

## A NEW NEMESTRINID FLY FROM CENTRAL TEXAS.

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For some time past, I have gathered notes on the North American species of the dipterous family Nemestrinidæ, my interest in the group having been aroused by the capture of several specimens during the Cornell Biological Expedition of 1917. Through the kindness of some of my entomological friends I have been able to study much valuable material, including all but one of the species known from America north of Panama. Certain peculiarities of this family, however, render the examination of large series of specimens and the comparison of species from different regions imperative, before its classification can be established on a safe basis. I hope to have time and opportunity to do this in the near future; meanwhile, it seems necessary to publish the description of the following new species, since it has been distributed to several public and private collections.

*Hirmoneura bradleyi* new species.<sup>1</sup>

Type female from Anhalt, Comal Co., Texas, June 28, 1917 (J. Bequaert Coll.), collection of the American Museum of Natural History.

A large-sized, black and rufous or dark brown species, with feeble pilosity; the dorsum of the thorax with conspicuous longitudinal bands, alternately brown and gray pruinose; the abdomen above with white pollinose transverse fasciæ alternating with dark brown bands; antennæ and palpi brownish-red; legs yellowish-brown, hind tibiæ dark brown, hind tarsi black; eyes bare, broadly separated on the front in both sexes; wings with two submarginal cells only; the second submarginal and the second posterior cells broadly open on the margin.

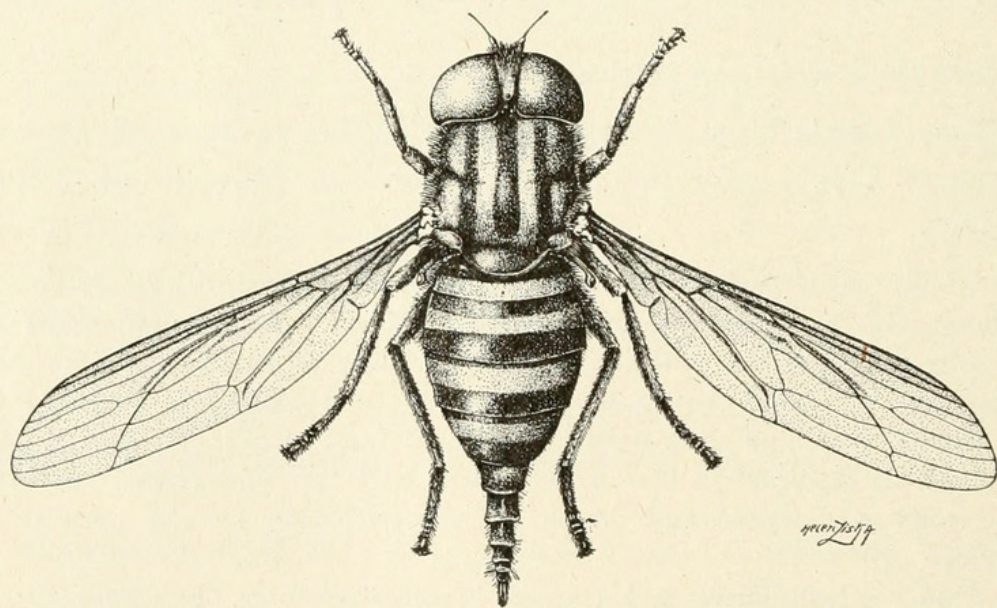
Female.—Integument dark colored, blackish-brown to black, more brownish-red in places and the limits between the different tinges ill-defined, varying from one specimen to another; in some, the abdomen is extensively rufous,

<sup>1</sup> Named for my esteemed friend Prof. J. Chester Bradley, of the Department of Entomology, Cornell University, successful leader of the Cornell Biological Expedition, which during the months of June, July and August, 1917, crossed the United States by automobile; the species described herewith was taken on this journey.



while in others it is clove-brown or almost entirely black. Antennæ, palpi and mouth-parts brownish-red. Legs light orange-yellow; the hind tibiæ and the apex of the hind femora clove-brown, the hind tarsi almost black.

