THE GENUS DICTYA MEIGEN (TETANOCERIDÆ, DIPTERA)

By C. H. Curran

In the two revisions of the American species belonging to the family Tetanoceridæ the only species of Dictya included is umbrarum Linnaeus, a European species. Being aware of the existence in North America of more than one species of Dictya, I asked Mr. Colbran J. Wainwright if he could let me have specimens of umbrarum and he very kindly sent three of them.

Since all the known species of Dictya bear a very close resemblance to each other, their separation by other than genitalic characters is almost impossible. Fortunately, both sexes display good genitalic characters and in the case of the females no preparation of the specimens is necessary. With the males it is only necessary to relax them and spread the genitalia.

In the illustrations prepared for this paper all the figures of the parts of the male genitalia are drawn from lateral view, all are drawn to the same scale, and I have illustrated only those parts by which the species may be most easily identified. In all cases where an interpretation of genitalic figures is being made it must be remembered that a slight alteration in the angle from which the object is viewed will usually give a different appearance. In the case of the present figures I have drawn them so that the greatest width of the anterior clasper is shown and have made, at most, slight changes in the apical portion (as seen from this view), in order to bring out the characteristic shape. In the present case also I do not believe that the shape of the whitish, anterior appendage on the anterior clasper is of much diagnostic importance, since it is so easily damaged in spreading the genitalia, although it is probable that in specimens prepared by removing the abdomen, and following the usual procedure in preparing slides, another excellent character for the separation of the species would be available.

In the present case I have made use of only the anterior and posterior claspers in the male and of the eighth sternite in the female. In most of the species the posterior claspers are very similarly shaped and show only minor variation in this respect, and since the posterior lobe is rather
soft, too much reliance must not be placed upon its shape. The anterior
or inner claspers give the best and most easily available characters and a
single glance is usually sufficient to identify the species. Whether the
outer forceps or “auxiliary lobe” presents reliable characters or not is
open to question, since these organs are thin and may be more or less
curved. I suspect that they show much more variation than the other
parts. The penis also exhibits distinct differences, but, since it is usually
concealed by the claspers, it is not readily available for taxonomic study.
The posterior forceps also are concealed, and I have made no attempt to
study them.

The figures of the eighth sternite must not be interpreted along too
strict lines, as each specimen shows slight differences due to drying. In
order to secure the exact shape of this it is necessary to treat with caustic
and remove all adjacent parts. I have drawn what I believe to be the
typical structure of this sternite in each of the species but I must point
out that I have no proof, other than the locality, size and minor color
characters, that the females are properly associated with the males.

The following is the synonymy of the genus.

**Dictya** Meigen


The genotype is *Musca umbrarum* Linnaeus, the only recognized
diapedetic species.

*Dictya* may be readily distinguished from other Tetanoceridae by the
following characters: clypeus not prominent; propleural bristle absent;
scutellum with four bristles; mesopleura and pteropleura each with a
strong bristle and the absence of sternopleural bristles.

**Table of Species**

Since all the species in this genus are so similar in appearance and
are only to be recognized by genitalic characters I present only a key to
the males. The females may be determined by association with the males
and by consulting the figures.

1.—Posterior claspers with a distinct lobe below which bears dense bristly hairs
   apically (Fig. 12)................................. *borealis*, n. sp.

   Posterior claspers with a preapical emargination and with much shorter, never
   caudally directed hairs on the lower part............................... 2.

2.—Apex of the inner claspers strongly produced anteriorly and posteriorly (Fig. 5).
   *pictipes* Loew.
Apex of inner claspers never strongly produced posteriorly.................3.
3.—Apical portion of the inner claspers tapering and produced anteriorly....4.
   Apical portion of inner claspers never conspicuously tapering nor curved
   anteriorly....................................................5.
4.—Anterior claspers broad, not regularly tapering (Fig. 1)........ umbrarum Linnaeus.
   Anterior claspers narrow and regularly tapering (Fig. 3)........ umbroides, n. sp.
5.—Apical portion of the anterior clasper with a long anterior process (Fig. 9).
   lobifera, n. sp.
   Apical portion of anterior clasper at most weakly produced beyond a deep
   emargination.................................................6.
6.—Anterior clasper broad and with a deep anterior margination (Fig. 11).
   incisa, n. sp.
   Anterior clasper with the apical half narrow and much more weakly emarginate
   in front (Fig. 7)...........................................texensis, n. sp.

