

with rufous throughout and has no black on the propleura. Colorado Springs, August 3d (Gillette).

Idiocerus lachrymalis Fitch.

Det. VanDuzee.

Colorado (VanDuzee, 4).

Estes Park, July 12th; Steamboat Springs, July 26th; Rist Canon, July 30th (Gillette).

Idiocerus mimicus n. sp.

Female: Face one-fifth wider than long, faintly shagreened; clypeus a little less than two-thirds longer than broad, moderately broadened at the rounded apex; lorae considerably longer and almost as broad as the clypeus; genae moderately depressed beneath the eyes, lateral margins straight, attaining tip of clypeus, broad beneath lorae; front slightly longer than broad, nearly twice as long as the clypeus. Vertex finely transversely wrinkled, length at middle same as next the eyes; width between the eyes five times the length at middle. Pronotum finely transversely shagreened, a little more than two and one-third times broader than long, three times longer than vertex, curvature little more than two-thirds of the length. Scutellum finely shagreened and with the transverse groove as in *interruptus*. Last ventral segment as in *rufus*. Color pale yellowish brown, unicolorous except two distinct black spots on the crest of the vertex, and the nervures of wings and basal angles of scutellum rufous.

Length 4.5 mm. Described from one female. Form of *alternatus* but more robust.

Fort Collins, August 18th on black-walnut (Baker).

Idiocerus nervatus VanD. Det. VanDuzee.

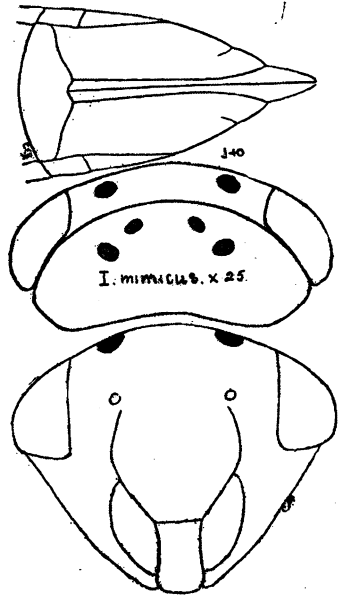
Colorado (VanDuzee, 1).

Lamar, May 7th; Trinidad, May 14th (Gillette). On Redstone Creek, twelve miles southwest of Fort Collins, August 1st; Fort Collins, September 14th on Solidago (Baker). The dark nervures of the wings are not a distinguishing characteristic of this species as certain forms of *pallidus* also possess them.

Idiocerus pallidus Fitch.

Quite common in Clear Creek Canon, also near the South Platte and its tributaries near Denver, and at Manitou and Colorado Springs, chiefly upon willows, August 6th to 18th (Uhler, 5). Mountains, June (Carpenter—see Uhler, 6). Colorado (VanDuzee, 4).

Female: Face an eighth wider than long, finely shagreened; clypeus one-half longer than broad, broadest near the tip where it is suddenly widened, apex rounded and broadly

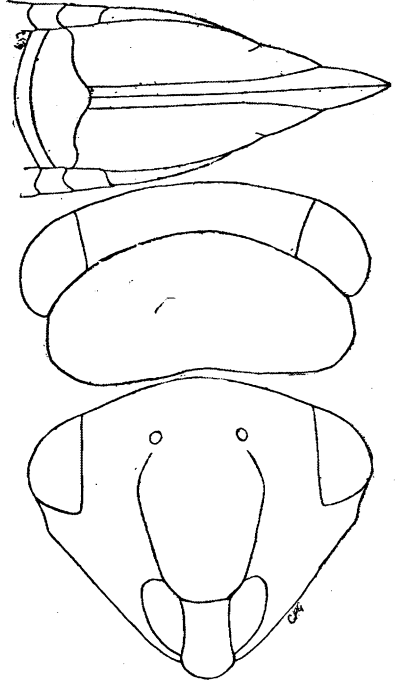


depressed within; lorae as long as clypeus and narrower than clypeus at base; genae narrow, narrowly but rather deeply depressed next to the compound eyes and beneath the antennae, lateral margins almost straight, slightly concave, not attaining the tip of clypeus, moderately broad beneath the lorae; front one-third longer than wide, two times the length of the clypeus, sides below the antennae nearly straight but rapidly incurved near the clypeus. Vertex minutely transversely wrinkled, apex very broadly rounded, length at middle slightly less than that at the eyes, width between the eyes four and a half times the length at the middle. Pronotum two and five-sevenths times the length of vertex, two and one-fourth times broader than long, curvature five-ninths of the length, posterior margin slightly concave, disc minutely transversely rugulose. Scutellum finely indistinctly shagreened, transverse groove rather broadly depressed and strongly angled forward. Last ventral segment with hind margin moderately produced at the middle, truncate, the edge either side gently curving to the rounded lateral angles. Color uniform pale green. Eyes brown. Basal angles of scutellum sometimes pale yellow. Nervures of elytra and wings colorless.

Length 5.5-6.5 mm. Described from seven females.

Male: With the greenish color below much more pronounced. Spots at basal angles of scutellum sometimes nearly obsolete.

Length 5 mm. Described from five males.



Colorado Springs August 3d (Gillette). Fort Collins August 26th on *Helianthus annuus*; Steamboat Springs, July 15th on willow (Baker). These specimens were examined by Mr. VanDuzee and said by him to be identical with the eastern form generally known under the name *pallidus*.

Variety A. We also have numerous males and females which correspond exactly in structure and general coloration with this species, which have the dark wing nervures of *nervatus*. Steamboat Springs, July 15th on willow (Baker).

Variety B. We have further three females which also correspond in structure, but are quite yellowish and have large spots within the basal angles of the scutellum black, and the tips of the elytra smoky. Leadville, August 23d (Gillette).

Idiocerus perplexus n. sp.

Near pallidus, differing from that species as follows: Genae sharply incurved beneath the eyes, then rounded to clypeus, and the clypeus more broadened out towards the tip. Last ventral segment produced on posterior margin very much as in pallidus, but rounded at extreme tip, not truncate. Color pale yellow, unicolorous throughout. This may prove to be only a variety of pallidus but the specimens we have examined seem quite distinct.

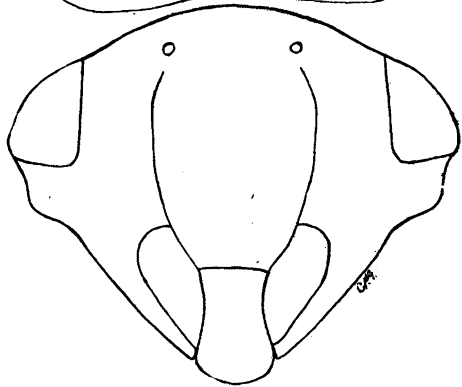
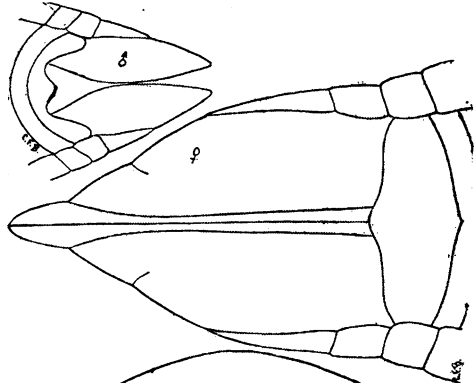
Length of female 6-7.5 mm., of male 5.25-6 mm. Described from two females and one male.

Fort Collins, August 26th on cottonwood, and September 20th ovipositing in box-elder (Gillette). Cheyenne Canon, Colorado Springs, August (Tucker).

We have one male of the same structural characters, quite distinctly greenish. Colorado Springs, August 3d (Gillette).

Idiocerus productus n. sp.

Male: Face as long as wide, finely shagreened; clypeus four-fifths longer than broad, much widened towards the rounded apex, basal suture curved; lorae slightly longer and nearly as wide as the clypeus; genae deeply depressed beneath the eyes, lateral margins straight, not attaining tip of clypeus and narrow below the lorae; front nearly one-half longer than wide, a little less than twice the length of clypeus. Vertex finely transversely wrinkled, length at middle a half longer than next the eyes, width between the eyes little more than three times the length at the middle, apex rounded, but the angle nearly a right angle. Pronotum slightly more than twice as long as wide and two and one-fifth times as long as the vertex, curvature little less than five-sevenths of the length, disc finely transversely shagreened. Scutellum finely shagreened, transverse groove as in interruptus, except that it is more strongly depressed and with several transverse wrinkles just back of it. Color yellowish below, whitish above. Crest of vertex with a large black median longitudinal spot, disc whitish with a small black spot on either side next the compound eyes. Pronotum black with the posterior margin and a few small spots on disc whitish. Scutellum black with more or less of the lateral margins



and apex, and two small spots next the pronotum whitish. Elytra dark smoky, nervures black, on inner margin at middle of clavus a white spot, on second sector of corium two small white spots, and an indistinct whitish transverse band on the corium just beyond the tip of the clavus. Venter blackish, tips of basal segments and all of the last two segments yellow. Legs sordid yellow, tibiae slightly infusate, femora having a black line on outer margin, tarsi infusate.

Length 6 mm. Described from two males. Differs from all other species of the genus in the remarkable form of the head.

Leadville, August 23d (Gillette).
Steamboat Springs, July 15th on willow (Baker).

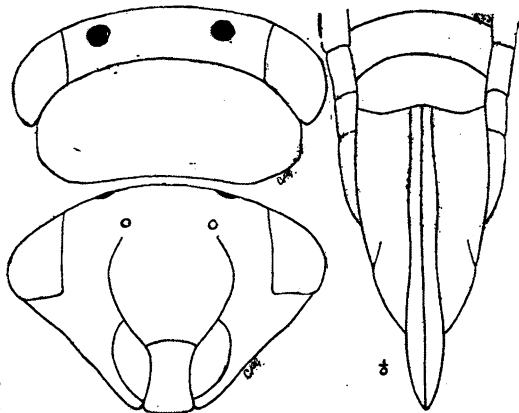
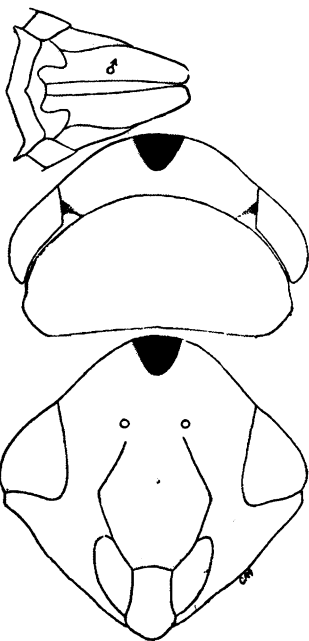
Idiocerus ramentosus Uhl. Det. VanDuzee.

On willows in Denver; also in Clear Creek Canon and at Manitou (Uhler, 5). Colorado (VanDuzee, 4).

Steamboat Springs, July 15th (Baker). Spring Canon, May 11th to June 30th; Estes Park July 12th; Steamboat Springs, July 26th; Manitou, September 29th on willow (Gillette).

Idiocerus snowi n. sp.

Face slightly more than one-third wider than long, indistinctly shagreened, and sparsely set with short, white, very weak hairs; clypeus slightly more than one-half longer than broad at tip, nearly as broad at base as at apex, strongly constricted at middle, truncate at the tip, basal suture nearly straight; lorae slightly longer and somewhat narrower than the clypeus; genae broad, outer margin slightly concave, attaining tip of clypeus and moderately broad below the lorae; front as long as broad. Vertex finely transversely rugose, as long at middle as next eyes, width between the eyes three and five-sevenths times the length at middle. Pronotum very minutely transversely wrinkled, with numerous fine scattered punctures, two and one-third times broader than long, two and one-fourth times the length of the vertex, curvature a little less than two-thirds of the length. Scutellum with the transverse groove as in *interruptus*. Last ventral segment with the hind margin broadly rounded. Color pale green, tips of tibiae, tarsi and pygofers, bluish green. Vertex with two round black



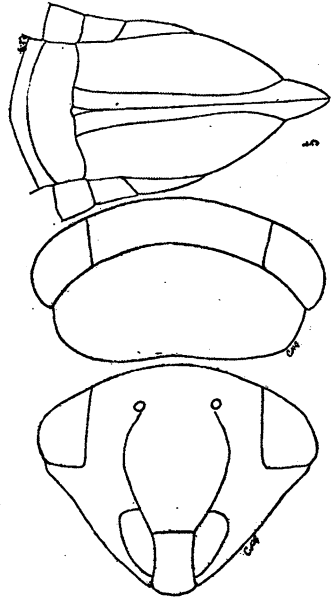
spots on either side near anterior edge, nearer to the compound eyes than to the median line.

Length of female 6 mm., of male 5 mm. Described from three females and two males. Readily distinguished from *pallidus* by the two black spots on the vertex.

***Idiocerus rufus* n. sp.**

Female: Face one-fifth wider than long, finely shagreened; clypeus little less than one-half longer than broad, broadened towards the rounded tip; lorae a little longer and nearly as broad as the clypeus; genae slightly depressed beneath the eyes, the lateral margins almost straight, attaining the tip of the clypeus, broad beneath the lorae; front about one-fifth longer than broad and twice the length of the clypeus. Vertex finely transversely wrinkled, length at the middle the same as at the eyes, width between the eyes nearly four times the length at the middle. Pronotum finely transversely shagreened, with numerous shallow, scattered punctures, slightly more than twice as broad as long, two and one-half times as long as the vertex, curvature slightly less than three-fifths of the length. Scutellum finely shagreened, transverse groove as in *interruptus*. Last ventral segment with hind margin broadly rounded, with a narrow median notch. Color bright chestnut, with the face, three small spots either side of the pronotum, a few spots on the scutellum, venter and all below, except the pygofers and sometimes the legs light yellowish.

Length 5 mm. Described from two females. Form of *alternatus*.



Rist Canon, September 27th on Solidago; Manitou, September 29th on oak (Gillette).

Colorado Springs, August (Tucker).

***Idiocerus suturalis* Fitch.**

Det. VanDuzee.

Colorado (VanDuzee, 4).

Spring Canon, June 30th; Estes Park, July 12th; Steamboat Springs, July 26th (Gillette). Steamboat Springs, July 12th (Baker). Manitou, July (Tucker).

***Idiocerus verticis* Say.**

Upon willows at Denver, August 9th to 18th (Uhler, 5). Colorado (VanDuzee, 4).

Estes Park, July 12th (Gillette).

***Agallia novella* Say.**

Colorado (VanDuzee, 4).

***Agallia 4-punctata* Prov.**

Det. Gillette.

Fort Collins, June 4th to 14th (Gillette).

Agallia sanguinolenta Prov.

Det. VanDuzee.

Colorado, July 19th to September 6th; Eagle River, August; Denver, June (Carpenter—see Uhler, 6). Inhabits summits of high mountains (Uhler, 6).

Fort Collins, hibernating under boards during March; Spring Canon, March 12th under stones; Fort Collins, October 15th; Montrose, June 24th; Dolores, June 18th (Gillette). Fort Collins, May 16th to June 9th on alfalfa; Steamboat Springs, July 12th, on Solidago (Baker). Colorado Springs (Tucker).

Agallia uhleri VanD.

Det. VanDuzee.

Fort Collins, May 7th to October 15th, and August 15th at electric light; foot-hills five miles west of Fort Collins, July 12th to September 1st; Colorado Springs, August 2d; Manitou, June 25th; Lamar, May 7th; Trinidad, May 14th; Dolores, June 18th; Grand Junction, August 26th on sugar beet; Glenwood Springs, August 24th (Gillette). Fort Collins, June 8th on *Sisymbrium canescens*, May 16th to July 14th on alfalfa, and July 29th on cultivated beet (Baker).

Oncometopia costalis Fabr.

Det. VanDuzee.

Widely distributed throughout the region of Colorado less remote from the foot-hills. Extraordinarily numerous near Colorado Springs on low plants August 13th to 17th. On low hills west of Denver, near Golden, in Clear Creek Canon and in Manitou Park, less abundant (Uhler, 5). Larva at Boulder, June 29th (Packard—see Uhler, 5). Colorado (Uhler, 6). Ula, Custer County, November 12th; West Cliff, March 31st; also subalpine (Cockerell, 10). Manitou Park (Snow—see VanDuzee, 5).

Steamboat Springs, July 26th; Colorado Springs, August 1st; Leadville, August 23d; Minturn, August 24th; Fort Collins, March 20th to May 16th (Gillette). Fort Collins, during winter hibernating under dead leaves, stones, and boards, coming out to bask in the sun on warm bright days; taken copulating on March 2d (Baker).

Oncometopia limbata Say.

Custer County, midalpine (Cockerell, 10). Colorado (VanDuzee, 4).

Tettigonia hieroglyphica Say.

Det. Osborn and VanDuzee.

Beaver Brook Gulch, near Golden, in Denver, abundant near Colorado Springs, at Manitou, in Manitou Park, and less common near the mouth of

the canon of the Arkansas (Uhler, 6). Foot-hills and plains, August to October (Carpenter—see Uhler, 6).

Horse-tooth Gulch, May 18th to June 5th; Rist Canon, May 19th to August 8th; The Rustic, Larimer County, August 11th; Steamboat Springs, July 26th; Colorado Springs, August 3d; Manitou, June 25th to September 29th on willow and oak; Montrose, June 24th; Dolores, June 18th (Gillette). Fort Collins, June 13th to October 7th; on Redstone Creek, twelve miles south-west of Fort Collins, August 1st, exceedingly abundant, flying up in a cloud as one walked through the low herbage (Baker).

Diedrocephala mollipes Say.

Very abundant on grass and weeds in low spots near Denver, and near Golden, August 5th and later in the month (Uhler, 5). Colorado (Uhler, 6). Custer County, midalpine (Cockerell, 10).

Diedrocephala novaeboracensis Fitch.

Det. VanDuzee.

Near East River, August 29th (Carpenter—see Uhler, 6). More particularly a foot-hill and mountain species; Clear Creek Canon and Golden, August 5th to 7th; west of Denver, August 9th (Uhler, 5). Colorado (VanDuzee, 4).

Glenwood Springs, August 24th; Steamboat Springs, July 26th; Fort Collins, September 27th on grass and *Carex* (Gillette). Steamboat Springs, July 12th on *Carex* (Baker).

Helochara communis Fitch.

Det. VanDuzee.

Very common in grassy marshy spots in the bed of the creek passing through Denver, also in similar situations on farms west of Denver (Uhler, 5).

Fort Collins, April 7th to October 15th; Steamboat Springs, July 26th; Dolores, June 18th (Gillette). Steamboat Springs, July 12th on *Carex*; Fort Collins and the adjoining foot-hills, during winter, hibernating under stones and boards (Baker). Colorado Springs, August (Tucker).

Xerophloea peltata Uhl.

Det. VanDuzee.

Clear Creek Canon, August 7th (Uhler, 5). Custer County, midalpine (Cockerell, 10). Colorado (VanDuzee, 4).

Fort Collins, June 14th to October 15th; foot-hills five miles west of Fort Collins, March 12th to September 1st; Glenwood Springs, August 24th (Gillette). On Redstone Creek, twelve miles south-west of Fort Collins, August 1st; Fort Collins, August 26th on *Helianthus annuus* (Baker).

