

SOME NEW WESTERN THAMNOTETTIX (HOMOPTERA).

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(Continued from p. 268.)

Thamnotettix vespertina, n. sp.

Resembling *vastula*, slightly stouter. Smaller, narrower and darker than *atridorsum*. Green, with a faint smoky tip to elytra. Length, 5 mm.

Vertex slightly obtusely angulate, not quite twice wider than long, almost as long as the pronotum. Disc slightly convex, anterior margin broadly rounding to the front. Front as wide as long, distinctly narrowing below. Elytra broad and moderately short, appressed posteriorly.

Colour: Vertex straw-colour, with traces of smoky at the apex and on the reflex portion of front. Face and below deep smoky, with irregular areas on clypeus, and genæ paler and short arc on the front light. The genital segments in both sexes straw-coloured. Pronotum and elytra green, the apical cells of the latter slightly smoky.

Genitalia: Female segment two-thirds as long as its basal width, almost semicircularly rounding from the base to the slightly roundly emarginate, smoky and elevated apex. Male valve very large, obtusely triangular, plates together, half wider than long, slightly roundly, narrowing to the broad blunt, almost truncate apices, which scarcely equal in length the extraordinarily broad pygofers.

Described from two females and two males from Beaumont, California, collected by the author. The dark face and narrower head, as well as the distinct genitalia, will separate this species from *atridorsum*, while its blunt head will separate it from the preceding species.

Thamnotettix visalia, n. sp.

Resembling *vastula*, somewhat larger and with a slightly shorter vertex. Green, with a trace of smoky on the apical cells. Length, 5.5 mm.

Vertex right angled, half wider than long, disc slightly convex, acutely angled with front, the margins bluntly rounding. Front slightly wider than in *vastula*, distinctly longer than wide. Elytra moderately long.

Colour: Vertex straw-yellow, face and below pale yellow. Pronotum, except the anterior margin, green. Scutellum greenish-yellow. Elytra green, becoming subhyaline beyond the middle and slightly smoky at the apex.

Genitalia: Female segment as long as its basal width, scarcely narrowed posteriorly, the median fourth of posterior margin almost

truncately excavated to one-half the depth of the segment and black-marked at the base. The lateral flaps obliquely truncate from the slightly rounding lateral angle. Male valve obtusely triangular, plates together moderately broad, triangularly narrowing to the blunt tips.

Described from three females from Chino and one pair from Visalia, California, collected by the author. Readily separated from the related species by the very distinct female genitalia.

Thamnotettix atridorsum, var. *vetula*, n. var.

Size and form of *atridorsum* nearly. Slightly shorter and stouter. Pale creamy-yellow above and below, eyes and a small spot on the female segment black. Length, 4.75 mm.

Described from five females from Kelso, California, and one from American Fork, Utah, all collected by the author. This is apparently an adaptation to a very hot, dry condition, and may prove to be a good species when further material is found. It would hardly be advisable to separate it on a single sex, however.

Thamnotettix atridorsum, var. *vesca*, n. var.

Form and colour of *atridorsum* nearly, except that it is smaller and much shorter and stouter, with the elytra scarcely covering the apex of the abdomen, the apical cells abbreviated, broader than long. Green, with the vertex and face pale straw-yellow. Length, 4 mm.

Described from four females and one male from Coronado Beach, Long Beach and Redondo Beach, California, collected by the author. These specimens were all taken along the seashore, on the short vegetation growing just above tide-water, and apparently become adapted to this rigorous condition by reduction in size and especially in wing-length.

Thamnotettix Titusi, var. *vivata*, n. var.

Form and general appearance of *Titusi* nearly, much smaller, shorter and with less markings on the face. The head is slightly broader than in *Titusi*, and the front is broader and fuller. The face is pale and slightly smoky, but never dark as in that species. The elytra are darker at the base, inclined to be bluish, and are slightly smoky at the apex, with the veins usually distinct. In two specimens the veins are light coloured throughout, the pronotum is light margined all around, and there is a transverse smoky marking on the disc of the vertex. Length, 4.5 mm.

Described from eight examples from Tia Juana, Pasadena and Riverside, California, and Reno, Nevada, all collected by the author. This

will very likely prove to be a distinct species when sufficient material is at hand, but with the small amount of widely-scattered material available at present it was thought best to refer it to *Titusi* as a variety.

