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v.4 (1907-1908): <https://www.biodiversitylibrary.org/item/25325>

Article/Chapter Title: Tucker, Elbert S.

Author(s): Some results of desultory collecting of insects in Kansas and Colorado.

Subject(s): Hemiptera, Auchenorrhyncha, Fulgoroidea, Cicadomorpha

Page(s): Page 51, Page 52, Page 53, Page 54, Page 55, Page 56, Page 57, Page 58, Page 59, Page 60, Page 61, Page 62, Page 63, Page 64, Page 65, Page 66, Page 67, Page 68, Page 69, Page 108

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KANSAS UNIVERSITY SCIENCE BULLETIN.

VOL. IV, No. 2.

MARCH, 1907.

} WHOLE SERIES,
} VOL. XIV, NO. 2.

SOME RESULTS OF DESULTORY COLLECTING OF INSECTS IN KANSAS AND COLORADO.

BY ELBERT S. TUCKER.

IN spite of the fact that a person may be regularly employed in entomological work, he may not have opportunities to do personal collecting of insects any more than one who is otherwise engaged. When one is steadily occupied throughout every working-day, only such time as comes outside of prescribed hours of work permits the undertaking of separate or distinct pursuits of individual concern or diversion. Nevertheless, a great deal can be accomplished in any line by improving odd periods of leisure. One advantage which entomology has over other studies in natural history is that collections of specimens can be made at night as readily as by day. Much spare time that can be utilized for day collecting is afforded during holidays, vacations, excursions or on visits; in fact, occasions frequently occur which invite the insect collector to go forth with net and bottles. Intervals of even an hour can be advantageously spent in this manner. Unlike the hunter or fisherman, he need not seek the wildest haunts in nature, for an abundance of varied forms generally await him ready at hand whether he is situated in country or city. Records of local collecting done even in a small way often have a value proportionate to those of more extensive collecting; besides, additional merit may be rendered if detailed particulars are given.

Little by little, here and there, whenever a chance is offered, by day or by night, considerable material will be accumulated in the course of a year or two by persistent collecting

of insects. The results of such efforts will mainly comprise an assortment of widely diversified forms rather than many representatives of any particular group, unless attention is devoted exclusively to certain kinds. No matter how disconnected one's operations may become regarding place, time or other conditions in collecting, the final outcome, through skilful classification of the specimens, can be presented with system and order.

What I consider as my personal collecting, to which all my records pertain, unless in reference to metatypes of two newly described species, has been done aside from any connection with the expeditions undertaken by Dr. F. H. Snow for the University of Kansas. Thus restricted, my efforts have been confined to portions of Kansas and Colorado, with the advantage, of course, in favor of my home locality, where night work was engaged in to a great extent. Only spare time in any instance has been thus employed. All of my specimens, with few exceptions in cases of common duplicates, have been added to the entomological collections of the University of Kansas, and from those that are identified I have prepared the following lists of their names, together with records regarding the capture of each species.

LIST OF HEMIPTERA-HETEROPTERA.

Wherever I have collected these insects, rich results were obtained, even at home. The greater part of my collecting in Colorado was done during a visit of six weeks, in the months of July and August, 1894, principally in Colorado Springs. All other collecting in this state has been done subsequently on trips of short duration. A list of the determinations of species in the order Hemiptera from my first collection in Colorado, and also some undetermined specimens, since all could not be readily identified at the time, were furnished to Profs. C. P. Gillette and C. F. Baker, at their request, by Mr. W. A. Snow, of the University of Kansas, thereby granting them the benefit of the results of study for incorporation in their work entitled "A Preliminary List of the Hemiptera of Colorado," which appeared as Bulletin No. 31 of the Colorado Agricultural Experiment Station. The extent to which

my specimens in the Heteroptera alone were reported upon in this work is shown in the records of thirty species, where credit is given me in each case as the collector. In this number six capsids were described as new to science. The enumeration of all these species again, including all records of captures up to the present time, is embodied in my list herewith, which includes the names and data of twenty-eight other species taken in Colorado. Of this additional number, four species at least are new to the Colorado list, one being only now described. Another species whose identification now remains in doubt may eventually prove to be new also.

In respect to the Kansas part of the collecting, there are forty-eight species new to the state list which was begun by Prof. E. A. Popenoe, in Transactions of the Kansas Academy of Science, volume IX, pages 62, 63, and recently enlarged by Mr. F. F. Crevecœur, *loc. cit.*, volume XIX, pages 232-234.

Of the total number of species listed, nineteen were collected in both Kansas and Colorado, the number for Kansas alone being 108 species.

Many of the determinations cited in my list have been made by myself in the regular course of museum work, by comparison of the specimens in hand with named specimens already in the University collection. When this course was not possible for want of named material, or in cases of doubt, examples of the specimens being studied were submitted to eminent authorities according to their preference for certain groups; hence acknowledgments are due to Mr. E. P. Van Duzee, Mr. Otto Heidemann, and Mr. J. R. de la Torre Bueno, for their generous aid toward the entomological museum of the University of Kansas, to each of whom I am also indebted for personal favors.

The catalogue of Lethierry and Severin was first used as a guide for the arrangement of the Heteroptera, so far as that work treats of the families, although more recent changes in nomenclature are adopted. For advice concerning the nomenclature and arrangement of generic and specific names in the families omitted in this work, I was forced to seek special authorities. Mr. Heidemann kindly revised and arranged my list of the Capsidæ, and likewise in regard to the water-

bugs, as well as in other matters, I was generously aided by Mr. de la Torre Bueno. However, since the appearance of Mr. G. W. Kirkaldy's "List of the Genera of the Pagiopodous Hemiptera-Heteroptera," the positions of those families which he treats have been rearranged to conform with the rank in which he regards them.

EXPLANATION.—The figures 31 in parentheses (31) refer to personal credits, whether in part or in full, which are acknowledged in Bulletin 31, Colorado Agricultural Experiment Station.

Family PENTATOMIDÆ.
(Subfamily *Corimelæninæ*.)