***Gypona angulata* Spang.**

Det. VanDuzee.

Colorado (VanDuzee, 4).

Dolores, June 16th; Rist Canon, June 12th (Gillette.)

***Gypona cinerea* Uhl.**

Near Manitou, August 13th (Uhler, 5).

***Gypona flavilineata* Fitch.**

Det. Osborn.

Colorado Springs, August 3d (Gillette.)

***Gypona octolineata* Say.**

Clear Creek Canon, August 7th; Denver; Manitou, August 13th; in the mouth of the canon of the Arkansas (Uhler, 5). Foot-hills and plains (Carpenter—see Uhler, 6).

Eagle River and Two Elk Creek, Eagle County, September 7th (Cockerell—see Riley, in litt.).

***Gypona rugosa* Spang.**

Det. VanDuzee.

Colorado (VanDuzee, 1).

Fort Collins, September 30th (Baker). Manitou, September 29th, on oak (Gillette).

***Penthimia americana* Fitch.**

Det. Osborn.

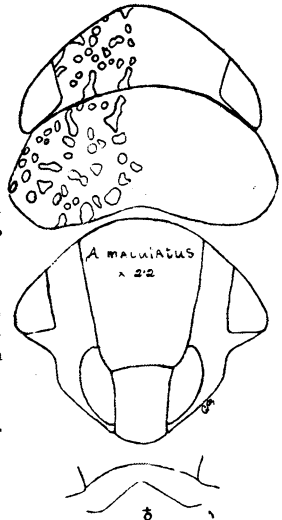
Fort Collins, May 16th (Gillette).

***Acocephalus maculatus* n. sp.**

Female: Face one-tenth wider than long; clypeus rectangular, once and a third as long as broad, rounded anteriorly, narrowly depressed before apex, medially elevated on posterior half; lorae as long and two-thirds as broad as clypeus. Entire head and scutellum finely shagreened. Front about one-fifth longer than wide, little less than two times the length of the clypeus, with sides rectilinear and almost parallel, gradually converging towards clypeus. Vertex with anterior margin distinctly elevated, length at middle once and three-fifths that at eyes, width between the eyes little less than two times the length at middle. Pronotum two and one-fifth times broader than long, once and a half the length of the vertex, curvature three-eighths of length, finely transversely wrinkled on posterior two-thirds, finely shagreened on anterior third except on the extreme anterior margin which is transversely wrinkled and without punctures, posterior margin broadly emarginate. Scutellum with a distinct transverse groove at middle. Elytra smooth, entirely without rugae. Last ventral segment with the hind margin deeply notched. Entire body, except the venter and elytra, black, irregularly marked with numerous small light yellow spots. Eyes black margined with reddish yellow. Ocelli rufous. Elytra black with tips paler, small white spots along the nervures and paler areas between. Venter black, tip of last segment yellowish. Legs less spotted than other portions.

Length 5 mm. Described from two females.

Ouray, June 22d; Dolores, June 18th (Gillette).



Paramesus vitellinus* Fitch.(Paramesus twiningi Uhl.)*

Estes Park, July 12th; Manitou, June 25th; Colorado Springs August 3d (Gillette).

The type of twiningi is a slightly faded male of vitellinus. In this species the second transverse nervure between the first and second sectors of the elytra is sometimes absent.

Paramesus jucundus* Uhl.(Eutettix jucundus Uhl.)*

Manitou, August 13th (Uhler, 5). Colorado (VanDuzee, 4).

Manitou, June 25th (Gillette).

***Parabolocratus viridis* Uhl.**

Det. VanDuzee.

Near Golden, and on highlands west of Denver. Apparently rare (Uhler, 5). Colorado (VanDuzee, 4).

Lamar, May 7th; Dolores, June 18th; Rist Canon, June 13th (Gillette). Fort Collins, July 29th (Baker).

***Platymetopius acutus* Say.**

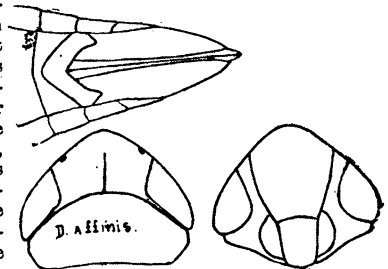
Det. VanDuzee.

Manitou, August 13th, swept from herbage near Fountain creek (Uhler, 5).

Rist Canon, June 12th to August 8th; Fort Collins, September 27th on *Rhus trilobata*; Steamboat Springs, July 26th; Manitou, July 24th on *Clematis*, and September 29th on oak; Grand Junction, August 26th on sugar beet (Gillette). Fort Collins, August 18th; Steamboat Springs, July 14th (Baker).

***Deltocephalus affinis* n. sp.**

Female: Face one-seventh wider than long; clypeus one-third longer than broad, somewhat more than one-half the length of the front, gradually narrowing to the rounded apex, basal sutures nearly straight; lorae subovate, as long and one-half as broad as the clypeus, genae broadly obtusely angled below the eye, rather broader than usual below the lorae, attaining the tip of the clypeus; front one-seventh longer than wide, gradually narrowing to clypeus, superior angle a right angle. Face and anterior half of vertex finely shagreened. Vertex one-half longer on the middle than at the eyes, width between the eyes once and a fourth the length at the middle, disc with the two depressed areas near the hind margin. Pronotum two and one-fourth times wider than long, but little longer than the vertex, curvature three-fifths of the length, posterior margin very slightly concave, anterior third glabrous with two distinct pits near the median line, posterior two-thirds indistinctly rugose. Scutellum as usual, transverse groove quite indistinct. Elytra barely exceeding abdomen. Last ventral segment with the hind margin very deeply and broadly notched.



posterior angles subacute and somewhat inclined towards the center. Color pale ashy green. Face slightly dusky with indistinct lighter transverse lines above. Genae with a small black spot near the loral suture. Vertex and pronotum concolorous, with a broad light median stripe and a dark stripe on either side, on the vertex the median light stripe with a median dark line. Scutellum darker on the disc. Elytra ashy subhyaline with a few faint fuscous markings along the middle of the disc and on the median portion of the clavus. Venter pale yellowish. Legs pale yellow.

Length 3.25 mm. Described from one female. Related to *melshelmeri*.

Leadville, August 23d (Gillette).

We have also a single male which probably belongs to this species. It differs from the female as follows: Front one-fourth longer than wide, two and a half times as long as the clypeus. Face darker on discs of clypeus and genae, front very light chocolate brown, the light transverse lines above distinct. Elytra with costa and veins more distinctly yellowish, the apical cells faintly margined with fuscous. Venter black. Legs as in *monticola*.

Length 3.5 mm. Described from one male.

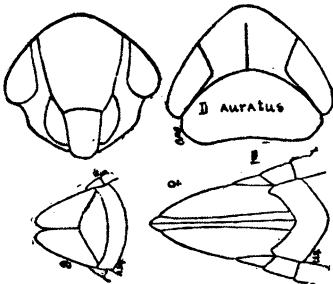
Estes Park, July 12th (Gillette).

Deltocephalus argenteolus Uhl.

Quite common on willows at Colorado Springs and near Manitou (Uhler, 5). Colorado (VanDuzee, 4).

Deltocephalus auratus n. sp.

Female: Face an eleventh wider than long. Clypeus about a third longer than wide, gradually narrowed to the rounded apex. Lorae subovate, as long as the clypeus and half as broad. Genae broadly and very obtusely angled, attaining the end of the clypeus. Front one-eighth longer than wide, about two times the length of the clypeus, sides nearly straight, rapidly narrowing to the clypeus below, superior angle rather strongly produced and rather more than a right angle. Face and anterior third of vertex finely shagreened. Disc of vertex with a depressed area on either side next the compound eye, length at middle once and a half that next the eye, width between eyes once and a seventh times the length at middle. Pronotum twice wider than long, as long as vertex, curvature two-thirds of length, with the glabrous anterior margin somewhat elevated, posterior margin slightly concave, posterior three-fourths obscurely rugose and sparsely and indistinctly punctate. Scutellum broader than long, very minutely sculptured. Last ventral segment with the hind margin deeply and broadly notched, posterior angles rounded. Color pale yellow throughout. Tip of rostrum, eyes, spots at bases of tibial spines, and ungues, black. Ocelli rufous. Elytra exceeding abdomen by somewhat less than one millimeter, yellowish subhyaline, nervures lighter.



Male: Differs from female as follows:—Color deep golden yellow. Elytra yellowish subhyaline, nervures and costa bright yellow. Genital organs below tipped with black. Length 3.25 mm. Described from two males and one female.

Fort Collins, June 14th (Gillette). Steamboat Springs, July 15th (Gillette).

Deltocephalus bilineatus n. sp.

Face a twelfth wider than long; clypeus long and narrow, one-half longer than broad, nearly one-half as long as the front, sides parallel, apex rounded, basal suture straight; lorae subovate, nearly as broad and long as the clypeus; genae very broadly and obtusely angled outwardly, attaining the end of the clypeus; front two-fifths longer than wide,

sides rectilinear, gradually narrowed towards the clypeus, superior angle rather long, and more than a right angle. Face and vertex finely shagreened. Disc of vertex with two distinct pits near the eyes, nearer to the eyes than to each other, length at middle a half longer than that next the eye, width between the eyes equal to the length at middle. Pronotum twice as wide as long, one-seventh longer than the vertex, curvature four-ninths of the length, posterior margin very slightly concave, anterior one-fourth glabrous, posterior three-fourths transversely subobsoletely wrinkled and with scattered indistinct punctures. Scutellum broader than long, shagreened more coarsely than the face. Last ventral segment with the hind margin broadly and deeply notched, the sides of the notch slightly sinuated. Color ashy gray sometimes tinged with fuscous. Face light yellow to dusky, the sutures sometimes darker. Two broad dark longitudinal lines extending over vertex and pronotum, these bands on the anterior two-thirds of vertex bordered internally with black, and adjoined externally by a black spot. Vertex with a fine black median line on the posterior two-thirds. Scutellum varying from brown-marked to black. Elytra little longer than the abdomen, whitish, nervures white throughout, bordered with dusky or testaceous, apex with three black spots, one internally and two externally, each elytron with seven white spots, two on the external apical border, two in the center, one large one basally and two on the internal border of the clavus. Venter light to dark yellow, sometimes bordered with blackish, the last segment with black spots on the sides of the notch. Legs yellow, tibial spurs arising from black spots, posterior tibiae black tipped internally.

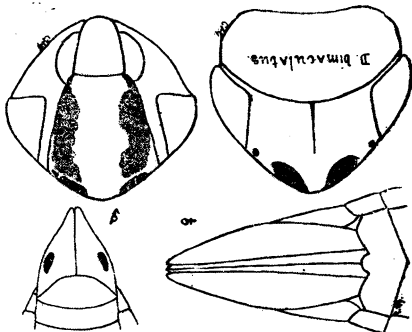
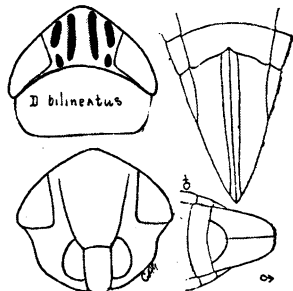
Length of female 4 mm., of male 3.5 to 3.75 mm. Described from four males and three females.

Steamboat Springs, July 12th on *Carex* (Baker).

Deltocephalus bimaculatus n. sp.

Female: Face about as long as wide; clypeus short and broad, one-seventh longer than broad, not quite half as long as the front, gradually narrowing towards the rounded apex, basal suture straight; lorae subovate, two-fifths as wide and nearly as long as the clypeus; genae broadly rounded outwardly, attaining the end of the clypeus; front one-eighth longer than wide, sides almost straight, superior angle nearly a right angle. Face and vertex roughly shagreened. Disc of vertex slightly transversely depressed, length at middle once and a half that next the eye, width between eyes once and two-sevenths the length at middle. Pronotum two times wider than long, length slightly less than that of vertex, curvature nearly one-half of length, posterior margin very slightly concave, anterior fourth glabrous, posterior three-fourths very finely transversely wrinkled. Hind margin of last ventral segment with a broad short tooth, on either side of which is a shallow notch, posterior angles rounded, obtuse. Pale yellowish green. Face with sutures black, four or five transverse black dashes on either side of the front above, which may run together forming a longitudinal band just within the margin. Vertex with two large oval black spots on the apex nearer the center than the eyes. Elytra greenish, subhyaline. Tergum black. Venter black with lateral and apical margins of segments yellowish. Ovipositor black, pygofer more or less streaked with black longitudinally. Legs light yellow.

Male: Differs from the female as follows: Front without black markings except in some specimens a spot on either side beneath antennae. Front two and a half times as



long as the clypeus. Sutures, other than those bounding the front, lighter. A small black spot on either pygofer.

Length of female 4.5 mm., of male 4 mm. Described from three females and ten males.

Estes Park, July 12th (Gillette). Steamboat Springs, July 13th on Carex and willow (Baker).

Deltocephalus concentricus VanD. Det. VanDuzee.

Mountains of north-western Colorado (Gillette—see VanDuzee, 3). Colorado (VanDuzee, 4).

North Park, July 20th (Gillette).

Deltocephalus configuratus Uhl. Det. Osborn.

Steamboat Springs, July 14th (Baker).

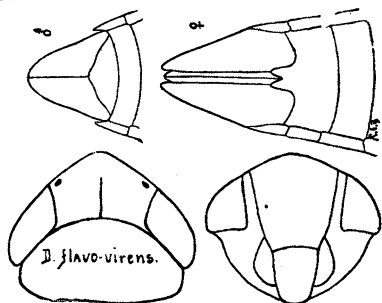
Deltocephalus debilis Uhl. Det. VanDuzee.

Sides of high mountains, and near Fair Play, South Park, July (Carpenter—see Uhler, 6). Colorado (VanDuzee, 4).

Horsetooth Gulch, June 5th; North Park, July 20th; Steamboat Springs, July 26th; Estes Park, July 12th; Graymont, July 16th (Gillette). Steamboat Springs, July 13th on Carex and Solidago (Baker).

Deltocephalus flavo-virens n. sp.

Face one-seventh wider than long; clypeus one-fourth longer than broad, about three-fifths the length of the front, gradually narrowing to the rounded apex, basal suture slightly convex; lorae subovate, nearly as long and about one-half as broad as the clypeus; genae broadly rounded at the sides, attaining the apex of the clypeus and broad below the lorae; front nearly as wide as long, sides straight past the antennae, narrowing to the clypeus below, superior angle considerably more than a right angle. Face and anterior margin of vertex finely shagreened. Disc of vertex rather strongly depressed on posterior half, length at middle about once and a half that next the eyes, width between the eyes about one and a third times the length at middle. Pronotum nearly twice wider than long, about one and a fourth times the length of the vertex, curvature four-sevenths of the length, posterior margin very slightly concave, anterior fourth glabrous, posterior three-fourths very faintly transversely wrinkled. Scutellum faintly scabrous. Last



ventral segment with the hind margin greatly produced at the center, ending in two short acute points. Color greenish yellow. Face smoky with lighter concentric lines above, sutures of the front black. Vertex yellow, ocelli with a very small black spot on the sides next the eyes. Pronotum greenish yellow, darker on the disc. Scutellum immaculate. Elytra yellowish hyaline, nervures yellow. Basal segments of venter with apical and lateral margins narrowly yellowish, the apical segments yellow, the last one with the produced part black. Ovipositor black, pygofers very hairy. Legs yellow, except small black spots at base of tibial spines.

Length, female, 4.75 mm., male, 4.25 mm. Described from one male and one female.

Steamboat Springs, July 12th on *Carex* (Baker).

Deltocephalus melsheimeri Fitch.

Det. VanDuzee.

Colorado (VanDuzee, 4).

Fort Collins, June 4th to October 15th; Horsetooth Gulch, June 5th; Rist Canon, April 25th to June 12th; North Park, July 20th; Steamboat Springs, July 26th; Lamar, May 7th; Minturn, August 24th; Montrose, June 24th; Dolores, June 18th (Gillette). Fort Collins, May 16th to June 13th on alfalfa; Steamboat Springs, July 12th on *Carex* and *Solidago* (Baker).

Deltocephalus monticola n. sp.

Female: Face nearly as long as wide; clypeus nearly as long as front, slightly more than three-sevenths the length of the front, rapidly narrowing to the rounded apex, basal suture straight; lorae subovate, nearly as long, and two-fifths as broad as the clypeus; front one-sixth longer than wide, sides nearly straight above, superior angle obtuse, more than a right angle. Face and anterior half of vertex finely shagreened. Disc of vertex flat, length at middle once and two-thirds that next the eye, width between the eyes one-fifth more than the length at middle. Pronotum two and one-eighth times wider than long, length about the same as that of the vertex, curvature about three-fifths of the length, posterior margin very slightly concave, smooth on the anterior third, posterior two-thirds feebly rugose. Scutellum minutely sculptured. Elytra scarcely exceeding the abdomen. Hind margin of last ventral segment with a large median tooth, posterior angles strongly produced, swollen, rounded and somewhat exceeding the tooth. Color yellowish green, about the same as in *melsheimeri*. Face smoky with concentric broken light lines above. Disc of clypeus, margins of lorae, and genae next the eyes, dark brown. Vertex light, with four short oblique black dashes on the apex. Pronotum darkened on the disc. Elytra pale greenish subhyaline, nervures lighter. Venter except last segment, with apical and lateral margins of the segments yellow. Last ventral segment yellow at the sides and black on the disc. Ovipositor black, pygofers yellowish green and slightly streaked with black. Legs yellowish, anterior and middle femora spotted and annulated with black. Posterior femora with a black line down the outside. Tibiae more or less spotted with black.

Length 8 mm. Described from one female. Near *melsheimeri*.

Leadville, August 23d (Gillette).

Deltocephalus sayi Fitch.

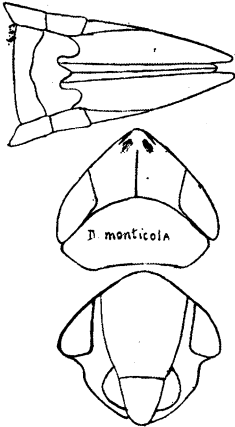
Det. VanDuzee.

Colorado (VanDuzee, 4).

Fort Collins, July 4th (Gillette). Steamboat Springs, July 14th (Baker).

Deltocephalus sexmaculatus n. sp.

Female: Face nearly as long as wide; clypeus about a fourth longer than broad, half as long as the front, considerably narrowed towards the rounded apex, basal suture



straight; lorae large, subovate, as long and one-half as broad as the clypeus; genae unusually narrow, narrow below the lorae and attaining the tip of the clypeus. Front two-ninths longer than wide, broad below, the superior angle more than a right angle. Face and anterior third of vertex coarsely shagreened. Disc of vertex deeply depressed, length at middle once and about two-thirds that next the eye, width between the eyes once and a fifth the length at middle. Pronotum two and one-sixth times wider than long, length slightly less than that of the vertex, curvature about one-half of the length, posterior margin slightly concave, anterior fourth glabrous, posterior three-fourths obscurely transversely wrinkled with scattered feeble punctures. Scutellum finely scabrous. Last ventral segment with the hind margin very broadly and deeply emarginated, the emargination nearly rectangular at the bottom, posterior angles obliquely sloping backward. Color ash gray, head and pronotum tinged with rufous. Face black, clypeus with one median and two lateral light spots, lorae with one median light spot, and genae with a transverse light spot next the lorae. Front with about six short transverse light lines on each side. Eyes black. Vertex with two large black spots posteriorly, in front of these two smaller black spots on either side, the anterior ones extending nearly to the crest of the vertex and a narrow median line not attaining the apex. Pronotum dusky rufous. Scutellum with four large black spots on the disc. Elytra scarcely exceeding the tip of the abdomen, pattern of coloration the same as in *bilineatus*, white spots at base very small. Venter dark, marked with yellowish. Legs yellowish, coxae and basal half of anterior and middle femora blackish, posterior femora with a longitudinal black stripe beneath. Tibiae all dark with a longitudinal yellowish stripe on the outer margin. Tarsi blackish.