Thamnotettix gloriosa, n. sp.

Form of *visalia* nearly, larger, longer, golden iridescent-green, with long flaring elytra, slightly smoky tipped. Length, 6 mm.

Vertex slightly obtusely angulate, a little over half wider than long, rounding over to the rather flat, strongly-retreating face. Front slightly longer than in *visalia*, the margins curving in to the clypeus. Elytra very long, inclined to be flaring posteriorly, giving the whole insect a long, parallel margined appearance.

Colour: Vertex straw-yellow, inclined to be tinged with orange in the males; face pale creamy-yellow in the female, lemon-yellow with the genæ lighter in the male, a black dot just outside the loræ. Pronotum a yellowish-green, darker on the disc. Scutellum pale yellowish-green. Elytra yellowish-green on the clavus, corium subhyaline-yellow, with the tawny tergum showing through, giving a golden tinge to the whole elytra, the tip inclined to be smoky-iridescent. Below pale.

Genitalia: Female segment not quite as long as its basal width, the lateral margins parallel, posterior margin with the median third angularly excavated half-way to the base, the excavation slightly narrowing towards the bottom and usually with a slight median projection, the base of the segment below the excavation gibbous, and shining black in colour. Male valve wide, the median half produced into a large triangle, plates rectangular, together almost twice wider than long, transversely convex, their apices curved upward and slightly produced at the suture, apical margins thick and with a subapical row of bristles. Extending slightly below the plates a pair of stout, black hooks are visible. Described from eight examples from Tia Juana, California, collected by the author. Specimens varying slightly in the genitalia of both sexes are at hand from Salinas and Ontario, California.

Thamnotettix gemella, n. sp.

Form and general appearance of *languida* nearly, but much smaller and lacking the black spots. A slender green species, with the margins smoky. Length, female 5 mm.; male 4 mm.

Vertex very obtusely angled, one-fourth longer on middle than against an eye, one-half as long as the basal width, disc convex, broadly

rounding to the flat and strongly-oblique face. Front narrow at base one-half longer than wide. Elytra moderately long, closely folded behind.

Colour: Vertex, face and scutellum creamy-yellow, a black point just outside the loræ. Pronotum and most of the claval areas green. The outer margin of claval areas and the inner half of corium smoky-brown, the costal margin subhyaline.

Genitalia: Female segment slightly wider than long, posterior margin concave, with the lateral angles rounding. Male valve short, bluntly produced, plates together long, acutely triangular, half longer than their basal width, their attenuate apices clothed with numerous long hairs.

Described from ten examples from Ontario, Pasadena and Tia Juana, California, collected by the author. In life there is a metallic-iridescence which heightens the striped appearance of this distinctly-marked species.

Thamnotettix generosa, n. sp.

Size and form of *gemella* nearly, the vertex more pointed. Resembling *gloriosa* in colour. Length, female 5 mm.; male 4 mm.

Vertex right angled, the apex acute, about half wider than long, disc transversely convex, sloping to the slightly rounding margin of the face. Face strongly receding, the apex of vertex and face distinctly conical. Front narrow, wedge-shaped, the margins straight. Elytra long, appressed.

Colour: Vertex and face pale lemon-yellow, a pair of black dots outside the loræ. Pronotum yellowish-green. Elytra pale yellowish-green, shading out to subhyaline towards the costa and apical cells. Some of the males are inclined to be smoky-iridescent, while one female is all pale lemon-yellow.

Genitalia: Female segment two-thirds as long as its basal width, the posterior margin gently convex, the lateral angles broadly rounded. Male valve obtusely angular, plates long, slender, together slightly concavely attenuate, over half longer than their basal width.

Described from ten examples from Colfax and Visalia, California, collected by the author.

Thamnotettix gerula, n. sp.

Form of *generosa* nearly, but larger, as large as *longula*. Greenish-yellow, with a black band covering all the elytra before the appendix. Length, 6 mm.

Vertex slightly obtusely angled, the margins straight, less than one-half wider than long, disc slightly convex. Face flat, acutely angled with

the vertex, the margin bluntly rounding, the apex nearly acute. Front wedge-shaped, less than half longer than wide. Elytra long, closely appressed behind.

