

NOTES AND DESCRIPTIONS OF ORTHOPTERA FROM THE WESTERN UNITED STATES,

In the Entomological Collection of the University of Kansas.

By JAMES A. G. REHN, of the Academy of Natural Sciences of Philadelphia.

Read (by title) before the Academy, at Topeka, December 31, 1904.

THE material treated in the following pages was kindly submitted to me for study by Prof. F. H. Snow, of the University of Kansas. The greater part of the material was collected by the University expedition of 1903 to Arizona, the details of which trip have already been published by Professor Snow.* As the localities are there discussed by one thoroughly acquainted with them, no remarks need be made here. The types of all new forms are in the University museum. Finally, I wish to thank Professor Snow for the opportunity afforded to study the material:

Family FORFICULIDÆ.

Labia minor Linnæus.

Douglas county, Kan.; July, E. S. Tucker. One female.

Clark county, Kan., 1962 ft.; June, F. H. Snow. One female.

Family BLATTIDÆ.

Ischnoptera borealis Bruner.

Clark county, Kan., 1962 ft.; June, F. H. Snow. One male. This individual fully agrees with a specimen from Nebraska City, Otoe county, Neb.

Nyctobora mexicana Saussure.

Texas. One female.

Homœogamia erratica Rehn.

Clark county, Kan., 1962 ft.; June, F. H. Snow. One male. This record extends the range of the species considerably to the north.

Family MANTIDÆ.

Litaneutria minor Scudder.

Bill Williams Fork, Mohave-Yuma counties, Ariz.; August, F. H. Snow. One female.

Cactus Plain, Yuma-Yavapai counties, Ariz.; F. H. Snow. One female.

Stagmomantis carolina Linnæus.

Lawrence, Douglas county, Kan.; September, E. S. Tucker; and October 4, 1895, B. Brown. Two females.

Douglas county Kan.; October, at electric light, E. S. Tucker. One male.

Stagmomantis limbata Hahn.

Bill Williams Fork, Mohave-Yuma counties, Ariz.; August, F. H. Snow. One female.

* Kansas University Science Bulletin, vol. II, No. 12, pp. 323, 324.

Family ACRIDIIDÆ.

Paratettix toltecus Saussure.

Bill Williams Fork, Mohave-Yuma counties, Ariz.; August, F. H. Snow.
Five females.

Telmatettix aztecus Saussure.

Bill Williams Fork, Mohave-Yuma counties, Ariz.; August, F. H. Snow.
One male.

Bootettix argentatus Bruner.

Bill Williams Fork, Mohave-Yuma counties, Ariz.; August, F. H. Snow.
One female.

Eritettix navicula Scudder.

Hamilton county, Kan., 3350 ft.; F. H. Snow. One female.

Morton county, Kan., 3200 ft.; June, 1902, F. H. Snow. Three males.

Clark county, Kan., 1962 ft.; May, F. H. Snow. Two females.

Considerable variation in the flexure of the lateral carinæ of the pronotum is exhibited by the above-listed specimens. In one female, these carinæ are practically straight and without any appreciable constriction, while the others have the reverse true to a greater or less extent.

Amphitornis bicolor Thomas.

Morton county, Kan., 3200 ft.; F. H. Snow. One male.

Clark county, Kan., 1962 ft.; F. H. Snow. One female.

The black lateral bars on the pronotum are not as broad and distinct as in some Nebraska specimens examined.

Orphulella compta Scudder.

Bill Williams Fork, Mohave-Yuma counties, Ariz.; August, F. H. Snow.
One male.

Boopedon nubilum Say.

Kansas; July. One female.

Psolocessa maculipennis Scudder.

Clark county, Kan., 1962 ft.; May or June, F. H. Snow. Two females.

Stirapleura delicatula Scudder.

Morton county, Kan., 3200 ft.; F. H. Snow. One male.

Hamilton county, Kan., 3350 ft.; June, F. H. Snow. One female.

Willow Park, Colo. Two females.

Estes Park, Larimer county, Colo.; July, 1892, F. H. Snow. One female.

Ligurotettix kunzei Caudell.

Bill Williams Fork, Mohave-Yuma counties, Ariz.; August, F. H. Snow.
One male, one female.

Arphia conspersa Scudder.

Clark county, Kan., 1962 ft.; May or June, F. H. Snow. One male, one female.

Chortophaga varidifasciata De Geer.

Clark county, Kan., 1962 ft.; F. H. Snow. One male, two females.

Hippiscus tuberculatus Palisot.

Clark county, Kan., 1962 ft.; May, F. H. Snow. One male.

Hippiscus corallipes Haldeman.

Clark county, Kan., 1962 ft.; June, F. H. Snow. Two males, two females.

Hippiscus conspicuus Scudder.

Hamilton county, Kan., 3350 ft.; F. H. Snow. One male.

Derotmema delicatum Scudder.

Bill Williams Fork, Mohave-Yuma counties, Ariz.; August, F. H. Snow.
One male.

Mestobregma boreale Saussure.

Caddoa, Bent county, Colo.; F. H. Snow. One male. As far as can be made out from the meager original description, this specimen represents Saussure's *boreale*. It is separated from *plattei* by the superiorly constricted frontal costa.

Trepidulus rosaceus McNeill.

Bill Williams Fork, Mohave-Yuma counties, Ariz.; August, F. H. Snow.
One female.

Conozoa sulcifrons Scudder?

Bill Williams Fork, Mohave-Yuma counties, Ariz.; August, F. H. Snow.
Two females.

Trimerotropis salina McNeill?