Body feebly pilose, almost bare in general appearance above and often somewhat shining where the pruinosity is rubbed. Vertex and front covered with erect black hairs of medium length; the pilosity on the two basal joints of the antennæ, the palpi and the face pale ochraceous, grayish-white along the posterior orbits; the third antennal joint bare; a pale yellow bloom, easily lost, covers the integument of the head. Dorsum of the thorax with short, sparse, black hairs, except on the sides, where the pilosity is dense, long and soft, pale ochraceous; a long, dense tuft of dirty gray hair behind the insertion of the wing. Scutellum almost bare on its disc, its posterior margin fringed with pale yellowish pilosity. On the under side of the thorax the hairs are short, much scattered, grayish-white. The integument of the thorax is covered above and below with a bright grayish to white bloom, which forms on the dorsum four broad longitudinal bands of almost equal width and distinctly limited by five dull brown pollinose stripes; the bloom of the dark bands is often partly rubbed so that they are more or less shining; of the brown bands the median one is about twice as wide as the others and ends a short distance before the scutellum, the inner lateral pair reaches the scutellum, while the outer lateral pair ends before the base of the wing and is less



*Hirmonneura bradleyi* Bequaert.

well defined being partly hid in the long lateral pilosity. Abdomen with very feeble tomentum, except on the first tergite and on the basal half of the second where the pilosity is long and dense, yellowish-gray; the remainder of the upper side bears only a few scarcely visible, short, reclining hairs, which are black in the middle and pale yellowish on the extreme sides; the pubes-



cence at the under side is moderately long, scattered, appressed, yellowish-gray. The segments behind the fourth which constitute the retractile ovipositor, bear numerous black, erect hairs. A dense grayish-white bloom covers the entire under side of the abdomen and forms on the dorsal face four sharply defined fasciæ, separated from one another by slightly broader dark transverse bands; these dark bands are covered with a feeble brownish bloom which is readily rubbed, so that the bands are more or less shining. The first tergite is yellowish pollinose with a narrow apical brown band. The second tergite has four fasciæ, alternately pale and brown; the basal band is quite white and of about the same width throughout, while the median fascia is more grayish and slightly widened toward the sides; the apical brown band is broader than any of the other three fasciæ. On the third and fourth tergites the pale band is grayish-white, slightly broader than the pale fasciæ of tergite two and situated close to the basal margin, the basal brown band being very narrow and furthermore often partly retracted beneath the apical margin of the preceding segment. The ovipositor is brownish pruinose, except toward the base of its first tergite which is in part feebly grayish pollinose. Legs densely covered with short, ochraceous hairs, those on the hind tibiæ and hind tarsi black.

Head large, slightly broader than the thorax, a little higher than broad seen in front, almost hemispherical in profile. Front widest above the antennæ, the inner orbits very feebly convergent toward the vertex and a little more so toward the oral depression; at the vertex the front is about one third of the total length of each eye. Ocellar protuberance elongate, very large, deeply separated from the inner orbits by a lateral groove, confluent with the front below. Posterior ocelli much closer to each other than to the anterior ocellus which is slightly smaller. Eyes bare. Antennæ short, small, placed closer to the inner orbits than to each other; their basal joint subcylindrical, gradually but feebly widened from its base to its straightly truncate apex, as long as the two following joints together; second joint transverse, subtruncate at base and apex, about one and a half times as thick as long; third joint flattened, pear-shaped, one and one half times the length of the second, almost as broad at the base as long, gradually attenuated toward its obtuse apex, which bears the style. Style about as long as the entire antenna, distinctly three-jointed; its two basal joints short and thick, together about the length of the second antennal joint; the basal joint much the shortest. Front distinctly swollen below, gradually sloping toward the vertex, much more abruptly so toward the antennæ. Face with a feeble median protuberance above the oral margin, separated from the lower inner orbits by two deep grooves which run nearly to the base of the antennæ and in which the palpi are partly concealed. Proboscis short and thick, with soft, broad, fleshy labella, usually retracted within a deep excavation of the lower half of the face. Palpi very long, slender throughout, rather suddenly attenuated and pointed at their apex, two-jointed, the basal joint extremely short. Body rather broad and flattened. Dorsum of the thorax about as broad as long; the transverse suture feebly marked on



the sides. Scutellum semi-oval, cushion-shaped, its posterior margin distinctly though feebly swollen and separated from the disc by an impressed line. Abdomen oval, its four basal segments together slightly longer than the thorax; first tergite very short, the second much the longest, the third and fourth about of the same length (two thirds that of the second). Ovipositor of the telescope-shaped type, composed of five segments which can be extended to a considerable length or partially retracted within one another; the basal segment is much narrower than the fourth abdominal tergite, the following segments are gradually narrowed, the apical one ending in two slender, straight lamellæ which are obtusely rounded at their tips.

