

known was a single male captured by the Rev. J. L. Zabriskie, Flatbush, Long Island, N. Y., and which is figured in *Insect Life*, Vol. IV, p. 199.

NOVEMBER 3, 1892.

President Riley in the chair. Eleven members present.

The Corresponding Secretary presented on behalf of the author the following paper:

**SUMMARY OF THE COLLECTION OF HEMIPTERA SECURED
BY MR. E. A. SCHWARZ IN UTAH.**

BY P. R. UHLER.

The collection of Hemiptera here enumerated is one of the most comprehensive and important that has ever been brought together from a limited area of a single Territory of the United States. It by no means represents the fauna of an entire district, nor even of that district for a single year; but it does show how rich the fauna of Utah may be, and how much more is yet to be discovered when the country is explored throughout the seasons and during a term of years. It would be but mere speculation to assume that we have yet seen much more than one-fifth of the great assemblage of forms which belong to this Territory. From ordinary analogy, however, we may fairly infer that as yet only a small proportion of the species belonging to any of the families of Hemiptera resident there have been brought to notice. As usual, the CAPSIDÆ form the largest division of the assemblage, being represented by 35 species; next come the LYGÆIDÆ with 16 species; the PENTATOMIDÆ follow with 15 species; and after these the smaller families, COREIDÆ with 8 species, ANTHOCORIDÆ with 8 species, SALDÆ with 6 species, TINGIDÆ with 4 species, ARADIDÆ with 3 species, REDUVIIDÆ with 5 species, SCUTELLERIDÆ with 3 species, CORISÆ with 3 species, and the HYDROBATIDÆ with only 1 species.

Taken alone, this collection, made during the short time from June 13 till July 4, 1891, would give a false impression of the Heteropterous fauna of Utah. Multitudes of the species already known from Colorado extend across the boundaries of these political divisions, and accordingly the families VELIIDÆ, GALGULIDÆ, NAUCORIDÆ, BELOSTOMATIDÆ, NEPIDÆ, and NOTONECTIDÆ must not be omitted from a correct enumeration.*

* Mr. Schwarz furnishes the following information regarding the localities mentioned in this paper:

The Homoptera collected during this excursion are too few in number to offer satisfactory suggestions as to the character of this fauna, so that a summary of this branch of the subject must be deferred until a later occasion offers more adequate knowledge.

SCUTELLERIDÆ.

1. *Homœmus bijugis* Uhler. Hayden, Geol. Surv. Montana, p. 393.

Six specimens were in the collection sent to me for examination. They were variable both in size and pattern of marking, and they were all secured at Wasatch, June 27, 1891.

2. *Corimelena extensa* Uhler. Amer. Ent. Soc. Proceed. 1863, p. 155.

Five specimens were collected at Ogden, Utah, July 3, 1891.

3. *Eurygaster alternatus* Say. Amer. Entom., vol. 3, pl. 43, fig. 3.

Numerous specimens of several varieties were collected near Great Salt Lake and at Wasatch from June 15 to June 27, 1891.

PENTATOMOIDEA.

1. *Zicrona cuprea* Dallas. Brit. Museum List. Heteropt., v. 1, p. 108, No. 2.

One specimen of the narrow and bronzed variety from Alta, June 30.

2. *Melanathus elongatus* Uhler. Hayden, Bull. U. S. Geol. Surv., v. 2, No. 5, p. 14.

One specimen from American Fork Cañon, June 21.

3. *Pangæus bilineatus* Say. Phila. Acad. Nat. Sci. Jour. iv; 315, No. 1.

Two specimens of small size from Wasatch, June 27.

4. *Prionosoma podopioides* Uhler. Entom. Soc. Phila. Proc., v. 2, 1863; p. 364.

One specimen from Pueblo, Col., but the species occurs also in Utah.

Alta—Alpine region of the Wasatch mountains; altitude 9,000-10,000'.

American Fork—Desert land in the vicinity of the town; altitude 4,600'.

American Fork Cañon—Lower part of the cañon; altitude 5,500-6,000'.

City Cañon—Lower part of the cañon; altitude about 4,500'.

Great Salt Lake—Southern and eastern shores of the lake, and adjoining desert land; altitude 4,200'.

Mill Creek—Within the irrigated district near Salt Lake City; altitude about 4,400'.

Ogden—Near the mouth of Ogden Cañon; altitude 4,500'.

Park City—Almost within the alpine region; altitude 7,500-8,000'.

Utah Lake—Swamps near American Fork, on the eastern shore of the lake; altitude 4,500'.

Wasatch—Within the mouth of Little Cottonwood Cañon; altitude 5,500'.

5. *Brochymena obscura* H. Schf. Wanz. Ins., vol. 5, p. 68, fig. 513.

Two specimens from American Fork Cañon, June 23; one from Mill Creek, June 17; and another from near Utah Lake, June 26.

6. *Carpocoris lynx* Fab. Entom. Syst., p. 110, No. 118.

One specimen of small size from Wasatch, June 27.

7. *Euschistus servus* Say. Heteropt. New Harmony, p. 4, No. 5.

Two specimens from Wasatch, June 27.

8. *Thyanta custator* Fab. Syst. Rhyng., p. 164, No. 43.

One specimen from vicinity of Great Salt Lake, June 13, and three others from Wasatch, June 27.

9. *Thyanta rugulosa* Say. Heteropt. New Harmony, p. 7, No. 16.

Four specimens from near Great Salt Lake, June 14, and July 4; also one from the American Fork Cañon, June 23, and another from Alta, July 1.

10. *Lioderma congrua* Uhler. Hayden, Bull. U. S. Geol. Surv. 1876, p. 22, No. 2.

One specimen from Alta, June 29, and another from Wasatch, June 27.

11. *Lioderma sayi* Stal. Enum. Hemipt., v. 2, p. 33, No. 6.

Four specimens from near Great Salt Lake, June 15 and 23.

12. *Lioderma ligata* Say. Heteropt. New Harmony, p. 5, No. 6.

Two specimens from the American Fork Cañon, June 23.