Length 2 mm. Described from one female. Readily separated from weed by the form of the last ventral segment in the female.

Leadville, August 23d (Gillette).

Deltocephalus signatifrons VanD.

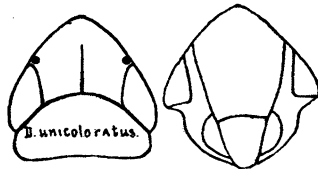
Det. VanDuzee.

Colorado (VanDuzee, 4).

Fort Collins, July 2d on beans; Horsetooth Gulch, June 5th; Estes Park, July 12th; Steamboat Springs, July 26th; Lamar, May 7th; Trinidad, May 14th; Montrose, June 24th (Gillette). Fort Collins, May 16th on alfalfa; Steamboat Springs, July 14th (Baker).

Deltocephalus unicoloratus n. sp.

Female: Differs from the female of *auratus* as follows: Face one-twentieth longer than wide; clypeus nearly as wide as long and rapidly narrowing to the rounded tip; front one-fifth longer than wide and two times as long as the clypeus. Vertex greatly produced, the angle in front slightly less than a right angle, once and two-thirds as long at the middle as next the eyes, width between the eyes the same as the length at the middle, with a narrow black median line on the posterior two-thirds. Ocelli jet black, margined on the side towards the eyes by a small black spot. Hind margin of last ventral segment truncate with a median, slightly sunken,



obtusate with a median, slightly sunken, obtuse tooth, the immediate region of the tooth thin and coriaceous, posterior angles obtuse. Color light lemon yellow.

Length 3.25 mm. Described from one female. Distinctly separated from *auratus* by the last ventral segment and by the proportions of the head.

Pleasant Valley, six miles north-west of Fort Collins, June 12th (Gillette).

Deltocephalus vanduzeei n. sp.

Female: Face one-ninth wider than long; clypeus two-fifths longer than broad, three-fifths the length of the front, gradually narrowing to a rounded apex; lorae subovate nearly as long and two-thirds as wide as clypeus; genae normal except the outer margin which is strongly obtusely angled, attaining the end of the clypeus. Front as long as wide, sides below the antennae rapidly narrowing to the clypeus, superior angle more than a right angle, obtusely rounded. Face and vertex coarsely shagreened. Disc of vertex slightly convex, sloping to the margins, length at the middle once and a half that next the eye. Pronotum two and a fourth times wider than long, an eighth longer than the vertex, curvature half of the length, posterior margin slightly concave, anterior fourth finely scabrous and elevated, posterior three-fourths very finely transversely wrinkled, disc with two small distinct pits near the anterior margin. Scutellum finely scabrous. Hind margin of last ventral segment with a broad deep median notch, posterior angles rounded. Color dark smoky above, black below. Eyes black. Face black, above with a row of transverse light dashes on either side, genae mostly margined with yellowish. Vertex yellow with two large black spots behind the apex which is margined with black, a broad black transverse median band, produced posteriorly at the sides to near the hind margin, running between ocelli and along the margins of the eyes, and two black spots on either side within the hind margin near to each other, posteriorly a dark median longitudinal line. Ocelli black on a circular yellow field. Pronotum dark yellowish smoky, anteriorly with a black spot near the median line, and laterally, near the anterior margin, two elongate black dashes. Scutellum with a median spot and two spots within the basal angles black, extreme posterior point jet black. Elytra smoky, nervures lighter, narrowly margined with darker. Venter black. Legs black, extreme tips of coxae, distal half of anterior and extreme tips of middle and posterior femora yellow, anterior tibiae yellow, infuscated; middle tibiae yellow annulate with black, hind tibiae black with spines yellow, tarsi all dark.



Male: Differs from female as follows:—Clypeus somewhat longer. Yellow markings on the face much heavier, a small yellow spot on the median line of the front near the clypeus, also two on the clypeus near the basal angles. The parts of the transverse band near the apex of the vertex of the female are here separated as two large rectangular black spots.

Length of female, slightly exceeding 2.5 mm., of male 2.5mm. Described from one male and one female. Near weed.

Leadville, August 24th (Gillette).

Allygus coloradensis n. sp.

Male: Clypeus less than twice as long as broad, constricted in the middle, nearly as broad at apex as at base, half as long as the front, basal suture somewhat curved; lorae subovate, as long and as broad as the clypeus; genae gently and evenly rounded at the sides and attaining the tip of the clypeus; front a fifth longer than wide, sides inwardly curved at the antennae, narrowed towards the clypeus, superior angle very obtuse; face and anterior margin of vertex finely shagreened. Disc of vertex slightly transversely depressed, length at middle nearly once and a half that next the eyes; pronotum broadly rounded in front, distinctly concave behind, twice as broad as long, posterior angles very broadly rounded, opaque, not distinctly sculptured. Scutellum broader than long, transverse suture arcuated. Color dull smoky yellow; eyes dark; face somewhat smoky with narrow concentric light lines above; on genae at middle of loral suture a small black spot; vertex smoky yellow mottled with darker shades; two small black spots within hind margin near compound eyes and a narrow black median line; pronotum with anterior fourth lighter, and with four short black dashes on either side, posterior three-fourths heavily and somewhat transversely mottled with dark; scutellum yellowish with basal angles and transverse groove blackish; elytra subhyaline, nervures dark brown, clavus with cells mottled with blackish and with three distinct pearly white spots on the inside margin, two more indistinct ones on the outside; disc of elytra with scattered black mottling within the cells; transverse veins on costal margin broadly black; elytra pearly, wings brilliantly iridescent; venter

yellow with apical margins of segments black; legs light yellow, anterior coxae with a large black spot on anterior portion, anterior femora with numerous small black spots; tibiae with spines arising from black spots, posterior tarsi annulate with black.

Length 4 mm. Described from one male.

Glenwood Springs, August 24th (Gillette).

Athysanus anthracinus VanD.

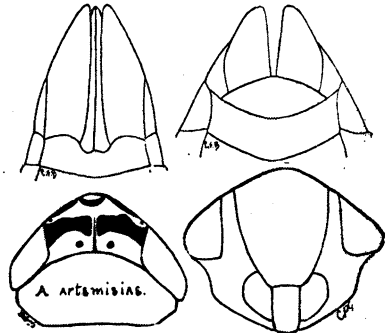
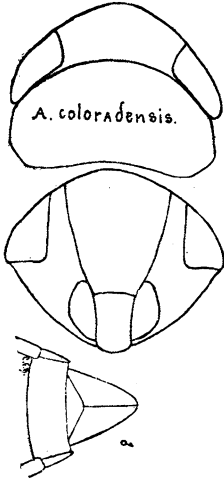
Det. VanDuzee.

Colorado (VanDuzee, 4).

Montrose, June 24th (Gillette).

Athysanus artemisiae n. sp.

Female: Clypeus one-half longer than broad, broadly and shallowly depressed below the middle, sides nearly parallel, tip truncate; lorae about as long but not quite as broad as the clypeus; genae broad, scarcely depressed beneath the eyes, outer margin broadly angled, attaining the tip of the clypeus and broad beneath the lorae; front one-fifth longer than broad, superior angle rounded and more than a right angle, face and anterior half of vertex finely shagreened; eye with a narrow and acute emargination within near the antennae; disc of vertex not depressed, sloping at sides, length at middle once and a half that at eyes. Pronotum with two small approximate pits near the anterior margin, posterior two-thirds very indistinctly transversely wrinkled; scutellum finely shagreened; hind margin of last ventral segment with posterior angles broadly rounded, slightly produced, with a rather large narrow notch having at its center a small blunt tooth. Color black; front with about six



narrow transverse yellowish lines on either side; clypeus with a small yellow spot on either basal angle; genae laterally margined near the eyes with yellow. Vertex with a broad transverse band on the posterior margin between the eyes, and a narrow band along anterior margin of vertex yellow, the latter having three black spots upon it, one at the middle and one at either end. Pronotum and scutellum yellowish, indistinctly mottled with black; elytra dark smoky with the nervures and central portions of cells paler; abdomen black; legs black, knees and tibiae yellowish, the tarsi streaked with black.

Length 3 mm. Described from one female.

On Grizzly Creek, in mountains south-west of North Park, July 10th, on *Artemisia tridentata* (Baker).

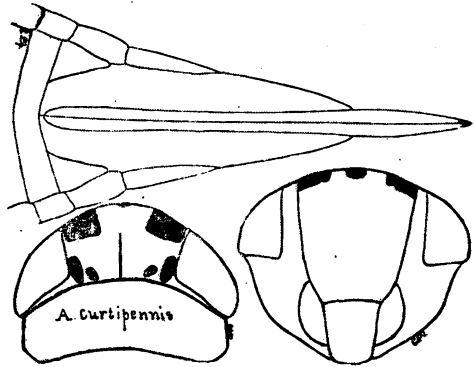
Athysanus comma VanD.

Det. Osborn.

Fort Collins, July 4th (Gillette), and July 24th to August 18th (Baker).

Athysanus curtipennis n. sp.

Female: Clypeus about one-fourth longer than broad, transversely depressed before the tip, sides nearly parallel, apex truncate, basal suture slightly curved; lorae as long and nearly one-half as broad as the clypeus; genae broad, strongly depressed beneath the eyes, outer margin broadly and evenly rounded, attaining tip of clypeus and rather broad beneath the lorae; front one-eighth longer than broad and twice the length of the clypeus; superior angle broadly rounded; face finely shagreened. Disc of vertex smooth and shining, broadly transversely depressed on posterior half, length at middle once and one-third that at eyes. Pronotum short and broad, somewhat shorter than the vertex, anterior one-fourth very finely rugose, posterior three-fourths rather coarsely rugose with broad scattered punctures. Scutellum very small, shorter than pronotum, transverse groove wanting. Elytra subquadrate, as broad as long, not attaining the tip of the second segment. Hind margin of last ventral segment with posterior angles long and subacute, entire central portion between the angles wanting; ovipositor, beneath, half the length of the whole body; valves a third longer than pygofers, the latter with a row of short stout spines, the former with numerous fine hairs near the tip. Color pale yellowish with dark markings; front with several short transverse darker lines on either side, lower angles each with a black spot; vertex with a large black spot on either side at crest and a small black spot at the apex; disc of vertex with two large black spots near the middle and with a narrow black line next the compound eyes; pronotum almost concolorous, a rather distinct dark spot just back of the compound eye and another outside of the basal angle of the scutellum, two minute approximate black spots close to anterior margin; scutellum concolorous; elytra with about four longitudinal dark lines on corium between the nervures; tergum with three longitudinal black bands on either side, outer ones narrow, inner broadest and containing a row of irregular pale green spots; venter with middle portion of three basal segments black; pygofers with two black lines on sides, valves black, margins brown; legs concolorous.



Length 5 mm. Described from one female.

Colorado Springs, August 3d (Gillette).

Athysanus gammaroides VanD.

Det. VanDuzee.

Colorado (Gillette—see VanDuzee, 3). Colorado (VanDuzee, 4).

Foot-hills, five miles west of Fort Collins, April 25th (Gillette).

Athysanus instabilis VanD.

Det. VanDuzee.

Colorado (VanDuzee, 4).

Steamboat Springs, July 26th; Leadville, August 23d (Gillette).

Athysanus plutonius Uhl.

Clear Creek Canon, August 6th (Uhler, 5). Colorado (VanDuzee, 4).

Athysanus relativus n. sp.

Near obsoletus. Female: Clypeus fully one-third longer than broad, sides nearly parallel, apex nearly truncate; lorae as long and nearly as broad as clypeus; genae broad, slightly depressed, outer margin broadly rounded, attaining tip of clypeus and moderately broad beneath the lorae; front as long as broad, less than twice as long as the clypeus, superior angle rather sharply rounded; face and anterior third of vertex rather coarsely shagreened, posterior two-thirds of vertex medially longitudinally wrinkled; disc of vertex nearly flat, at middle nearly two-thirds longer than at the eyes. Pronotum smooth on anterior third, transversely wrinkled on posterior two-thirds, width more than twice the length, anterior margin broadly rounded, posterior rather strongly concave, posterior angles rounded, sides feebly carinated. Scutellum coarsely shagreened, transverse groove curved forwards. Hind margin of last ventral segment with posterior angles produced, acute, with a broad shallow median notch, having a short blunt tooth at the center. Color pale sordid yellowish; face with six smoky transverse lines on the front; vertex unicolorous; pronotum without distinct marking; scutellum with two small, more or less distinct, darker spots near base; elytra with nervures whitish, areoles more or less distinctly broadly margined with fuscous or blackish; venter yellow; lateral margins and apex of last ventral segment black; legs nearly concolorous, spots at bases of tibial spines black, tarsi infuscate. Length 5 mm.

Male: Clypeus a little narrower than in female; venter sometimes almost entirely black.

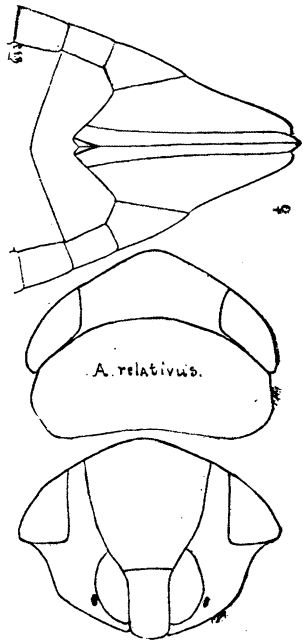
Described from two females and one male.

Fort Collins, September 27th on grass (Gillette).

**Athysanus 6-vittatus* VanD.

Det. VanDuzee.

Colorado (VanDuzee, 4).



*In Trans. Amer. Ent. Soc. XIX, Mr. VanDuzee separates *Athysanus* on "Elytra short, without an appendix," giving no exceptions. In his arrangement of the species of the

- Acinopterus acuminatus* VanD. Det. VanDuzee.
 Colorado (VanDuzee, 4).
 Steamboat Springs, July 26th (Gillette).
- Scaphoideus immistus* Say. Det. VanDuzee.
 Fort Collins, August 18th, on black walnut (Baker).
- Phlepsius cinereus* VanD. Det. VanDuzee.
 Colorado (VanDuzee, 4).
 Fort Collins, August 25th (Baker).
- Phlepsius excultus* Uhl.
 Denver, August 18th; Pueblo (Uhler, 5). Colorado (VanDuzee, 4).
- Phlepsius irroratus* Say.
 Suburbs of Denver and Valley of the Arkansas (Uhler, 5).
- Phlepsius ovatus* VanD. Det. VanDuzee.
 Colorado (VanDuzee, 4).
 Horsetooth Gulch, ten miles south-west of Fort Collins, April 25th to May 18th; Rist Canon, eight miles north-west of Fort Collins, June 13th; Dolores, May 18th (Gillette). Fort Collins, October 7th; foot-hills five miles west of Fort Collins, during the winter hibernating under stones (Baker).
- Thamnotettix atridorsum* VanD. Det. VanDuzee.
 Colorado (VanDuzee, 4).
 Spring Canon and Dixon's Canon, June 30th; Montrose, June 24; Dolores, June 18th (Gillette).
- Thamnotettix belli* Uhl. Det. VanDuzee.
 Manitou (Uhler, 5). Colorado (VanDuzee, 4).
 Fort Collins, May 8th; Soldier Canon, five miles west of Fort Collins, May 19th; Estes Park, July 11th; North Park, July 20th; Steamboat Springs, July 26th; Trinidad, May 14th; Silverton, June 20th; Ouray, June 22d; Dolores, June 18th (Gillette). Fort Collins, May 18th to August 18th on alfalfa and July 29th on cultivated beet; Horsetooth Gulch,

genus in Can. Ent. XXV, p. 285, one division is stated as having "longer elytra with well developed appendix." It would seem that in the former paper the genus is properly characterized while, between those species which have elytra as long as abdomen or longer and with a well developed appendix, such as anthracinus, bicolor, striatulus, instabilis and obtutus, and some species of the genus Thamnotettix, we find no good generic differences.

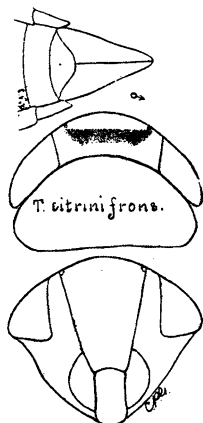
ten miles south-west of Fort Collins, May 21st; mountains south-west of North Park on Grizzly Creek, July 10th, on *Artemisia tridentata*; Rabbit Ears Pass, Routt County, July 20th; Steamboat Springs, July 12th, on *Artemisia tridentata* (Baker).

Thamnotettix citrinifrons n. sp.

Face one-ninth longer than broad; clypeus two-thirds longer than broad, constricted at the sides, widened near the apex, basal suture curved; lorae as long and nearly as wide as the clypeus; genae very slightly depressed below the eyes, feebly rounded at the sides, attaining the tip of the clypeus, moderately wide below the lorae; front one-fourth longer than broad, once and three-fourths the length of the clypeus, gradually narrowing below, superior angle very obtusely and evenly rounded. Face and anterior one-half of vertex finely shagreened. Disc of vertex slightly depressed, length at middle but little more than at the eyes, width between the eyes two and one-fifth times the length at middle. Pronotum about twice wider than long, length about twice that of the vertex, curvature five-ninths of the length, slightly concave behind, sides short and not carinated. Scutellum shagreened. Color yellow and deep smoky. Face, anterior and middle legs, and posterior femora, deep yellow. Vertex yellow with a transverse black band not attaining the eyes. Pronotum dark smoky, the tip tinged with yellow. Elytra smoky subhyaline, nervures darker. Tergum and venter black with narrow lateral and apical margins yellow. Posterior tibiae and tarsi dark smoky yellow. Sternum black.

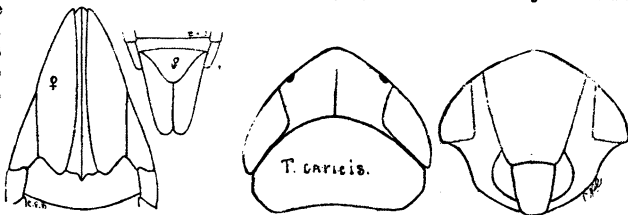
Length 4.5 mm. Described from one male.

Leadville, August 23d (Gillette).



Thamnotettix caricis n. sp.