Colour: Vertex and face pale lemon-yellow, a black spot outside the loræ on either side. Pronotum green, the margins pale yellow. Scutellum pale yellow. Elytra deep brownish-black back to the apex of clavus, then green to just before the apical cells, which are smoky-subhyaline. The whole elytra iridescent. Legs and below pale.

Genitalia: Female segments two-thirds as long as its basal width, gradually narrowing from the base to two-thirds its width. Posterior margin with the median half shallowly angularly excavated and strongly black-marked, the lateral angles rounding. Male valve short, very obtusely triangular, plates together triangular, longer than the basal width, the lateral margins rounding, a black line at the base on either side.

Described from eight examples from Colfax, California, and Medford, Oregon, collected by the author. The broad black saddle in sharp contrast to the yellow-green renders this a strikingly distinct species.

Thamnotettix vapida, n. sp.

Size and form of *infusata* nearly. A large mottled-brown species with the vertex lighter. Length, female 6 mm.; male 5.75 mm.

Vertex broad, obtusely angulate, apparently almost rounding, with the apex produced, but slightly longer on the middle than against the eye, nearly twice wider than long, scarcely the length of the pronotum. Front broad, flat, retreating, wedge-shaped, union with vertex narrowly rounding. Elytra long, oftentimes flaring, venation simple, often one or two extra nervures from the outer anteapical cell to the costa.

Colour: Vertex straw-yellow, a pair of oblique dashes at the apex, a pair of round spots at base and sometimes a line from the ocelli to the middle of the disc brown. Face pale, the sutures brown, the front smoky with pale curved arcs, the upper bounding pair visible from above on the vertex margin. Pronotum pale, all but the anterior margin finely sprinkled with milky and rusty brown. Elytra milky subhyaline, finely and irregularly irrorate with rusty brown.

Genitalia: Female segment as long as its basal width, narrowing from the base, the posterior margin slightly rounding, with the median half angularly emarginate, the emargination one-half as deep as its width. Male valve transverse, scarcely angled; plates together triangular, scarcely as long as the basal width, gibbous at base, then narrowing to the blunt

spoon-shaped tip. Pygofers enlarged, broader than the plates at base, regularly narrowing to the truncate apex, which considerably exceeds the plates.

Described from ten examples from Tia Juana, Mexico, and Tia Juana, California, collected by the author. This species introduces a new group into this genus as found in America.

Thamnotettix dissimilata, n. sp.

Form of *vapida* nearly, but still longer and more strongly built. Females entirely tawny or mottled-brown; males green, with the head tawny. Length, 7-8 mm.

Vertex as in *vapida* nearly, obtusely angled, with the disc depressed, slightly shorter than the pronotum. Front broad, wedge-shaped, rounding to the clypeus, vertex margin as in *vapida*, almost acute. Elytra broad, much longer than the abdomen, costal margin nearly straight, apical cells only moderately long, usually several supernumerary veinlets from the outer anteapical cells to the costa.

Colour: Female: vertex, pronotum and scutellum pale yellow, often washed with tawny, sometimes with traces of markings on vertex, as in *vapida*, and often with brown mottlings on disc of pronotum. Face light rusty-brown or tawny, the front smoky above with light arcs. Below pale tawny. Elytra milky subhyaline, heavily irrorate with brown or tawny-brown; sometimes the brown is almost solid, and in that case the apical veinlets are light. Male: vertex dirty-yellow, washed or marked with tawny. Face darker than in female, legs and below black. Pronotum green, the anterior margin pale or tawny. Elytra deep green, fading out towards the costa and abruptly terminated just before the apical cells, which are deep smoky.

Genitalia: Female segment two-thirds as long as its basal width, narrowing posteriorly, the posterior margin shallowly, angularly excavated more than half its width, with the angles dark-marked. Male valve broad, short, scarcely angled, plates together rather narrow, roundly narrowing to the rounding apex, two-thirds as long as their basal width. Pygofers broad, inflated, then slightly narrowing to the truncate tips, which extend beyond the plates.

Described from ten specimens from Colfax, California, collected by the author. The large size and difference in colour of the sexes renders this a strikingly distinct species.