13. *Nezara hilaris* Say. Insects of Louisiana, p. 9.

One specimen from the American Fork Cañon, June 26, and another from City Cañon, June 23.

14. *Neottiglossa sulcifrons* Stal. Enum. Hemipt., v. 2, p. 18, No. 2.

Two unusually large and dark specimens were secured at Wasatch, June 27.

15. *Eysarcoris intergressus*. New sp.

Form of *Eysarcoris melanocephalus* Fab., but with a more quadrilateral and regular head. Ground color dull fulvous, clouded with slightly darker patches on the upper surface; the head, callosities and disk of venter more polished than other parts. Upper side of head bronzed blackish, coarsely irregularly punctate, with the lateral lobes broad, indented next the end of the tylus, and a little longer than that member, also a little widened near the tip and with the outer angles a little rounded; the rostrum slender, flavo-testaceous, piceous at tip, reaching behind the posterior coxæ; antennæ flavo-testaceous, piceous at base and on most of the apical joint, basal joint stout, not quite reaching the tip of head, second and third joints longer, subequal, the fourth a little longer, all the joints clothed with stiff

pubescence. Pronotum moderately convex, with a sunken dot each side of middle of disk, and an indented spot on the same transverse line nearer the outer border, the callosities and anterior corner bronze-black, lateral margins slender, strongly reflexed, pale anteriorly, the humeral angles normally prominent and rounded. Legs honey-yellow, pointed and sprinkled with piceous, the posterior femora with an uneven piceous band near the tip. Pleural and epipleural segments black, polished, punctate. Scutellum moderately convex, mottled with brown, wrinkled, marked at base with a central yellow dot, and in each corner with a similar dot, and with a few vestiges of the same color across the suture and between the others, the punctures fuscous and becoming finer posteriorly. Hemelytra more coarsely punctate at base, tapering towards the apex and gently curved on the costal border, but strongly curved, and a little sinuated next the scutellum on the inner border; the membrane milky-whitish, with the veins pale piceous. Embolium and connexivum orange-yellow, the latter with a black dot on each of the segments. Venter blackish, polished, punctate, broadly bordered with yellow, and with one or two of the apical segments brighter yellow.

Length to end of venter $5\frac{1}{2}$ -6 millim; width across the humeral angles $3\frac{1}{2}$ -4 millim.

One specimen was taken in the American Fork Cañon, June 21. It is a female of somewhat larger size than others which I have seen, and which were collected in Kansas and California. This insect should not be confused with the dwarfed form of *Cosmopepla conspicillaris* Dallas, which it closely resembles. The latter has the joints of the antennæ chiefly black, the ridge across the pronotum is orange or reddish and polished, and the membrane is smoky brown.

COREIDÆ.

1. *Corizus hyalinus* Fab. Ent. Syst., vol. 4, p. 168, No. 115.
Two specimens from near Utah Lake, June 26.

2. *Corizus lateralis* Say. Phila. Acad. Nat. Sci. Journ., vol. 4, p. 320, No. 4.

Two specimens from the vicinity of Great Salt Lake, June 15 and 26.

3. *Corizus pictipes* Stal. Enum. Hemipt., vol. 1, p. 223; Fregat. Eugenie resa. Ins., p. 239, No. 48.

A male of the common variety was secured near Great Salt Lake, June 16.

This insect was separated from *C. sidae* Fab. upon differences of color and pattern of marking, which are merely varietal. It is a most variable insect in size, color, and style of marking, the colors extending all the way from a pale green with gray and white spots and bands, to a bright orange with fuscous, black, brown, and white decoration.

4. *Corizus punctiventris* Dallas. Brit. Mus. List. Heteropt., vol. II, p. 523.

Four specimens were collected at Wasatch, June 27.

It is the Canadian species which spreads from the province of Quebec across the region of the great lakes westward to the Pacific States and from thence keeps on all the way south into California and Northern Mexico.

5. *Corizus validus*. New sp.

This is more robust than any of the other species thus far discovered in North America. It is of a pale greenish testaceous color, closely whitish pubescent, remotely and minutely sprinkled with dark brown on the upper surface, and less distinctly so on the under surface, the legs also sprinkled, and each tarsal joint black at tip. Head a little longer than wide, the vertex and front coarsely punctate and wrinkled, closely setose-pubescent, back of head with a depressed longitudinal line, and the space between the eye and ocellus raised like a tubercle; rostrum reaching upon the posterior coxæ, marked with a piceous line throughout its length; antennæ stout, the basal joint a little dotted and streaked with black, the tip of the second and third joints and apical two-thirds of the fourth joint fuscous. Pronotum coarsely unevenly punctate with the intervals between the punctures swollen, surface each side of disk, posteriorly, convexly raised, humeral angles tubercular, bordered behind by a curved, pale lamella, the posterior submargin forming a curved ridge which is marked with brown spots, lateral margin bent down, the middle line unevenly sulcate and occupied by a slender, pale carinate line, the anterior margin depressed, bounded behind by a transverse ridge back of which the surface is thrice indented, and each anterior angle set with a tubercle. The scutellum subacute at tip, with the border upturned there, the base scooped out and bordered each side by a short callous ridge, the middle line obsoletely ridged, bounded each side by several lines of coarse punctures. Wing-covers pale testaceous, translucent, the veins marked with remote brown spots, the membrane milky-transparent, very obsoletely sprinkled with brown. Pleural pieces pale greenish, coarsely punctate, the mesopleura especially coarsely so. Venter polished, punctate, minutely sprinkled with brown, the tergum greenish, finely punctate, its disk marked with black areas of variable size, the middle ones being separated by slender cruciform lines of the ground color, the black marking either carried back from the large spot of the penultimate segment as a fusiform streak or divided into a series of geminate dots; connexivum with a small brown slender spot at the incisure between the segments. Length to tip of venter, $7\frac{1}{2}$ -8 millim; width of base of pronotum, $2\frac{3}{4}$ -3 millim.