Female: Face somewhat more than one-eighth wider than long; clypeus about one-fourth longer than broad, gradually narrowed to the rounded apex, basal suture nearly straight; lorae one-half as wide and nearly as long as the clypeus; genae broad, hardly depressed beneath the eyes, outer margin evenly rounded, attaining the tip of the clypeus but much wider below the lorae than in longula; front one-eighth longer than broad, twice the length of the clypeus, gradually narrowing below, superior angle obtuse and broadly rounded. Face and anterior third of vertex finely shagreened. Disc of vertex flat, sloping, length at middle once and three-fifths that at eyes, width between eyes a third greater than the length at middle. Pronotum two times wider than long, the length once and a third that of the vertex, curvature three-fifths of length, finely transversely wrinkled and with scattered shallow



punctures on the posterior three-fourths, hind margin very slightly concave, sides short and not carinated. Scutellum coarsely shagreened. Hind margin of last ventral segment with the posterior angles produced, medially but little produced, with two blunt, short and broad, black teeth. Color pale yellowish green. Face slightly dusky with distinct transverse lines on either side of the front. Vertex pale yellowish with a

median dark line on the posterior three-fourths, and a small more or less distinct dark spot on either side of the center close to the posterior margin. Ocelli black. Pronotum greenish on the disc, the margin yellowish. Scutellum yellow. Elytra hyaline, nervures more or less yellow. Venter and eyes pale yellow. Tibial spines arising from black spots, tips of the tarsi infuscate.

Male: Face, vertex, venter, and legs sulphur yellow.

Length of female, 4.25 mm., of male 4 mm. Described from four males and one female.

Steamboat Springs, July 12th on Carex (Baker).

Thamnotettix clitellaria Say.

Custer County, midalpine (Cockerell, 10).

Thamnotettix emarginata n. sp.

Face one-seventh wider than long; clypeus one-half longer than broad, sides parallel, apex rounded, basal suture nearly straight; lorae as long as the clypeus and two-thirds as broad; genae strongly depressed below the eyes, the outer margin strongly obtusely



angled, attaining the tip of the clypeus, very narrow below the lorae; front one-fourth longer than broad, once and three-fifths the length of the clypeus, gradually narrowing below, rapidly near the clypeus, the superior angle broadly rounded. Face and anterior half of vertex finely shagreened. Eye distinctly and narrowly emarginate within at the antennae. Disc of the vertex flat, length at the middle once and a third that at the eyes, width between the eyes one and four-fifths times the length. Pronotum twice wider than long, the length once and three-fifths that of the vertex, curvature one-half of the length, indistinctly transversely wrinkled posteriorly, hind margin concave, sides short and very feebly carinated. Scutellum finely rugose, transverse groove curved forward. Color pale greenish yellow. Face pale yellow with a small speck on the genae next the lorae and a large spot beneath the antennae, black. Front slightly infuscate, with about six pale dashes on each side. Vertex yellow with a large dark spot near the compound eyes just within the hind margin. Pronotum yellow, disc darker. Scutellum unicolorous. Elytra smoky subhyaline, veins yellowish basally, smoky apically. Venter yellow, with the middle basal portion and narrow lateral margins of each

segment, black. Pronotum and meso-sterna black. Legs yellow, bases of tibial spines and tips of tarsi blackish.

Length 5 mm. Described from one male.

Steamboat Springs, July 26th (Gillette).

Thamnotettix flavicapitata VanD.

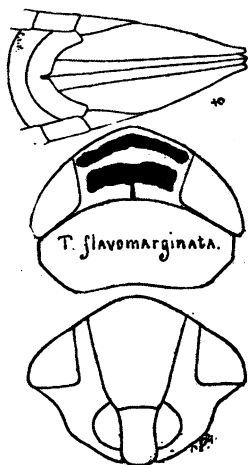
Det. VanDuzee.

Colorado (VanDuzee, 4).

Steamboat Springs, July 26th (Gillette).

Thamnotettix flavomarginata n. sp.

Face one-fourth wider than long; clypeus one-half longer than broad, sides concave, apex obtusely rounded, basal suture nearly straight, lorae subovate, three-fourths as broad and four-fifths as long as the clypeus; genae not distinctly depressed beneath the



eyes, outer margin broadly angled, attaining the tip of the clypeus, unusually broad beneath the lorae; front one-sixth longer than broad, twice as long as the clypeus, gradually narrowing below, superior angle rather broadly rounded. Face and vertex finely shagreened. Eyes with a small but distinct emargination at the antennae. Disc of the vertex shallowly and broadly depressed, length at middle once and one-third that at the eyes, width between the eyes once and a third the length at the middle. Pronotum about two and two-fifths times wider than long, length one-seventh greater than that of the vertex, curvature two-fifths of the length, feebly wrinkled on the posterior three-fourths, slightly concave behind, sides short and not carinate. Scutellum finely shagreened. Hind margin of the last ventral segment truncate, with a median slit, the hind angles produced and broadly rounded. Color black, with yellow markings. Front with five light dashes on either side and the lower margin yellowish. Crest of the vertex yellow, back of this are two black and two yellow lines extending from eye to eye, a black median line on posterior one-half. Pronotum with a median transverse band and the hind margin yellow. Scutellum with the sides yellow. Elytra dark smoky, nervures and a broad line on the costal margin bright yellow-

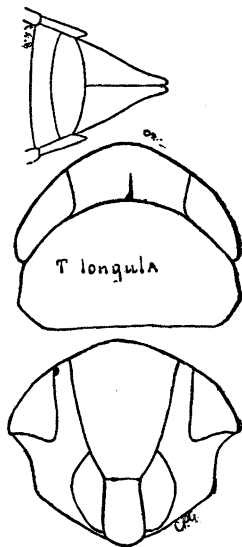
middle of the cells paler. Abdomen black. Propleura with a yellow spot. Legs black, distal end of anterior femora and a line on outside of posterior tibiae, yellow.

Length 4.5 mm. Described from one female.

Leadville, August 23d (Gillette).

Thamnotettix longula n. sp.

Face one-ninth wider than long; clypeus two-thirds longer than broad, gradually broadening to the apex, sides nearly straight; lorae as wide as the clypeus, and one-fourth longer; genae broad, nearly flat beneath the eyes, outer margin sharply rounded, hardly attaining the tip of the clypeus, very narrow below the lorae; front one-fourth longer than broad, twice the length of the clypeus, gradually narrowing below, superior angle obtusely rounded. Face and vertex finely shagreened. Disc of vertex flat, sloping, one-third longer at the middle than at the sides, width between the eyes little less than twice the length at the middle. Pronotum one and three-fourths times wider than long, length two and one-fourth times that of the vertex, curvature about one-half of the length, smooth on anterior one-fourth, finely transversely wrinkled and with shallow scattered punctures on posterior three-fourths, hind margin slightly concave, sides carinate. Scutellum finely shagreened, transverse groove curved forwards. Color fulvous brown, nearly immaculate. Face with about six indistinct transverse bands on either side of the front. Vertex with a median dark brown line, and a dark spot near the compound eyes on either side just within the posterior margin. Pronotum with a faint yellow longitudinal line, anterior margin whitish in the center. Scutellum with two longitudinal pale lines running forwards from ends of transverse groove, between these lines are two dark spots, tip pale. Elytra uniform smoky subhyaline with nerves and central portions of cells pale. Venter and legs unicolorous.



Length 5 mm. Described from two males.

Fort Collins, September 26th on Carex (Gillette).

Thamnotettix geminata VanD.

Det. VanDuzee.

Colorado (VanDuzee, 4).

Dolores, June 18th (Gillette).

Thamnotettix gillettei VanD.

Det. VanDuzee.

Colorado (Gillette—see VanDuzee, 2). Colorado (VanDuzee, 4).

Steamboat Springs, July 26th (Gillette).

Thamnotettix infuscata n. sp.

Face about an eighth wider than long; clypeus one-fourth longer than wide, not at all contracted in the middle, sides parallel, very slightly narrowed towards the tip, basal suture slightly curved; lorae as long and slightly more than one-half as broad as the clypeus; genae broad, somewhat concave below the eyes, outer margin evenly rounded; front scarcely longer than broad, four-fifths longer than the clypeus, gradually narrowing below, superior angle little greater than a right angle and rather pointed. Face and anterior half of vertex shagreened. Disc of vertex with a transverse median depression and with a small pit on either side basally close to the eyes, length at the middle once and two-thirds that next the eyes, width between the eyes once and three-fourths the length at the middle. Pronotum eight-ninths wider than long, length once and two-thirds that of the vertex, curvature five-elevenths of the length, smooth anteriorly, posterior two-thirds finely transversely wrinkled and with numerous scattered subobsolete dark punctures, posterior margin slightly concave, sides little longer than in *T. atridorsum*, and with a distinct carina. Scutellum finely shagreened, the transverse groove curved forwards. Last ventral segment with hind margin concave, posterior angles subacute, obliquely cut off. Color yellowish. Face and vertex smoky yellow. Pronotum dark with yellow anterior and lateral margins. Scutellum yellow, within the posterior angles smoky, two dark dots before the posterior line. Elytra dark smoky, subhyaline, darker on the shoulders, veins yellowish. Abdomen with segments black, margined apically and laterally with yellow. Venter with two last segments and pygifers yellow. Legs sordid yellow, tips of tarsi infuscate, black spots at base of tibial spines.

Length 6 mm. Described from one female.

Estes Park, July 12th (Gillette).

Thamnotettix kennicotti Uhl.

Det. VanDuzee.

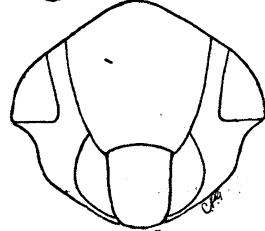
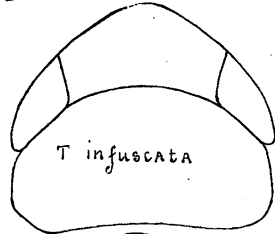
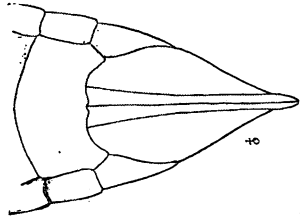
Colorado (VanDuzee, 4).

Fort Collins, May 8th; Spring Canon, May 11th (Gillette).

Thamnotettix laeta Uhl.

Det. VanDuzee.

From mountains near Beaver Brook, August 6th (Uhler, 5). High mountains, June 19th to September 6th (Carpenter—see Uhler, 6). Colorado (VanDuzee, 4).



Steamboat Springs, July 26th (Gillette).

Thamnotettix longiseta VanD.

Det. VanDuzee.

North-western Colorado (Gillette—see VanDuzee, 2). Colorado (VanDuzee, 4).

Steamboat Springs, July 26th (Gillette).

Thamnotettix montanus VanD.

Det. VanDuzee.

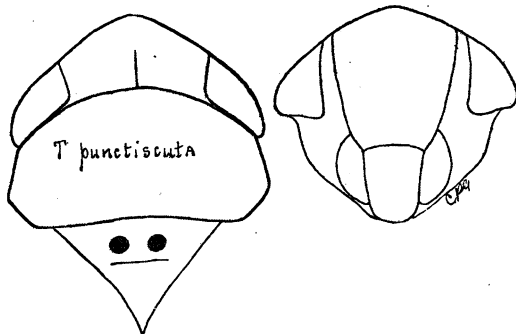
Mountains of South-western Colorado (Gillette—see VanDuzee, 2). Colorado (VanDuzee, 4).

Steamboat Springs, July 26th (Gillette). Steamboat Springs, July 14th on *Carex*, *Solidago* and *Delphinium occidentale* (Baker).

Thamnotettix punctiscuta n. sp.

Face about one-ninth wider than long; clypeus one-third longer than broad, sides almost parallel, broadly rounded at the apex, basal suture nearly straight; lorae two-thirds as wide and almost as long as the clypeus; genae moderately depressed beneath the eyes, outer margin evenly rounded, attaining the tip of the clypeus, very narrow below the lorae; front nearly as broad as long, once and three-fifths the length of the clypeus, rapidly narrowing below, superior angle very obtuse. Face and vertex finely shagreened. Disc of vertex flat, sloping, length at the middle once and a half that at the eyes, width between the eyes once and four-fifths the length at the middle. Pronotum twice wider than long, length once and three-fourths that of the vertex, curvature three-sevenths of the length, posterior two-thirds finely transversely wrinkled and with scattered shallow punctures, hind margin slightly concave, sides rather long and carinate. Scutellum finely shagreened, transverse suture nearly straight. Color yellowish and smoky. Face yellow with sutures and a spot beneath the antennae black, a small brown spot on the upper end of the lorae and one on the genae beneath the eyes. Vertex yellow with two small approximate brown spots on the disc. Pronotum with disc dark green, front and lateral margin yellow. Scutellum yellow with two black spots in front of the transverse groove. Elytra smoky tinged with green, nervures yellow. Tergum black, margins yellow. Venter black, segments apically margined with yellow, next to the last segment with two large yellow spots on either side. Genital organs yellowish below. Legs light yellow.

Length 5 mm. Described from one male.



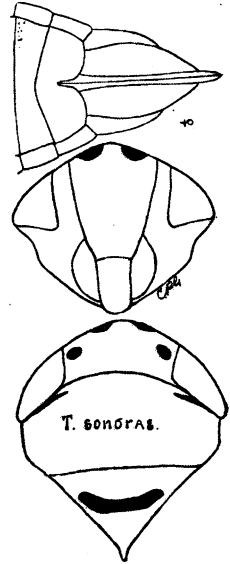
Steamboat Springs, July 26th (Gillette).

Thamnotettix sonora n. sp.

Face one-sixth wider than long; clypeus one-half longer than broad, slightly constricted at the middle, basal suture curved; lorae three-fourths as broad as the clypeus and slightly longer; genae broad, hardly depressed beneath the eyes, outer margin broadly rounded; front a third longer than broad, two times the length of the clypeus, gradually narrowing to the clypeus, superior angle rather sharp. Front and anterior half of vertex rather coarsely shagreened. Disc of the vertex scarcely depressed, a third longer at the middle than next the eyes, width between the eyes twice the length at the middle. Pronotum two times wider than long, length little less than twice that of the vertex, curvature one-half of the length, scattered shallow punctures on the posterior two-thirds, posterior margin concave, sides short. Scutellum with a small depression just before the apex. Last ventral segment with the hind margin truncate with a deep narrow notch. Color pale yellow. Face pale yellow. Two small transverse spots on the base of the clypeus, and a large spot beneath the antennae, black. Vertex pale yellow with two large approximate black spots on the apex, and a small black spot on either side back of the ocelli. Pronotum greenish yellow washed with sulphur yellow. Scutellum pale sulphurous yellow with transverse groove broadly black. Elytra smoky subhyaline, nervures sometimes darker towards the tip. Venter pale yellow, first segment black. Legs pale yellow, tips of tarsi infusate.

Length 4.5 mm. Described from two females.

Dolores, June 18th (Gillette).



Thamnotettix (Jassus) tenella Uhl.

Det. VanDuzee.

Grand Junction, August 26th, common on sugar beet.

This species, the description of which we have not seen, is referred to *Thamnotettix* on Mr. VanDuzee's suggestion, though it seems to be a *Limotettix*.

Eutettix clarivida VanD.

Det. VanDuzee.

Colorado (VanDuzee, 4).

Montrose, June 24th (Gillette).

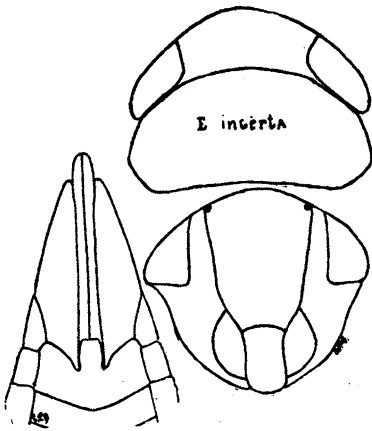
Eutettix (Limotettix) exitiosa Uhl.

Colorado (VanDuzee, 4).

Colorado Springs, August (Tucker).

Eutettix incerta n. sp.

Face one-eleventh wider than long; clypeus fully one-half as long as broad, considerably constricted on the basal two-thirds, broadest near the rounded apex; basal suture curved; lorae as long and nearly as broad as the clypeus; genae broad, feebly depressed



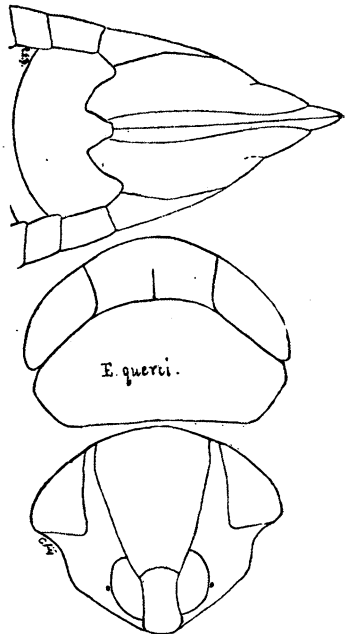
margin of the clavus with two oblique pale spots.

Length 5 mm. Described from one female. Near querci.

Manitou, July (Tucker).

Eutettix querci n. sp.

Female: Face one-sixth wider than long; clypeus fully two-thirds longer than broad, constricted in the middle, broad near the apex, basal suture curved; lorae as long and four-fifths as broad as the clypeus; genae broadly expanded laterally, a broad shallow furrow extending from eyes to lorae, outer margin sharply rounded; front nearly one-third longer than broad, fully twice as long as the clypeus, rapidly narrowing below the antennae, superiorly very obtuse and evenly rounded. Face and vertex finely shagreened, less distinctly on the latter. Disc of the vertex transversely and narrowly depressed just back of the anterior margin, slightly longer on the middle than next the eyes, width between the eyes once and five-sixths the length at the middle. Pronotum little more than twice wider than long, length two times that of the vertex, curvature six-elevenths of the length, anterior one-fourth smooth, posterior three-fourths faintly transversely rugose, posterior margin slightly concave. Scutellum with the black transverse groove curving forward. Hind margin of the last ventral segment with two deep sharp notches, including between them a large blunt median tooth, posterior angles rounded. Color fulvous brown. Face and vertex pale yellow, a small black spot on the genae next to the lorae, vertex with an indistinct brown mottling. Pronotum fulvous brown, yellowish on the anterior margin, with an indistinct pale median line. Scutellum yellowish with the basal angles, two spots between, and apex, fulvous brown. Elytra uniform pale smoky brown, subhyaline. Abdomen except the first ventral segment, yellowish brown, pygofers reddish, pale on the lower margin, with whitish hair arising from black spots. Prosternum with a large black spot. Legs pale yellow, tibial spines arising from black spots, tips of tarsi infusate.



Male: Differs from the female as follows:—Generally darker colored. Basal joint of antennae distinctly margined internally with black. Vertex more strongly depressed. Elytra with veins dark brown. Venter black with tips of segments yellowish. Plates yellowish brown streaked with black. Black spots on tibiae larger.

Length of female 6-8.5 mm, of male 5 mm. Described from seven females and one male.