Clark county, Kan., 1962 ft.; June, F. H. Snow. One male.

Trimerotropis saxatilis McNeill.

Caddoa, Bent county, Colo.; F. H. Snow. One male.

Trimerotropis snowi, n. sp.

Type: female. Congress Junction, Yavapai county, Ariz.; July, F. H. Snow.

Collection University of Kansas. Allied to *T. melanoptera* McNeill, but with the vertex slightly narrower, the eye slightly shorter, the basal and median dark bands of the tegmina more distinctly composed of spots, the yellow of the wings more extensive and the fuscous band narrower. Some characters would throw this species under F1 of McNeill's table, but it agrees with nothing in that section, and is no doubt close to *melanoptera*, paratypes of which have been compared with *snowi*.

Size large; form somewhat robust. Interspace between the eyes equal to the transverse diameter of the eye; scutellum of the vertex slightly broader than long, shallow, median and lateral carina distinct but low, the former not distinguishable on the occiput; lateral foveolæ rather small, sublanceolate, shallow; frontal costa subequal for the greater part with a slight constriction above the ocellus, moderately sulcate, failing to reach the clypeus by a considerable distance; eye not prominent, very distinctly shorter than the infraocular portion of the genæ; antennæ slender, elongate, exceeding the head and pronotum by half the length of the latter. Pronotum considerably expanded posteriorly, metazona about one and three-fourths the length of the prozona; anterior margin subtruncate, posterior margin rectangular with the angle rounded; median carina low and weak; prozona with several transverse rugæ, metazona subgranulose; lateral lobes subequal in width, the anterior margin slightly arcuate, postero-inferior angle rounded. Tegmina long and rather broad, apex obliquely truncate; the costal field wide; intercalary vein for its whole length closer to the median than to the ulnar vein, though somewhat approaching the latter proximally. Wings moderately long, rather broad, slightly more than half again as long as broad. Posterior femora comparatively slender, not exceeding the apex of the abdomen.

General color vinaceous buff, becoming vinaceous on the head and pleura.

Lower part of head and face hoary; eyes burnt sienna; antennæ blackish brown. Pronotum with several whitish, longitudinal bars on the lateral lobes and a number of small blackish points on the disk of the

metazona. Tegmina with the transverse bands broken and dissected into blotches of greater or less size, yet retaining their position in their respective groups; the apical bar is not defined, as the blotches are more properly annuli and more isolated; apical portion hyaline except at the costal margin, and with a number of scattered annuli. Wings with the disk longer than broad, primrose yellow; fuscous band broad and solid blackish brown, equaling one-third the length of the wing and extending to the internal margin of the wing; apical fourth hyaline with the longitudinal veins blackish brown; ulnar tænia very short and blunt, not reaching one-third the distance to the base of the wing. Abdomen above scarlet vermillion, below wood brown. Posterior femora externally dull vinaceous, faintly hoary, and with three obscure blackish bars, the pre-apical one of which is the most distinct; internal face scarlet vermillion with two black bars; inferior sulcus scarlet vermillion with one (pre-apical) black bar; genicular region blackish internally, dull fuscous externally. Posterior tibiæ with the external face basally flesh color, median and apical sections and the basal internal face scarlet vermillion; spines tipped with black.

Measurements: Length of body, 38 mm.; length of pronotum, 8.2 mm.; greatest width of pronotum, 7 mm.; length of tegmina, 38 mm.; greatest width of tegmina, 8 mm.; length of wings, 35 mm.; width of wings, 21 mm.; length of posterior femora, 17.5 mm.

The type is the only specimen of this species examined. I take pleasure in dedicating this species to Prof. F. H. Snow, who collected the type.

Anconia integra Scudder.

Bill Williams Fork, Mohave-Yuma counties, Ariz.; July and August, F. H. Snow. Three females. As is usual with this species, the above series exhibits a great amount of color variation.

Heliasus aridus Bruner.

Bill Williams Fork, Mohave-Yuma counties, Ariz.; August, F. H. Snow. Two females.

Heliasus minimus Scudder.

Bill Williams Fork, Mohave-Yuma counties, Ariz.; August, F. H. Snow. One female. This specimen is undoubtedly this species, but it is considerably larger than the measurements given by Scudder. The form of the lower portion of the lateral lobes of the pronotum does not appear very materially different from *H. aridus*, but the form of the pronotum, the slender posterior femora and peculiar coloration as well as size will readily distinguish this well-marked species.

Titthotyle maculata Bruner.

Bill Williams Fork, Mohave-Yuma counties, Ariz.; August, F. H. Snow. One female. This species has been definitely recorded but once before, then from Needles, Cal., a locality not very distant from Bill Williams Fork.

Leptysma marginicollis Serville.

Bill Williams Fork, Mohave-Yuma counties, Ariz.; August, F. H. Snow. One female. This individual is inseparable from Florida specimens.

Schistocerca shoshone Thomas.

Bill Williams Fork, Mohave-Yuma counties, Ariz.; August, F. H. Snow. One male.