Two specimens were secured near Great Salt Lake, June 13, and another at Alta, Utah, June 30, from an elevation of 10,000 feet above tide. It belongs to the group of *C. sidæ* Fab., but it is much stouter and larger. Specimens in my own collection

were captured in Oregon by Dr. G. H. Horn, and at Fort Tejon, Cal., by Dr. John L. LeConte.

6. *Corizus*. New sp.

A single specimen of a form closely related to *C. nigristernum* Sigt. was captured at Alta, June 30. This individual specimen will not serve to adequately define the species, and so we leave it for description until a number of specimens shall have been secured.

7. *Harmostes reflexulus* Say. Heteropt. New Harmony, p. 10, No. 1.

Three specimens from Wasatch, June 27. This is a most variable species, which inhabits mountain, plain, or valley in almost every section of the United States.

8. *Leptocoris trivittatus* Say. Phila. Acad. Nat. Sci. Journ., vol. 4, p. 322, No. 2.

One specimen from Ogden, July 3.

LYGÆIDÆ.

1. *Nysius californicus* Stal. Eugenie Resa. Hemipt., p. 242, No. 5.

Numerous specimens were collected at various stations, such as Wasatch, June 27; American Fork Cañon, June 23; Alta, at 10,000 feet above sea-level, June 29, and near Great Salt Lake, June 13.

2. *Nysius angustatus* Uhler. Hayden, Geol. Surv. Montana, p. 406, No. 2.

Many specimens were secured at American Fork Cañon, June 23; near Great Salt Lake, June 15; at Alta, June 29, and at Wasatch, June 27.

3. *Nysius*. New sp.

A small form, apparently undescribed, was met with at Wasatch, June 27.

4. *Cymus luridus* Stal. Enum. Hemipt., vol. 4, p. 126, No. 1.

Three specimens were secured near Utah Lake, June 26.

5. *Cymus*. New sp.

Two specimens, probably new to science, were captured near Utah Lake, June 20.

6. *Cymodema tabida* Spin. Essai sur les Hemipt., p. 213.

One specimen was taken near Utah Lake, June 20.

7. *Crophius disconotus* Say. Heteropt. New Harmony, p. 14, No. 6.

Several specimens were captured near Utah Lake, June 20, and one was found at American Fork, June 24.

8. *Geocoris decoratus* Uhler. Hayden, Bullet. U. S. Geol. Surv., vol. 3, p. 410, No. 3.

Two specimens were secured near Great Salt Lake, June 25.

9. *Geocoris piceus* Say. Heteropt. New Harmony, p. 18, No. 1.

Two specimens of the black variety were collected near Great Salt Lake, June 25.

10. *Ptochiomera*. New sp.

One specimen, apparently new to science, was obtained at Wasatch, June 27.

11. *Emblethis arenarius* Linn. Fauna Succica, p. 955.

Several specimens of this common and widely distributed European insect were found near Great Salt Lake, June 25; near Utah Lake, June 20, and near American Fork, June 24.

12. *Eremocoris ferus* Say. Heteropt. New Harmony, p. 16, No. 4.

One specimen was taken at Wasatch, June 27, and another at Alta, June 30.

13. *Megalonotus sodalicius* Uhler. Wheeler, Geol. Surv. Zool., p. 835, pl. 42, fig. 2.

One specimen was obtained at Wasatch, June 27.

14. *Cryphula*. New sp.

The immature condition of this specimen renders the reference to this genus uncertain. It was taken near Mill Creek, June 16.

15. *Lygaeus bistriangularis* Say. Heteropt. New Harmony, p. 14, No. 3.

One specimen, a variety, was taken at Wasatch, June 27.

16. *Lygaeus bicrucis* Say. Phila. Acad. Nat. Sci. Journ., vol. 4, p. 322, No. 2.

Specimens were taken at Wasatch, June 27, and at Alta, June 30.

CAPSIDÆ.

1. *Trigonotylus*. New sp.

Only one specimen was taken. It was found near Great Salt Lake, June 15, and does not offer material sufficient for description.

2. *Clivinema villosa* Reuter. Ofver. of Kongl. Vetensk. Akad. 1875, p. 63.

Three specimens were captured on Bigelovia, near American Fork, June 22 and 24. They are exceptionally fine and well-marked examples of this remarkable insect. The genus is now seen to be represented in Massachusetts, Texas, and Utah.

3. *Lopidea circumcincta* Say. Heteropt. New Harmony, p. 23, No. 14.

One specimen from Ogden, July 3.

4. *Mimoceps gracilis* Uhler. Md. Acad. Sciences, Trans., 1890, p. 85.

Several specimens, with clear bright markings, were obtained near Utah Lake, June 26.

5. *Diommatus congrex* Uhler. Entom. Americana, vol. 3, p. 33.

One specimen from the vicinity of Mill Creek, June 16. This insect, hitherto known only from the eastern United States, adds another interesting form to the long list which is increasing as the western country is becoming investigated.

6. *Bolteria picta*. New sp.

Pale yellow, polished, striped with black. Head narrower than in *B. amicta*, and not so closely enclosing the front of pronotum as in that species, the vertex marked with two large and broad, but short black stripes, cheeks and exterior border of the tylus, as also rostrum and antennæ, black, the rostrum reaching to the middle coxæ. Pronotum transverse, minutely pubescent, moderately convex, strongly sloping anteriorly, the sides oblique, evenly bordered, the anterior submargin and the posterior border black. Scutellum black, transversely impressed at base, lobate behind this point, with an orange spot on each angle and at tip. Sternum black; legs and coxæ yellow, the tibial spines, long spots on the femora and the tarsi blackish. Wing-covers pale yellow, with the inner margin, very slender line on the outer border of the clavus, a gradually widening line on the middle and a narrower one next the costal border and an ovate spot on the cuneus shining black, the areole of base of membrane blackish, membrane a little tinged with fuliginous, and with a darker streak running back from the vein. Venter polished, black.

Length to tip of abdomen—♂ 3, ♀ $3\frac{1}{4}$ millim; width of base of pronotum, $1-1\frac{1}{4}$ millim.

Several specimens of this showy little insect were taken on *Artemisia tridentata* at American Fork, June 22, 1891.