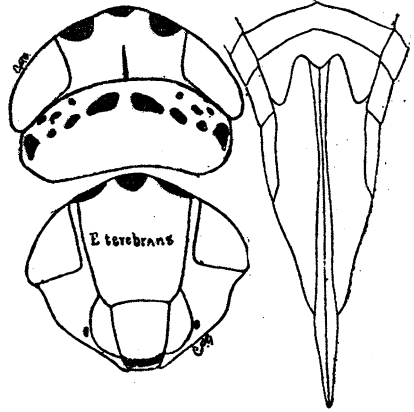
Glenwood Springs, August 24th; Manitou, September 29th on oak (Gillette).

Eutettix seminuda Say.

Montrose, June 24th; Fort Collins, September 11th on apple (Gillette).

Eutettix terebrans n. sp.

Face one-eighth wider than long; clypeus one-sixth longer than broad, narrowing to a truncate apex, deeply transversely depressed near the apex and broadly and shallowly depressed near the base, the lateral margins curved; lorae as long and one-half as broad as the clypeus; genae slightly depressed near the eyes and toward the lorae, outer margin rounded, strongly margined, and slightly exceeding the clypeus; front scarcely longer than broad, once and four-fifths the length of the clypeus, gradually narrowing to near the clypeus, superior angle obtusely rounded. Face and anterior third of vertex coarsely shagreened with scattering shallow punctures. Disc of the vertex with a small depression at the tip and a broad transverse depression before the tip and between the compound eyes, length at the middle once and a fourth that next the eyes, width between the eyes once and a half the length at the middle. Pronotum considerably more than twice as broad as long, length once and a fourth that of the vertex, curvature about one-half of the length, shagreened on the anterior third, transversely wrinkled on the posterior two-thirds, posterior margin slightly concave. Scutellum coarsely shagreened, slightly shorter than the pronotum. Last ventral segment with the hind margin broadly and very deeply notched, the notch with a short, strong, rounded tooth at the center, the lateral angles produced and subacute. Ovipositor extremely long, as long as the body back of the head, exceeding the pygofers by about 1 mm., and the wings by .3 mm. Color tawny yellow. Face light brownish yellow, about six transverse dark dashes on either side of the front; genae with a dark spot below the eyes and a dark point near the lorae. Vertex with a large rectangular spot either side next the eyes and a smaller one at the apex, the sunken pit just back of this spot blackish, and about four indistinct infuscated spots between the eyes near the hind margin. Pronotum with two small transverse black spots near the median line and about one-third of the length back of the front margin, back of the compound eyes on either side are about six small black spots, back of these spots the disc is brownish yellow. Scutellum yellowish, transverse groove black. Elytra yellowish subhyaline. Tergum yellowish with six longitudinal black bands. Venter yellowish with basal segment black. Pygofers yellow streaked with black, valves yellow on the lower margins, black at the sides. Legs dirty yellow, tibial spines brown, tips of tarsi infuscate. Propleura with a black spot.

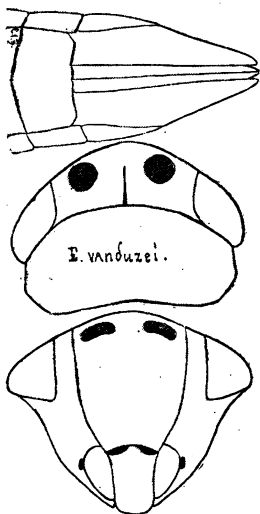


Length 4.75 mm. Described from one female. This unique form introduces a very novel element into the genus *Eutettix*.

North Park, July 20th (Gillette).

Eutettix vanduzeei n. sp.

Face two-elevenths wider than long; clypeus one-third longer than broad, slightly constricted at the middle, nearly as broad before the apex as at the base, basal suture curved; lorae somewhat shorter and much narrower than the clypeus; genae broad, nearly flat, very broadly rounded outwardly; front about one-fourth longer than wide



almost twice the length of the clypeus, gradually narrowing to the clypeus, superior angle very broadly rounded. Face and vertex finely shagreened. Disc of the vertex flat, two shallow pits immediately back of the large black spots near the anterior edge, once and a half as long on the middle as next the eyes, width between the eyes little more than twice the length at the middle. Pronotum two and a sixth times wider than long, length once and a half that of the vertex, curvature about one-half of the length, posterior two-thirds finely transversely wrinkled, with scattering shallow black punctures, posterior margin shallowly concave. Scutellum finely shagreened. Last ventral segment of the female with the hind margin nearly truncate, posterior angles obliquely cut off. Color pale greenish yellow. Face light yellow, sutures, spot beneath antennae, two transverse spots at the extreme base of the clypeus, two V-shaped marks on the genae, and two large curved spots immediately beneath the crest of the vertex, black. Vertex pale yellow with two large black spots on the disc, a little nearer to the eyes than to each other. Pronotum yellowish, with two more or less distinct transverse black lines, one just before the middle and the other next the posterior margin. Scutellum light yellow, transverse suture black. Elytra greenish subhyaline with nervures yellowish. Tergum black, with broad lateral and

narrow apical margins yellow. Venter pale yellow with median basal portions of first two segments black. Ovipositor black. Legs pale yellow with minute black spots at bases of tibial spines, tips of tarsi infuscate.

Length 5 mm. Described from one female.

Rabbit Ear Pass, Larimer County, July 20th (Baker).

This species may prove to be *Thamnotettix* (sensu strict.). It is certainly congeneric with *E. clarivida*.

Chlorotettix unicolor Fitch.

Det. VanDuzee.

Steamboat Springs, July 26th; Colorado Springs, August 3d (Gillette).

Neocoelidia n. gen.

Allied to *Tinobregmus*. Body short and robust. Head narrower than pronotum, short conical, rather obtuse and tumid; vertex expanded posteriorly behind the eyes, ocelli on extreme front edge, front very broad below, the sides nearly parallel. Antennae as long as head, pronotum, and scutellum together. Pronotum short, length at middle four-fifths that of vertex, anterior and posterior margins nearly parallel. Scutellum large, normal. Elytra semicoriaceous, without an appendix, but extending beyond the tip of the abdomen; the first sector but once forked in the proximal two-thirds, the inner branch connected with the second sector by a single transverse nervure, the latter entering an anteapical cell; apical areoles four. Wings well developed, margined, the nervures very strong, second and third sectors uniting before the marginal nervure, thus forming but one apical cell; a transverse nervure between second and third sectors forming a single, short, triangular, apical cell. Rostrum longer than the clypeus. Posterior tibiae outwardly with two rows of moderate spines. Type, *N. tumidifrons*.

Neocoelidia tumidifrons n. sp.

Face a thirteenth wider than long; clypeus two-thirds longer than broad, sides nearly parallel, apex nearly truncate, basal suture strongly curved; lorae nearly as long and two-thirds as broad as the clypeus; genae broad, somewhat depressed below the eye-, outer margin broadly rounded, very broad below the lorae; front tumid, sides nearly parallel, broad below, one-fourth longer than broad, nearly twice the length of the clypeus, superiorly obtusely rounded. Face shagreened. Vertex tumid, elevated, coarsely shagreened, a shallow longitudinal depression on either side, three-fifths longer on the middle than next the eyes, width between the eyes once and two-sevenths the length at the middle. Pronotum coarsely transversely rugose, three times as broad as long, four-fifths the length of the vertex, curvature three-sevenths of the length. Scutellum with lateral margins broadly, sharply, and deeply depressed, the scutellar suture subobsolete, nearly straight. Last ventral segment long, narrowing to an acute point, nearly equalling the pygofers. Color light green, unicolorous below, except the black tips of the pygofers. Two small black spots within the basal angles on the edge of the elevated portion of the scutellum.

Length 3.5 mm. - Described from two males.

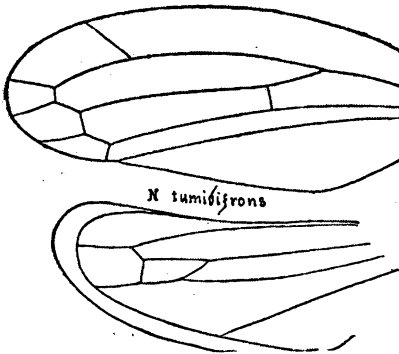
Fort Collins, June 6th (Baker). Pleasant Valley, seven miles north-west of Fort Collins, June 12th (Gillette).

*Gnathodus abdominalis* VanD.

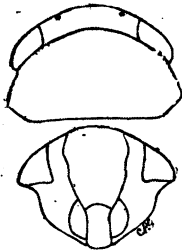
Det. VanDuzee.

Colorado (VanDuzee, 4).

Colorado Springs, August 2d; Glenwood Springs, August 24th; Grand Junction, August 26th, on sugar beet (Gillette). Fort Collins. June 9th on barley; Steamboat Springs, July 16th (Baker). Colorado City, August (Tucker).

*Gnathodus confusus* n. sp.

Face one-fifth wider than long; clypeus twice as long as broad, basal suture strongly curved, somewhat constricted near the base, broadest near the tip; lorae about three-fourths as broad and three-fourths as long as the clypeus; genae broadly depressed beneath the eyes, margin beneath the eyes inverted, broadly rounded below, moderately broad below the lorae and attaining the tip of the clypeus; front one-fifth longer than broad, once and two-thirds the length of the clypeus, superiorly broadly rounded. Face, vertex, and pronotum finely shagreened. Vertex scarcely longer on the middle than next the eyes, width between the eyes slightly more than four times the length at the middle. Pronotum slightly less than twice as broad as long, length nearly four times that of the vertex, curvature about one-half of length, consider-



ably wider than the head, hind margin slightly concave. Transverse groove of scutellum black. Hind margin of last ventral segment of female truncate. Color yellowish green. Face sordid yellow, basal angles of the clypeus with an infuscated spot. Vertex of the same color as the face, with three indistinct longitudinal smoky bands, the ocelli in light areas. Pronotum light yellowish green on the anterior and lateral margins, darker green on the middle, two dark brown spots medially just back of the anterior margin, the latter in some specimens entirely obsolete. Scutellum pale yellow, basal angles darker. Elytra greenish subhyaline, slightly maculate with brown near the clavus, somewhat smoky towards the tip. Tergum black with the apical margins of the segments yellow. Venter yellow with the first two or three segments black at the base, pygofers yellowish. Sternum black. Legs yellowish throughout, with infuscated lines on the outside of the femora.

Length 3.75 mm. Described from seven females.

Pleasant Valley seven miles north-west of Fort Collins, June 12th; Estes Park, July 12th (Gillette). Steamboat Springs, July 12th on *Carex* (Baker).

We have a single female specimen which seems distinct from this species, but to which at this time we hesitate giving a name. It differs as follows: The color more yellowish. Pronotum distinctly less than twice broader than long. Length 4 mm.

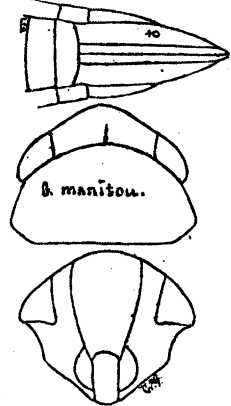
Estes Park, July 12th (Gillette).

Gnathodus manitou n. sp.

Face finely shagreened, a seventh wider than long; clypeus nearly twice as long as broad, rounded at the tip, slightly constricted before the base, basal suture strongly curved; lorae nearly as long and three-fourths as broad as the clypeus; genae moderately broad, rather deeply depressed beneath the eyes, outer margin angularly incised below the eyes, sharply rounded below, attaining the tip of the clypeus; front one-half longer than broad, twice as long as the clypeus, gradually narrowing below, obtusely rounded above. Vertex one-half longer on the middle than next the eyes, width between the eyes two and one-half times the length at the middle. Pronotum five-sixths broader than long, two and three-fifths times longer than the vertex, curvature two-fifths of the length, posterior margin very slightly concave, anteriorly smooth, posteriorly with scattered feeble punctures, on the posterior median portion finely obliquely rugose, the lines converging backwards. Last ventral segment feebly rounded behind, nearly truncate, pygofers with numerous stout hairs along the whole length. Color pale green, unicolorous. Elytra hyaline.

Length 5 mm. Described from one female.

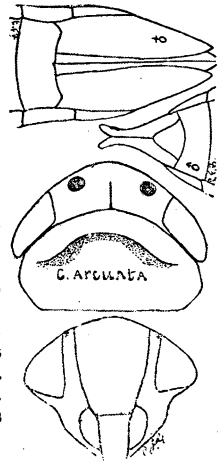
Manitou, July (Tucker).



Cicadula arcuata n. sp.

Female: Face finely shagreened, one-sixth wider than long; clypeus one-half longer than broad, sides parallel, rounded at the apex, basal suture curved; lorae three-fourths as long and one-half as wide as the clypeus; genae moderately broad, somewhat depressed beneath the eyes, outer margin angled above, straight below, attaining the tip of the clypeus, moderately broad below the lorae; front one-fourth longer than broad, once and

three-fourths the length of the clypeus, superiorly very obtusely and evenly rounded. Vertex a third longer on the middle than next the eyes, width between the eyes two and one-third times the length at the middle, finely shagreened anteriorly. Pronotum little less than twice as broad as long, and little more than twice the length of the vertex, curvature one-half of the length, posterior margin straight, disc with scattered shallow punctures. The black scutellar suture nearly straight. Hind margin of the last ventral segment nearly truncate, posterior angles obliquely cut off, pygofers with stout hairs on the distal half. Color greenish yellow. Face yellow, sutures of the front and clypeus and sockets of the antennae black, above dusky with several rather indistinct transverse lines. Vertex yellowish to brownish with a fine black median line on the basal half, and two large black spots anteriorly between the compound eyes. Pronotum greenish yellow, anteriorly with a transverse black line nearly parallel with the anterior margin, its lateral ends bent forward. Elytra pale greenish, hyaline, nervures yellowish. Tergum black, segments narrowly margined with yellowish. Venter and pygofers yellow, valves black. Sternum black. Legs pale yellow.



Male: Sutures of the face more heavily black, the face above darker with a small black spot on either side above antennae. Vertex with a black line margining the eyes. Basal angles of the scutellum with black spots within. Venter black, posterior margins of segments broadly yellow. One specimen lacks entirely the black arc on the pronotum.

Length of female 4.75 mm., of male 4.5 mm. Described from two males and one female.

Estes Park, July 12th; Leadville, August 23d (Gillette). Steamboat Springs, July 12th, on Solidago (Baker).

Cicadula divisa Uhl.

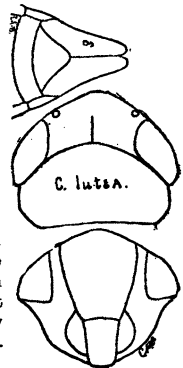
Abundant upon low herbage in damp fields near Denver, and near Sloan's Lake, west of Denver, August 17th (Uhler, 5).

Estes Park, July 12th; Leadville, August 23d; Minturn, August 24th (Gillette). Fort Collins, September 2d, on Solidago; Steamboat Springs, July 12th, on Carex (Baker). Colorado Springs (Tucker).

This species will probably prove to be, at the most, but a form of *C. 6-notata*.

Cicadula lutea n. sp.

Face one-seventh wider than long; clypeus one-third longer than broad, tapering to the rounded apex, sides nearly straight; lorae a little shorter and about one-half as broad as the clypeus; genae broad, outer edge incurved beneath the eyes, broadly rounded below, moderately broad below the lorae; front one-sixth longer than broad, three-fourth slonger than the clypeus, superiorly broadly rounded. Face finely shagreened. Vertex shagreened, punctured on a small median area, with an oblique pit on either side near the hind margin, one-third longer on the middle than next the eyes, width between the eyes little more than once and a half the length at middle. Pronotum smooth anteriorly, posteriorly finely transversely wrinkled with scattered punctures, four-fifths wider than long, one-half longer than the vertex, curvature six-tenths of the length



Color deep lemon-yellow. Face and all below concolorous. Vertex with a narrow median line and a small spot in the position of each ocellus black. Pronotum posteriorly dark greenish yellow. Scutellum greenish yellow. Elytra hyaline, nervures yellow, wings iridescent. Tergum black, with narrow apical margin of segments and the whole of the last segment yellow. Extreme tips of valves black.

Length 3.5 mm. Described from one male.

Steamboat Springs, July 12th, on *Carex* (Baker).

Cicadula 6-notata Fall.

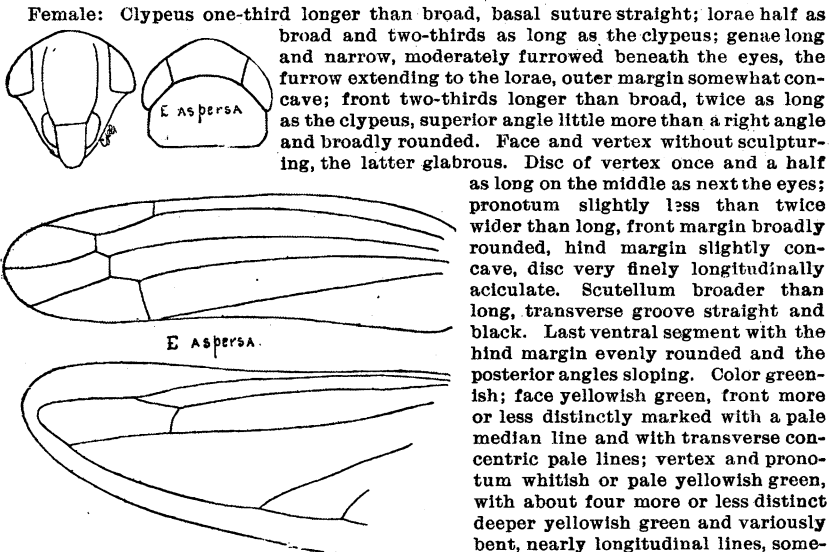
Det. Van Duzee.

Montrose, June 24th; Colorado Springs, August 1st (Gillette). Fort Collins, July 24th (Baker).

Cicadula variata Fall.

Leadville, August 23d (Gillette). Steamboat Springs, July 16th (Baker).

Empoasca aspersa n. sp.



Female: Clypeus one-third longer than broad, basal suture straight; lorae half as broad and two-thirds as long as the clypeus; genae long and narrow, moderately furrowed beneath the eyes, the furrow extending to the lorae, outer margin somewhat concave; front two-thirds longer than broad, twice as long as the clypeus, superior angle little more than a right angle and broadly rounded. Face and vertex without sculpturing, the latter glabrous. Disc of vertex once and a half as long on the middle as next the eyes; pronotum slightly less than twice wider than long, front margin broadly rounded, hind margin slightly concave, disc very finely longitudinally aciculate. Scutellum broader than long, transverse groove straight and black. Last ventral segment with the hind margin evenly rounded and the posterior angles sloping. Color greenish; face yellowish green, front more or less distinctly marked with a pale median line and with transverse concentric pale lines; vertex and pronotum whitish or pale yellowish green, with about four more or less distinct deeper yellowish green and variously bent, nearly longitudinal lines, sometimes orange on the former and dusky on the latter; scutellum with basal angles dark or yellowish green, median portion whitish mottled with greenish; elytra greenish, hyaline at tip, nervures whitish, basal two-thirds finely spotted with dusky green; tergum black with more or less of sides and apical margins yellowish; venter pale green, pygofers darker; legs pale greenish shading to bright blue at tips. Length 3 mm.

Male: Markings which in the female are dark yellowish green, are dusky here.

Described from six females and two males.