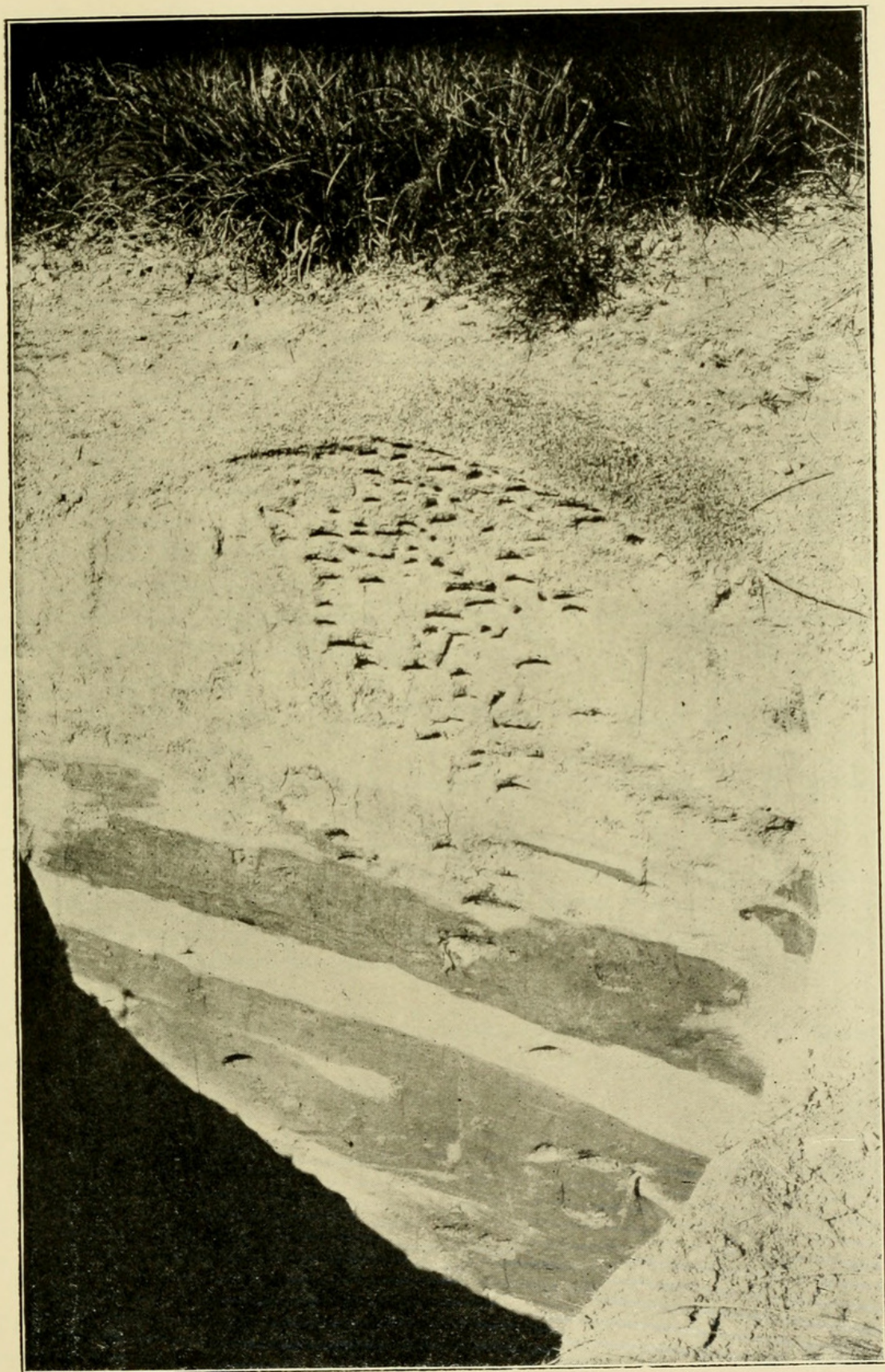


PLATE XXVIII.—Vertical Section of Ant Mound at Hays City, Kan.
(Showing five feet of excavation)

Schistocerca venusta Scudder.

Bill Williams Fork, Mohave-Yuma counties, Ariz.; August, F. H. Snow.
One female. This individual is considerably larger than representatives of the same sex from Salt Lake City, Utah, and San Diego county, Cal.

Schistocerca vaga Scudder.

Bill Williams Fork, Mohave-Yuma counties, Ariz.; August, F. H. Snow.
One male.

Melanoplus flavescens Scudder.

Bill Williams Fork, Mohave-Yuma counties, Ariz.; August, F. H. Snow.
One female. I owe the identification of this specimen to Mr. A. N. Caudell, who kindly compared it with United States National Museum material.

Melanoplus flavidus Scudder.

Bill Williams Fork, Mohave-Yuma counties, Ariz.; August, F. H. Snow. One male. Mr. A. N. Caudell kindly compared this specimen and supplied the above identification.

Clark county, Kan., 1962 ft.; June, F. H. Snow. One female.

Melanoplus canonicus Scudder.

Bill Williams Fork, Mohave-Yuma counties, Ariz.; August, F. H. Snow. One male, one female. The furcula of the male individual are more robust apically than in Scudder's figure.

Melanoplus compactus Scudder.

Clark county, Kan., 1962 ft.; June, F. H. Snow. Two females. Previously recorded from Dakota and Sheridan county, Neb.

Melanoplus minor Scudder.

Clark county, Kan., 1962 ft.; June, F. H. Snow. One male, one female.

Melanoplus yarrowi Thomas.

Bill Williams Fork, Mohave-Yuma counties, Ariz.; August, F. H. Snow.
One male, one female.

South Arizona; August, 1902, F. H. Snow. One male.

These individuals agree well with a pair from Phoenix, Ariz. A female specimen from Logan county, Kan., F. H. Snow, August, is doubtfully referred to this species. The specimen is almost identical in structure, and, if true yarrowi, considerably extends the range of the species.

Pæcilotettix sanguineus Scudder.