It is a narrower and less robust form than *B. amicta*, and it has the exterior margin of the corium a little more curved.

7. *Stiphrosoma croceipes*. New sp.

Narrower and smaller than *S. stygica* Say. Highly polished, brilliant bluish-black, with the apical half of the femora orange-yellow. Head convex between the eyes, exceptionally high polished, not apparently punctate; antennæ long and slender, dull black, with the basal joint orange-yellow; rostrum piceous-black, reaching upon the middle coxæ; eyes projecting laterally as wide as the base of pronotum. Pronotum strongly convex, unevenly scabrous and punctate, with the callosities tumidly convex, and the anterior angles suborbicularly rounded, the lateral border bent down. Scutellum convex, minutely wrinkled, remotely punctate. Posterior tibiæ, spines of all the tibiæ, and all the tarsi piceous. Pleural flaps coarsely, obsoletely punctate. Hemelytra finely polished, coarsely punctate, the punctures more regular on the clavus, but obsolete on the distended disk of the corium; cuneus obsoletely punctate and feebly wrinkled; membrane smoke-brown, darker in the areole, and with a

whitish line next the cuneus. Venter polished, very indistinctly and remotely punctate.

Length to end of venter, 3 millim; to tip of membrane, $3\frac{1}{2}$ millim; breadth of base of pronotum, $1\frac{1}{4}$ - $1\frac{1}{2}$ millim.

The description is based upon two male specimens from Los Angeles, Cal., which were kindly sent to me by Mr. D. W. Coquillett. Several specimens were collected at American Fork, June 22.

8. *Lygus pratensis* Linn. Fauna. Suec., 949; Fabr. Syst. Rhynch., p. 234, No. 155.

This common European species is spread over the greater part of North America, including Mexico and Canada. It is also remarkably variable in size, form and colors. Several of its common forms were secured, in numbers, by Mr. Schwarz, at Salt Lake City, June 15; Wasatch, June 27; Alta, June 23; and near Utah Lake, June 26.

9. *Lygus*. New sp.

A single specimen, not enough for description, was obtained at Alta, June 30.

10. *Systratiotus americanus* Reuter. Ofvers. Kongl. Vetens.-Akad. Förhandl., 1875, p. 73.

Five specimens, including both sexes, were secured at Wasatch, June 27.

11. *Poeciloscytus unifasciatus* Fab. Entom. Syst., vol. 4, p. 187, No. 153.

One specimen was obtained at Wasatch, June 27. In Europe it occupies grassy spots in hilly places. It occurs abundantly in the province of Quebec.

12. *Capsus*. New sp.

A single specimen, unfit for description, was taken at Wasatch, June 27.

13. *Capsus*. New sp.

One specimen, unsuitable for description, was captured at Park City, June 17.

14. *Capsus*. New sp.

This was taken in the American Fork Cañon, June 23.

15. *Capsus*. New sp.

The single specimen, also captured in the American Fork Cañon, June 23, is unfit for description.

16. *Hadrodema pulverulenta* Uhler. Trans. Md. Acad. Sci. 1892, p. 183.

One specimen was taken near Utah Lake, June 26. It is a common species which is widely distributed on both sides of the continent. I have examined specimens which were collected in Mass., Conn., New York; New Jersey, P. Wild; Penna., York county, in gardens, on blossoms of Privet, *Ligustrum vulgare*

Linn; Illinois, by Mr. Stromberg; Rock Island, B. D. Walsh; near Evanston, Robert Kennicott; Kansas; Wisc.; Waco, Texas, Mr. Belfrage; Washington, D. C., June 7, O. Heidemann; Fredericksburg, Va., by myself; Georgia, near Atlanta, Mr. Morrison; Maryland, Anne Arundel and Prince George counties, June 5-10, by myself. This species is very near to *H. rubicunda* Fallen, and differs from it most in the proportion of the second joint of the antennæ. It is somewhat variable in depth of colors, but it has not been found of the rosy-red color common to specimens from Europe. It is generally of a pale dull fulvous color, with a whitish powdery aspect, caused by the flat, whitish pubescence, and the vein of the areole is also generally white.

17. *Camptobrochis schwarzi*. New sp.

Ivory yellow, highly polished, above conspicuously, sparsely punctate with brown; form a little less robust than that of *C. nebulosus*. Head highly polished, convex, crossed near the base by a curved brown band, the brown color spreading down each side of face and leaving an oblong oval pale spot on the middle, each side of tylus lined with piceous, sutures of the cheeks also piceous; eyes dark brown; rostrum yellowish testaceous, piceous at tip, reaching between the middle coxæ; antennæ of normal length, and medium thickness, the basal joint usually dark at tip, the second with two dark bands, that of the apex darkest, the two apical joints united scarcely as long as the second one, infuscated except at the points of articulation. Legs honey yellow, minutely sprinkled with brown, the femora with two piceous bands near the tip, and sometimes a little piceous beneath, tibiæ also with two wider bands, the nails and tip of tarsi usually piceous. Pronotum strongly convex, rather coarsely, unevenly, roughly punctate with pale brown, the callosities prominent, convex, either all black, or spotted with black or dark brown, the collum sharply defined, ivory white, preceded by a piceous border on the head, posterior margin white, sharply defined, obsolete sinuated next the scutellum, the sides widely rounded off, sinuately bordered, with the lateral flap pale and carrying a piceous spot behind the eye. Scutellum prominently convex, highly polished, ivory yellow, with a large, black, obconical spot running out from the base to next the tip, which is set with a very few coarse punctures. Beneath pale testaceous, becoming darker on the sides and venter, the prosternum with a small black spot in front of the anterior coxæ, back of this a black spot appears farther out next the meso-pleuron and from a series extends backward to the base of the ultimate segment of the venter. Hemelytra either ivory yellow, or pale testaceous, deeply somewhat irregularly punctate, minutely pubescent, convexly inflated in the middle, the punctures of the disk and behind being generally darker brown, the coarse pale vein of the corium callous on the middle and marked by a dark brown spot which often continues back in a streak to the inner corner of the cuneus; the cuneus pale, marked at tip with a dark brown spot; the posterior border of the corium is also some-

times brown; membrane faintly tinged with brown, vein of the basal areole interruptedly brown. Length to end of abdomen, 4-4½ millim; to tip of membrane, 5-5½ millim; width of base of pronotum, 2 millim.

