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A NEW SPECIES OF THE GENUS *LIBELLULA* FROM
YUCATAN

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THE dragonflies of the genus *Libellula* are so conspicuous, so widely distributed, and so well known that the discovery of a new North American species is a most unexpected and surprising event. When Mr. E. B. Williamson described *Libellula jesseana* in 1922 he stated (p. 17) that it was the first new species to be added to the odonate fauna of eastern North America in over fifty years. In 1932, when he determined a collection of Odonata made by A. S. Pearse and E. P. Creaser in Yucatán, he listed (Williamson, 1936: 140) two male specimens as *Belonia* [*Libellula*] *croceipennis* (Selys) even though he was aware that they are not typical of that species.

Recently, in connection with the examination of a series of *L. croceipennis* and *L. saturata* from Trans-Pecos Texas, I had occasion to study comparatively all of the representatives of these species in the Williamson collection. On the basis of genital characters and certain other differences, which by themselves might be considered only unusual variations but which accompanied by such marked differences in genitalia assume greater significance, it has become apparent that *croceipennis* and *saturata* are quite distinct although closely related, and that the two Yucatán specimens represent an unnamed species

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not only distinct from both of them but belonging to a different subgenus.

In recognition of his unfailing encouragement of studies on Odonata and of his personal association with zoological field work in Yucatán, I wish to name this species in honor of Professor Frederick M. Gaige of the University of Michigan.

Libellula gaigei, n. sp.

MALE.—Labium buff, slightly darker and reddish apically; genae and mandibles reddish; labrum, ante- and postclypeus, and deeply indented frons, scarlet; frontal vesicle scarlet (slightly dull), elevated above the level of the eyes in lateral view, and moderately notched dorsally (Pl. I, Fig. 3); occiput reddish brown; rear of head buff.

Prothorax and pterothorax red dorsally, duller and paler laterally and ventrally.

Legs dull red, like the sides of the thorax; tarsi darker above in the holotype, distinctly bright red in the paratype, and ventrally black in both; tarsal claws with black tips; armature brown to black.

Wings (Pl. I, Fig. 1) with a large reddish brown (probably a glowing red in life) basal area, extending in front wing to the nodus enclosing the area between C and M_{1+2} , and below this only to a level of the origin of Rs receding slightly toward the posterior margin; in hind wing to the nodus enclosing the area between C and M_{1+2} , and from the level of the second bridge crossvein forming an arc to the posterior wing margin at a point below the tip of the anal loop. Remainder of the wings, hyaline. Dorsal surface of costa red, otherwise the venation in the basal area is red-orange appearing lighter than the color of the intervening spaces; in hyaline portion, black; pterostigma, dark reddish brown. Antenodals, front wing, 24–22,¹ 23–22; hind wing, 17–17, 17–17; postnodals, front wing, 17–16, 16–16; hind wing, 16–20, 18–16; crossveins in triangle, front wing, 5 (connecting veins forming 8 cells)–6 (10 cells), 5 (10

¹ The first set of figures is for the holotype, left and right wings, respectively; the second set for the paratype.

cells)-5 (9 cells), hind wing, 2-3, 2-2; crossveins in supertriangle, front wing, 4-4, 2-2, hind wing, 1-1, 1-?; cells in internal triangle, front wing, 14-14, 17-16; cubito-anal crossveins, front wing, 2-3, 2-3, hind wing, 2-2, 2-2; bridge crossveins, front wing, 6-6, 5-6, hind wing, 5-5, 5-5; triangle front wing followed by 8-7 cells, then irregularly by 7-5 or 8-4, or by 7-9 cells, then irregularly by 9-5 or 8-5; 2 rows of cells between M_4 and M_{5pl} in front and hind wings (3 for 1 cell length in front wings of holotype, 3 for 2 cells of paratype).

Abdomen comparatively slender, in dorsal view segments 4-8 longer than wide; red, slightly duller below the lateral carina; middorsal and lateral carinae narrowly marked with black, and small teeth at apex of each segment and along ventral carinae tipped with black; sterna, red-buff, the mid-ventral carina narrowly black; appendages (Pl. I, Figs. 5-6) red, the inferior duller and paler, teeth along ventral carina of superiors and at apex of the inferior black.

Hamules (Pl. I, Fig. 2) of the second abdominal segment with the ventral face of the outer branch trapezoidal, length from anterior to posterior margin almost as great as the distance from mesal to lateral, and the margins elevated to form a distinct ridge; inner branch short, terminating in a black recurved hook, directed laterad.