Corimelæna nitiduloides Wolff. Kansas, Douglas county; May, July.—
Colorado, Denver; August.

(Subfamily *Scutellerinæ*.)

Homæmus æneifrons Say. Colorado, Manitou; July (31).
bijugis Uhl. Colorado, Manitou; July.
grammicus Wolff. Colorado, Colorado Springs, August (31).

(Subfamily *Cydninæ*.)

Cydnus obliquus Uhl. Kansas, Douglas county; April. New to the Kansas list.
Pangæus uhleri Sign. Kansas, Douglas county; May, June, July, October. New to Kansas.
Amnestus pusillus Uhl. Kansas, Douglas county; May, at electric light on streets; July, at electric light on river bridge.

(Subfamily *Pentatominaæ*.)

Brochymena quadripustulata Fab. Kansas, Douglas county; April; August, taken in thicket at Wakarusa river; August, on mulberry tree close to colony of web-worms; October. New to Kansas.
Peribalus limbolarius Stal. Kansas, Douglas county; April and August.
Pentatoma ligata Stal. Kansas, Douglas county; April and October. New to Kansas.
Mormidea lugens Fab. Kansas, Douglas county; June; July, twilight.
Æbalus pugnax Fab. Kansas, Sedgwick county; September, in pear orchard. Douglas county; November.
Euschistus tristigmus Say. Kansas, Douglas county; April; July, twilight (taken with variety).
tristigmus Say, var. *pyrrhocerus* H.-Schf. Kansas, Douglas county; July; July, twilight; August. New to Kansas.
variolarius Pal. de Beauv. Kansas, Douglas county; May; May, at electric light; July; August; October; October, at night.
Hymenarcys æqualis Say. Kansas, Douglas county; September, October.
nervosa Say. Kansas, Douglas county; July.

(Subfamils *Pentatominae*.)

Meneclis insertus Say. Kansas, Douglas county; April, November. New to Kansas.

Thyanta custator Fab. Kansas, Sedgwick county; May, in timber along Arkansas river; August, on farm. Douglas county; June; August, twilight.—Colorado, Garden of the Gods; July. Colorado Springs; August (31).

perditor Fab. Kansas, Douglas county; September, at electric light on river bridge.

Nezara hilaris Say. Kansas, Douglas county; June, at night.

(Subfamily *Asopinae*.)

Podisus maculiventris Say (= *spinosus* Dallas). Kansas, Douglas county; March; May; July; July, twilight; August; November.

Family COREIDÆ.

Corynocoris distinctus Dallas. Kansas, Douglas county; June.

Archimerus calcarator Fab. Kansas, Douglas county; June; June, twilight. New to Kansas.

Acanthocephala instabilis Uhl. Kansas, Douglas county; October. New to Kansas.

terminalis Dallas. Kansas, Douglas county; June, October. New to Kansas.

Leptoglossus oppositus Say. Kansas, Douglas county; October; October, twilight; November; November, twilight. New to Kansas.

Chariesterus antennator Fab. Kansas, Sedgwick county; August.

Catorhintha mendica Stal. Kansas, Douglas county; July; July, twilight; November.—Colorado, Colorado Springs; August (31).

Anasa armigera Say. Kansas, Douglas county; July, twilight; August; October.

tristis De G. Kansas, Douglas county; April to November.

Protenor belfragei Hagl. Colorado, Manitou; July.

Megalotomus (Alydus) quinquespinosus Say. Colorado, Colorado Springs; August.

Alydus eurinus Say. Kansas, Douglas county; August. New to Kansas.

pilosulus H.-Schf. Kansas, Douglas county; August. New to Kansas.

pluto Uhl. Colorado, Colorado Springs; August.

Harmostes fraterculus Say. Kansas, Douglas county; August. New to Kansas.

reflexulus Stal. Kansas, Douglas county; May, at night.—Colorado, Colorado Springs; August (31).

Corizus hyalinus Fab. Colorado, Colorado Springs; August (31).

lateralis Say. Kansas, Douglas county; September.—Colorado, Colorado Springs; July.

nigristernum Sign. Kansas, Douglas county; May, July. New to Kansas.

sidæ Fab. Kansas, Douglas county; August, on cockle-bur blossoms. New to Kansas.

Serinetha trivittata Say. Kansas, Douglas county; April, on daffodils in bloom; October, all stages; November, all stages; noxious in entering houses in search of winter quarters.

Family BERYTIDÆ.

Jalysus spinosus Say. Kansas, Douglas county; June; June, twilight; July; August; October.—Colorado, Colorado Springs; July, August. Cheyenne canyon, July (31).

Family LYGÆIDÆ.

Oncopeltus fasciatus Dallas. Kansas, Douglas county; October.

Lygæus reclinatus Say. Kansas, Douglas county; May.—Colorado, Colorado Springs; August (31).

Nysius angustatus Uhl. Colorado, Garden of the Gods; July. Green Mountain Falls; July. Bear Creek canyon; July (31). Colorado Springs; August.

minutus Uhl. Kansas, Douglas county; July; August; August, at night. Sedgwick county; September. New to Kansas.—Colorado, Colorado Springs; August. Tabernash, August.

Belonochilus numenius Say. Kansas, Douglas county; November. New to Kansas.

Ischnorhynchus resedæ Panz. Colorado, Cheyenne canyon; July. Manitou; July (31, =*didymus* Zett.) Colorado Springs; August.

Ischnodemus falicus Say. Kansas, Douglas county; May.

Blissus leucopterus Say. Kansas, Douglas county; April; July; September, at electric light.

Geocoris ater Fab. (=uliginosus Say, erroneously fuliginosus). Kansas, Douglas county; April.

pallens Stal. Colorado, Colorado Springs; August.

Phlegyas annulicrus Stal. Kansas, Douglas county; May, at night. New to Kansas.

Edancala dorsilinea Am. et Serv. (=dorsalis Say). Kansas, Douglas county; July.

Chiroleptes serripes Ol. Kansas, Douglas county; May; June, at electric light; July, at electric light; August, at electric light; December.