This pretty insect stands between *C. nebulosus* and *C. grandis*. It is variable in the amount and depth of dark marking of the surface, and that depends to some extent upon the maturity and vigor of the individual. Soft specimens are almost always paler and less extensively marked than those which are firmer and stronger.

Several specimens, mostly males, were captured at American Fork, June 22, 1891. I have examined others which were collected by Dr. Hagen near Ellenborough, on the Yakima river, Washington Territory, July 8, 9, 1882; and others have been in my possession which were brought from British Columbia by Robert Kennicott, and from other parts of the northwest territories of the United States by various persons.

18. *Phytocoris eximius* Reuter. Ofvers. Kongl. Vetens.-Akad. Förhandl., 1875, p. 67.

Three specimens were taken in the American Fork Cañon, June 23. The species is now known to have a very extended distribution. I have examined specimens which were collected in Massachusetts, New York, New Jersey, Pennsylvania, Maryland, North Carolina, District of Columbia, Virginia, Georgia, Florida, Texas, Arizona, and Northern Mexico.

19. *Orthotylus*. New sp.

One specimen from near Great Salt Lake, June 13. Not sufficient for description.

20. *Orthotylus*. New sp.

One specimen was taken in the American Fork Cañon, June 23. It will not admit of description.

21. *Psallus*. New sp.

A single specimen was obtained in the American Fork Cañon, June 23. It will not serve for correct description.

22. *Psallus*. New sp.

One specimen was secured at Wasatch, June 27. It will not serve for description.

23. *Asciodema inconspicua*. New sp.

Greenish-white, long and narrow, tender, dull, the upper surface with minute erect, black remote pubescence. Vertex a little yellow, transversely depressed above, followed below by the curved, impressed bounding line, and a longitudinal faintly impressed line on the middle, occiput carinate-ridged, front smooth, not apparently punctate, moderately convex; rostrum reaching between the middle coxæ, piceous at tip, the tylus stout and very prominent, antennæ long, the basal and second joints stout, more or less discolored, the second fuscous at base. Pronotum transverse,

parallel-sided, the lateral margins oblique, middle of the posterior submargin with two small, approximate, faint fuscous dots, the surface almost flat, but each side conspicuously set with stiff black short hairs. Scutellum feebly convex, pubescent, the middle line smooth, becoming wider on the tip. Sternum green, paler on the pleural areas. Legs pale yellowish-green, with the spines a little brown, and the nails piceous. Wing-covers flat, long, opaque, clothed with remote, erect, blackish pubescence, the color dull greenish; the membrane long, faintly tinged with fuliginous at base, and with the basal vein faintly brown. Venter green, with the connexivum paler.

Length to tip of venter, $2\frac{1}{2}$ millim; to tip of membrane, $3\frac{1}{2}$ millim; breadth of base of pronotum, about 1 millim.

Three specimens were collected near American Fork, June 22.

This is a delicate and flabby little insect, which can hardly be compared with any other species known to me. It is remarkable for the long, stout antennæ, which in some of the specimens are discolored almost throughout.

24. *Atomoscelis seriatus* Reuter. Ofvers. Kongl. Vetens.-Akad. Förhandl., 1875, p. 91.

Two specimens were secured near Great Salt Lake, June 13. This neat little species is now known from various parts of the South and West, and I have examined specimens from Maryland and the District of Columbia.

25. *Atomoscelis pilosulus*. New sp.

White, opaque, with a faint greenish or yellowish tinge, narrower than *A. seriatus* Reuter, the upper surface closely spread with white, silky pubescence which easily rubs off and leaves a polished surface. Head moderately convex, the face blunt, eyes pale brown, rostrum pale, piceous at tip, reaching behind the posterior coxæ. Antennæ moderately stout, the basal joint black, with a narrow whitish tip, the second blackish, somewhat testaceous towards the tip, third and fourth fuscous, in one specimen the apical half of the second joint is pale, and the two last joints are pale testaceous. Pronotum transverse, feebly convex, scutellum nearly flat, wing-covers long, flat, white; the membrane opaque, milk-white. Legs dull white, the knees, spines of tibiæ, and the fine dots at the origin of the spines black. Beneath dull white, the venter sometimes tinged with green.

Length to end of abdomen, $1\frac{3}{4}$ -2 millim; to tip of membrane, $3-3\frac{1}{4}$ millim; width of base of pronotum, about 1 millim.

Several specimens were collected on *Bigelovia* near American Fork, June 22.

26. *Orthotylus*. New sp.

One specimen was taken in the American Fork Cañon, June 23, but it is not sufficient for description.

27. *Orthocephalus*. New sp.

A damaged specimen is in the collection from Wasatch, taken June 27. It is a pretty species, with red legs.

28. *Halticus Uhleri* Giard. Société de Biologie, Compt. Rend., 1892, 9 ser., v. 4, p. 81. *Halticus minutus* Uhler. Ms. Popenoe, Kans. Exper. Station. Second Annual Report, 1889, p. 212, pl. IX, figs. 10 and 12.

This species is now known to be widely distributed in the United States, and in many localities of Maryland, Virginia, and Pennsylvania it is extremely abundant upon cabbages in the gardens. It has been found a few times by the writer upon burdock, *Lappa major*, in the neighborhood of Baltimore. The leaves of this plant were almost covered by the great number of these little flea-like hoppers, which jumped off into the surrounding soil upon the lightest approach of the collecting net. It occurs fully winged in July, but the greater number of the females appear in the unfinished state which preserves the more robust and convex figure, with the short and completely coriaceous wing-covers. Other specimens in my collection were obtained at the following localities: Rock Island, Ill., B. D. Walsh; St. Louis, Mo., O. Luger; Washington, D. C., and Berkeley Springs, Va., O. Heide-mann; York county, Pa., F. E. Melsheimer; Egg Harbor, N. J., J. P. Wild; mountains of North Carolina, Dr. J. B. Bean; Orange Springs, Fla., Grimsby; Canada, J. Petit; Riley county, Kansas, E. A. Popenoe; American Fork Cañon, E. A. Schwarz. The name *minutus*, at first given to this species, is preoccupied by that of M. Reuter for a species found at Singapore.