Bill Williams Fork, Mohave-Yuma counties, Ariz.; August, F. H. Snow.
One male, one female.

Family LOCUSTIDÆ.

Scudderia furcata Bruner.

Douglas county, Kan., 900 ft.; September, V. L. Kellogg and E. S. Tucker.
Two males, five females.

Scudderia furcifera Scudder.

Southern Arizona; August, 1901, F. H. Snow. One male, one female. Previously recorded in the United States from Prescott, Ariz.

Amblycorypha scudderi Bruner.

Douglas county, Kan., 900 ft.; V. L. Kellogg. One female. This species was described from eastern Nebraska.

Amblycorypha parvipennis Stal.

Douglas county, Kan., 900 ft.; F. H. Snow. One male. This species was previously known only from Texas.

Amblycorypha hausteca Saussure.

Southern Arizona; August, 1902, F. H. Snow. One female. This record extends the range of the species considerably to the west.

Microcentrum laurifolium Linnæus.

Douglas county, Kan.; September. One male.

Southern Arizona; August, 1902, F. H. Snow. One male.

The Arizona record is considerably west of any previous captures, and may represent accidentally introduced stock.

Conocephalus crepitans Scudder.

Douglas county, Kan.; September. One male.

Sedgwick county, Kan., 1300 ft.; E. S. Tucker. One male.

These individuals fully agree with Lincoln, Neb., specimens.

Conocephalus triops Linnæus.

Douglas county, Kan.; taken at electric light, September, E. S. Tucker. One male.

Concephalus mexicanus Saussure.

Bill Williams Fork, Mohave-Yuma counties, Ariz.; August, F. H. Snow. One male.

Orchelimum glaberrimum Burmeister.

Douglas county, Kan.; taken at electric light, September, E. S. Tucker. One male.

Orchelimum volantum McNeill.

Douglas county, Kan.; taken at electric light, July, E. S. Tucker. One female.

This species was previously known only from Illinois and Indiana.

Orchelimum gladiator Bruner.

Douglas county, Kan., 900 ft.; F. H. Snow. One male. This species was previously recorded only from Nebraska and Indiana.

Orchelimum cuticulare Serville—Redt (?)

Douglas county, Kan., 900 ft.; September, Mary H. Wellman. One female. This form was previously recorded from Texas.

Orchelimum longipenne Scudder.

Douglas county, Kan.; taken at electric light, July, E. S. Tucker. One female.

Xiphidium fasciatum De Geer.

Colorado Springs, El Paso county, Colo., 5915 ft.; August, E. S. Tucker. One male.

Xiphidium strictum Scudder.

Douglas county, Kan.; September. Two females.

Xiphidium attenuatum Scudder.

Douglas county, Kan.; taken at electric light, August, E. S. Tucker. One male. On comparing authentic specimens of *lanceolatum* Bruner, they are seen to be identical with this species.

Capnobotes fuliginosus Thomas.

Congress Junction, Yavapai county, Ariz.; July, F. H. Snow. One female.

Stipator (Orchesticus) cragini Bruner.

Wallace county, Kan., 3000 ft.; F. H. Snow. One male.

Eremopedes balli Caudell.

Magdalena mountains, Socorro county, N. M.; August, 1894, F. H. Snow. One female. This specimen was determined by Mr. A. N. Caudell.

region; eyes irregularly quadrate in outline, separated by one and one-half times their greatest length; antennæ somewhat exceeding the body in length; palpi with the third joint slightly shorter than the fifth. Pronotum arched transversely, somewhat flattened above; anterior margin with the median portion slightly emarginate, posterior margin truncate, inferior margin broadly rotundate. Mesonotum and mesonotum (metanotum?) posteriorly truncate, laterally extending a short distance below the pronotum. Abdomen regularly armed with minute spiniform tubercles; cerci about half the length of the posterior femur, regularly tapering from the base to the apex; subgenital plate divided to the base by a narrow slit, tips divergent. Anterior femora about a fifth as long again as the pronotum, armed beneath on the anterior margin with a single large preapical spine and several smaller ones, no genicular spine present; tibiæ unarmed above. Median femora about equal to the anterior pair in length, armed beneath on the anterior margin with three or four spines, on the posterior margin with several spines, genicular spine present on one limb and absent on the other; tibiæ armed above with two pairs of spines. Posterior femora short, stout, not quite three times as long as broad, inferior margins with their distal two-thirds closely and strongly armed with short, stout teeth, no genicular spine present; tibiæ slightly shorter than the femora, hardly curved, armed above with four pairs of spines, below with two apical pairs and four longitudinally disposed spines, calcaria comparatively short, the median pair considerably exceeding the others in length; metatarsi slightly longer than the fourth tarsal joint, second joint very slightly longer than the third joint.

FEMALE.—Size medium; form moderately elongate, subequal; structure as in the male, with the following exceptions: Head with the interspace between the eyes somewhat greater; antennæ not exceeding the body in length. Cerci short, not more than one-third the length of the posterior femur; ovipositor two-thirds the length of the posterior femur, thick at the base, narrow and subequal in the apical half, not curved, apex obliquely truncate, the superior point acute and spiniform, internal valves with five teeth; subgenital plate transverse, apically rounded, with a slight median emargination. Anterior femora with the distinct pregenicular spine but no smaller ones.

General color ochraceous, suffused above with Vandyke brown.

Measurements: Length of body, male 22 mm., female 19 mm.; length of pronotum, male 6.5 mm., female 4.8 mm.; greatest width of pronotum, male 9 mm., female 6 mm.; length of posterior femora, male 16 mm., female 9.5 mm.; length of ovipositor, 6.2 mm.

