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TWO FOSSIL DIPTERA.

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The finest fossil insect found at Florissant by the expedition of 1906 was a large and excellently-preserved Asilid fly. Although several fossil Asilidæ have been described from Europe, only one species (*Stenocinclis anomala*, Scudder, from Wyoming) has been described and named from the American tertiaries.

Microstylum Wheeleri, n. sp.

Length about 40 mm., of which 14 or a little less is head and thorax; wings rather short, about $20\frac{1}{2}$ mm. long, faintly dusky, the veins dark; head and thorax black; legs very dark brown or piceous; abdomen reddish-brown, with triangular black markings on the first four or five segments, as shown in the figure; antennæ stouter than in *M. morosum*, Loew. The general form and proportions are shown so well in the figure that they need not be described. (Plate 4.)

The venation appears to accord sufficiently well with that of *Microstylum*. The radius and radial sector are quite normal, the latter branched as in *M. morosum*; radiomedial cross-nervure present and normal; the cell between the ultimate branches of the media is essentially as in *M. morosum*, the upper branch being even more bowed basally, *but the end of the upper branch reaches the margin a considerable distance from the lower branch of the radial sector*; cell V_3 (Comstock's Manual), which I consider to be enclosed within the branches of the cubitus (following my interpretation of the venation in the Nemestrinidæ), is spindle-shaped, with the upper margin not far from straight, but the lower strongly bowed; from its apex it sends a cross-nervure to the media, reaching the latter at the point of forking, and a straight nervure (end of the cubitus according to my interpretation) to the margin; there was no doubt a cross nervure passing from its lower side to the margin, but this place is obliterated; the cubital cell (viii, Comst.) is very narrow.

According to my interpretation (Amer. Jour. Sci., April, 1908) the strong bend in the upper branch of the media is perhaps a relic of a condition in which a cross-nervure (found in most Nemestrinids) passed from thence to the radial sector; no trace of this now remains.

Hab.—Miocene shales of Florissant, Colorado, Station 14 (*T. D. A. Cockerell*, July 8, 1906). The genus *Microstylum*, Macquart, has at present four species in our fauna; two from Dallas, Texas; one from Pecos River, on the borders of Texas and New Mexico, and Kansas; and one from Mexico. The fossil is named after Dr. W. M. Wheeler, in recognition of his important contributions to dipterology, and in remembrance of the fact that he was present when it was found.

Proctacanthus Philadelphicus, Macq. (specimen from Mesilla Park, New Mexico, caught preying upon a honey-bee), compared with *M. Wheeleri*, shows the following important differences in the venation:

1. The cell in the forks of the radial sector is conspicuously longer and narrower.

2. The apex of cell 1st V_2 (Comst.) is rather broadly contiguous with the base of cell V_1 , or, in other words, the lower branch of the media is sharply angled at the base, the point emitting the cross-vein to cell V_3 .

3. Cell V_3 (enclosed within the branches of the cubitus, according to my view) is cuneiform, pointed basally, but broadly obliquely truncate apically, and connected with the margin by only one nervure.

Dialysis revelata, n. sp. (Leptidæ).

Length, $18\frac{2}{3}$ mm.; proportions about as in *D. rufithorax*, Say, except that the abdomen is somewhat longer; head small, diam. 2 mm. or a fraction over, appearing black; thorax reddish-brown (perhaps ferruginous in life), diam. 4 mm.; abdomen pale reddish-brown, with whitish bands at the bases of the segments, the second and third especially having about the basal half whitish; wings ample, about $13\frac{1}{3}$ mm long, the nervures pale ferruginous; anterior legs pale reddish; middle and hind femora dark brown or black, but their tibiæ and tarsi paler; length of hind femora about 6 mm., of middle femora, $5\frac{1}{2}$ or a little more.

Venation like that of *D. elongata*, Say (*dissimilis*, Walker), as figured by Williston from Austen's drawing (Kans. Univ. Quarterly, April, 1895, p. 264), except as follows:

1. The subcosta reaches costa about 8 mm. from base of wing, thus considerably beyond the middle.

2. Vein R_{2+3} (following the nomenclature of Comstock and Needham, Amer. Naturalist, XXXII, p. 233) is strongly bent downwards where R_{4+5} leaves it. (Such a bend is slightly indicated in *Leptis*.)

3. The discal cell is longer; on its upper side, the part beyond the cross-nervure to the radius, is much more than twice as long as that before it.

4. The cell M_3 , or fifth posterior (cell in the forks of the cubitus, according to the nomenclature proposed by me for the Nemestrinidæ), is present, and rather widely open at the apex.

5. The cubital cell (Comst. and Needham) is also open at the apex.

It has been shown by Mr. C. W. Johnson (Ent. News, 1897, p. 118) that the presence of the fifth posterior cell is not a generic character in this group, since in *D. rufithorax* it is present or absent, without even specific difference.

Hab.—*D. revelata* is from the Miocene shales of Florissant, Colorado, at Station 14 (*W. P. Cockerell*, 1907). I submitted a drawing of this species to Prof. A. L. Melander, and it is to him that I am indebted for the suggestion that the species belongs to *Dialysis*. It is remarkable for its large size, and some venational characters above indicated, but I cannot find any sufficient reason for regarding it as another genus. The characteristic flexure of R_4 is exactly as in *Dialysis*.

This is the first American fossil Leptid. Of Leptidæ in the broad sense (including Xylophagidæ) numerous species have been described from Baltic amber, but only one (*Xylophagus pallidus*, Heer.), from other rocks, namely, from Aix. All of the European fossil Leptids are from the Oligocene.

NOTES ON TENTHREDINOIDEA, WITH DESCRIPTIONS OF NEW SPECIES.

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PAPER I (SPECIES FROM COLORADO).

The term middle fovea is used in these descriptions, and I expect to use it from now on, for the fovea between the antennæ. This is what Mr. C. L. Marlatt (Rev. of the Nematinae of N. Am., Tech. Ser., No. 3, Dept. of Agriculture) calls the antennal fovea. The term antennal fovea in my descriptions from now on will mean the fovea at the base of each antenna. "Ocellar basin" is the basin in which the lower ocellus is placed. "Middle carina" is the carina that is sometimes found between the antennæ.

I am greatly indebted to Prof. C. P. Gillette for the loan of the Saw-flies belonging to the Colorado Agricultural College. Also to Prof. T. D. A. Cockerell for many valuable suggestions, and to Dr. A. D. MacGillivray for permission to describe some Saw-flies which he had named in manuscript.

It is my plan to have a series of papers on Saw-flies, in some cases giving notes and descriptions of new ones, and in others giving tables of the species of America, north of Mexico.



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