Orthæa (*Pamera*) *basalis* Dallas. Kansas, Douglas county; May, at night; September, at electric light.

The name of this species is omitted in Lethierry and Severin's catalogue, and the generic name has been changed by Mr. G. W. Kirkaldy.

Cnemodus mavortius Say. Kansas, Douglas county; July, at electric light.

Sphragisticus nebulosus Fal. Kansas, Douglas county; August, at night. New to Kansas.—Colorado, Manitou; July. Colorado Springs; August (erroneously accredited "Manitou Park," 31, =*Trapezonotus*).

Cryphula parallelogramma Stal. Kansas, Douglas county; June, twilight.

Eremocoris ferus Say. Kansas, Douglas county; August, October. New to Kansas.

Family PYRRHOCORIDÆ.

Largus cinctus H.-Schf. Colorado, Cheyenne canyon; August (31).

Family TINGIDÆ.

Piesma cinerea Say. Kansas, Douglas county; May, July, August.—Colorado, Colorado Springs; August (31).

Corythuca ciliata Say. Colorado, Green Mountain Falls; July.

fuscigera Stal. Colorado, Colorado Springs; August.

pergandei Heid. Kansas, Douglas county; May, at night (metatype); October. New to Kansas.

Family PHYMATIDÆ.

Phymata erosa Linne. Kansas, Douglas county; July, found clinging on back of drone-fly, *Eristalis tenax* Linne, which it had evidently captured; September.—Colorado, Colorado Springs; August (31, = *fasciata* Gray).

Family ARADIDÆ.

Aradus quadrilineatus Say. Kansas, Douglas county; May. New to Kansas.

Family REDUVIDÆ.

Oncerotrachelus acuminatus Say. Kansas, Douglas county; May. New to Kansas.

Pygolampis pectoralis Say. Kansas, Douglas county; June, at electric light; July, at electric light. New to Kansas.

Stenopoda culiciformis Fab. Kansas, Douglas county; July, at street lamp. New to Kansas.

Reduvius personatus Linne. Kansas, Douglas county; May, at night; June, at night; July; August. New to Kansas.

Melanolestes picipes H.-Schf. Kansas, Douglas county; April, frequent in house at night in lighted rooms; May; May, at electric light and at night.

Zelus luridus Stal. Colorado, Cheyenne canyon; July.

Acholla multispinosa De G. Kansas, Douglas county; July; July, twilight; August; September; October. New to Kansas.

Sinea diadema Fab. Kansas, Douglas county; September.

raptoria Stal. Kansas, Douglas county; June. New to Kansas.

Reduviolus ferus Linne. Kansas, Douglas county; April; June; June, twilight, at electric light and at night; July; November.—Colorado, Green Mountain Falls; July. Colorado Springs; July; August (31, = *Coriscus*).

pallescens Reut. Kansas, Douglas county; May, at night. New to Kansas.

rufusculus Reut. Colorado, Colorado Springs; August.

Family ANTHOCORIDÆ.

Anthocoris musculus Say. Colorado, Colorado Springs; August.

Triphleps insidiosus Say. Kansas, Douglas county; June; June, twilight; July; August.

Family CAPSIDÆ (MIRIDÆ).

(In this family Mr. Otto Heidemann has kindly arranged the names of the genera and species according to the latest systems of classification as advocated by Prof. O. M. Reuter in his work, "Hemipterologische Speculationen, Die Classification der Capsiden," 1905: Festschrift für Palmen No. 1; and also by Mr. G. W. Kirkaldy in "List of the Genera of the Pagiopodous Hemiptera-Heteroptera," 1906: Trans. Am. Ent. Soc., vol. XXXII, pp. 117-156. "In doing so," Mr. Heidemann writes, "I followed Professor Reuter in his phylogenetic arrangement of his divisions, but use the word "tribe" as a more appropriate term, and which is generally adopted now by the American systematists. I do not agree with Mr. Kirkaldy in his sweeping changes of nomenclature, which he proposes in some of his papers. I have retained the names of divisions or tribes in accordance with Professor Reuter's statements in his last work on the classification of the Capsidæ.")

(Tribe *Plagiognathini.*)

Sthenarus rubidus Uhl. Colorado, Colorado Springs; August (type, 31).

Reuteroscopus (*Episcopus*) *ornatus* Reut. Kansas, Douglas county; July, at night; August; September. Sedgwick county; September.—Colorado, Colorado Springs; August.

Psallus delicatus Uhl. Kansas, Douglas county; May. New to Kansas.

Plagiognathus obscurus Uhl. Kansas, Douglas county; August; August, at night; September.

politus Uhl. Kansas, Douglas county; June; June, twilight; July, at night; September. New to Kansas.

annulatus Uhl. Kansas, Douglas county; May; June, twilight; August. New to Kansas.

Chlamydatus (*Agalliastes*) *associatus* Uhl. Colorado, Colorado Springs; July, August. Garden of the Gods; July (31). Denver; August.

(Tribe *Oncotylini.*)

Megalocoleus (*Macrocoleus*) *coagulatus* Uhl. Colorado, Green Mountain Falls; July. Garden of the Gods; July. Colorado Springs; August. Cheyenne canyon; July. Manitou; July.

Oncotylus sericatus Uhl. Colorado, Colorado Springs; July. Green Mountain Falls; July (cotypes, 31).

(Tribe *Cyllocorini.*)

Orthotylus flavosparsus Sahl. Kansas, Douglas county; July, August. New to Kansas.

diaphanus Kirsch. The identification was made by Mr. Heide-
mann as "probably" this species. Kansas, Douglas county;
June, twilight. New to Kansas.

Orthotylus translucens, new species. Colorado, Cheyenne canyon, near Colorado Springs; July, 1894.