Fort Collins, on *Bigelovia*, September 27th (Gillette). In mountains south-west of North Park July 10th, and at Steamboat Springs July 12th, on *Artemisia tridentata* (Baker).

Empoasca aureo-viridis Uhl.

In large numbers at Denver and in Clear Creek Canon, on willows, August 7th to 18th (Uhler, 5). Colorado (VanDuzee, 4).

Empoasca clypeata n. sp.

Male: Clypeus one-half longer than broad, basal suture straight; lorae as in *T. sanguinea*; genae very narrow, attaining the clypeus as a very narrow line, lateral margins nearly straight; front nearly twice as long as its greatest width between the eyes, twice the length of the clypeus, superior angle very broad and obtusely rounded. Face and vertex finely shagreened. Disc of vertex flat, sloping, scarcely longer on the middle than next the eye. Pronotum slightly wrinkled on posterior two-thirds, glabrous in front, slightly more than twice as broad as long, anterior margin broadly rounded, posterior margin concave, posterior angles sharply rounded, sides long. Scutellum normal, transverse suture straight. Color yellowish; in light specimens, face, vertex, pronotum, and scutellum yellowish, concolorous; in dark specimens front with a median white line, pronotum dusky on posterior half, scutellum with basal angles and transverse groove dark; elytra in light specimens yellowish subhyaline, in dark specimens shaded into deep smoky subhyaline; venter and legs entirely pale yellow, sometimes tibiae and tarsi slightly smoky.

Length 4.5 mm. Described from six males.

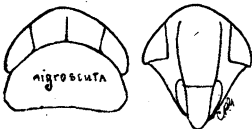
Estes Park, July 10th (Gillette). Steamboat Springs, July 10th on willow (Baker)

*Empoasca nigra* n. sp.

Male: Clypeus about one-half longer than broad, basal suture straight; lorae as in *T. sanguinea*; genae suddenly broadening close to eye, lateral margin almost straight, attaining the clypeus in a very narrow line; front nearly one-half longer than broad, once and two-thirds the length of clypeus, superior angle broadly obtusely rounded. Face coarsely and obsoletely shagreened. Disc of vertex sloping, with a slight median depression on the posterior half opening into a slight depression on the anterior margin of the pronotum, length at the middle slightly more than next the eyes. Pronotum opaque, on anterior third smooth, on posterior two-thirds indistinctly transversely rugose; slightly less than twice as broad as long, anterior margin broadly rounded, posterior margin somewhat concave, posterior angles sharply rounded. Scutellum opaque, with a median pit just in front of the transverse groove, posterior half irregularly wrinkled. Color black; antennae whitish; ocelli surrounded by a narrow pale margin; elytra black, posterior third fading into smoky subhyaline; anterior tibiae, and all the tarsi, smoky.

Length 2.75 to 3 mm. Described from five males.

Mountains south-west of North Park, July 10th, on *Artemisia tridentata* (Baker).

Empoasca nigroscuta n. sp.

Female: Clypeus minutely transversely rugose, one-half longer than wide, basal suture straight, apex rather pointed; lorae two-thirds as long, and one-half as wide as clypeus, distant from tip of clypeus; genae narrow, a deep sunken furrow beneath the eyes extending to the lorae, not attaining tip of clypeus, outer margin nearly straight, very narrow below lorae; front smooth, nearly twice longer

than wide, once and three-fourths the length of the clypeus, superior angle somewhat greater than a right angle, rather sharply rounded. Disc of vertex smooth, once and a half as long on middle as next eyes. Pronotum very minutely transversely wrinkled on posterior three-fourths, anterior margin broadly rounded, hind margin nearly straight, sides short. Scutellum broader than long, transverse groove slightly curved backward. Last ventral segment with hind margin nearly truncate, Color pale yellow marked with smoky; face and vertex pale yellowish, posterior one-half of latter with a median black line; pronotum pale yellow on anterior and lateral margins, remainder darker; scutellum black. basal angles sometimes yellowish; elytra yellowish, subhyaline, apex smoky, clavus with a large deep smoky blotch at tip; venter blackish, last segment yellow; tergum blackish, with tips and lateral margins of segments more or less yellowish; prosternum black; legs pale yellow.

Length 3 mm. Described from two females.

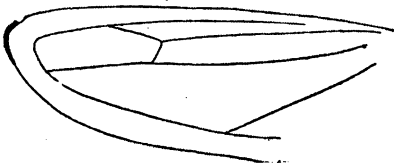
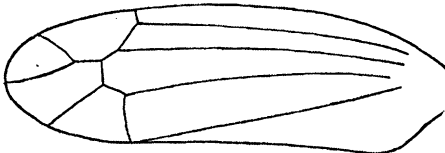
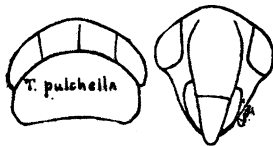
Dolores, June 18th (Gillette).

Empoasca obtusa Walsh.

Det. Gillette.

Fort Collins, June 23d on Virginia Creeper; Estes Park, July 12th; Colorado Springs, August 23d; Manitou, September 29th, on willow; Minturn, August 24th; Leadville, August 23d (Gillette). Fort Collins, June 9th, on alfalfa, and August 4th on cottonwood; Steamboat Springs, July 15th, on willow (Baker). Colorado Springs, August (Tucker).

Empoasca pulchella n. sp.



Female: Clypeus a third longer than wide, basal suture straight; lorae long and narrow, scarcely grooved, attaining the end of the clypeus; frons two-thirds longer than broad, nearly twice the length of the clypeus, superior angle obtusely rounded. Face and vertex without sculpturing, opaque. Disc of vertex scarcely longer on the middle than at the sides. Pronotum twice as wide as long, front margin broadly rounded, hind margin decidedly concave, posterior angles broadly rounded, sides rather short, without distinct sculpturing but with two small pits near the median line one-fourth of the distance back from the anterior margin. Scutellum broader than long, transverse groove black. Last ventral segment with the hind margin deeply and broadly notched, posterior angles rounded. Color steel blue varied with smoky and orange; head pale orange, genae and a large triangular mark on front extending onto and across vertex medially, ivory white; disc of vertex with a black median line on posterior two-thirds; ocelli rufous and distant from the eyes; pronotum pale blue washed

with white and pale orange on anterior and lateral margins; scutellum orange with whitish mottling; elytra subhyaline, smoky at base across median portion, and at tip, forming three broad indistinct transverse bands, clavus and corium posteriorly, each with a pale orange stripe, veins whitish apically; last ventral segment almost entirely whitish, pygofers rufous below; legs sordid white.

Length 3 mm. Described from one female.

In mountains south-west of North Park, July 10th, on *Artemisia tridentata* (Baker).

Although we would think it unadvisable, as a rule, to describe Typhlocybidæ from single specimens, we have concluded to do so with a few well marked uniques that we took the past season.

Empoasca pura Stal.

Det. Gillette.

Fort Collins, June 24th, and September 27th on *Clematis ligusticifolia*; Manitou, September 29th, on oak (Gillette).

Our specimens referred to this species may prove to be new as we have not seen types. Our specimens answer to the description of *pura*.

Empoasca (Kybos) smaragdula Fall.

Det. Gillette.

Colorado (VanDuzee, 4).

Spring Canon, eight miles south-west of Fort Collins, June 30th to July 12th; The Rustic, Larimer County, August 11th (Gillette). Steamboat Springs, July 15th on willow (Baker). Cheyenne Canon, Colorado Springs, July (Tucker).

The genus *Kybos* must fall under the older name *Empoasca*. Specimens of *K. smaragdulus* received through Mr. VanDuzee from France (Lethierry) show a typical *Empoasca* wing and elytron and we can find no generic characters to separate it from that genus.

Empoasca typhlocyboides n. sp.

Male: Clypeus subacute at apex, one-fifth longer than broad, basal suture straight; loræ one-half as wide and two-thirds as long as clypeus; genæ narrow, not attaining tip of clypeus, furrow shallow, outer margin slightly concave over coxæ, slightly convex along loræ; front one-fourth longer than broad, nearly twice the length of clypeus, superior angle broadly rounded. Face and vertex nearly smooth. Length of vertex at middle nearly once and a half that next the eyes. Pronotum slightly less than twice as broad as long, posterior two-thirds minutely transversely rugose, front margin broadly rounded, hind margin concave, posterior



angles broadly rounded. Scutellum broader than long, transverse groove straight. Color pale bluish or yellowish green; face and vertex pale yellow; pronotum pale yellow

or bluish green, with front and lateral margins yellowish, hind margin sometimes whitish; disc of pronotum sometimes with three faint longitudinal orange lines; scutellum yellowish, sometimes posterior angles bluish, elytra milky subhyaline, clavus with two faint longitudinal orange marks, another near tip, a faint broken longitudinal orange line on corium, veins whitish towards apex; abdomen pale greenish yellow; legs pale yellow at base shading into deep blue at tips.

Length 2.5 mm. Described from three males.

Steamboat Springs, July 12th, on *Artemisia tridentata* (Baker).

Empoasca viridescens Walsh.

Det. Gillette.

Fort Collins, September 27th, on *Solidago spectabilis* (Gillette).

Typhlocyba bifasciata n. sp.

Near *tricincta*. Female: Clypeus once and a quarter as long as broad, basal suture straight; genae long and narrow, with a broad deep groove from eye to clypeus, slightly concave outwardly, broadest at eye, attaining tip of clypeus; lorae as long and somewhat narrower than clypeus; front three-fourths longer than broad between eyes, three times as long as clypeus, superior angle more than a right angle and broadly rounded. Face and vertex very finely and obsoletely punctured, more distinctly on upper part of front. Disc of vertex, flat, sloping, slightly less than one-half longer at middle than at eyes. Pronotum slightly less than twice as broad as long at middle, broadly rounded before, slightly concave behind, posterior angles rather sharply rounded, lateral margins long; disc of pronotum with anterior third smooth, posterior two-thirds very indistinctly transversely rugose; scutellum slightly shorter than pronotum, broader than long, transverse groove straight, black, ends bent backwards; last ventral segment with hind margin broadly rounded. Color yellow; face, vertex, and pronotum, light lemon yellow, concolorous; scutellum dark smoky; elytra light lemon yellow with a broad smoky transverse band just in front of middle, broader on inner margins, another broad smoky band at apex, lighter on middle portion; venter pale yellow; legs pale whitish yellow. Length 4 mm.



Described from one female. Minturn, August 24th, (Gillette). We also have specimens from New York (Lintner) Illinois (Forbes) and Iowa (Osborn).

Typhlocyba comes Say.

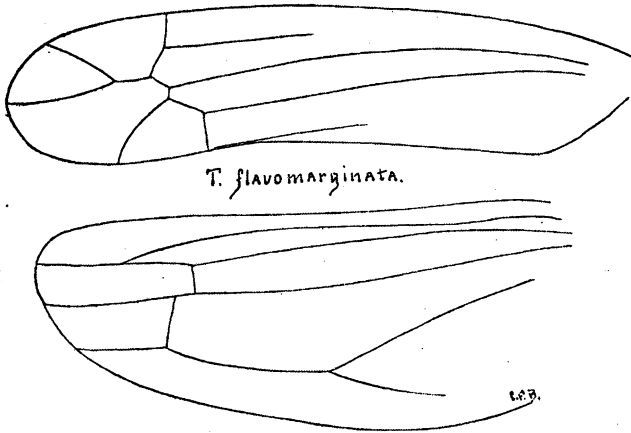
Det. Gillette.

Canon City, August 31st, on plum; Manitou, September 29th on oak (Gillette).

Typhlocyba flavomarginata n. sp.

Female: Clypeus a third longer than broad, basal suture straight, sides nearly parallel; lorae and genae as in *bifasciatus*: front three times the length of clypeus, one-third broader than long, superior angle greater than a right angle, broadly rounded. Face, vertex, and pronotum, sculptured as in *bifasciatus*. Proportions of vertex, pronotum and scutellum, same as in *bifasciatus*. Last ventral segment with posterior angles produced, acute, a broad deep emargination between them, the base of which is





notched. Color pale yellow or whitish; face, vertex, and pronotum whitish, concolorous, scutellum whitish with basal angles darker; elytra whitish subhyaline, nervures lighter, costal and internal margins flavescent, deeper on inner margin; venter and legs pale yellow; pygofer, sheaths of ovipositor, prosternum, and tip of

rostrum tinged with flavescent.

Length 4 mm. Described from three females.

Manitou, September 29th, on oak (Gillette).

Typhlocyba obliqua Say.

Det. Gillette.

Foot-hills, five miles west of Fort Collins, April 25th; Canon City, August 31st, on plum; Manitou, September 29th, on oak (Gillette).

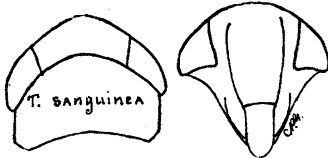
Typhlocyba rosae Harr.

Det. Gillette.

Fort Collins, October 11th, on apple; Denver, September 1st, on apple; Manitou, September 29th, on oak (Gillette). Cheyenne Canon, Colorado Springs, July (Tucker).

Typhlocyba sanguinea n. sp.

Near coccinea. Female: Clypeus one-half longer than broad, basal suture straight; lorae very long and narrow, a half longer than clypeus, reaching half the distance between base of clypeus and antennae; genae long and narrow, lateral margin concave, slightly grooved along sides of lorae. Front nearly twice longer than wide at widest place between eyes, two and one-fifth times as long as clypeus, superior angle greater than a right angle, very obtusely rounded; face and anterior half of vertex very finely rugose; length at middle of disc of vertex one-fourth more than length at eyes. Pronotum glabrous with obscure transverse wrinkles on posterior one-half, four-fifths broader than long, anterior margin broadly rounded, posterior margin distinctly concave, sides normal; scutellum broader than long; last ventral segment with hind margin broadly produced, very slightly notched at apex. Color pale yellow; face tinged with sanguineous above; vertex, pronotum except at sides, and scutellum, bright sanguineous; elytra hyaline, veins very light yellow; vertex at sides, and tergum, tinged with sanguineous; legs unicolorous.



Length 4 mm. Described from one female.

Manitou, September 29th, on Salix (Gillette).

Typhlocyba tricincta Fh.

Det. Gillette.

Fort Collins, September 27th, on grass (Gillette).

Typhlocyba vitifex Fh.

Det. Gillette.

Fort Collins, September 4th, on Virginia Creeper (Baker).
Fort Collins, September 27th, on grass; Spring Canon, eight miles south-west of Fort Collins, May 11th (Gillette).

Typhlocyba vitifex Harr. var. *coloradensis* Gill.

Det. Gillette.

Fort Collins (Gillette, 6).

Fort Collins, March 8th, hibernating under dead leaves in vineyard (Baker). Fort Collins, May 18th to August 19th, on grape (Gillette).

Typhlocyba vitis Harr.

Colorado (Van Duzee, 5).

This record is certainly a doubtful one, and probably refers to vitifex.

Typhlocyba vulnerata Fitch.

Det. Gillette.

Spring Canon eight miles south-west of Fort Collins, May 11th; Fort Collins, June 23d on Virginia Creeper (Gillette).
Fort Collins, March 8th, hibernating under leaves in vineyard, and September 4th on Virginia Creeper (Baker).

Psylla coryli Riley Ms.

Det. Riley.

Steamboat Springs, July 26th (Gillette). Manitou, July (Tucker).

Psylla gillettei Riley Ms.

Det. Riley.

Fort Collins, May 23d; Rist Canon, April 10th (Gillette).
Rist Canon, April 20th on willow; Fort Collins, May 7th on alfalfa; Cameron Pass July, 5th, above timber on a dwarf Salix (Baker).

Psylla negundinis Riley Ms.

Det. Riley.

Fort Collins, June 4th (Gillette). Fort Collins, June 9th on alfalfa (accidental), and September 26th, abundant on box-elder; on the latter date a black ant was found carrying a living specimen from the tree to the ground (Baker).

Psylla purshiae Riley Ms.

Det. Riley.

Rist Canon, May 29th; Steamboat Springs, July 26th; Trinidad, May 14th (Gillette).

Psylla 4-lineata Fitch.

Det. Riley.

Soldier Canon, five miles west of Fort Collins, May 19th (Gillette).

Psylla ribis Riley Ms.

Det. Riley.

Spring Canon, May 11th and June 5th; Fort Collins, October 15th and May 9th; Trinidad, May 14th (Gillette). Dixon's Canon, May 6th on *Ribes cereum* (Baker).

Pachypsylla celtidis-umbilicus Riley.

Det. Riley.

Golden, April 30th (Gillette).

Euphyllura arctostaphyli Riley Ms.

Det. Riley.

Spring Canon, July 24th, imagos and nymphs on *Arctostaphylos uva-ursi* (Cowen).

Aphalara angustipennis Riley Ms.

Det. Riley.

North Park, July 20th; Steamboat Springs July 26th; Montrose, June 24th; Fort Collins, July 4th; Dolores, June 18th; Estes Park, July 11th; Colorado Springs, August 2d (Gillette). Fort Collins, June 12th, on alfalfa (Baker).

Aphalara calthae L.

Det. Riley.

Fort Collins, May 8th; Rist Canon, May 29th (Gillette). Fort Collins, May 16th to 31st on alfalfa, and May 7th on gooseberry; Steamboat Springs, July 12th on *Carex* (Baker). Canon City, October 15th in all stages on tomato (John Gravestock). Green Mountain Falls, Colorado Springs, July (Tucker).

Aphalara epilobii Riley Ms.

Det. Riley.

Ouray, June 22d (Gillette).

Aphalara harrisii Riley Ms.

Det. Riley.

Near West Cliff, Custer County (Cockerell, 10).

North Park, July 19th; Fort Collins, June 14th; Estes Park, July 12th (Gillette).

Aphalara marginata Riley Ms.

Custer County, midalpine (Cockerell, 10).

Aphalara occidentalis Riley Ms. Det. Riley.

Ouray, June 22d (Gillette).

Aphalara solidaginis Riley Ms. Det. Riley.

Fort Collins, July 4th (Gillette).

Aphalara utahensis Riley Ms. Det. Riley.

Steamboat Springs, July 12th on *Artemisia tridentata* (Baker). Green Mountain Falls, Colorado Springs, July (Tucker).

Trioza amelanchieris Riley Ms. Det. Riley.

Horsetooth Gulch, May 21st (Baker).

Livia vernalis Fitch. Det. Riley.

Trinidad, May 14th; Fort Collins, June 4th (Gillette).

Chermes sp.*

"Winged female: Body very dark brown, about 1 mm. long. Alar extent about 3.75 mm. Antennae about 0.20 mm. long, the third, fourth and fifth joints with about nine annulations each. Wings rather long and narrow. Fore wing with subcostal vein wavy, first and second discoidals slender, stigmal obsolete at base, stigma sharp pointed and oblique at base. Hind wings with the discoidal obsolete. Legs short."

Fort Collins, June 19th, winged and wooly apterous individuals on *Pseudotsuga douglassi* (Cowen).

Pemphigus fraxinifolii Riley.

Fort Collins, July 17th in typical pseudo-galls on *Fraxinus americana*. Mostly wingless (Cowen).

Pemphigus populicaulis Fitch.