Wings long and narrow, over four times as long as wide, over twice the length of the abdomen and slightly longer than the entire body (not including the ovipositor); feebly smoky all over, brownish-yellow at the base and in the costal and subcostal cells. Costa distinct along the entire hind margin of the wing and reached by the diagonal vein. Only two submarginal cells present, there being no cross-vein connecting the second and third longitudinal veins. All the submarginal and first three posterior cells broadly open on the costa. Anal cell broadly open. Alula well developed, broad.

Measurements of the type: length not including the ovipositor (to apex of tergite 4), 12.5 mm.; length of wing, 14.5 mm.; width of wing, 3.5 mm.

In other females the length (not including the ovipositor) varies from 11 to 14 mm.

Male.—Except for the usual sexual differences, very similar to the female. The vertex is of the same width as in that sex. The markings of thorax and abdomen are the same; the sixth tergite is feebly gray pruinose at the base.

Measurements of the allotype: length, 11 mm.; length of wing, 14.5 mm.; width of wing, 3.5 mm.

In other males the length varies between 12.5 and 14 mm.

I have examined a number of specimens (15 ♀ and 9 ♂) and can find but little difference between them, except in size and coloration as mentioned above, and in certain details of the wing venation. The peculiarities of the venation included in the above description apply to all the specimens. In some of them, a short anterior cross-vein connects the discoidal and the first submarginal cells, while in others this vein is very much reduced or altogether absent. Also in some the discoidal cell touches the fifth posterior cell, while in others these two cells are separated by a distinct though short cross-vein. These and some other minor discrepancies are combined in various ways, as for instance in the specimen figured.

In addition to the type and allotype, a number of topotypes of both sexes have been examined and have been distributed among the following collections: Entomological Department of Cornell Univer-



sity, Museum of Comparative Zoölogy at Cambridge, Museum of the Brooklyn Institute of Arts and Sciences, private collection of Prof. Jas. S. Hine, Mr. C. W. Johnson and of the author.

Paratypes (2 ♀) from Helotes, Bexar Co., Texas, July 1, 1917 (J. Bequaert Coll.), in the author's collection.

The North American Nemestrinidæ usually placed in *Hirmoneura* belong to three very distinct groups, which must, I believe, be treated as genera. *H. clausa* Osten-Sacken is the type of *Parasymmictus* Bigot,<sup>2</sup> which should be considered a valid genus, not merely on account of its eyes (bare, dichoptic in the male) and the peculiarities of the venation (three submarginal cells, the third of which is closed; second posterior cell closed), but more so because the proboscis is aborted, hardly visible, without fleshy labella; furthermore, the palpi are minute and the base of the wing has no alula. *H. texana* Cockerell and *H. brevirostris* Macquart belong in *Hymnophlæba* Rondani<sup>3</sup> (type: *H. brevirostris*): there are three submarginal cells and the eyes are in both sexes holoptic and densely pilose. *H. flavipes* Williston, *H. psilotes* Osten-Sacken and *H. bradleyi* agree with the type of *Hirmoneura* Meigen,<sup>4</sup> *H. obscura* Meigen, in having only two submarginal cells in the wings and dichoptic eyes in both male and female. In *H. obscura*, however, the eyes are distinctly though shortly pilose,<sup>5</sup> whereas they are completely bare in the three American species just mentioned. This difference is in my opinion of sufficient importance to warrant the making of a new subgenus for these North and Central American forms; moreover, further comparative study may bring to light additional distinguishing characters between these and the typical *Hirmoneura*, which are thus far unknown in North America.

The North and Central American so-called "*Hirmoneura*" may then be separated as follows:

1. Proboscis very small, aborted, hardly visible, without fleshy labella; palpi minute; wings with three submarginal cells, without alula; eyes bare, dichoptic in the male (♀ unknown).....**Parasymmictus** Bigot.

<sup>2</sup> Ann. Soc. Ent. France (5), IX, 1879, Bull., p. lxvii.

<sup>3</sup> Archivio per la Zoologia, Modena, III, pt. 1, 1863, p. 51.

<sup>4</sup> Syst. Beschreib. Europ. Zweifl. Ins., II, 1820, p. 132.

<sup>5</sup> Lichtwardt, Deutsch. Ent. Zeitschr., 1909, p. 514.



- a. Black; densely covered with long, erect, yellowish-white pile, which is feebly reclining along the apical margins of the abdominal tergites; third submarginal and second posterior cells closed and long petiolate before the margin of the wing; length, ♂: 10.5–12 mm.