By the shape of the penis (Pl. I, Fig. 4) *gaugei* belongs in the subgenus *Holotania* (Kennedy, 1922) and in that group is most similar to *incesta* and *vibrans*. The paired lateral lobes are long, slightly curved ventrad (or dorsad if the penis is straightened out) and laterad, and strongly chitinized; cornua, long and ending in a ventrally directed prong similar to that of *vibrans*; medial lobes, long, pointed, membranous, slightly chitinized at base, and covered with short papillae; posterior and internal lobes, not visible; chitinized base of third segment proportionately shorter than in either *incesta* or *vibrans* but with the median apical portion prolonged as in *incesta*.

Measurements (in mm.): hind wing, 41-42; pterostigma front and hind wings, 6; abdomen to apex of segment 10, holotype, 31.5, paratype approximately the same (segments 3 and 4 damaged); superior appendages, 2.4, inferior, 2.0.

Holotype, male, Hacienda at Chichen Itzá, Yucatán, June 14, 1932; paratype, male, Dzadz Cenote, Yucatán, June 29, 1932, collected by E. P. Creaser. Both specimens are deposited in the Williamson collection of the Museum of Zoology, University of Michigan.

In contrast to the characters given for *Libellula gaigei*, *croceipennis* and the closely related *saturata* belonging to the subgenus *Belonia* have a less intense and less sharply defined wing coloration; a more robust abdomen; the outer branch of the hamules with the distance from anterior to posterior margin of the ventral face less than half as great as from the mesal to the lateral, the margins not raised to form a ridge, and the inner branch long; penis with a fringed three-parted cornua, no projecting chitinized hood, and with the short lateral lobes curved mesad.

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PLATE I

Libellula gaigei, n. sp.

FIG. 1. Right front and hind wings of the holotype, male. Photographed by Miss Dorothy Myers.

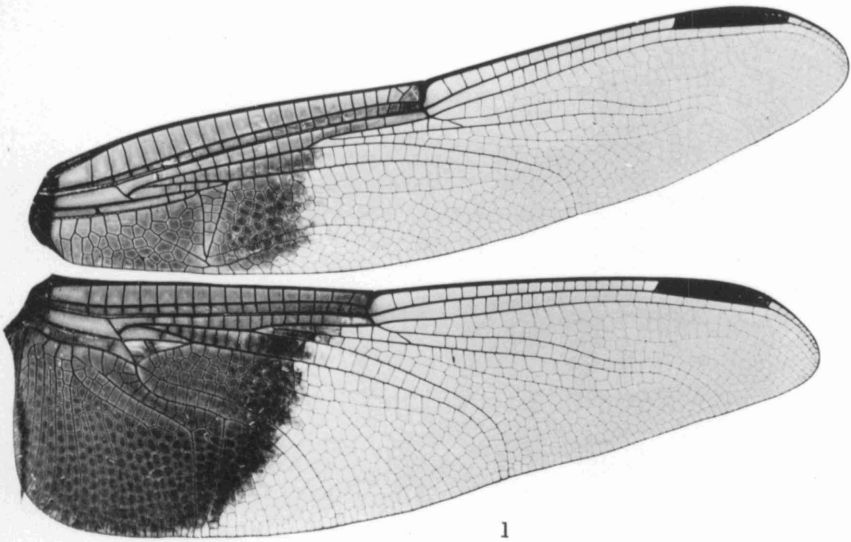
FIG. 2. Ventral view (slightly lateral) of the second abdominal segment, holotype, male.

FIG. 3. Anterior view of the head, holotype male.

FIG. 4. Penis of paratype, male, in lateral view.

FIGS. 5-6. Abdominal appendages of male holotype in dorsal and lateral views, respectively.

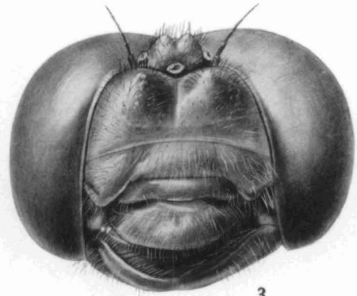
Figures 2-6 are by Miss Grace Eager, Museum Artist.



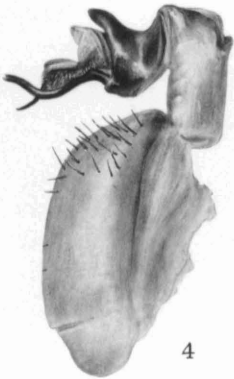
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