SOME NEW GENERA AND SPECIES OF LEAF-HOPPERS RELATED TO MESAMIA BALL.

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In a study of relationships of different groups of leafhoppers it was found that certain species formerly included in *Eutettix* and others that have been placed in *Scaphoideus* are more closely related to *Mesamia* than to these genera and that the whole group could be separated into a number of distinct lines of development that warranted characterization as genera along with the descriptions of new forms. The types are in the author's collection unless otherwise stated.

Mesamia tarbela n. sp.

Resembling *straminea* but much shorter with a more angular vertex. Very pale with two black spots on vertex and two on base of scutellum. Length ♀ 3.6 mm.

Vertex similar to *straminea* slightly more angled the margin thicker and a little more elevated. Elytra much shorter and less flaring. Venation similar to *straminea* but with the apical portion shortened. The first cross nervure is doubled on both sides and the second on one. There are fewer costal veinlets.

Color: Vertex white, a pair of approximate triangular spots well back of the apex, a pair of reversed crescents back of these and extending to the ocelli, black. A pair of minute brown dots on the disc near base. Pronotum pale with three black dots in a row behind each eye and an irregular dusky marking on either side the disc. Scutellum white, a round shining black spot inside either basal angle and pair of dots between them. Elytra milky white the nervures and sparse reticulations fuscous.

Holotype ♀ taken by the writer June 15, 1930, in the Huachuca Mts. This species is so strikingly distinct in its small size and definite spots that it seems best to describe it from a single example.

Mesamia straminea var. **dolosa** n. var.

Form and structure of *straminea* nearly slightly larger with markings even heavier than *nigridorsum*. Length ♀ 5.5 mm.

Vertex definitely longer in the middle than against eyes as in *straminea*. Elytra extremely long and flaring. Color: Vertex margin back to suture ivory with 2 black dots, re-

mainder brown. Pronotum dark brown an irregular light band on anterior third with two round dots behind each eye. Scutellum dark with a pair of ivory points. Elytra subhyaline, milky on clavus with a larger fuscous saddle than in *nigridorsum* and heavier nervures. Face smoky with light arcs. All femora showing black to just before the apices.

Holotype ♀ and one paratype female Fort Garland, Colorado, August 11, 1925. One paratype female Trinidad, Colorado, August 7, 1925, all collected by Dr. C. J. Drake.

Mesamia prescotia n. sp.

Resembling *diana* in form and structure, much larger with a longer more angulate head. Larger than *straminea.* Length, 5–6 mm.

Vertex longer and more angular than in *visalia,* right angled, as long as pronotum, the disc almost flat. Vertex and front very acutely angled as in *visalia.* Elytra long, flaring as in *straminea* venation similar, the outer anteapical cell reticulate or divided, costal veinlets numerous often ten to fifteen. Female segment nearly truncate with a slight strap-like projection.

Color: dirty straw above and below. Vertex pale orange, the margin appearing as a narrow ivory line with a still narrower black border above and below, a narrow ivory wedge running back from the apex onto the disc. Scutellum with four dashes along basal line, a pair on the lateral margins and the apex ivory. Elytra milky subhyaline with some brown lines in the cells, the nervures brown becoming fuscous on the costa, three pair of ivory spots along the commissure, three black dots in the apical cells, face smoky brown with eight light arcs.

Holotype ♀, allotype ♂ and thirteen paratypes taken by the writer at Granite Dells, Arizona, October 6, 1929.

Mesamia orizaba n. sp.

Resembling *prescotia* but smaller with an obtusely angled vertex. Length 5 mm. Vertex intermediate between *diana* and *prescotia* obtusely angulate with the apex rounding. Elytra flaring the outer anteapical cell divided. Female segment longer with the posterior margin rounding, the strap-shaped portion slightly indented. Color, as in *prescotia* the ivory margin to vertex broader and a similar line at base, scutellum with the basal angles deep orange in the male.

Holotype ♀ and allotype ♂ from the Biologia collection labelled Orizaba (Mex.) H. S. and F. D. G. Dec., 1887. Holotype in British Museum. Allotype in author's collection.

Mesamia ludovicia n. sp.

Resembling *coloradensis* in structure slightly larger with a bluntly angled vertex margin. Pale greenish white. Length 4–5 mm.

Vertex slightly more angulate than in *coloradensis,* the margin thicker and the angle with face more obtuse; female segment with the excavation broader, male plates with the apices divergent.

Color pale milky with a greenish cast, the vertex pale creamy, no markings on vertex face or pronotum. Elytra subhyaline the nervures pale or greenish except towards the apex where they darken a little, frequently faint fuscous reticulations are dotted in on the disc.