29. *Agalliastes obliquus*. New sp.

Black, polished, form similar to that of *A. simplex*. Head wide, the eyes prominently projecting beyond the sides of the pronotum, occipital rim of head elevated, face highly polished, prominently convex; antennæ moderately long, black, the second joint thicker, but not as long as the third and fourth united; rostrum black at base and tip, piceous on the middle, reaching to behind the middle coxæ. Pronotum a little wider than long, minutely and obsoletely wrinkled, moderately convex, indented on the middle, the callosities like two geminate raised dots, the humeral angles prominently rounded, surface in front of the posterior margin sometimes marked with a lunate yellow spot; scutellum moderately convex, obsoletely wrinkled. Wing-covers dull black, minutely pubescent, and punctate, with a broad yellow stripe tapering backwards and occupying a large part of the clavus, margin of the corium broadly yellow, forming a stripe which widens behind and nearly covers the cuneus; membrane long in the male, shorter and wider in the female, pale, but marked from the base out with a dark cloud-like spot. Legs long, yellow, the posterior femora and all of the coxæ black, excepting tips of the latter, tarsi tinged with piceous. Beneath black, polished.

Length to tip of venter, 2-2 $\frac{1}{4}$ millim; width of base of pronotum, about 1 millim.

This novel and beautiful insect was found at Wasatch, June 27. The females are broader than the males, and, as usual, have the eyes less prominent and placed closer to the front of pronotum.

30. *Agalliastes uniformis*. New sp.

Black, highly polished, moderately flat, form of *A. associatus* Uhl., from which it differs chiefly in having a black rostrum and black legs. Hemelytra black, highly polished; the membrane smoke-brown, with the cell darker.

Length to tip of membrane, $2-2\frac{1}{4}$ millim; width of base of pronotum scarcely 1 millim.

Four specimens were secured, June 22, near American Fork, Utah.

31. *Agalliastes associatus* Uhler. Hayden, Report on Montana, p. 419.

This is a common species, of which specimens have been obtained at Ogden, Utah, also at Wasatch, June 27, in various parts of Colorado, as well as in New Mexico and in Texas.

It is possible that fresh specimens of this insect may show the silvery flecks common to other black species of a similar kind.

32. *Agalliastes stigmosus*. New sp.

Short and broad, flat, pale grayish, sparsely sericeous pubescent. Head smooth, yellow, vertex almost as wide as the front of the pronotum, very short, marked each side with a minute dot, and with a very slender black border behind; front tumid, chestnut brown, marked below with a black dot, the transverse suture and a small spot next the tylus black; rostrum reaching behind the middle legs, growing piceous from the middle to the tip; antennæ slender, yellow, the basal joints short, black, pronotum transverse, almost flat, yellowish white, smooth, with deflexed, oblique sides, marked anteriorly with a transverse brown line which is sometimes interrupted in the middle; sternum brown on the middle; pleural flaps opaque white, with a brown, raised dot just below the humerus. Legs dull white, sometimes a little brownish at the tip of the femora, the spines and most of the tarsi blackish. Scutellum almost flat, ivory white, transversed by a longitudinal brown streak, and with the basal angles and a geminate brown spot at base. Hemelytra obsoletely clouded with two brown streaks posteriorly, more distinctly pubescent than the pronotum, the caneus marked with a pale fuscous spot, and the membrane a little fuliginous in the areole. Tergum depressed, marked with black spots on the sides, posteriorly venter dull whitish, having an oblique dark stripe each side of the penultimate segment, a larger brown mark on the apical segment, the genital sheath of female and the minute inner angles of the connexivum more or less piceous.

Length to end of venter, $2\frac{1}{4}$ millim; to tip of membrane, $2\frac{3}{4}$ millim; width of pronotum, 1 millim.

This species is sharply marked by the brown bands and marks of the head, pronotum, and scutellum, and is well separated from the related species with a spot on the cuneus by its broader form. In the shape of its head, pronotum, and scutellum it bears some resemblance to the pale species of the genus *Geocoris* Fallen.

Specimens were collected at American Fork, June 22.

33. *Agalliastes decolor*. New sp.

Less robust than *A. stigmatosus*, the male much longer and narrower than the female, beneath black, shining, above chiefly smoky whitish. Head blackish, having a yellowish brown band across the base of the depressed vertex; antennæ moderately long, black or fuscous; bucculæ and rostrum pale, the latter reaching to the posterior coxæ. Pronotum whitish testaceous, transverse, polished, not conspicuously pubescent, moderately convex, with the callosities prominent and sometimes discolored, the sides oblique. Scutellum with a broad blackish stripe on the middle, bounded at base with yellow. Legs black, the posterior tibiæ pale and set with black spines. Middle line of sternum pale piceous. Hemelytra narrow, translucent, finely pubescent, the cuneus marked with a triangular fuscous spot; the membrane faintly smoky, with the veins of the areole white. Abdomen polished black.

Length to end of venter, ♂ 2, ♀ $1\frac{3}{4}$ -2 millim; to tip of membrane, ♂ $2\frac{1}{2}$, ♀ $2\frac{1}{4}$ - $2\frac{1}{2}$ millim; width of pronotum, hardly 1 millim.

The delicacy and softness of the hemelytra suggest the inference that the four specimens observed are not mature. These were obtained at American Fork, June 22.

Other specimens of considerably larger size were collected by Mr. Coquillett near Los Angeles, Cal.

Two other species of *Agalliastes* were collected by Mr. Schwarz, the one at Mill Creek on June 16, the other at Salt Lake on June 13, but the specimens will not serve for description.

ACANTHIDÆ.

1. *Piezostethus californicus* Reuter. Monog. Anthocor., 1885, p. 600.

One specimen was secured near Utah lake on June 20.