An additional smaller male from the type locality has been examined.

Phrixocnemis socorrensis, n. sp.

Types: Male and female. Magdalena mountains, Socorro county, N. M.; August, 1894, F. H. Snow. Allied to *P. franciscanus*, but differing in the longer and slenderer ovipositor.

MALE.—Size large; form rather elongate, compressed. Head broad, flattened anteriorly; interspace between the eyes not quite twice the greatest diameter of the eye; eye subpyriform; antennæ slightly longer than the body; third palpal joint slightly shorter than the fifth. Pronotum arched transversely, somewhat compressed; anterior margin slightly emarginate, posterior truncate. Mesonotum and metanotum extending slightly below the pronotum. Abdomen somewhat compressed; cerci about half the length

of the posterior femora, stout basally but tapering to a fine point; subgenital plate divided for half its length. Anterior femora exceeding the pronotum by about one-sixth the length of the latter, armed with a single preapical spine on anterior inferior margin; tibiae somewhat flattened but unarmed above. Median femora about equal to the anterior pair in length, armed inferiorly on the anterior margin with two and on the posterior margin with five spines; tibiae armed above with two pairs of spines. Posterior femora moderately stout, three times as long as broad, armed below on the distal half of the external and on almost the entire length of the internal with closely set, short teeth, intervening sulcus deep; tibiae equal to the femora in length, straight, bearing four pairs of spurs, and between them supplied a number of blunt spines of the second grade, below armed with two apical pairs of spines and a longitudinally disposed series of four spines; middle calcaria but slightly longer than the upper pair; metatarsi slightly longer than the fourth tarsal joint, second joint slightly longer than the third.

FEMALE.—Similar to the male except for the following points: Ovipositor almost two-thirds the length of the posterior femora, stout basally, slender apically, the apex obliquely truncate and produced above into a spiniform process, internal valves with five recurved hooks; cerci short, thick basally, tapering; subgenital plate transverse, rounded, with no appreciable median emargination. Median femora armed on each inferior margin with three spines. Posterior femora slenderer than in the male, almost three and a half times as long as broad; tibiae armed with but three spines in the inferior longitudinal series instead of four.

General color ochraceous, suffused above and particularly on the margins of segments with Vandyke brown.

Measurements: Length of body, male 26.5 mm., female 24 mm.; length of pronotum, male 6.8 mm., female 6.5 mm.; greatest width of pronotum, male 8.6 mm., female 7.5 mm.; length of posterior femora, male 16.5 mm., female 14.5 mm.; length of ovipositor, 9 mm.

Two additional specimens, a male and a female, from the type locality have also been examined, both smaller than the type individuals.

Daihinia brevipes Haldeman.

Colorado; July, F. H. Snow. One male, one female.

Clark county, Kan., 1962 ft.; F. H. Snow. One female.

The male individual has, with the preapical spine, but one exceptionally large spine on the external margin of the posterior femora.

Udeopsylla nigra Scudder.

Douglas county, Kan.; June. One male.

Udeopsylla robusta Haldeman.

Clark county, Kan., 1962 ft.; June, F. H. Snow. One male.

Colorado; July, F. H. Snow. One male.

The University collection also contains a large male individual of this species from Sedgwick county, Kan., collected by E. S. Tucker.

Udeopsylla serrata, n. sp.

Type: Male. Southern Arizona; August, 1902, F. H. Snow. Differing from *U. robusta* and *nigra* by the smaller spines of the inferior margin of the posterior femora, and the considerably smaller size. From *U. vierecki*, with which it agrees in the spine armature of the posterior femora, it differs in the smaller size, slenderer posterior tibiae, and the slightly more recurved lateral lobes of the mesonotum and metanotum.

Size medium; form short, broad fusiform. Head broad; interspace between the eyes almost equal to twice the width of the eye; eyes broad ovoid; antennæ almost twice the length of the body; palpi with the fifth joint half again as long as the third. Pronotum arched transversely, slightly compressed; anterior border broadly emarginate, posterior truncate, lateral lobes subtruncate. Mesonotum and metanotum very slightly deeper than the pronotum. Abdomen distinctly but moderately compressed, lateral aspects sprinkled with fine granules, cerci short, about one-fourth the length of the posterior femora, subgenital plate deeply and broadly emarginate, the lateral portions projecting as obtuse-angulate lobes. Anterior femora about one-sixth longer than the pronotum, anterior inferior margin unarmed or with a single preapical spine; tibiæ unarmed above. Median femora about equal in length to the anterior pair, armed beneath on the anterior margin with one to four spines, on the posterior margin with five spines. Posterior femora slightly more than three times as long as broad, the superior face bearing a number of short spiniform tubercles, distal two-thirds of the inferior margins with close-set series of short teeth, intervening sulcus moderately deep; tibiæ equal to the femora in length, very slightly bent, armed above with four pairs of spurs and a number of spines of the second grade, below armed apically with two pairs and two single spines, inferior calcaria exceeding the others in length.

General color of the dorsal surface of the body burnt sienna inclining toward Vandyke brown on the abdomen. Ventral surface and limbs ochraceous. Measurements: Length of body, 15 mm.; length of pronotum, 5.2 mm.; greatest width of pronotum, 6.5 mm.; length of posterior femora, 14 mm.

Family GRYLLIDÆ.

Tridactylus apicalis Say.

Bill Williams Fork, Mohave-Yuma counties, Ariz.; August, F. H. Snow.
One individual.