Fort Collins, July 12th, in typical galls on *Populus monilifera*. In several cases *Chaitophorus populicola* was found associated with this species in the partly open galls (Cowen).

Pemphigus populi-conduplicifolius Cowen n. sp.

"Winged viviparous female: Length 1.8-2.2 mm. Alar expanse 6.85 mm. Nearly black, pruinose. The abdomen is deep green when the glaucous matter is removed by placing the insect in alcohol. Antennae 1 mm. long, joints slender, fifth and sixth with about six or seven annulations each. Stigma short and broad. Unguis usually with a constricted neck. Similar to *ramulorum* but larger and the antennal joints not nearly so strongly annulated.

Apterous individuals yellowish, with a thick mat of wooly secretion enveloping the abdomen. Eyes black."

*In the Aphididae all the determinations were made by Mr. Cowen, who also wrote all the descriptions and collated the records. The undetermined and undescribed species mentioned in the Custer County List (see Cockerell, 10) are not referred to except in cases where there is a probability of their being identical with species mentioned in this list.

Fort Collins, July 12th, on *Populus monilifera*, forming a pseudo gall by causing the upper surfaces of the leaf to fold together along the midrib (Cowen).

Pemphigus populi-monilis Riley and Monell.

In Colorado, on narrow leaved cottonwood (Riley and Monell, 1).

Fort Collins, July 17th, in typical moniliform galls on leaves of *Populus angustifolia*; Hotchkiss, Delta County, July 14th, on the same host plant. Only one individual was found in each gall (Cowen).

Pemphigus populi-ramulorum Riley and Monell.

On *Populus balsamifera*, Colorado (Riley—see Riley and Monell, 1).

Fort Collins, July 12th, on *Populus monilifera*, in galls at base of petiole and on twigs. Sometimes the galls of this species are far enough up the petiole to be almost distinct from the twig, and are then quite similar to those of *P. populi-transversus* (Cowen).

Pemphigus populi-transversus Riley and Monell.

On *Populus monilifera* and *P. balsamifera*, Colorado (Riley—see Riley and Monell, 1).

Fort Collins, July 12th, in typical galls with transverse openings, on petioles of *Populus monilifera* (Cowen).

Pemphigus vagabundus Walsh.

Fort Collins, galls on *Populus* (Blinn).

Colopha ulmicola Fitch.

Fort Collins, July 8th, in "cockscorn" galls on *Ulmus americana*. Five of the specimens examined have the cubital vein of fore wings simple (Cowen).

Schizoneura americana Riley.

Fort Collins, June 17th, on *Ulmus americana* (Cowen).

Schizoneura lanigera Haasm.

Boulder, Denver, Canon City, Delta, and Grand Junction, on apple, common (Gillette). Hotchkiss, Delta County, August 23d, on young shoots of crab-apple (Cowen).

Schizoneura quercii Fitch.

"Wingless form: Largest a little over 1 mm. long, very wooly, uniformly pale green, except eyes which are red, and black tip of beak. Beak reaching slightly beyond second

coxae. Antennae smooth. No fully developed individuals were obtained, so that the determination is somewhat questionable."

Hotchkiss, Delta County, August 19th, in wooly patches on young shoots of *Quercus undulata* (Cowen).

***Lachnus pini* L.**

"Length 3.15 mm., width 1.80 mm. Legs and antennae slightly pubescent with short fine hairs. Body scarcely at all pubescent. Rostrum extending beyond middle of abdomen. Lengths of antennal joints: III, 0.60 mm.; IV, 0.20 mm.; V, 0.25 mm.; VI, 0.15 mm."

Estes Park, July 15th on twigs of *Pinus ponderosa* var. *scopulorum* (Gillette). These specimens differ from the description given by C. M. Weed (Art. V. Aphididae, p 118) in the characters given above (Cowen).

***Melanoxanthus bicolor* Oestl.**

Fort Collins, September 30th on *Salix* (Baker).

***Melanoxanthus salicis* L.**

Fort Collins, October 8th on *Populus balsamifera* var. *candicans* (Baker).

***Chaitophorus negundinis* Thos.**

Fort Collins, common on *Negundo aceroides* throughout the season (Cowen).

***Chaitophorus nigrae* Oestl.**

Fort Collins, June 21st on *Salix longifolia* (Cowen).

***Chaitophorus populicola* Thos.**

Fort Collins, July 5th, on *Populus monilifera* (Gillette).
Fort Collins, June 24th, on young shoots on *Populus angustifolia* (Cowen).

***Drepanosiphum acerifolii* Thom.**

Fort Collins, July 2d on under side of leaves of *Acer dasycarpum*. Flies quickly when disturbed in the warmer part of the day (Cowen).

***Aphis albipes* Oestl.**

Fort Collins, July 12th, on under side of curled leaves of *Symphoricarpos occidentalis* (Cowen).

***Aphis armoraciae* Cowen n. sp.**

"Apterous viviparous female: Length of body 1.90 mm. Length of antennae about 1.17 mm. Antennae, head, extremity of beak, femora, tarsi, and honey tubes, deep dusky

to black. Beak reaching second coxae. Abdomen plump and obtuse, dark dusky green, with a marginal row of dots and otherwise barred and mottled with black on dorsum and pleurum. Honey tubes cylindrical, slightly larger at base than at apex, length 0.20 mm. Style conical. Tibiae and upper portion of tarsi white. Younger individuals of a pale reddish brown. Winged viviparous females: Length 2 mm. Length of wing 2.90 mm. Length of antennae about 1 mm., joint III 0.25-0.32 mm., IV 0.15-0.16 mm., V 0.15-0.18 mm., VI 0.12-0.13 mm., VII 0.23-0.27 mm. Head, thorax, and greater part of appendages brownish black. Third joint of antennae with an irregular row of about ten sensoria, fourth joint with fewer sensoria. Lateral tubercles of prothorax sometimes barely apparent. Wings rather broad, second branch of cubital nearer tip of wing than to base of first branch. Abdomen rounded and plump, pale yellowish brown, with small spots of black on dorsum and a row of three larger round black spots on each pleurum. Honey tubes about 0.18 mm. long, cylindrical, broadening at base. Style short conical, acute. Tibiae and upper portion of beak white."

Hotchkiss, Delta County, July 13th in large colonies on the petioles of horse-radish (Cowen).

Aphis asclepiadis Fitch.

Hotchkiss, Delta County, August 1st in small colonies on under side of leaves of *Asclepias speciosa* (Cowen.)

Aphis bakeri Cowen n. sp.

"Winged viviparous female: Length 1.80 mm., to tip of wings 3.39 mm. Antennae with all the joints annulated, third and fourth joints strongly tuberculate and with numerous sensoria, joint III 0.27 to 0.32 mm., IV 0.16 mm., V 0.14 to 0.15 mm., VI 0.10 mm. A frontal prominence between the antennae. Head and thorax black, venter green, dorsum darker, appendages dark. Venation of wings normal, second branch of cubital midway, stigmatal curved throughout. Honey tubes short, 0.09 mm. long, and 0.045 mm, thick at the somewhat swollen lower third. Style 0.08 mm., long, conical.

Apterous female: Length 1.7 to 2 mm. Some of the smaller individuals are of a rusty color. It resembles *Aphis marutea* Oestl."

Fort Collins, June 20th, on stems of *Trifolium pratense* in large colonies (Cowen).

Aphis brassicae L.

Custer County, midalpine, on cabbage (Cockerell, 10).

Abundant on cabbage wherever cultivated. Specimens from Hotchkiss, Delta County, differ in being lighter in color (Cowen).

Aphis cephalicola Cowen n. sp.

"Winged viviparous female: Length 1.70 mm., to tip of wings 3.60 mm. Head, antennae, joints of legs, thorax, spots on abdomen, and honey tubes, dark. A large quadrangular gray to green spot on dorsum. Back part of pronotum and most of abdomen yellowish. Third joint of antennae tuberculate with numerous irregular sensoria, fourth with few irregular sensoria, all joints strongly imbricated, joints III 0.33 mm., IV 0.14 mm., V 0.12 mm., VI 0.11 mm., VII 0.24 mm. Beak hardly reaching second coxae. Thorax arched, lateral tubercle present. Second branch of cubital midway. Honey tubes 0.10 mm. Style about 0.06 mm. Tarsi 0.10 mm."

Fort Collins, June 30th, usually solitary in heads of *Trifolium repens* (Cowen).

Aphis cerasi Fabr.

Fort Collins, July 16th on under side of leaves of Early Richmond Cherry, not abundant. Hotchkiss, Delta County, July 28th, a single individual on the same host plant (Cowen).

Aphis cerasifoliae Fitch.

Rist Canon, July 19th on under side of leaves of *Prunus virginiana*, causing them to curl (Cowen).

Aphis chenopodii Cowen n. sp.

"Winged viviparous female: Length, not including style, 1.30 to 1.70 mm. Alar expanse 4.60 to 5.20 mm. Head, thorax, and the larger portion of the appendages black, thorax green. Antennae strongly annulated, with a few short hairs, third joint with numerous irregular sensoria, succeeding joints of conspicuously less diameter and without sensoria except the usual ones at tips of joints V and VI; joints III 0.30 mm., IV 0.16 mm., V 0.16 mm., VI 0.12 mm., VII 0.24 to 0.28 mm. A frontal elevation occurs between the antennae. Beak about reaching the second coxae. Thorax arched, lateral tubercle small or obsolete. Cubital obsolete for only a very short distance at base, the base of second branch midway. Stigma rounded at apex but attenuate at inner end into the subcostal. Honey tubes 0.12 mm., distinctly wider two-thirds of distance from base than at base. Style constricted towards the base, with a few long hairs, 0.14 mm. in length. Legs black at joints, shafts mostly lighter, hispid, with short hairs. Tarsi 0.14 mm. Apterous female: Length 1.60-1.80 mm. Oval and plump, green with black eyes. Antennae about 0.70 mm., third joint longest, the fourth, fifth, and sixth joints subequal."

Fort Collins and Hotchkiss, Delta County, in July, in pseudogalls on *Chenopodium album*, formed by the Aphids locating on the upper surface of the leaf, causing the edges to curl together.

Aphis eriogoni Cowen n. sp.

"Winged viviparous female: Length of body 1.50 mm., to tip of wings 2.70 mm. Head and thorax black, abdomen lighter, somewhat hairy, femora mostly black, tarsi white with black joints. Antennae about two-thirds the length of the body, joints III 0.40 mm., IV 0.20 mm., V 0.14 mm., VI 0.09 mm., VII 0.18 mm. Beak reaching third coxae. Second branch of cubital midway. Stigmatal vein curved uniformly. Stigma long, attenuate at basal end and acute at outer end. Border of abdomen nearly completely black, a subquadrangular patch of yellow on dorsum. Style short conical. Honey tubes 0.10 mm., long, slightly incrassate. Apterous individuals: Smaller individuals bright red with dark eyes, larger specimens nearly black, concolorous. Sensoria on third and fourth joints of the antennae quite apparent. Abdomen with honey-comb like reticulations above and below, often made more prominent by a white secretion. Interspaces about 0.02 to 0.03 mm. in diameter. Head also finely reticulated. Some parts of the thorax reticulated. The winged individuals show this reticulation, but in much less degree."

Horsetooth Mountain, July 24th, a good sized colony on the stems and inflorescence of *Eriogonum altatum*. Specimens of apparently the same species were collected at Steamboat Springs, July 13th on *Eriogonum umbellatum* (Baker). These are somewhat smaller in size, perhaps due to alcoholic preservation (Cowen).

***Aphis gillettei* Cowen n. sp.**

"Winged viviparous female: Length 1.70 mm. Antennal joints annulated, third joint tuberculate with numerous sensoria, joints III 0.34 to 0.36 mm., IV 0.18 to 0.23 mm., V 0.11 to 0.12 mm., VII 0.28 to 0.30 mm. A frontal prominence between the antennae. Beak nearly reaching second coxae, about 0.45 mm. long. Antennae, head, thorax, and greater portion of appendages black. Abdomen green, marked with transverse bars and with a marginal row of dots of deeper green or black, shafts of legs light. Lateral tubercle of pronotum small. Insertions of wings yellowish. Second branch of cubital nearer to apex than origin of first branch. Stigma pointed. Honey tubes slightly enlarged at base, about 0.35 mm. long. Style 0.12 mm. long. Tarsi 0.14 mm. Apterous viviparous female: Length 1.71 mm. Antennae about 1.10 mm. long. Pale green except eyes, tarsi, and tips of honey tubes, which are black. Dorsum with patches of darker green. Body broad in proportion to the length. Honey tubes about 0.33 mm. long, cylindrical. Style 0.12 mm."

Fort Collins, June 22d, on *Helianthus petiolaris* (Gillette). Hotchkiss, Delta County, July 24th, on *Helianthus* sp. in small colonies on the under side of the leaves (Cowen). The same species was found on the under side of leaves of *Amarantus retroflexus*, in colonies of one winged and two or three small young, at Hotchkiss, Delta County, July 26th (Cowen).

***Aphis heracli* Cowen n. sp.**

"Winged viviparous female: Length 1.40 to 1.50 mm. Head and thorax black, abdomen yellowish green with some deeper green spots on the dorsum, causing the whole abdomen to appear deep green. Beak nearly reaching third coxae, 0.50 mm. long. Third joint of antennae tuberculate and with numerous small sensoria, all the joints annulated, the group of sensoria at apex of fifth joint conspicuously elevated, length of joints III 0.31 to 0.4 mm., IV 0.21 to 0.23 mm., V 0.11 to 0.2 mm., VI 0.12, VII 0.27 to 0.31 mm. Thorax arched, lateral tubercle of pronotum small. Second branch of cubital vein nearer to the apex of the wing than to the origin of the first branch. Legs light except at the joints, length of tarsi 0.14 mm. Honey tubes 0.26 mm. long. Style 0.10 mm."

Fort Collins, July 9th in colonies in the umbels of *Heracleum lanatum*. A somewhat larger form of apparently the same species was found in the umbels of *Pastinaca sativa* at Fort Collins, July 28th.

***Aphis maidis* Fitch.**

Fort Collins, September 14th on maize (Baker). Hotchkiss, July 27th on all parts of maize (Cowen).

***Aphis mali* Fab.**

Hotchkiss, August 23d, colonies of apterous and winged individuals on young leaves and shoots of apple (Cowen). Fort Collins, on apple (Gillette).

***Aphis medicaginis* Koch.**

Fort Collins, June 27th on *Astragalus bisulcatus*, principally in the racemes of flowers, and on *Glycyrrhiza lepidota*

(Cowen). This may be No. 900 of the Custer County List (see Cockerell, 10).

***Aphis menthae-radicis* Cowen n. sp.**

"Apterous viviparous female: Length 2 mm. Head, thorax, and greater portion of appendages black. Beak reaching second coxae. Antennae about one millimeter long. Tibiae and upper portion of the beak white. Abdomen green, with a marginal row of black spots and barred on the dorsum with black. This *Aphis* appears to be of a dull lead color unmagnified. Honey tubes about as long as the tarsi, somewhat elongated at the base. Style short conical. Winged viviparous female: Size somewhat smaller than in the apterous form. Of the same color and marking except that it is not so heavily barred and dotted with black on the dorsum. Third joint of antennae with an irregular row of sensoria, fourth and fifth joints with a sensoria, length of joints III 0.25 to 0.30 mm., IV 0.14 to 0.17 mm., V 0.13 to 0.14 mm., VI 0.10 to 0.11 mm., VII 0.30 to 0.35. Lateral tubercle of pronotum very short. Second branch of cubital midway, length of the wing 2.30 to 2.60 mm. Honey tubes about 0.15 mm., slightly incrassate. Style short and conical."

Hotchkiss, July 14th, on the roots of *Mentha canadensis* and on the stems near the ground.

***Aphis oenotherae* Oestl.**

Estes Park, July 18th on *Oenothera biennis* (Gillette). Fort Collins, August 13th on *Oenothera biennis* (Baker). Hotchkiss, July 27th, on *Oenothera biennis*; Crawford, July 29th, on *Oenothera caespitosa* (Cowen).

***Aphis oxybaphi* Oestl.**

Fort Collins, July 26th on stems of *Oxybaphus angustifolius* (Cowen).

***Aphis rumicis* L.**

Fort Collins, June 27th on *Rumex crispus*; Hotchkiss, July 21st on *Rumex crispus* (Cowen). Very variable.

***Aphis salicola* Thos.**

Fort Collins, June 20th on young twigs of *Salix amygdaloides* (Cowen). This may be No. 892 of the Custer County List (Cockerell, 10).

Aphis valerianae* Cowen n. sp.

"Winged viviparous female: Length 1.8c-1.90 mm. Body black. Third to fifth joints of the antennae with numerous irregular warty sensoria, length of joints III 0.30, IV 0.24, mm. V 0.21 mm., VI 0.18 mm., VII 0.12-0.21 mm. Beak nearly reaching the third coxae. Lateral tubercle of the pronotum prominent. Tarsi about 0.15 mm. Honey tubes about 0.19 mm. Style 0.09 mm. Apterous female: Black; younger, half grown, with about six pairs of white circular spots on the dorsum."

Foot-hills five miles west of Fort Collins, July 19th, on stalks of *Valeriana edulis* (Cowen).

*Measurements from specimens preserved in alcohol.

Aphis veratri n. sp.*

"Winged viviparous female: Length 2.20 mm. Length of wing 3.05 mm. Color black, the thorax somewhat lighter than the rest of the insect. Antennae about 1.35 mm. long, the third joint with numerous rather large sensoria, fourth often with two or three sensoria, fifth and sixth with usual groups of sensoria at the distal ends, length of joints III 0.89 mm., IV 0.25 mm., V 0.22 mm., VI 0.14 mm., VII 0.29 mm. Beak about 0.60 mm. long and reaching to the second coxae. Lateral tubercle of the pronotum prominent. Stigma elongate, second branch of the cubital nearer the apex of the wing than to the base of the first branch. Tarsi 0.12 mm. long. Honey tubes cylindrical, 0.28 mm long. Style about 0.12 mm. long. Wingless form very dark."

In south-west corner of North Park, July 22d very abundant on leaves of *Veratrum californicum* (Baker). This may be No. 895 of the Custer County List (see Cockerell 10).

Aphis yuccae Cowen n. sp.*

Winged viviparous female; Length 2.20 mm. Head, thorax, and greater part of femora, antennae and honey tubes, black; abdomen dull yellow with small black dots on dorsum and pleurum. Third joint of antennae with numerous small sensoria, length of joints III 0.42 mm., IV 0.25 mm. V 0.25 mm. V 0.23 mm., VI 0.15 mm., VII 0.30 mm. Beak black and nearly reaching the third coxae. Thorax strongly arched. Lateral tubercle of pronotum present. Second branch of cubital nearer the apex of the wing than to the origin of the first branch. Stigmatal vein curved for the first half and straight or recurved for the remainder of the distance. Tibiae white, tarsi dark. Style conical, hairy at the tip, about 0.15 mm. long. Wingless individuals from uniform dark green to reddish yellow in color.

Fort Collins, July 9th on inflorescence and stems of *Yucca angustifolia*.

This is probably the species found occurring on *Yucca* at Greeley by Riley (see Riley and Monell, 1). It is also perhaps the same species as that mentioned as *Aphis yuccicola* n. sp. by T. A. Williams in his "Host-Plant List."