**P. clausus** (Osten-Sacken).

Proboscis well-developed, short, broad and soft, ending in large, fleshy labella; palpi long and slender; wings with broad alula; ovipositor of female telescope-shaped . . . . . 2

- 2 Three submarginal cells; eyes densely pilose, holoptic in both sexes.

**Hymophlæba** Rondani.

- a. Third submarginal cell closed and long petiolate before the margin of the wing; body densely hairy throughout, without pollinose bands; length ♀, without ovipositor: 9.5 mm. . . . **H. breviostris** (Macquart).

Third submarginal cell broadly open on the margin of the wing; body densely pilose, without pollinose bands; length ♀, without ovipositor: 11 mm.; ♂: 11.5–12 mm. . . . . **H. texana** (Cockerell).

Two submarginal cells; eyes dichoptic, broadly separated by the front in both sexes . . . . . **Hirmoneura** Meigen. . . . . 3

- 3 Eyes densely pilose . . . . . **Hirmoneura** proper.

Eyes bare . . . . . **Neohirmoneura** new subgenus.

(type: *Hirmoneura flavipes* Williston)

- a. Thorax densely pilose, the integument covered with a uniform yellowish-gray bloom, without bands; abdomen moderately hairy, brownish-gray pruinose; a white pollinose band at the base of tergite two, beyond it a broader brown band; hind legs entirely yellowish-red; length ♀, without ovipositor: 13 mm.; ♂: 13.5 mm.

**H. flavipes** Williston.

Thorax with yellowish hairs longer on the sides, and with a brownish-yellow pollen; abdomen with a brownish pollen which is darker on the posterior half of tergites 2, 3, 4 (these segments thus showing slight traces of darker cross-bands); the base of the abdomen with longer, pale yellowish-rufous hairs; the posterior half of segment 2, as well as the two following segments, beset with short semicrest black hairs; legs pale rufous, hind femora slightly brownish at the tip, hind tarsi brown; length ♀, without ovipositor: 13 mm. (♂ unknown) . . . . . **H. psilotes** Osten-Sacken.

Body feebly pilose, except at the sides of the thorax and at the base of the abdomen; thorax with conspicuous longitudinal brown and gray pollinose bands; abdomen above with transverse fasciæ alternately brown and white pollinose; legs yellowish-brown; the tips of the hind femora, the hind tibiæ and tarsi dark brown to black; length ♀, without ovipositor: 11–14 mm.; ♂: 11–14 mm.

**H. bradleyi** new species.



From the foregoing key it is apparent that the new species here described belongs in the vicinity of *H. flavipes* and *H. psilotes*. From the former, of which I have seen a male specimen, it is easily distinguished by the characters given in the key. I have not seen the Mexican *H. psilotes*; to judge from the description, it comes very close to *H. bradleyi*. No mention is made by Osten-Sacken of the pollinose bands of thorax and abdomen which are so striking a feature of *H. bradleyi*; yet, it is not impossible that the unique specimen of *H. psilotes* was poorly preserved and rubbed, so that the two species may be more similar than would seem from the descriptions.

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## SYNONYMICAL AND OTHER NOTES ON SOME SPECIES OF THE FAMILY CHRYSOMELIDÆ AND DESCRIPTIONS OF NEW SPECIES.

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The extent of variation of some species of the family Chrysomelidæ as given in the latest revisions, etc., was never satisfactory to me. Rearranging the material in some overcrowded boxes lately and studying the species of some genera more critically I became fully convinced that my surmise was correct and that some of the names placed in synonymy or given as varieties at present have to be restored to specific standing. However, I could do this in a very few instances only, as the original descriptions are too poor and I could not see the Leconte types at present. I will undertake a revision of at least two of the genera, *Donacia* and *Disonycha*, in the near future.

### *Donacia* s. g. *Pæcilocera* new subgenus.

Our species of *Donacia* are divisible into the two recognized subgenera. Those of Mr. Leng's groups *A*, *B*, and *C* belong to *Donacia* proper and those of group *D* to the subgenus *Plateumaris* Thoms. These of the latter subgenus are more similar in form than those of the subgenus *Donacia* and all possess a very good character in the distinct sinuation of the sutural margin of elytra near apex to separate



Bequaert, Joseph C. 1919. "A New Nemestrinid Fly from Central Texas."  
*Journal of the New York Entomological Society* 27, 301–307.

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