Elongate; minutely pubescent, more apparent on wing-covers than on body; legs and antennæ as well as the body uniform straw-yellow, probably grass-green when fresh, same as thickened portions of wings, which are mainly that color. Head rounded, smooth; eyes very prominent, black, somewhat deep-set above and below, narrowing the vertex, which has a faint triangular depression with the base formed against a narrow transverse ridge on posterior margin of the head. Tylus short and narrow, defined at base by a deep incisure between antennal insertions; rostrum slender, reaching well between the middle coxæ, black at extreme tip. First joint of antennæ somewhat stout, about as long as the vertical diameter of an eye; second joint slender and nearly four times as long as the first; others missing.

The pronotum widens obliquely backward, the posterior margin having nearly twice the expanse of the anterior which is about equal to the length, all margins straight; the anterior lobes are slightly rounded, the posterior ones curved and reflexed. Surface smooth and convex; a deep, narrow incision extends entirely across transversely just in front of the middle, at the center of which is a deep notch that separates two apparently large tumid callosities; collum compressed in front. Scutellum equal in length and breadth, smoothly convex, but divided into two unequal parts, the smaller basal portion being defined by an incision extending across and curving into the anterior angles.

(Tribe *Cyllocorini*.)*Orthotylus translucens*—*continued*.

Wings extend beyond the abdomen nearly half their length; unless faded, the thickened parts are translucent green, perhaps yellowish along costa, and all the veins are suffused with the general color; membranes are clear hyaline.

Abdomen somewhat elongate, less than half as wide as the thorax. The last joint of each tarsus, including the claw, is infuscated.

Length to tip of wings, 4.5 mm., to end of abdomen, 2.75 mm.; width of thorax, 1.25 mm. Described from a single male specimen collected by the author.

Mr. Otto Heidemann considers this specimen "near *prasinus* Fallen." The description of *O. viridicatus* Uhl. agrees very closely, the most notable distinction being black membranes of that species.

This specimen has remained so long unnamed, and, as authorities generally hesitate to describe and name a species from only one specimen, at least without retaining the specimen for type, I have taken the work on myself in naming and describing it, mainly to avoid listing a species as unknown. The type belongs to the collection of the University of Kansas. For the Colorado list.

METATYPES.—Four female specimens, collected by F. Rogers, Kansas City, Mo., May 13 and 20, on trunks of locust trees. In collection of University of Kansas. Those with complete antennæ have the joints proportioned as follows: First and second joints as described for type; third and fourth together a little longer than the second, slender, appearing slightly infuscated in certain lights. The head appears wider between the eyes than with the type, and the eyes above and below are not as deep-set; the rostrum fails to reach the middle coxæ; the abdomen is as wide as the thorax, and the wing membranes are very slightly dusky, but far from being black in any sense.

Ceratocapsus (*Melinna*) *fasciatus* Uhl. Kansas, Douglas county; August; August, at twilight. New to Kansas.

(*Melinna*) *lutescens* Reut. Kansas, [Douglas county; August. New to Kansas.

Ilacora (subgenus *Corinala*) *stallii* Reut. Kansas, Douglas county; May, June, August, September. New to Kansas.

(*Sthenarops*) *chloris* Uhl. Kansas, Sedgwick county; June. New to Kansas.

(*Sthenarops*) *malina* Uhl. Kansas, Douglas county; June. New to Kansas.

Malacocoris irroratus Say. Kansas, Douglas county; July.

Diaphnidia debilis Uhl. Colorado, Cheyenne canyon; July. Colorado Springs; August (metatypes, 31).

(Tribe *Dicyphini*.)

Hyaliodes vitripennis Say. Kansas, Douglas county; July.

Dicyphus californicus Stal. Colorado, Colorado Springs; August.

(Tribe *Labopini*.)

Lopidea confluens Say. Colorado, Colorado Springs; July, August. New to the Colorado list.

media Say. Kansas, Douglas county; June; June, twilight; July.

(Tribe *Cyllocorini*.)

- Oncerometopus nigriclavus* Reut. Colorado, Colorado Springs; either July or August (31); taken again in August of 1906.
- Hadronema militaris* Uhl. Colorado, Colorado Springs; August. Garden of the Gods; July (31).
- picta* Uhl. Colorado, Colorado Springs; July (types, 31).
- Halticus uhleri* Giard. Kansas, Douglas county; June, twilight; July, at night; July; August.
- bractatus* Say. Colorado, Colorado Springs; August. Bear Creek canyon; July.
- Strongylocoris* (*Stiphrosoma*) *stygicus* Say. Kansas, Sedgwick county; June. Douglas county; June; June, twilight and at night.
- (*Stiphrosoma*) *croceipes* Uhl. Colorado, Colorado Springs; July, August.
- (*Stiphrosoma*) *robustus* Uhl. Colorado, Tabernash; August

(Tribe *Capsini*.)

- Lygus pratensis* Linne. Kansas, Douglas county; March, April; June, twilight; August; September. Sedgwick county; April.—Colorado, Manitou; July. Green Mountain Falls; July. Colorado Springs; July; August (31).
- distantii* Atk. (= *scutellatus* Distant). Kansas, Douglas county; May, immature; July. New to Kansas.—Colorado, Colorado Springs; July; August. Green Mountain Falls; July. Denver; August. New to the Colorado list.
- guttatipes* Uhl. Colorado, Manitou; August (types, 31).
- invitus* Say, dark variety. Kansas, Douglas county; June. New to Kansas.
- monachus* Uhl., var. Kansas, Douglas county; May, June. New to Kansas.
- plagiatus* Uhl. Kansas, Douglas county; April. New to Kansas.
- (*Hadrodema*) *pulverulenta* Uhl. Kansas, Douglas county; June, July, November.
- Pœciloscytus basalis* Reut. Kansas, Douglas county; June, July.—Colorado, Colorado Springs; August (31).
- Pœcilocapsus lineatus* Fab. Kansas, Douglas county; June.
- Polymerus* (*Systratiotus*) *venaticus* Uhl. Kansas, Douglas county; June; June, twilight.
- (*Systratiotus*) *americanus* Reut., variety. Kansas, Douglas county; May.
- Camptobrochis nebulosus* Uhl. Kansas, Douglas county; June; July; July, twilight. Colorado, Manitou; July. Cheyenne canyon; July. Colorado Springs; August.
- grandis* Uhl. Kansas, Douglas county; June, twilight.
- Calocoris rapidus* Say. Kansas, Sedgwick county; August. Douglas county; June; June, at electric light.
- superbus* Uhl. Colorado, Colorado Springs; August.
- Phytocoris eximius* Reut. Colorado, Tabernash; August. New to the Colorado list.
- interspersus* Uhl. Colorado, Cheyenne canyon; July (type, 31).