Gryllus pennsylvanicus Burmeister.

Bill Williams Fork, Mohave-Yuma counties, Ariz.; August, F. H. Snow.
One male.

Æcanthus fasciatus Fitch?

Bill Williams Fork, Mohave-Yuma counties, Ariz.; August, F. H. Snow.
One female. Some doubt is attached to this identification.

ADDITIONS TO THE LIST OF THE HEMIPTEROUS FAUNA OF KANSAS.

By F. F. CREVECŒUR, Onaga.

Read before the Academy, at Topeka, December 29, 1904.

IT appears that there has not been any list of the Hemiptera of Kansas published since that of Prof. E. A. Popenoe, in volume IX of the Transactions of the Kansas Academy of Science, on pages 62 *et seq.*; so the writer has thought it incumbent upon him to make out a list of additions to that list, comprising the unlisted species collected by him, and of others mentioned in publications to which he has had access.

With the exception of the nine species of coccids at the end of this list, which are found mentioned in Bulletin No. 98 of the Kansas State Agricultural College, the species in this list were, with the exception noted in its proper place, collected by the writer within a few miles of his home, five miles northeast of Onaga. There are 147 species in Professor Popenoe's list and 244 in this, and, making allowance for about ten species that may perhaps with safety be referred to both lists, we have a total of 381 species so far reported from the state.

Acknowledgments are due the United States Department of Agriculture, Prof. C. P. Gillette, of the Colorado Agricultural College, Prof. E. D. Ball, of the Utah Agricultural College, Prof. E. P. Van Duzee, of Buffalo, N. Y., and Prof. E. A. Popenoe, for determinations and other favors shown the writer.

HETEROPTERA.

- Homœmus grammicus* Wolff. On weeds on high prairie. June.
ænifrons Say. On weeds in slough. September. Rare.
Corimelæna atra A. & S. On weeds in slough. May.
Amnestus spinifrons Say. On weeds in slough. May.
Perillus confluens H. Sch. In houses in winter.
Podisus cynicus Say. On weeds in timber. June.
Podops cinctipes Say. Under stones on prairie. April.
Neotiglossa sulcifrons Stal. On prairie. June.
Euschistus tricinctus. On weeds in timber. September.
Coenus delius Say. On weeds in low meadow. June.
Hymenarcys nervosa Say. On weeds in timber. June.
Nezara hilaris Say. On weeds in timber. May.
Catorintha mendica Stal. On weeds in timber. June.
Anasa armigera Say. On weeds in timber. June.
Alydus 5-spinosus Say. On weeds in timber. August, September.
Jalysus spinosus Say. On *Gaura biennis*. August.
Orcillacus productus Uhl. On forest-trees. April.
Ischnorhynchus didymus Zett. On *Symphoricarpus vulgaris*. April.

- Cymus angustatus* Stal. On weeds in slough. July.
Geocoris fuliginosus Say. Under wood in dooryard. November.
Cryphula parallelogramma Stal. Under wood in timber. March.
Edaneala dorsalis Say. Under sticks in dooryard. April?
Lygyrocoris sp.
Ptochiomera clavigera Uhl. Under wood in dooryard. October, November.
 nodosa Uhl. Under stones in dooryard. November.
Cnemodus mavortius Say. Under stones on bank in timber. October.
Taleonemia elongata Uhl. On weeds in slough. May, June.
Emblethus arenarius Linn. Under sticks in orchard. October.
Peritrechus fraternus Uhl.
Peliopelta abbreviata Uhl. Under stones at edge of field. April.
Pamera basalis Dall. Under sticks in orchard. October.
Psilophorus confusus Kirsch. In orchard. July.
Melanocoryphus facetus Say.
Trigonotylus ruficornis Fall. On weeds on prairie. August.
Miris rubillus Uhl. At light. August.
Collaris oculata Reut. On weeds in timber. June.
Garganus fusiformis Say. On weeds in timber. June.
Calirmiris uhleri Reut. In low meadow. June.
Lopidea media Say. On weeds in timber. June.
Oncognathus binotatus Fabr. On weeds in timber. June.
Hadronema militaris Uhl. On weeds on prairie. June.
 pulverulenta Uhl. On weeds in timber. June.
Phytocoris eximius Reut. On weeds in timber. June.
Neurocolpus nubilus Say. On weeds in timber. June.
Calocoris superbus Uhl. On weeds in timber. June.
 bipunctatus Fabr. On weeds in timber. June.
Lygus sp. In timber. May.
Neoborus petiti Uhl. On weeds near water in timber. June.
Pœcilocapsus gonipherus Say. On weeds in timber. May.
Calicapsus histrio Reut. On *Symphoricarpus vulgaris*. April.
Systratiotus americanus Reut. On weeds in timber. June.
 venaticus Uhl. On weeds in slough. June.
Camptobrochis grandis Uhl. On weeds in timber. June.
Orthops scutellaris Uhl. In grove on prairie. June.
Pamerocoris anthocoroides Uhl. On weeds in timber. June.
Myacelum catulum Uhl. On cottonwood in grove. June.
Diommatus congrex Uhl. Under piece of cloth in tree in grove. July.
Halticus uhleri Girard. On weeds in slough. July.
Cyrtopeltocoris sp. On weeds in pasture. October.
Dicyphus californicus Stal. On hazel bushes. June.
Eucorocoris guttulatus Uhl. On weeds in timber. July.
Episcopus ornatus Reut. On *Ambrosia artemisiæfolia*. August.
Hyaloides vitripennis Say. On hazel bushes. July.
Plagiognathus pallipes Uhl. On hazel. June.
 obscurus Uhl. On weeds on prairie. June.
 sp. On prairie. June.
Malorocoris irroratus Say. On bur-oak in orchard. July.
Agalliastes decolor Uhl. At light. August.
 simplex Uhl. On weeds in timber. June.
 signata Uhl. In orchard. June.
 associatus Uhl. On weeds along road. June.