Thamnotettix gutturosa, n. sp.

Resembling *dissimilata* female in general appearance, stouter and shorter. Brown, with a short head and numerous supernumerary veinlets on the elytra. Length, male, 6 mm.

Vertex broad, short, almost parallel margined, the apex a trifle advanced, twice wider than long, disc almost flat, the margins broadly rounding to the moderately convex, slightly inclined face. Front slightly produced, as wide or wider across antennæ than at base, then narrowing to the broad truncate apex. Pronotum broad and short, but little longer than the vertex. Elytra broad, inclined to be flaring, veins distinct, venation apparently regular, strong, with a number of supernumerary transverse veinlets along the claval suture and in the antepical and basal portion of apical cells. In both of these examples a veinlet forms "the second cross nervure," although slightly variable in position.

Colour: Vertex pale yellow, washed with testaceous, traces of a pair of round spots at base and a transverse crescent on the disc. A black spot against either eye in line with the ocelli, a dash beneath each ocellus and another on apex black; these latter being parts of a reflex frontal arc. Face rusty or tawny brown, with frontal arcs and sutures darker, a pair of dark spots above the antennæ. Pronotum cinereous. Elytra cinereous, inclined to be smoky, the veins light, heavily margined with fuscous, especially in the supernumerary cells, which are sometimes entirely fuscous.

Genitalia: Male valve obtusely roundly triangular; plates large, leathery, roundly narrowing, one-third their length, then nearly parallel margined to the broad truncate tips, longer than their basal width and entirely concealing the pygofers, their lower surface sparsely clothed with hairs.

Described from two males from Beaumont, California, collected by the author.

Thamnotettix ursina, n. sp.

Resembling *dissimilata* female in general form and colour, smaller and slightly darker, sexes alike in colour. Length 6 mm.

Vertex definitely obtusely angled, twice wider than long, the disc depressed, the margin broadly rounding to face. Front moderately wide, regularly narrowing to the truncate apex, one-third longer than its basal width. Pronotum longer than the vertex. Elytra long, almost parallel margined, the apical cells rather short. Venation regular, with the outer apical cell rather short and unusually broad. Usually a number of supernumerary veinlets to costa and occasionally a forked apical.

Colour: Vertex tawny, with a darker dash either side the apex in the male. Face rusty brown, the front smoky with light arcs. Pronotum brown or cinereous-brown, the anterior margin lighter. Elytra rich brown, sparsely irrorate with milky white dots, the nervures towards the apex lighter.

Genitalia: Female segment one-half as long as its basal width, the lateral margins slightly narrowing, the posterior margin truncate or very slightly sinuate, the median half dark-marked. Male valve obtusely triangular, plates together triangular, regularly narrowing to the almost truncate tips, concealing the pygofer, but beyond which a pair of sickle-like black hooks extend.

Described from a single pair from Medford, Oregon, collected by the author.

Thamnotettix glomerosa, n. sp.

Resembling *bullata*, but smaller and more slender, with irregular fuscous markings. Length, female, 4.75 mm.

Vertex including the reflexed portion of the swollen front as broad as in *bullata* and much longer, nearly twice as long on middle as against the eye. Vertex without a definite margin, merging into the front, which is broad and much inflated, its margins nearly parallel until just before the apex where they abruptly round in, the apex tumid, broader than clypeus and elevated above the level of the latter. Elytra moderately long, slightly flaring, venation regular, the outer antepicals usually curved and a few extra veinlets along the claval suture.

Colour: Vertex dirty straw, a black spot against either eye, behind the ocellus, a pair of oblique dashes behind the apex and another pair of obscure ones just in front of the basal angle, fuscous. Face dirty straw, the sutures, a spot above the antennal socket on either side, and about five short arcs across the most produced part of front, fuscous. Pronotum and scutellum cinereous, irregularly mottled with fuscous, the elytra pale cinereous, with the veins lighter and slightly fuscous lined.

Genitalia: Female segment short, truncate posteriorly with the lateral angles slightly produced or with the posterior margin slightly concavely excavated according to the curvature.

Described from two females collected by the author at Grand Junction, Colorado. One example is almost lacking in the fuscous markings.