(Tribe *Capsini*.)

Neurocolpus nubilus Say. Kansas, Douglas county; August. Colorado, Garden of the Gods; July. Colorado Springs; July (31).

Miridius, not recognizable. Kansas, Douglas county; August, at night. New to Kansas.

(Tribe *Garganini*.)

Garganus fusiformis Say. Kansas, Douglas county; August, twilight; September, at electric light. Fort Leavenworth; September.

(Tribe *Mirini*.)

Stenodema (Miris) instabilis Uhl. (= *affinis* Reut.) Kansas, Douglas county; April, June. New to Kansas.

Trigonotylus pulcher Reut. Colorado, Colorado Springs; July, August.

Miris (Leptoterna) amœna Uhl. Colorado, Manitou; July.

Callimiris tarsalis Reut. Kansas, Douglas county; July; August, at electric light. New to Kansas.

Family CLINOCORIDÆ.

Clinocoris lectularius Linne. Kansas, Douglas and Sedgwick counties.— Colorado, Colorado Springs; August (31, = *Acanthia*).

Family ACANTHIDÆ.

Acanthia pallipes Fab. Colorado, Colorado Springs; July (31, = *Salda*).

Family GELASTOCORIDÆ (NERTHRIDÆ).

Gelastocoris sp. Colorado, Colorado Springs; August.

This specimen had been regarded as *oculatus* Fabricius, until it was examined by Mr. J. R. de la Torre Bueno, who wrote: "It is something different. Just what it is I do not care to pronounce upon. Your insect comes in a group of apparently undescribed forms from the Pacific coast." And later he added: "I believe it has at times been confused with *variegatus* Guerin."

Family BELOSTOMATIDÆ.

Benacushaldemanum (Leidy), Stal. (= *grisea* Say). Kansas, Douglas county; May, at electric light; July, at electric light. New to Kansas list.

Amorgius uhleri Mont. Kansas, Douglas county; July, at electric light.

The specimens of this species were formerly classified as *americanum* Leidy, but on being submitted to Mr. J. R. de la Torre Bueno, the determination was corrected. New to Kansas list.

Belostoma flumineum Say. Kansas, Douglas county; June.

Family CORIXIDÆ.

(A few representatives of this family are awaiting determination. Scarcely any authorities are able to distinguish the species.)

Corixa alternata Say. Kansas, Douglas county; June and July, all at electric light.

tumida Uhl. Colorado, Colorado Springs; August (31).

Family GERRIDÆ.

Gerris marginata Say. Kansas, Douglas county; April.

remigis Say. Colorado, Colorado Springs; August. Manitou; August.

SUMMARY OF FAMILIES AND SPECIES, INCLUDING NAMED VARIETIES.

Pentatomidæ.....	22	Anthocoridæ	2
Coreidæ.....	21	Capsidæ (Miridæ).....	55
Berytidæ.....	1	Clinocoridæ.....	1
Lygæidæ.....	18	Acanthiidæ.....	1
Pyrrhocoridæ.....	1	Gelastocoridæ (Nerthridæ)	1
Tingidæ.	4	Belostomatidæ	3
Phymatidæ.....	1	Corixidæ	2
Aradidæ.....	1	Gerridæ.....	2
Reduvidæ	12		

Total, 148.

LIST OF HEMIPTERA-HOMOPTERA.

The explanations given at the beginning of the list of the Heteroptera are also applicable to the Homoptera here listed. The valuable work of Professors Gillette and Baker on the Hemiptera of Colorado is indicative of what possibilities await similar investigation within the confines of Kansas.

Although the whole time I have spent in collecting insects in Colorado would hardly be worth consideration, my list herewith, however, refers to forty-seven species found in that state compared with ninety-eight species taken in Kansas, but in this count sixteen species were collected in both states. In the Colorado bulletin, the number of species of Homoptera credited in any way to me as the collector is twenty-eight, while the lack of such acknowledgment in regard to one other species seems accountable to an oversight. Three species and three varieties of my Colorado additions are not recorded in the bulletin. Of those that are, or should be, acknowledged in the bulletin, six species of jassids were described as new; one cercopid was described as a new species, though it is now regarded as a variety; and one fulgorid was mentioned as a new species but not described. All these make a total of seven new species and one new variety of my collecting in Colorado. There are forty-one species new to the Kansas list.

For assistance in the determination of numerous species, most of which were new to the University collection, acknowledgments are due to Prof. E. D. Ball, especially for work on the Jassidæ, excepting, however, the Typhlocybinæ, which received the attention of Prof. C. P. Gillette. Mr. E. A. Schwarz kindly identified some psyllids, and Mr. Otto Heide-
mann has also aided me. Mr. E. P. Van Duzee very kindly reviewed my preliminary list, making some changes and other corrections which were of material help.

Names of species in all the families are arranged alphabetically when more than one occurs in a genus.

Family CICADIDÆ.

Cicada dorsata Say. Kansas, Sedgwick county; August. Douglas county, August, September.

tibicen Linne. Kansas, Sedgwick county; August. Douglas county; July; August; September; October, first week. New to the Kansas list.

Family MEMBRACIDÆ.

(Arrangement of genera after Mr. F. W. Goding's "Bibliographical and Synonymical Catalogue of the Described Membracidæ of North America," published in Bull. Ill. St. Lab. Nat. His., vol. III.)

Entylia sinuata Fab., var. *bactriana* Germar. Kansas, Douglas county; May; June, twilight. New variety to the Kansas list.