- Melinna modesta* Uhl. Under cloth in tree in orchard. July.
 pumila Uhl. In orchard. July.
 minuta Uhl. On weeds on prairie. July.
Psallus sp. On weeds in pasture. September.
Lytocoris campestris Fabr. In low meadow. June.
Triphleps insidiosus Say. On flowers of *Helianthus* sp. September.
Anthocoris musculus Say. Under cloth in cottonwood tree.
Piesma cenerea Say. On *Amarantus chlorostachya*. August.
Corythuca ciliata Say. On weeds in timber. June.
 sp. On weeds in timber. May.
 sp. In timber. May.
Gargaphia amorphæ Walsh. On bushes in timber. May.
Leptostyla oblonga Say. On weeds in slough. May.
Tingis clavata Say. On weeds on prairie. June.
Physatochila plexa Say. On weeds in slough. May.
Aradus robustus Uhl. Under sticks in orchard. November.
Phymata angulata. On flowers of *Compositæ* on prairie. June.
Coriscus ferus Linn. Under stones on prairie. April.
Diplodus luridus Stal. On weeds in timber. May.
Emesa longipes DeGeer. On weeds in timber. August.
 sp. Under stones on prairie. October, April.
Hygrotrechus remiges Say. On water in streams. May.
Limnotrechus marginatus Say. On water in streams. April, October.
Hebrus pusillus Burm. About a spring on creek bank. April.
Salda interstitialis Say. On sandy beach. June.
 humilis Say. In swamp. May.
Mesoretia bisignata Uhl. On water of stock pond. August.
Ranatra fusca P. B. In ponds and streams. April.
Corisa scutellata. In stock pond. March, October.
 harrisii Uhl. In stock pond. March, October.

HOMOPTERA.

- Cicada dorsata* Say. On prairie. August, September.
 pruinosa Say. In timber. July, September.
Publilia concava Say. On weeds in timber. June.
Entilia sinuata Fabr. On weeds in timber. May.
Ceresa albidospersa Stal. On hazel bushes. July.
Cyrtolobus vau Say. On bushes in timber. June.
 sp. In timber. June.
Ophiderma salamandræ Fairm. On *Psoralea floribunda*. June, July.
Vanduzea vestita Godg. On *Psoralea floribunda*. June, July.
Phylloscelis atrata Germ. On the prairie. July.
Dictyophora macrorrhina Walk. On weeds in timber. August.
Cixius stigmaticus Say. On weeds in timber. June.
Oliarus humilis Say. On weeds in timber. August.
 sp. On the prairie. July.
 sp. On the prairie. July.
Ketsea crocea Van D. On weeds in timber. May, June.
Stenocranus lautus Van D. On weeds in a swamp. June 15. Rare.
Delphacinus sp.
Æcalus decens Stal. On weeds in slough. June.
Stiprosoma stygica Say. On weeds in timber. May.

- Liburnia osborni* Van D.
puella Van D.
- Lamenia vulgaris* Fitch. On weeds in timber. August.
- Otiocera wolfii* Kirby. On weeds (*Urtica gracilis*?) in timber. July.
degeeri Kirby. On weeds (*Urtica gracilis*?) in timber. August.
- Bruchomorpha dorsata* Fitch. On weeds on prairie. August.
- Naso robertsonii* Fitch. On weeds on prairie. June.
- Dryotura robusta* O. & B. On weeds on prairie. June.
- Peltonotellus bivittatus* Ball. On weeds on prairie. July 3. Rare.
- Clastoptera xanthocephala* Germ. On weeds in timber. August.
obtusa Say. On weeds in timber. June.
proteus Fitch. On weeds in timber. June.
- Moncephora bicincta* Say. On weeds in slough. June.
- Bythoscopus distinctus* Van D. On walnut. June.
- Pediopsis tristis* Van D. At light. July.
suturalis O. & B. On *Salix amygdaloides*. June.
punctifrons Van D. In orchard. June.
trimaculata Fitch. In orchard. June.
- Idiocerus dugeei* Prov. At Westmoreland, Kan. July.
pallidus Fitch. On weeds in pasture. July.
- Agallia novella* Say. On weeds in timber. August.
quadripunctata Prov. On weeds in timber. May.
sanguineolenta Prov. On prairie. August.
- Xestocephalus pulicarius* Van D. On weeds in pasture. July.
- Tettigonia bifida* Say. On weeds in timber. August.
- Xerophloeia peltata* Uhl. On prairie. October.
viridis Fabr. On prairie. August.
- Gypona melanota* Speng. On weeds in timber. July.
albomarginata Woodw. On weeds in timber. June.
pectoralis Spang. On prairie. June.
sp. On weeds in timber. June.
- Hecalus lineatus* Uhl. In low meadow. August.
- Penthimia atra* Fabr. On weeds in timber. June.
- Paramesius stramineus* O. & B. On weeds on prairie. June.
- Parabolocratus flavideus* Sign. On weeds in pasture. June.
- Platymetopius frontalis* Van D. On hazel. June.
fuscifrons Van D. On weeds in timber. May.
- Deltocephalus compactus* O. & B. On prairie. June.
sayi Fitch. On weeds on prairie. September.
flavocosta Stal. On weeds on prairie. August.
melsheimeri Fitch. On weeds in slough. May.
oculatus O. & B. On weeds in slough. July.
inimicus Say. On weeds in slough. October.
- Athysanus magnus* O. & B. In pasture. October.
exitiosa Uhl. On weeds in pasture. October.
obtus Van D. On weeds in pasture. October.
bicolor Van D. On weeds in pasture. June.
anthracinus Van D. On weeds in timber. June.
comma Van D. On *Cassia chamaechrista*. August.
- Phlepsius majestus* O. & B. In timber.
altus O. & B. On weeds in pasture. July.
infumatus. On *Ambrosia artemisiæfolia*. August.
irroratus Say. On weeds on prairie. August.