Holotye ♀, allotype ♂ and 3 pairs of paratypes taken by the writer August 28, 1918, along with the nymphs on *Artemisia ludoviciana* at LaCrosse, Wisconsin. Typical *coloradenis* has a dark line on vertex margin and the nervures and reticulations dark. Even the pale forms have some dark markings and all have the sharply angled vertex margin.

Genus **Bandara** n. gen.

Similar to *Eutettix* in form and appearance but narrower with the flatter vertex of *Mesamia* ornamented on the margin with lines or rows of dots.

Vertex resembling *Mesamia,* almost flat, wider than long, margins nearly parallel; the anterior margin thick and usually accentuated by markings above and below; angle with front definite but not as acute as in *Mesamia.* The head deep and blunt as in *Eutettix,* front narrower than in either genus, and not widening above antennal sockets as in *Mesamia.* Elytra long and relatively narrow with a simple type of venation resembling that in *Eutettix* except that the nervure separating the 1st and 2nd apical cells is at right angles to costa and the second apical is broad at the base, and nearly semi-circular in outline. There are occasionally extra veinlets at right angles to costa in the region of the first apical cell and sometimes a second cross nervure appears between the sectors. Type of the genus *Eutettix johnsoni* Van D. This small group of narrow, usually tawny or yellow species (*johnsoni, fenestrata, animana* and *aurata*) is apparently a very distinct line of development.

Genus **Twiningia** n. gen.

Resembling *Mesamia* but with a flat, acutely angled vertex a narrow face as in *Scaphoideus* and long narrow elytra with

the margins straight to the eyes. Pronotum slightly convex but little above the level of the vertex, slightly wider than the eyes but narrower than the closed elytra. Elytra long and narrow with the outer anteapical cell usually divided, the second cross nervure usually present but sometimes obscure. Venation similar to *Mesamia* but with less reticulations and the numerous cross nervures to costa at right angles as in *Platymetopius* (*sensu strictu*). Genitalia of one general pattern: the female segment very broad at base, the lateral margin narrowed on posterior half the posterior margin roundingly produced on the median half with a variable median notch. Male plates long triangular. Color usually tawny or smoky. Face much narrower than in *Mesamia* resembling *Scaphoideus*.

Type of the genus *Scaphoideus blandus* Ball. This group of species including *S. pellucidus, fumidus, bicolor* and their allies is much more closely related to *Mesamia* and *Platymetopius* than to *Scaphoideus* where they have been placed.

Twiningia magnata n. sp.

Resembling *pellucida* but much broader with a proportionally shorter vertex. Pale testaceous. Length ♀ 5.5–6 mm.

Vertex very broad, flat, slightly shorter than pronotum not quite as long as its basal width. Acutely angled with the face, the apex only little less than a right angle. Elytra very long appressed posteriorly. Venation simple very obscure. Female segment very broadly rounding posteriorly with a very slight, broadly concave, notch in the brown median area.

Color, uniform pale testaceous above, slightly lighter below, the vertex margin definitely white, set off by a dark hair line above. The white line extends across the eyes.

Holotype ♀ and one paratype female Tucson, Arizona, October 20, 1929, taken by the writer in the Santa Rita Mountains. This species is strikingly distinct for this group in its larger size and short head.

Twiningia malvastra n. sp.

Resembling *blanda* but much broader, with a shorter vertex. Pattern of *Mesamia vitellina* but smaller and less tawny. Length 5–6 mm.

Vertex still shorter than in *magnata* with the margins a trifle rounding, longer and more sharply angulate than in *vitellina* with flatter disc. Elytra not as long as in *blanda* with venation and reticulations similar except that the central anteapical cell is wider towards the apex and the second

cross nervure is sometimes obscure or wanting. Female segment with the median half roundingly produced, half as long as the segment with the apex slightly bilobed.

Color pale tawny, mottled, face vertex and disc of scutellum creamy, disc of vertex with a tawny cloud interrupted by the white median line. Elytra milky the nervures tawny. An irregular tawny mottling emphasized along the scutellar margins, and an oblique band from middle of costa to the apex of clavus. There is an irregular light area across each cross nervure. Three pairs of dots along commissure and a series in the cells. Darker examples have the tawny shading to fuscous at base and apex of clavus, in the central apical cell and on the costal veinlets.

Holotype ♀, allotype ♂, Glenn Oaks, Arizona, August 19, 1929, and ten paratypes taken by the writer with the types and at Granite Dell, Arizona, from July 19 to October 6, 1929.