Publilia concava Say. Kansas, Douglas county; May.

modesta Uhl. Colorado, Colorado Springs; August (31).

Ceresa bubalus Fab. Kansas, Douglas county; August.—Colorado, Colorado Springs; August (31); variety, Buffalo, August.

dicerus Say. Kansas, Douglas county; July.—Colorado, Colorado Springs; August (31).

taurina Fitch. Kansas, Douglas county; June, July. New to Kansas.

Stictocephala festina Say. Kansas, Sedgwick county; June.

inermis Fab. Kansas, Douglas county; August. New to Kansas.

Telamona ampelopsidis Harr. Kansas, Douglas county; June; June, twilight. New to Kansas.

pyramidata Uhl. Colorado, Colorado Springs; July, August.

Acutalis calva Say. Kansas, Douglas county; June. New to Kansas.

Cyrtolobus vau Say. Colorado, Garden of the Gods; July. Green Mountain Falls; July (31).

Enchenopa binotata Say. Kansas, Douglas county; June; June, twilight.

Campylenchia curvata Fab. Colorado, Colorado Springs; August (31).

Family FULGORIDÆ.

(Arrangement of genera after Mr. O. H. Swezey, in his preliminary catalogue of the Fulgoridæ, Bulletin No. 3, Ohio Dept. Agric.)

Ormenis pruinosa Say. Kansas, Douglas county; July; July, twilight.

Amphiscepa bivittata Say. Kansas, Sedgwick county; August. Douglas county; August.

Bruchomorpha pallidipes Stal. Colorado, Colorado Springs; August (31).

Phylloscelis atra Germar, var. Kansas, Douglas county; August.

Dictyophara microrrhina Wlk. Kansas, Sedgwick county; August.

Scolops grossus Uhl. Kansas, Douglas county; July. New to Kansas.

spureus Uhl. Kansas, Douglas county; July, August.

sulcipes Say. Kansas, Douglas county; July, August.—Colorado, Colorado Springs; July, August (31).

Amalopota fitchi Van D. Kansas, Douglas county; July, at night; August, at night. New to Kansas.

Anotia kirkaldyi Ball. Kansas, Douglas county; August, at night. New to Kansas.

Family FULGORIDÆ.

Cixius stigmatus Say. Kansas, Sedgwick county; August. Douglas county; July; July, twilight; August.—Colorado, Colorado Springs; August (31).

Myndus, n. sp. Colorado, Manitou; July (31).

This was likely *impiger*, since described by Prof. E. D. Ball, who agrees in this opinion.

Oliarus complectus Ball. Kansas, Douglas county; June, twilight. New to Kansas.

Kelisia crocea Van D. Kansas, Douglas county; August, at night.

Pissonotus pallipes Van D. Colorado, Colorado Springs; August.

Stobæra tricarinata Say. Kansas, Douglas county; April; June; July, at night; August; August, at night.

Liburnia lutulenta Van D. Kansas, Douglas county, April. New to Kansas.

ornata Stal. Kansas, Douglas county; July, twilight; August, twilight. New to Kansas.

osborni? Van D. Colorado, Colorado Springs; April. August, macropterous form. New to the Colorado list.

Family CERCOPIDÆ.

Clastoptera obtusa Say. Kansas, Douglas county; June; June, twilight.

obtusa Say, var. *osborni* G. & B. Colorado, Cheyenne canyon; July. Manitou; August (31).

Family JASSIDÆ.

(Arrangement of genera after Mr. E. P. Van Duzee's Catalogue of Jassoidea, Trans. Amer. Ent. Soc., vol. XXI, with the adoption of recent generic names and other changes as far as known.)

(Subfamily *Bythoscopinae*.)

Bythoscopus distinctus Van D. Kansas, Douglas county; June, twilight.

Pediopsis erythrocephala G. & B. Colorado, Colorado Springs; August (31, type).

viridis Fitch. Colorado, Colorado Springs; August (31).

Idiocerus moniliferæ O. & B. Kansas, Douglas county; June. New to Kansas.

nervatus Van D. Kansas, Douglas county; April. New to Kansas.

perplexus G. & B. Colorado, Cheyenne canyon; July. Colorado Springs; August (31, types). Also taken again at the latter place, August, 1906.

rufus G. & B. Colorado, Colorado Springs, August (31, cotypes).

snowi G. & B. Kansas, Douglas county; June, at electric light.

New to Kansas.—Colorado, Colorado Springs; August (description in 31, but credit omitted, types). Buffalo; August, 1906.

suturalis Fitch. Kansas, Douglas county; June, at electric light.

New to Kansas.—Colorado, Manitou; July (31).

(Subfamily *Bythoscopinae*.)

- Agallia constricta* Van D. Kansas, Douglas county; April; June, twilight; July; July, twilight; August. New to Kansas.
novella Say. Kansas, Douglas county; June, twilight; July, August.
quadripunctata Prov. Kansas, Douglas county; May, June.
sanguinolenta Prov. Kansas, Douglas county; April, August.—Colorado, Colorado Springs; August (31). Denver; August.
uhleri Van D. Colorado, Bear Creek canyon; July. Colorado Springs; July, August.

(Subfamily *Tettigoninae*.)

- Oncometopia costalis* Fab. Colorado, Colorado Springs; April, July, August.
Tettigonia bifida Say. Kansas, Douglas county; June, twilight; September.
hieroglyphica Say. Typical. Kansas, Douglas county; April, September.
hieroglyphica Say, var. *dolobrata* Ball. Kansas, Douglas county; June. New to Kansas.
hieroglyphica Say, var. *uhleri* Ball. Colorado, Cheyenne canyon; July. Colorado Springs; August. New variety to the Colorado list.
Diedrocephala coccinea For. Kansas, Douglas county; May; June; June, twilight; August; September, at night.
Dræculacephala angulifera Wlk. Kansas, Sedgwick county; June. New to Kansas.
mollipes Say. Kansas, Douglas county; May, at night; June; June, twilight; July; July, at electric light; August, at lamplight; September; September, at night.
Helochara communis Fitch. Colorado, Colorado Springs; August (31).
 Tabernash; August.
Xerophlœa peltata Uhl. Kansas, Sedgwick county; September.
Gypona dorsalis Spangb. Kansas, Douglas county; August.