Aphis sp.*

"Winged viviparous female: Length 1.60 mm. Length of wing 2.90 mm. Color pale. Stigma short. Honey tubes short and broad, about 0.9 mm. long. Style acute and about as long as honey tubes. Apterous individuals with numerous black dots on the dorsum."

Fort Collins, September 20th on cultivated radish (Baker). This may be *A. brassicae*.

Aphis sp.*

"Winged viviparous female: Length 1.60 mm. Length of wing 2.70 mm. Pale brown. Veins robust. Honey tubes about 0.22 mm. long. Style slender conical, about 0.11 mm long. Apterous individuals dark brown. Length about 2 mm. Antennae 1.20 mm. long. Honey tubes 0.30 mm."

Fort Collins, August 6th, on cultivated radish (Baker).

Hyalopterus arundinis Fab.

Hotchkiss, July 12th, very abundant on *Phragmites* com-

*Measurements from alcoholic material.

munis (Cowen).

Hyalopteris pruni Fab.

Hotchkiss, July 6th, on plum and prune (Cowen).

Siphocoryne xanthii Oestl.

Hotchkiss, July 26th, on underside of leaves of *Xanthium canadense* (Cowen).

Myzus ribis L.

Fort Collins, July 9th, on leaves and young shoots of *Ribes aureum* (Cowen).

Rhopalosiphum dianthi Schrank.

In college greenhouse, February 21st, on leaves and stems of *Calla Lily* (Cowen).

Rhopalosiphum nymphaeae L.* ?

"Winged viviparous female: Length 2.20 mm. Length of wing 3.10 mm. Head and thorax dark, abdomen lighter. Antennae on short frontal tubercles, third joint with numerous irregular sensoria, no sensoria on the fourth joint, length of joints III 0.30 mm., IV 0.24 mm. Beak about 0.55 mm. long. Lateral tubercle of pronotum small. Stigma elongate, widest at the base of the stigmatal vein. The second branch of the cubital near the apex of the wing. Tarsi 0.14 mm. long. Honey tubes clavate, 0.35 mm. long. Style about 0.13 mm. long."

Fort Collins, September 15th, on *Sagittaria variabilis* (Baker). This species is doubtfully referred to *R. nymphaeae*, as a description of that species is not accessible.

Nectarophora artemisiae Cowen n. sp.*

"Winged viviparous female: Length 2 mm. Wing about 3.10 mm. long. Head and thorax black, abdomen somewhat lighter with the upper dorsum marked with four longitudinal rows of black spots. Antennae on distinct frontal tubercles, about 2.90 mm. long, third joint with numerous small sensoria, length of joints III 0.65 mm., IV 0.55 mm., V 0.50 mm., VI 0.15 mm., VII 0.80 to 0.90 mm. Beak about reaching third coxae. Thorax arched. Stigma dark, elongate. Honey tubes 0.55 mm. long. Style 0.20 mm. long and curved upwards. Tarsi 0.20 mm. long."

Estes Park, July 19th, on *Artemisia tridentata* (Gillette). More Aphis-like than most members of this genus.

Nectarophora asclepiadis Cowen n. sp.

"Winged viviparous female: Length 3.20 mm., to the tip of the style. Length of wing 4.50 mm. Head, prothorax, abdomen, and style uniform green. Mesothorax yellow, appendages mostly dusky. Eyes brown black. Antennae longer than the body, third joint with about ten or twelve sensoria in one row, length of joints III 0.90 mm., IV 0.85 mm., V 0.70 mm., VI 0.20 mm., VII 1.10 mm. Beak black tipped, hardly reaching the second coxae, about 0.50 mm. long. Honey tubes about 0.80 mm. long. Style long cylindrical. Apterous viviparous female: Length 3 mm., to the tip of the style. Uniformly green, eyes brownish-black, honey tubes and style of the same color as the abdomen. Antennae

*Description from alcoholic material.

about 3.80 mm. long, with a few short capitate hairs, and a few sensoria on the third joint. Beak reaching the second coxae, tip black. Legs and antennae dusky. Style long and falchion sharp."

Hotchkiss, July 24th, in small colonies on underside of leaves of *Asclepias speciosa* (Cowen).

Nectarophora erigeronensis Thos.

Fort Collins, July 22d, on *Lactuca pulchella* (Cowen).

Nectarophora rosae L.

Estes Park, July 16th, on rose (Gillette).

Nectarophora rudbeckiae Fitch.

Fort Collins, July 18th, on *Solidago*; Hotchkiss, on an unknown composite (Cowen). No. 896 of the Custer County list may belong here (see Cockerell, 10).

Nectarophora sp.

"Winged viviparous female: Length 2.50 mm. To the tip of the wings 4.75 mm. Color green, thorax yellowish. Third joint of antennae with a slight row of sensoria, remaining joints smooth except for a few short hairs, seventh joint annulated, length of joints III 0.62 mm., IV 0.48 mm., V 0.50 mm., VI 0.10 mm., VII 1.00 mm. Stigma short and broad. Honey tubes imbricated, cylindrical, 0.35 mm. long. Style 0.15 mm. long. Apterous viviparous female: Length about 2.5 mm. Mostly green. The eyes, ends of joints of antennae, tip of beak, and tarsi, black. Lower ends of femora, and tips of honey tubes darker than the body."

Fort Collins, July 21st, on *Gaura parviflora* (Cowen).

Nectarophora sp.

"Only wingless individuals, singly, or in small colonies. Wholly green, except that the eyes, tarsi, and ends of joints of antennae are black. Antennae longer than the body."

Horsetooth Mountain, July 23d on *Arctostaphylos uva-ursi* (Cowen).

Nectarophora sp.*

"Winged viviparous female: Length 2.70 mm. Color apparently uniform green. Stigma elongate, sharp pointed. Apterous female: Length 3.20 mm. Antennae longer than the body. Beak short, not reaching the second coxae. Honey tubes about 1.00 mm. long. Style 0.45 mm. long."

Estes Park, July 16th on *Epilobium spicatum* (Gillette).

Nectarophora sp.*

"Winged viviparous female: Length 2.20-2.40 mm. Wing about 3.40 mm. long, uniformly pale, perhaps green, in life. Beak short, about reaching second coxae. Third joint of antennae with a number of round sensoria, length of joints III 0.60 mm., IV 0.48 mm., V 0.43 mm., VI 0.16 mm. First branch of the cubital closer than usual to the origin of the cubital. Honey tubes 0.65 mm. long. Style about 0.25 mm. long."

*Descriptions from alcoholic material.

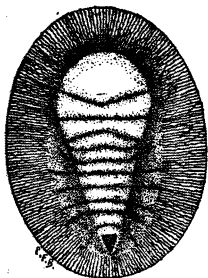
Fort Collins, September 15th on *Mentzelia nuda* (Baker).

"I have also taken a very anomalous Aphid, for which I can give neither generic nor specific determination, forming a gall on the leaves of *Arctostaphylos uva-ursi*. Oneside of the leaf is turned back and thickened for about half its length, thereby forming a smooth oblong gall about 10 mm. long and 3 mm. in diameter, which is often of a reddish color. Only apterous individuals were observed. Length about 1.50-1.80 mm. Beak reaching the second coxae. Antennae six-jointed, the third joint longest, the sixth second in length, all of the joints beyond the third with many fine annulations, sparsely hairy; the antennae would reach a little beyond the base of the wings. Honey tubes very small, broader than long, scarcely elevated above the abdomen. Legs short. Body elongate, dull green, legs a little darker. Individuals examined later in the season, which were evidently pupae of winged forms, have the body more ovate with numerous short hairs. Antennae distinctly seven jointed and about one-half as long as the body. Honey tubes somewhat longer."

Foothills five miles west of Fort Collins, July 19th (Cowen).

Aleyrodes pyrolae n. sp.

Pupal scale. Length 1.25 mm.; width 1 mm. Color very pale straw yellow, somewhat darker toward the center. Elliptical, slightly broader at the center. Margin entire, without fringe. Within the margin all around, finely and densely wrinkled, the wrinkles extending radially inward about half way to the median line along the sides. Central portion with ten more or less well defined horizontal folds. Folds on anterior half, four in number, first semilunate, remainder linear. Line separating first and second folds obtusely angled in center, the angle directed caudad; line separating second and third straight; line separating third and fourth obtusely angled cephalad. Folds on posterior half of dorsum linear and six in number, the line separating the first and second folds with extremities bent cephalad; last three folds bent caudad at extremities. Anal plate darker than surrounding surface, unequally triangular, the longest angle directed caudad.



Described from several scales of different ages. Four-mile Hill eight miles south of Steamboat Springs, July 19th on *Pyrola rotundifolia* (Baker).

Coccus cacti L. var. *confusus* Ckll.

Det. Cockerell.

Probably this species (*Acanthococcus confusus*) in the midalpine of Custer County (Cockerell, 10).

Manitou, September 27th on *Opuntia* (Gillette).

Rhizococcus n. sp.

Under a rock at West Cliff, April 23d. Naked, pyriform, 2.25 mm long, dull lilac, legs clear red-brown, antennae reddish-brown. Caudal filaments short, but distinct (Cockerell, 10).

Dactylopius citri Boisd.

Det. Baker.

On *Habrothamnus* and *Solanum jasimoides* in the college greenhouse, September 10th (Baker).

Dactylopius solani Cockerell.

Det. Cockerell.

Fort Collins, August 23d on roots of *Solanum rostratum* (Baker). Questionably this species on the crowns of sugar beet roots at Grand Junction, August 26th (Gillette).

Kermes galliformis Riley.

Det. Cockerell.

Manitou, November 27th on *Quercus undulata* (Gillette).

Kermes gillettei Cockerell.

"Scale of female 8 mm. long, 7.5 broad, 7 high. Distinctly segmented; dorsum with rounded tuberosities, not very shiny. Scale covered with minute dark brown specks. General color ivory-white and dark brown mottled, the extent of the white or the brown variable, but usually a distinct white dorsal band, and more or less broken-up subdorsal ones. Derm by transmitted light reddish brown, with large oval gland-pits. Young larva very elongate, subfusiform, with the greatest breadth anterior to the middle; pale purplish pink. Caudal tubercles large and broad, each presenting two stout bristles, of which the inner (mesad) one is much the shortest. There is also a moderately long bristle on the outer side of each tubercle, near its base. Segmentation distinct; each segment with a short spine or bristle on lateral margin. Antennae cylindrical, hardly at all tapering, 6-jointed; 3 and 6 equal and longest; 4 and 5 equal and shortest, these being about as long as broad; 2 very little longer than 4, and very much shorter than 3; 3 almost as long as 4 plus 5. Last joint rounded at the tip, bearing several hairs. Antennae colorless. Rostral loop extending beyond base of third pair of legs. Mentum at least two-jointed. Legs quite ordinary. Claws long, sharp, and a little curved. Tibia short.

Hab. Manitou, Colorado, U. S. A., on twigs of *Quercus undulata*. Collected by Prof. C. P. Gillette. Very distinct from *K. galliformis*, Riley, the only *Kermes* hitherto described from North America. Its nearest ally is evidently *Kermes gibbosus*, Signoret, which was found on oaks near Vienna.

The larvae described above were found inside the scale of the female."

We copy the above from a separate of Mr. Cockerell's paper in "The Entomologist," which bears no date. The practice of publishing original descriptions of single American species in foreign journals which are to a large extent inaccessible to American entomologists, cannot be too strongly condemned.

Physokermes coloradensis Cockerell.

"Female scale with the same general shape as *P. abietis* and attached in the same way to the twigs. Diameter 7 mm., smooth, shiny, rather pale brown, inflated, subreniform, with a median constriction. Derm yellowish brown, reticulate, the reticulations hexagonal. Large gland-pits looking like perforations. Mouthparts small, rostral loop short. Legs not to be found, apparently absent in the adult. Antennae small, six-jointed, but the joints obscure. Last joint with several hairs. Joints subequal, except the second and fifth, which are shorter; the second shortest, bearing a long hair; fourth perhaps a very little longer than third, and longest; fifth constricted, simulating second joints, the second of them shortest.

Habitat Manitou, Colorado, November 26th, 1894, on *Pinus edulis*. Collected by Prof. C. P. Gillette. It is attacked by a brownish Chalcidid parasite.

From European *P. abietis* it is distinguished by its size and by the antennae. No species of the genus has hitherto been found in America."

This species was described in "The Entomologist" with the preceding species. A spruce should have been given as

the host plant instead of *Pinus edulis*.

Orthezia annae Ckll. Det. Cockerell.

Delta, August 30th on "greasewood" (Gillette).

Orthezia occidentalis Dougl. Det. Cockerell.

Custer County, midalpine, in the nest of a dark brown ant with large head and shiny abdomen (Cockerell).

Near Fort Collins, at various times under stones in company with certain ants (Baker).

Lecaniodiaspis yuccae Twms. var. *rufescens* Ckll. Det. Cockerell.

(*Prosopophora rufescens* Cockerell).

Grand Junction, October 18th, on "greasewood" (Dr. S. M. Bradbury, President West Colorado Acad. Sci.).

Pulvinaria bigeloviae Cockerell.

West Cliff, Custer County, June 16th, on *Bigelovia* (Frank Cusack—see Cockerell, 10).

Pulvinaria innumerabilis Rath.

Denver, June 10th on box-elder, locust, and soft maple (John Tobias). Common on soft maple and honey locust at Fort Collins.

Lecanium (Bernardia) hemisphaericum Targ. Det. Cockerell.

College green house, May, on *Neprolepsis exaltatus* and a liliaceous plant (Baker). Denver, November 24th on *Cycas* in green house (Gillette).

Lecanium hesperidum L. Det. Cockerell and through Howard

College green house, September 10th on *Aralia*, *Abutilon*, *Ficus elastica*, and *Rhynchospermum jasimoides*; Fort Collins, in open air on *Veronica hendersonii* (Baker).

Lecanium longulum Dougl. Det. Cockerell.

Denver, November 24th on rubber tree in green house (Gillette).

Lecanium (Bernardia) oleae Bern. Det. Cockerell and through Howard.

College green house, May, on *Solanum jasimoides* (Baker). Denver, November 24th on *Platyterium* in green house (Gillette).

Lecanium perforatum Newstead. Det. Cockerell.

Denver, November 24th on *Raphis* in green house (Gillette).

Lecanium sp.

Manitou, September 27th on rose (Gillette). Regarding this species Mr. Cockerell (in litt.) says: "It seems not to be *rosarum*, or the Santa Fe species, for its antennae are seven-jointed. In the Santa Fe species the antennae have eight joints. The antennal formula in your Manitou insect is 3 (24) (17) (56)."

Lecanium sp.

Manitou, September 27th on oak (Gillette). Regarding this species Mr. Cockerell says: "The antennae are eight-jointed and the antennal formula is 3 (24) (18) (567)."

Aspidiotus ancyclus Put.

Det. through Riley.

Canon City, April 30th abundant on pear (G. M. DuBois).

Aspidiotus camelliae Boisd.

Det. Cockerell.

College greenhouse, September 10th on Japanese Quince, *Aralia*, and *Ficus elastica* (Baker).

Aspidiotus dictyospermi Morgan.

Det. Cockerell.

College greenhouse, September 10th on *Champaeropsis elegans* (Baker).

Aspidiotus ficus Ashm.

Det. Cockerell.

Denver, November 24th on *Phormium tenax* in greenhouse (Gillette).

Aspidiotus howardii Cockerell.

Det. Cockerell.

Canon City, August 31st on fruit of plum (Gillette).

Aspidiotus nerii Bouche.

Det. Cockerell.

On lemons exposed for sale in the shops (Cockerell, 10).

College greenhouse, September 10th on oleander and *Dracaena* (Baker). Fort Collins, December 28th on California lemons and oranges in the market (Gillette).

Aspidiotus perniciosus Comst.

Det. Cockerell.

Fort Collins, December 30th on California pears in the

market (Gillette).

Lepidosaphes (Mytilaspis) citricola Pack. Det. through Howard.

On lemons exposed for sale in the shops (Cockerell, 10).

Fort Collins, May, common on "ruined" oranges in market (Baker), and December 28th on California oranges and lemons (Gillette).

Chionaspis pinifolii Fitch. Det. Cockerell.

Fort Collins, October 6th, abundant on spruce; Manitou, September 29th on spruce (Gillette).

Chionaspis ortholobis Comst. var.

On willow at West Cliff, as *C. salicis* L. (Cockerell, 10).

Chionaspis ortholobis Comst. var.

Det. Cockerell.

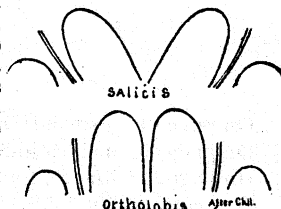
Denver, June 10th on cottonwood (John Tobias).

In regard to the above record Cockerell (in litt.) says:—"The Wet Mountain Valley *salicis* recorded by me, was not true *salicis* but *ortholobis* var."

Regarding the species *ortholobis* and *salicis* Cockerell (in litt.) further says:—"If you look at Comstock's descriptions you will find that he alludes to a difference in the position of the median lobes of *ortholobis* and *salicis*. *Ortholobis* has these lobes close together (see figure), whereas *salicis* has them divergent (see figure). Now we have a specimen of *ortholobis* from California, from Mr. B. W. Griffith, which shows the lobes close together as Comstock describes. But your Denver species show them wide apart, as in *salicis*. Yet your Denver scales are like the Nebraska *ortholobis* (see my article in Can. Ent.) to all outward appearance, and are not like *salicis*. But at this point we prepared some English *salicis*, from Mr. Newstead, and they have the lobes close together as in *ortholobis*. All this seems rather to confirm what I have suspected for some time, that the so-called *salicis* of this country 's not *salicis* at all, but a distinct species. If so, the synonymy of the species discussed will probably stand thus:

- (1) *C. salicis* (L.) Europe.
- (2) *C. ortholobis* Comst. U. S.
- (3) *C. salicis-nigrae* (Walsh.) U. S. or 'equals ' *salicis* Comst., not L.

It is by no means clear, however, that your Denver scale is specifically distinct from the Nebraska one, which we are calling *ortholobis* (vide. Can. Ent.) and as it is certainly not true European *salicis*, I should advise you to call it *C. ortholobis* var. for the present."



Aulacaspis boisduvalii Sign.

Det. Cockerell.

Denver, November 24th on palm in greenhouse (Gillette).

Palaecoccus simplex Scudder.

Fossil at Florissant (Scudder, Tert. Ins. N. A.).

SUMMARY

Number of species previously reported from the state.....	298
Number of additional species reported in this list.....	349
Total number of described species known to occur in the state.....	647
Genera in the list.....	261
New genera described.....	5
New species described.....	111

ERRATA:

- On page 64, in seventh heading for *Cidada*, read *Cicada*.
- On page 85, in sixth line from bottom, for Gillette read Baker.
- On page 118, line 29, for *marittae* read *marutea*.
- On page 119, in fifth line from bottom, insert (Cowen) after *Eriogonum alatum* (not *altatum*). In line four from bottom for apparently read apparently.
- On page 120, line 28, for *promotum*, read *pronotum*.
- On page 124, sixth species, for *Neectarophora*, read *Nectarophora*.

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