- Thamnotettix clitellarius* Say. On hazel. June.
 kennicotti Uhl. On hazel. July.
- Eutettix strobili* Fitch. On weeds in timber. June.
 cincta O. & B. At light. August 3. Rare.
- Chlorotettix tergata* Fitch. On grasses. June.
 spatulata O. & B. In pasture. July.
 lusoria O. & B. On weeds in timber. June.
 galbanata Van D.
- Gnathodus abdominalis* Van D. On blue-grass. July.
- Cicadula exnotata* Fabr. On weeds in pasture.
 quadrilineata Forbes. On weeds in pasture. May.
 variata Fall. On weeds in pasture. October.
- Alebra albostriella* Fieb. On bur-oak in orchard. July.
- Diacraneura abnormis* Walsh. On weeds in pasture. July.
- Empoasca pura* Stal. On hazel. June.
 mali LeBaron. On apple. July.
 unicolor Gill. On *Amorpha fruticosa*. July.
 flavescens Fabr. Under dead leaves in timber. March.
 obtusa Fitch. In orchard.
- Typhlocyba tricineta* Fitch. Under dead leaves in timber. March, April.
 rubroscuta Gill. Under dead leaves in timber. March, April.
 trifasciata Say. Under dead leaves in timber. March, April.
 obliqua Say. Under dead leaves in timber. March, April.
 dorsalis Gill. On apple. October.
 nævus Gill. Under dead leaves in timber. March, April.
 fumida Gill. Under dead leaves in timber. March, April.
 comes Say. On apple. October.
 maculata Gill. Under dead leaves in timber. March, April.
 basilaris Say. Under dead leaves in timber. March, April.
 vitis Harris. Under dead leaves in timber. March, April.
 ziczac Walsh. On the prairie. July.
 coloradensis Gill. Under dead leaves in timber. March, April.
 scutellaris Gill. Under dead leaves in timber. March, April.
 infuscata Gill. Under dead leaves in timber. March, April.
 comes comes Say. Under dead leaves in timber. March, April.
 vulnerata Fitch. Under dead leaves in timber. March, April.
 querci Fitch. On bur-oak in orchard. July.
 querci bifasciata G. & B. In timber. May.
 crevecœur Gill. Under dead leaves in timber. March, April.
 niger Gill. In grove. April.
 bakeri. In timber. May.
- Psocus bifasciatus* Walsh. On weeds in timber. August.
 sp. On cottonwood. July.
 sp. In pasture. October.
 sp. In orchard. October.
- Pemphigus populi-transversus* Riley & Monell. On *Salix longifolia*. May.
- Siphonophora rudbeckiæ* Fitch.
- Trioza diospyri* Ashm. In orchard. April.
- Chaitophorus negundinis* Thos. On box-elder. May.
- Coecilius* sp. On apple. June.

- Aphis* sp. On apple. June.
 sp. On cherry. June.
 sp. On apple. June.
 sp. On weeds in orchard. June.
 sp. On *Prunus americana*. June.
Phlœothrips caryæ Fitch. In timber. June.
Aleyrodes sp. On weeds in slough. May.
 sp. On bur-oak in orchard. July.
Hæmatopinus urius Nitzsch. On domestic hog.
 piliferus Burm. On young dog. February.
Antonina boutelouæ Popenoe. On *Bouteloua hirsuta*; Manhattan, May.
 purpurea Sign. On *Milium* and *Agropyrum*; Manhattan, April 25.
 nortoni Parrott & Ckll. On *Milium racemosa*; Manhattan, April 2.
 graminis Pope. On *Eragrostis trichoides*; St. George, May 30. On
 Bulbilis dactyloides; Manhattan. On *Eragrostis trichoides*, *E.*
 pectinacea, *Paspalum ciliatifolium*; Hutchinson. On *E. trichoides*;
 Nickerson, August.
Gymnococcus nativus Pope. On *Sporobolus cryptandrus*; Nickerson, August.
Aspidiotus marlatti Parrott. On *Andropogon furcatus*, *A. scoparius*, *Panicum*
 virgatum, and *Chrysopogon arenaceus*.
Eriococcus kemptoni Pope. On *Andropogon scoparius*; Riley county, June 1.
 On *Andropogon scoparius*; Dundee, August.
Pseudolecanium obscurum Pope. On *Andropogon scoparius*; Lost Springs, Par-
 sons, and Fredonia. On *Andropogon scoparius* and *Sporo-*
 bolus longifolius; Green Mound, October 28.
 californicum Ehrhorn. On *Andropogon furcatus*; Manhattan
 and St. George.



Rehn, James A. G. 1905. "Notes and descriptions of Orthoptera from the western United States, in the entomological collection of the University of Kansas." *Transactions of the Kansas Academy of Science* 19, 221–231.

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