The single specimen, which had been held in doubt for some time, was again submitted to Mr. E. P. Van Duzee, who reported as follows: "The *Gypona* you send I still consider very near to *dorsalis* of Spangburg, if not a pale form of that species. I have Kansas specimens so labeled in my own collection. It is closely allied to both *melanota* and *mexicana* of Spangburg, and even more closely to *bipunctata* Spangburg, from which it hardly differs except by its broader form and the different position of the ocelli." New to Kansas.

- Gypona octolineata* Say. Kansas, Douglas county; March, September.
octolineata Say, var. *flavilineata* Fitch. Kansas, Douglas county; June; June, at night; July, at electric light and at night; September, at electric light and at night. New to Kansas.—Colorado, Colorado Springs; August.

(Subfamily *Jassinæ*.)

- Xestocephalus pulicarius* Van D. Kansas, Douglas county; August.
Paramesus (Allygus) coloradensis G. & B. Colorado, Colorado Springs; August.
twiningi Uhl. Kansas, Douglas county; September, at night. New to Kansas.—Colorado, Colorado Springs; August.

(Subfamily *Jassinæ*.)

- Platymetopius acutus* Say. Kansas, Douglas county; October. New to Kansas.
frontalis Van D. Kansas, Sedgwick county; September. Douglas county; June; July, at night.
- Deltocephalus flavocostatus* Van D. Kansas, Douglas county; May, at night. June, twilight; July; August; September.
inimicus Say. Kansas, Douglas county; June; June, twilight; July; August; September, at night.
nigrifrons Forbes. Kansas, Douglas county; April; May; May, twilight; July; August. New to Kansas.
melscheimeri Fitch. Kansas, Douglas county; May, at night; June, sweepings; July.—Colorado, Colorado Springs; August.
signatifrons Van D. Colorado, Denver; August. Colorado Springs; August.
sylvestris O. & B. Kansas, Douglas county; May, July. New to Kansas.
weedi Van D. Kansas, Douglas county; June, twilight; August. New to Kansas.
- Athysanus (Limotettix) exitiosa* Uhl. Kansas, Sedgwick county; September, in vineyard. Douglas county; May, July; September, at night; October 2, very numerous in lawn grass between walks and gutter of street on campus of University of Kansas.—Colorado, Colorado Springs; August (31).
- Eutettix incerta* G. & B. Colorado, Manitou; July (31, type).
manitou Ball. Colorado, Colorado Springs; August. New to the Colorado list.
seminuda Say. Kansas, Sedgwick county; September, swept from foliage of peach trees. Douglas county; August, at lamplight.
(Phlepsius) strobi Fitch. Kansas, Sedgwick county; September. Douglas county; July, at night; August, at night.
- Phlepsius irroratus* Say. Kansas, Sedgwick county; June; September. Douglas county; May; June; June, twilight; July; August; August, at electric light; September; September, at night.
decorus O. & B. Kansas, Douglas county; July, September. New to Kansas.
ovatus Van D. Colorado, Colorado Springs; August.
- Scaphoideus immistus* Say. Kansas, Douglas county; June; June, at electric light and at night; July.
scalaris Van D. Kansas, Douglas county; July. New to Kansas.
- Thamnotettix clitellaria* Say. Kansas, Douglas county; June.
longula G. & B. Kansas, Douglas county; April. New to Kansas.
fitchi Van D. Kansas, Douglas county; July. New to Kansas.
heidemanni Ball. Colorado, Tabernash; August. New to Colorado list.
- Chlorotettix galbanata* Van D. Kansas, Douglas county; July.
spatulata O. & B. Kansas, Douglas county; June.
unicolor Fitch. Colorado, Colorado Springs; August.

(Subfamily *Jassinæ*.)

- Jassus olitorius* Say (= *Cœlidia subbifasciata* Say). Kansas, Douglas county; July, August, September, October.
- Gnathodus abdominalis* Van D. Kansas, Sedgwick county; September, in pear orchard. Douglas county; September, at electric light. — Colorado, Garden of the Gods; July. Green Mountain Falls; July. Colorado Springs; August (31). Buffalo; August.
- impictus* Van D. Kansas, Douglas county; June. New to Kansas.
- manitou* G. & B. Colorado, Manitou; July (31, type).
- Cicadula sex-notata* Fal. Kansas, Douglas county; July, August. — Colorado, Green Mountain Falls; July. Colorado Springs; July, August (31, = *divisa* Uhler). Denver; August.
- variata* Fal. Kansas, Douglas county; August.

(Subfamily *Typhlocybinæ*.)

- Empoasca albolinea* Gill. Kansas, Douglas county; July, at electric light; September, at electric light. New to Kansas.
- mali* Le B. Kansas, Douglas county; July, August.
- obtusa* Walsh. Kansas, Sedgwick county; September, sweepings in slough-grass among timber bordering Arkansas river. Douglas county, August. — Colorado, Cheyenne canyon; July. Manitou; July. Colorado Springs; August (31).
- smaragdula* Fal. Colorado, Cheyenne canyon; July. Colorado Springs; August (31).
- viridescens* Walsh. Kansas, Douglas county; May; June, twilight; July, August. New to Kansas.
- Dicraneura abnormis* Walsh. Kansas, Douglas county; April; April, at night; May; May, at night; July; August, "pale" form.
- fieberi* Loew. Kansas, Douglas county; May, at night; July. New to Kansas.
- Typhlocyba comes* Say. Typical. Kansas, Douglas county; April; April, on currant and gooseberry bushes; May; July; November.
- comes* Say, var. *basilaris* Say. Kansas, Douglas county; April, on currant and gooseberry bushes; July, August.
- comes* Say, var. *coloradensis* Gill. Kansas, Sedgwick county; September, on fruit farm. — Colorado, Denver; August. New variety to the Colorado list.
- comes* Say, var. *maculata* Gill. Kansas, Douglas county; July; aberrant form with black scutellum, April.
- comes* Say, var. *scutelleris* Gill. Kansas, Douglas county; April.
- comes* Say, var. *vitis* Harr. Kansas, Douglas county; July, August.
- comes* Say, var. *ziczac* Walsh. Colorado, Denver; August. New variety to the Colorado list.
- obliqua* Say. Kansas, Douglas county; March; April, both bright and smoky colored, on currant and gooseberry bushes; June, twilight, with pale yellow lines wanting on head.
- obliqua* Say, var. *nœvus* Gill. Kansas, Douglas county; aberration with pale yellow lines instead of red; June, twilight.