2. *Anthocoris* sp?

Two, or perhaps three, species of this genus were collected at Alta and Mill Creek on June 16, 29, and 30.

3. *Lyctocoris* sp?

Forms which appear to belong to two species were captured at Park City on June 17, and at Alta on June 29 and 30.

4. *Triphleps* sp?

Two species, may eventually prove to become new when more specimens are obtained, were collected, the one at American Fork on June 24, and the other at Wasatch on June 27.

TINGITIDÆ.

1. *Piesma* sp?

Specimens of one species were secured near Mill Creek on June 16, and another was captured in the American Fork Cañon on June 23.

2. *Corythuca fuscigera* Stal. Enum. Hemipt., III, p. 122, No. 1.

Specimens were found on a species of *Arnica* in the American Fork Cañon on June 23, and at Wasatch on June 27.

3. *Gargaphia* sp?

Three specimens of a form related to, if not the same as, *G. fasciata* Stal, were secured at the American Fork Cañon on June 23.

4. *Monanthia* sp?

Two forms, possibly new to science, were collected at Wasatch on June 27.

ARADIDÆ.

1. *Aradus marginatus*. New sp.

Dark brown, narrow, closely related to *Aradus affinis* Kirby; but the pronotum is much more deeply sinuated on the sides anteriorly, and the posterior lobes are accordingly more amplified. Head long and with slender, acute lateral spines; antennæ slender, the second joint a little longer than the third and fourth united, growing a little thicker towards the tip, third joint one stage thicker, equal to the fourth, with the apical half white, fourth joint a very little thicker, fuscous, acuminate at tip. Cranium with a sunken arc around and behind the granulated, elevated, and rib-margined vertex, the neck narrowed and very distinct, rostrum fuscous, reaching between the anterior coxæ, the basal joint pale brown. Pronotum paler brown, thin, remotely granulated on the disk and forwardly, the two middle carinæ coarse beginning anteriorly in a coarse granule, anterior angles acute, postero-lateral lobes large, subangularly rounded, the posterior margin between the lobes either straight or feebly waved. Scutellum transversely rugulose, sunken at base and sunken before the tip. Hemelytra narrow, almost straight, the costal margin very feebly curved at base and paler there, cross-veins few and far apart, membrane large, white, faintly brown in some of the areoles; the cuneus and larger areoles of the corium almost hyaline. Connexivum marked with pale incisures of the segments.

Length—♂ 4, ♀ 5 millim; width of base of pronotum, $1\frac{1}{2}$ -2 millim.

Three specimens were collected, two at Park City, June 17, and the other at Alta, Utah, June 30.

2. *Aradus ampliatus* Uhler. Hayden, Bullet. U. S. Geol. Surv., 1876, p. 55, 6.

One specimen was collected at Alta, July 1.

3. *Aradus rectus* Say. Heteropt. New Harmony, 1831, p. 29, 4.

One specimen was taken at Alta, June 30.

REDUVIOIDEA.

1. *Coriscus ferus* Linn. Fauna Suec., p. 962. Fieber, Europ. Hemipt., p. 161, 9.

Two specimens were secured near Salt Lake, June 13.

2. *Pagasa pallipes* Stal. Enum. Hemipt., III, 1873, p. 108, 3.
One specimen is in the collection from Salt Lake, obtained June 25.

3. *Fitchia nigrovittata* Stal. Enum. Hemipt., II, 1872, p. 79, 1.

A single specimen was secured at Wasatch, June 27. It is found also in South Carolina, Texas, New Jersey, and Massachusetts.

4. *Apiomerus ventralis* Say. Heteropt. New Harmony, 1831, p. 31, No. 2.

One Specimen from near Salt Lake, captured June 14.

5. *Hymenodectes culicis* Uhler. Trans. Md. Acad. Sci., 1892, p. 181.

Two specimens were taken near Salt Lake on June 14. Others have been collected in S. Florida, Cuba, Arizona, and the District of Columbia.

HYDRODROMICA.

1. *Hygrotrechus remiges* Say. Heteropt. New Harmony, 1831, p. 35, 1.

One specimen was taken at Ogden on July 3.

SALDIDÆ.

1. *Salda interstitialis* Say. Journ. Philad. Acad., IV, 1825, p. 324, 1.

Numerous specimens were collected at three localities visited during this trip. These were—Wasatch, June 27; Alta, June 29-30, and American Fork Cañon, June 21. The species is extremely abundant in the States east of the Rocky Mountains, and it is now known to extend from British America to Southern California, not only on the plains and river bottoms, but also on damp loamy spots in the Rocky Mountains.

2. *Salda humilis* Say. Heteropt. New Harmony, 1831, p. 35, 4.

Four specimens were taken near Salt Lake on June 25.

3. *Salda littoralis* Linn. Fauna Suec., p. 246, 915. Fieber, Europ. Hemipt., p. 147, 15.

Specimens were obtained at Salt Lake on June 14. It is a common European species which varies in about equal degree on both sides of the Atlantic ocean. As far as our present knowledge extends, it belongs to the States north of the Ohio and the Arkansas rivers, rather than to those south of that parallel.

4. *Salda polita* Uhler. Hayden, Bulletin U. S. Geol. Surv., 1877, p. 441, 11.

This peculiar and most interesting form was found by Mr. Schwarz to be quite numerous on the shores of Salt Lake, where he collected specimens on June 25. The types were obtained in the vicinity of San Diego, Cal., from which locality it was only known heretofore. The specimens from California are notable for being about twice as large as those from Salt Lake.

The exaggerated length of the antennæ and thickness of the apical joints is a marked feature of this species.

5. *Salda dispersa*. New sp.

Very closely related to *S. pallipes* Fab., of Europe, and having the white marks of the hemelytra essentially the same as in that species. The general form is also the same, but the pronotum is a little narrower, with the lateral margins less curved, almost directly oblique. This insect varies so much in the amount and distribution of the white marking of the hemelytra that no satisfactory definition can be given of its ornamentation. In general, however, it may be seen to have a broad black band across the base of the hemelytra connecting with the continuous black clavus, and thus forming the inner boundary of the large white spot behind the base of each corium. Behind this spot are several others of smaller size; the membrane has four pale cells, in each of which there is often a black streak. The cheeks are usually white, as is also the lower part of the tylus, and the inner side of the basal joint of the antennæ.