Thamnotettix gladiola, n. sp.

Size and form of *longiseta* nearly. Yellowish green with the vertex tinged with orange. Length 4.5 mm.

Vertex broad, rounding, almost parallel margined, very slightly longer on middle than against the eye, twice wider than long, evenly rounding to the moderately sloping face. Face moderately broad, not inflated, margins straight to just before the apex, one-half longer than its basal width. Elytra moderately long, slightly exceeding the abdomen. Venation regular, the outer anteapical cell variable, rarely not complete.

Colour: Vertex bright lemon yellow, often with an orange tinge. Face yellow, the front tinged with orange, a black spot just outside the loræ. Pronotum pale orange yellow, an arcuated green line on anterior disc. Scutellum lemon yellow. Elytra yellowish green, subhyaline, allowing the black markings on tergum to show through. Tergum and venter often black lined.

Genitalia: Female segment two-thirds as long as its basal width, posterior margin deeply, triangularly emarginate, the emargination starting at the acute lateral angles and extending to one-half the depth of the segment at the truncate apex, where it is one-fifth the width of the segment. Male valve short, obtusely rounding, plates together attenuately triangular, almost twice as long as their basal width, the margins heavily fringed with long hairs which almost conceal two long sword-like black points which extend beyond the plates.

Described from six examples from Dutch George's North Park, and Lizard Head, Colorado, all collected by the author.

Thamnotettix umbratica, n. sp.

Form and colour of *cyperacea* nearly, much smaller and with a longer vertex. Pale straw with black dots on the vertex margin and three pale brown stripes on vertex and pronotum. Length, female, 4.5 mm.; male, 4 mm.

Vertex right angled, longer than its basal width, twice as long on middle as against the eye, disc flat, acutely angled with front, the margin slightly rounding. Front narrow, wedge-shaped, nearly twice longer than wide. Pronotum about equalling the vertex in length, elytra moderately long, slightly exceeding the abdomen, flaring. Venation regular, distinct.

Colour: Vertex straw yellow, usually the ocelli and a dot at apex black, a brown median stripe and sometimes a pair of lateral stripes next the eyes black. Sometimes all these markings are obscure. Face pale

straw, sometimes a pair of black spots above the antennæ, another pair below and some smoky arcs on front. The usual black dot outside the loræ. Pronotum straw colour, usually with a double median brown stripe and a pair of lateral ones. Elytra straw colour, with the veins light in the female, pale smoky iridescent in the male.

Genitalia: Female segment about half as long as its basal width, truncate posteriorly or slightly emarginate with a faint median production according to the curvature. Male valve triangular, plates together transversely roof-shaped, short, rounding, scarcely as long as their basal width, their apices slightly apart, exposing their pygofer and a dark style-like process.

Described from five examples from Tia Juana, Chino, Pasadena and Stanford, California, all collected by the author.

SOME INSECTS FROM STEAMBOAT SPRINGS, COLORADO—I.

BY T. D. A. COCKERELL, BOULDER, COLORADO.

Steamboat Springs is only about 85 miles from Boulder, as the crow flies. It is, however, far on the western side of the range, in a region hitherto little known to entomologists, because only quite recently accessible by rail. It is situated in a fertile valley, at an altitude of 6,680 feet, and is evidently destined to become a place of considerable importance. I recently spent a day (May 27) collecting there, and present herewith the principal results, not only on account of the general interest they seem to possess, but also in the hope of encouraging the beginnings of scientific activity among the young people of the locality. Most attention was naturally given to the bees.

HYMENOPTERA APOIDEA (Anthophoridæ and Megachilidæ).

Emphoropsis Johnsoni Ckll.—A dead male, being dragged along by an ant.

Osmia permorata, n. sp.—Female. Length about 14 mm., robust, dark green, with the legs entirely black; hair of head and thorax above very bright rich fox-red; of first abdominal segment above, and scantily on middle of second, rather paler red; elsewhere, including scopa, the hair is black except some reddish on inner side of anterior tarsi. I had confused this handsome species with *O. novomexicana* Ckll., which it superficially resembles. It is, however, easily separated by the dullish area of meta-thorax, without any pit; the same part in *novomexicana* is smooth and