(Subfamily *Typhlocybinæ*.)

- Typhlocyba rosæ* Harr. Kansas, Douglas county; May, at lamplight; July; August. New to Kansas.—Colorado, Colorado Springs; July, August. Garden of the Gods; July. Cheyenne canyon; July (31).
tricincta Fitch. Kansas, Douglas county; July, August.
trifasciata Say. Kansas, Douglas county; August.
vulnerata Fitch. Kansas, Sedgwick county; September, on fruit farm. Douglas county; July, August, October.

Family PSYLLIDÆ.

- Aphalara angustipennis* Riley. Colorado, Green Mountain Falls; July.
calthæ Linne. Colorado, Green Mountain Falls; July. Colorado Springs; July (31).
polygona Först. Kansas, Douglas county; September. New to Kansas.
utahensis Riley. Colorado, Green Mountain Falls; July (31).
Psylla coryli Riley. Colorado, Manitou; July (31).
Pachypsylla celtidis-asteriscus Riley. Kansas, Douglas county; April. New to Kansas.
celtidis-mamma Riley. Kansas, Douglas county; adults in March, April, and October; galls on leaves of hackberry throughout the season. New to Kansas.
celtidis-minuta Riley. Kansas, Sedgwick county; April, on farm near Wichita. New to Kansas.

Family APHIDIDÆ.

(Mr. C. E. Sanborn has worked up the species which he was able to find in the state and published the results under the title of "Kansas Aphididæ," in University Science Bulletin, volume III, Nos. 1 and 8. However, I am able to record the following two species whose names are not entered on the separate Kansas list. The determinations were made by Mr. Sanborn.)

Schizoneura americana Riley. Kansas, Douglas county; August.

In the twilight of the evening I took several winged specimens. The air had floating in it numerous white insects. After capturing some I noticed it was a cottony secretion which gave them their white appearance and also sustained them or caused them to be wafted along by the wind. They appeared to be leaving elm trees after a shower of rain. New to Kansas list.

Lachnus longistigma Monell. Kansas, Douglas county; May, November; taken while flying. New to Kansas list.

SUMMARY OF FAMILIES AND SPECIES, INCLUDING VARIETIES.

Cicadidæ	2	Jassidæ	82
Membracidæ	14	Psyllidæ	8
Fulgoridæ	19	Aphididæ	2
Cercopidæ	2		
Total, 129.			

TABULATED SUMMARY OF FAMILIES AND SPECIES, INCLUDING VARIETIES.

NAME OF FAMILY.	Total number of species.	Species taken in Kansas.	Species new to Kansas.	Species taken in Colorado.	Species taken in both Kansas and Colorado.
Tipulidæ.....	4	5	2	2	2
Psychodidæ.....	1	1	.....	.....	.....
Chironomidæ.....	37	35	31	6	4
Culicidæ.....	* 15	14	6	4	3
Mycetophilidæ.....	9	7	3	2	.....
Cecidomyidæ.....	†.....	.....	.....	.....	.....
Bibionidæ.....	9	9	5	1	1
Rhyphidæ.....	2	2	2	.....	.....
Stratiomyidæ.....	8	6	2	4	2
Tabanidæ.....	7	5	1	2	.....
Leptidæ.....	7	3	.....	5	1
Bombyliidæ.....	24	6	.....	20	2
Therevidæ.....	2	2	1	.....	.....
Sceneopinidæ.....	1	1	.....	.....	.....
Mydaidæ.....	1	1	.....	.....	.....
Asilidæ.....	26	15	7	13	2
Dolichopodidæ.....	34	26	13	14	6
Empididæ.....	14	8	3	8	3
Lonchopteridæ.....	2	1	1	1	.....
Phoridæ.....	6	5	5	1	.....
Platypezidæ.....	3	3	2	1	1
Pipunculidæ.....	7	6	3	2	1
Syrphidæ.....	35	20	7	20	5
Conopidæ.....	3	2	.....	1	.....
Æstridæ.....	1	1	.....	.....	.....
Tachinidæ.....	39	25	9	16	2
Dexiidæ.....	2	1	1	1	.....
Sarcophagidæ.....	1	1	1	.....	.....
Muscidæ.....	13	10	.....	11	8
Anthomyidæ.....	7	7	6	4	4
Scatophagidæ.....	1	1	.....	.....	.....
Helomyzidæ.....	1	1	1	.....	.....
Borboridæ.....	7	4	1	6	3
Sciomyzidæ.....	6	5	1	2	1
Sapromyzidæ.....	8	7	4	3	2
Ortalidæ.....	15	13	3	3	1
Trypetidæ.....	15	5	.....	13	3
Micropezidæ.....	2	1	.....	1	.....
Sepsidæ.....	3	3	1	3	3
Psilidæ.....	1	1	1	.....	.....
Ephydridæ.....	4	2	1	3	1
Oscinidæ.....	21	16	7	9	4
Drosophilidæ.....	5	5	4	2	2
Agromyzidæ.....	7	7	7	2	2
Totals (44 families)....	416	299	142	186	69

*Syn. 1?.

†Undetermined.

NOTE.—My lists as presented give all the results obtained in the orders treated so far as the specimens have been identified up to this time. A considerable amount of material yet remains to be reported upon, especially in the order Hymenoptera, and, as additions are constantly being made, the task of making known the facts will be unending, if carried on.