, Georgesville.

Hymenarcis nervosus Say. Castalia.

Meneclis insertus Say. Georgesville. Usually rare.

Trichopepta semivittata Say. Ashtabula July 19-'99.
(R. C. Osburn.)

Peribalus limbolarius Stal. Georgesville, Columbus.
Abundant in autumn on Golden Rod and other
compositae.

Thyanta custator Fab. Columbus. Abundant es-
pecially westward.

Murgantia histrionica Hahn. Cincinnati, Columbus,
Wooster. Southern, has extended distribution
northward but seems to have reached its limit.

Nezara hilaris Say. Columbus, Common over wide
area.

Nezara pennsylvanica Fab. One specimen. Columbus.
Rare.

Banasa calva Say. Columbus. Not common. Occurs
west to Rocky Mts.

COREIDAE.

Chariesterus antennator Fab. Columbus.

Corynocoris distinctus Dall, Ashtabula, July 19-'99.
(R. C. Osburn.)

Archimerus calcarator Fab. Three specimens. No
locality. Probably Columbus. Common to
United States generally.

Euthoctha galeator Fab. Wauseon. Common over
U. S.

Metapodius terminalis Dall. Georgesville.

Leptoglossus oppositus Say. Columbus. (Snyder.)

Anasa tristis D. G. Columbus, Wooster. The common
"Squash bug."

Alydus conspersus Mont. Columbus, Castalia.

Alydus eurinus Say. Columbus, Castalia.

Alydus pluto Uhl. (?) Rocky Fork. Described from

Colorado but occurs in Dakota and Iowa, no record further east.

Protenor belfragei Stal. Columbus, Sandusky. Frequents low land on rank grasses.

Harmostes reflexulus Say. Columbus. Common. Widely distributed in U. S. and Mexico.

Corizus lateralis Say. Wooster. Found among stems of *Malva rotundifolia*. (Webster. (C. W. M.)

Corizus nigristernum. Sign. Common U. S. generally.

Corizus novaeboracensis Sign.

Neides muticus Say. Sandusky, Medina.

Jalysus spinosus Say. Columbus.

LYGAEIDAE.

Nysius thymi Wolff.

Nysius angustatus Uhl. Wauseon. Reported in strawberries as "eating them to the ground."

Blissus leucopterus Columbus, Sandusky, etc. "Chinch bug."

Cymodema tabida Columbus.

Geocoris sp. Columbus.

Oedancala dorsalis Say. Hanging rock, Ironton.

Myodocha serripes Oliv. Columbus. More common southward. Flushing 6-15-'98. Abundant in a strawberry bed. (C. W. M.) Radnor, complained of as injuring strawberries.

Heraeus plebejus Stal. [?]

Pamera bilobata Say. Sandusky. Rare.

Pamera basalis. Dall. Columbus, Georgesville.

Eremocoris ferus Say. Akron.

Trapezonotus nebulosus Fall, Columbus. [C. W. M.]

Peliopelta abbreviata Uhl. Columbus, Wooster. In matted grass. Gypsum, hibernating in grape leaves. A common species east of plains.

Lygaeus turcicus Fab. "Ohio." Castalia, Sandusky. Common on Cedar Point on *asclepias*.

Oncopeltus fasciatus Dallas. Columbus.

CAPSIDAE.

Miris affinis Reut. Columbus.

- Leptoterna dolobrata* Linn. Wooster. Very abundant.
Collaria oculata Reut. Ashtabula.
Collaria meillearii Prov. Ashtabula.
Teratocoris discolor Uh. Wooster.
Calocoris rapidus Say. Columbus, Castalia.
Melinna fasciata Uhl. Wauseon.
Melinna modesta Uhl. Sandusky.
Lopidea media Say. Hanging Rock.
Lygus pratensis L. Sandusky, Columbus, Castalia.
 Common to Europe and America. Varying
 from temperate and tropical regions. Lowell-
 ville, abundant on leaves of celery. (Webster.)
Poecilocapsus lineatus Fab. Columbus. Granville.
Poecilocapsus goniphorus Say. One specimen. No
 locality. Probably Columbus.
Hyaliodes vitripennis Say. Wauseon.
Pilophorus bifasciatus Fab. Wauseon.
Halticus uhleri Giard. Stone-lick, 5-16-'99. (C. W. M.)
 Wooster.
Halticus bractatus Say. Lawrence Co., 9-28-'98.
 On strawberry in limited numbers. (Webster.)
 Wooster, Lakewood. Abundant on cucumbers
 in greenhouse. Wooster 1-1-'97 on rose in
 insectary. (C. W. M.)
Garganus fusiformis Say. Columbus, Rocky Fork.
Xenetus scutellatus Uhl. One specimen, Columbus,
 May 30-'99. Hanging Rock.