Length to tip of membrane, $3\frac{1}{4}$ - $4\frac{1}{2}$ millim; width of pronotum, $1\frac{1}{4}$ -2 millim.

A few specimens have the tibiæ pale testaceous, with black knees and tip, and with dark spots at variable intervals.

Numerous specimens were secured at Salt Lake from June 13 to 25. Others were sent to me from various parts of Utah, and I found the species to be comparatively abundant in various places west of Denver, Colorado.

6. *Salda explanata*. New sp.

Subelliptical, deep dull black, but lustrous when the surface is rubbed. Similar to *S. brachynota* Fieb., of Europe, but the pronotum is broader than in that species, and there is an absence of white marking on the basal part of the costa. Head and antennæ black, the latter sometimes piceous at base; the rostrum piceous beyond the base, reaching to the posterior coxæ. Pronotum nearly lunate, not deeply but broadly sinuated, with the humeral ends as wide, flat, rounded lobes, the lateral margins moderately curved, prominently reflexed, with the submargin concurrently broadly sulcated. Hemelytra a very little wider than the pronotum, with the costa wide, and acutely reflexed, corium with two or three small groups of obsolete pale specks; membrane with the areoles pale, and each marked in the middle with a black dot. Tibiæ pale piceous on the middle.

Length to tip of membrane, $4\frac{1}{2}$ -5 millim; width of pronotum, 2 millim.

Specimens were secured at City Cañon, June 26, and also at Ogden and Alta.

CORISIDÆ.

1. *Corisa decolor* Uhler. Amer. Journ. Science, 1871, p. 106.

Two specimens of large size were taken at the border of Salt Lake, July 4. The species was originally obtained from this same region, but the specimens were smaller and less mature.

2. *Corisa subtilis* Uhler. Hayden, Bullet. U. S. Geol. Surv. II, 1876, p. 73, 1.

Three specimens were secured at Alta, Utah, at an elevation of 10,000 feet above sea-level, on June 30. This species is common in the mountains of western Colorado; it spreads north also into British America.

3. *Corisa lævigata*. New sp.

Form of *C. interrupta* Say. Chestnut brown above, fulvo-testaceous beneath. Head broad, strongly concave, acuminate at base, face nearly parallel-sided, moderately wide, testaceous with a slender brown streak along the middle line, and two impressed punctate lines each side near the eyes, fossa of the male ovate, very shallow, reaching a little above the line of the eyes, and almost bordered above by a curved line of punctures, invested each side with silky hairs; rostrum piceous. Anterior pleural segments fuliginous pubescent, minutely punctate, sternum in all three divisions transversely black. Process of the metasternum spear-shaped, black at base. Palæ of the male broad, cultrate, bluntly rounded above at the end, the lower apical angle subacute; palæ of the female much narrower, curved, very acute at tip. Pronotum very convex, crossed by 14-15 yellow lines, which are sometimes split at and before the middle, those behind the middle growing slender as they follow posteriorly, middle line entirely carinate to base, where it terminates in a slight production of the margin. Yellow transverse lines of the clavus interrupted, the inner series zigzag or ramose and so continuing toward the apex; those of the corium also detached in short, wavy, somewhat diagonal series which become more regularly transverse and entire beyond the end of the costa; costal area testaceous, the rib and cross-vein piceous, and clouded with fuliginous, the dark color expanding upon the cubitus and forming a dark spot next the tip; veins bounding the corium blackish piceous, membrane with separated sigmoid yellow markings and about two dark clouds. Surface of pronotum very highly polished, not rastrate, base and outer portion of clavus, and most of the corium very minutely scabrous and punctate. Legs testaceous, knees of the posterior femora and borders of the posterior tarsi piceous. Venter a little infuscated around the borders and in the basal hollow.

Length to tip of membrane, ♂ 10, ♀ 11½ millim; width of pronotum, 3-3½ millim.

One specimen was obtained near Salt Lake on June 13. This is a common species in various sections of the United States west of the Mississippi river. Dr. Blaisdell sent several specimens to me which were captured in fresh water near San Diego, Cal. It is found also near San Francisco, and in various parts of California, as also in Nevada, Washington Territory, and Oregon.

It differs from *C. interrupta* Say in the shape of the palæ and in the absence of rastration on the pronotum, etc.

Dr. Marx read the following communication :

ON SPIDERS' WEB.

By DR. GEO. MARX.

About a year ago I received from the Botanical Division of the Department of Agriculture a sample of a very curious, white, flossy, silk-like substance which had been found at Vallecita, California. The postmaster who sent it wrote as follows :

“ Accompanying this is a small memorandum-book, between the leaves of which you will find a strange (to me and others) substance, of which I should like to know the nature—whether it is vegetable, animal, or purely ærial. For the last five years, in the months of October and November (after the first shower of rain), I have observed this material come floating in the air (in currents of air moving from the west), and frequently and continuously for days and weeks, alighting in the roads and fields. I am situated about one hundred miles from the Pacific coast and about 2,000 feet above the level of the sea. In the middle of the day the western currents of air or wind are quite brisk, and I do not meet this thing then, but when it is calm I have caught this floating, fleecy substance in my hand, and in the morning in going along the public road I could see it lying about on the rocks and dirt quite plentiful ; it adheres to everything it touches ; thus in some of the samples I send you there will be found other foreign matter that the fleecy web brought along when gathered. I could not gather it with my fingers—no, I do not mean that—after I had gathered it with my fingers I could not lay it down again, because of its propensity to cling to everything touching it. This that I send was found clinging to weeds and stubble in the field where grain had been harvested. I gathered it in crossing a small field once (about fifty perches). Some of its fibres were stretched out from one weed or grass to another, as much as three and one-half feet.”

The substance from California was of such a peculiar nature that it was difficult to decide upon its true character without submitting it to a thorough chemical test.