ACANTHIIDAE.

- Triphleps insidiosus* Say. Columbus.
Acanthia lectularia L. Columbus and elsewhere.

TINGITIDAE.

- Piesma cinerea* Say. Columbus. Common, has variety
 of food plants and ranges over an extended
 area.
Corythuca arcuata Say. Columbus. Common on
 Oak, Hawthorn, etc.

Corythuca ciliata, Say. Columbus. Abundant on Sycamore.

Gargaphia fasciata Columbus. Common on Linden.

ARADIDAE.

Aradus robustus Uhl. Columbus.

Neuroctenus simplex Uhler. Columbus. Abundant under bark of fallen trees.

PHYMATIDAE.

Phymata fasciata Gray. Columbus. Abundant. Ranges far to south and west.

NABIDAE.

Coriscus subcoleoptratus Kby. Wauseon.

Coriscus ferus Linn. Columbus, Wauseon, (Hine.) Wooster 3-30-'97. On corn growing in Insectary 10-26-'96. Feeding on plant lice in winter wheat. (C. W. M.)

Coriscus punctipes Reut. Columbus.

REDUVIIDAE.

Sinea diadema Fab. Columbus.

Acholla multispinosa DeGeer. Sandusky, Wauseon.

Milyas cinctus Fab. Columbus, observed clustering on trees in autumn of '98. Wooster 9-22-'99 (C. W. M.)

Diplodus luridus Stal. Gambier. More common southward.

Melanolestes picipes H. Schf. Georgesville. Common. Extends west to Ia. and plains. "Kissing bug."

Opsicoetus personatus L. Loc. (?)

Conorhinus sanguisugus Lec. Cincinnati, (Dury.) Common in southern states. This would seem to be about its northern limit.

Pnirontis infirma Stal. Columbus. A southern species. Rare in this latitude.

Pygolampis pectoralis Say. One specimen. No locality. Columbus [?] Fairly common in this latitude farther west.

Oncerotrachelus acuminatus Say. Columbus.
Common. A southern species. This is probably about its northern limit.

Emesa longipes De G. Columbus. Put in Bay.
Common. Occurs on various trees. Carnivorous remarkable for very slender body and legs.

LIMNOBATIDAE.

Limnobates lineata Say. Columbus. Widely distributed.

HYGROTRECHIDAE.

Hygrotrechus remigis Say. Columbus. Water strider.
Abundant over large part of U. S.

Limnotrechus marginatus Say. Columbus. Common and widely distributed.

VELIIDAE.

Stephania picta H. Schf. Columbus. Common on quiet water.

Rheumatobates rileyi U. Columbus. This very interesting little species I found quite plentiful at Big Run south of Columbus.

Hebrus americanus Uhl. Columbus. A minute species of wide range.

Rhagovelia obesa Uhl. Columbus.

SALDIDAE.

Salda ligata Say. Wauseon.

Salda interstitialis Say. Wauseon, Sandusky.

Salda humilis Say. Columbus, Sandusky, Johnsons, Id.
Abundant.

Salda orbiculata Uhl. Ironton, June, 1899. Wooster.

GALGULIDAE

Galgulus oculatus Fab. Sugar grove (Kellicott) a southern species.

BELOSTOMATIDAE.

Zaitha fluminea Say. Columbus. Abundant over eastern U. S.

Belostoma americana Leidy. Columbus. Abundant and widely distributed.

Benacus griseus Say. Columbus. Abundant and widely distributed.

NEPIDAE.

Nepa apiculata Uhl. Columbus.

Ranatra fusca Pal Beauv. Columbus.

Ranatra 4-dentata Stal. Columbus. Our most common form, ranges south and west.

NOTONECTIDAE.

Notonecta undulata Say. Wauseon. Abundant over large part of U. S. Columbus. Common.

Notonecta irrorata Uhl, Columbus.

Plea striola Fieb. Columbus. Abundant and widely distributed in U. S.

CORISIDAE.

Corisa alternata Say. Columbus. Very abundant and of wide range.

Corisa harrisii Uhl. "Ohio." Common. Widely distributed.