Dictya umbrarum Linnaeus

Figures 1 and 2

For complete synonymy of umbrarum see ‘Kat. Pal. Dipt.,’ IV, p. 65.
   The following description applies quite well to all the species.

Male.—Length, 4 to 6 mm. Face moderately retreating, perpendicular on the
   lowest third, the median third gently convex longitudinally, the parafacials also more
   or less convex toward the eyes. Face and cheeks white, the latter with a large brownish
   spot in front. Front dull honey-yellow, the orbits very narrowly white; two large
   brown spots, each hair arising from a small spot; ocellar triangle dull yellowish brown.
   Occiput whitish, each hair arising from brown spot. One parafrontal bristle, the
   verticals, outer verticals and postverticals strong. Cheeks one-third as wide as the
   eye-height. Palpi yellow. Antennae reddish; second segment scarcely longer than
   wide, third somewhat longer than the second, concave above, the apex obtuse;
   arista with sparse, long black rays.

   Thorax cinereous pollinose, the mesonotum with about four rows of irregular
   brown blotches, and often with many of the hairs arising from brownish spots; pleura
   usually with more or less conspicuous brown areas. Two pairs of dorsocentrals; two
   pairs of scutellars, the disc setulose; pleura setulose, the mesopleura with a bristle
   above posteriorly, the pteropleura with one in the middle.

   Legs reddish yellow, the femora with two broad, more or less entire, brown bands
   on the apical half; tibiae brown apically; tarsi with the apical two or three segments
   brown, the basal segment more or less brown.

   Wings about equally brownish and cinereous hyaline on the anterior half, and
   grayish and hyaline on the posterior half, the clear spots more or less rectangular on
   the anterior half of the wing and more rounded on the posterior half. The intensity
   of the color varies and the wing may be mostly brown although it is always paler behind and deeper in color along the costa. In some specimens the clear color pre-
   dominates.

   Abdomen mostly brownish but with extensive cinereous white areas.
This is the only recognized palaeartic species, but in view of the fact that there are several American species it would not be surprising to find that more than one form has been confused under this name. The species has a wide range in Europe, according to the records, but the question of even varietal differences has never been raised. It is readily distinguished from *umbroides* by the shape of the anterior claspers of the male and the presence of setulæ on the median portion of the eighth sternite in the female.

Two males and one female, Staateidiger, near Meiningen, Germany, August 15, 1907, ex collection Girschner, received from Mr. Colbran J. Wainwright.

In addition to the European specimens there are three specimens from Monterey, California, July 13, 18 and 22, 1896 (Wheeler Collection), which show no genitalic differences in either sex except that the anterior claspers are more evenly tapering and do not display the irregularity shown in the figure. The male is 5.5 mm., the females 6 mm. in length. Notwithstanding the difference in size I believe that they represent the true *umbrarum*. However, a thorough study of the entire genitaria may provide tangible differences, but my material is too scanty to permit such a comparison.

**Dictya umbroides**, new species

Figures 3 and 4

Very similar to *umbrarum* Linneus from which it is distinguished only by genitalic characters. In the male the anterior claspers are rather evenly tapering on the apical portion and form a long hook, while in the female the median portion of the eighth sternite is bare or has only one or two setulæ.

**Types.**—Holotype, male, and allotype, female, Banff, Alberta, Canada, June 1, 1922. Paratypes: male, Banff, June 1, four females, Banff, May 5 and June 18, 23 and 29, 1922, all collected by C. B. D. Garrett; male, Glen Souris, Manitoba, August 23, 1923 (H. A. Robertson); female, Aweme, Manitoba, August 15, 1923 (N. Criddle). The types are in the Canadian National Collection, paratypes in The American Museum of Natural History.

**Dictya pictipes** Loew

Figures 5 and 6


An easily recognized species in both sexes. In the male the anterior claspers are characteristically produced apically and in the female the
Fig. 1. *Dictya umbrarum* Linnaeus, lateral view of anterior clasper of male.

Fig. 2. *Dictya umbrarum* Linnaeus, ventral view of eighth sternite of female.

Fig. 3. *Dictya umbroides*, new species, lateral view of anterior clasper of male.

Fig. 4. *Dictya umbroides*, new species, ventral view of eighth sternite of female.

Fig. 5. *Dictya pictipes* Loew, lateral view of male genitalia showing claspers and outer forceps.

Fig. 6. *Dictya pictipes* Loew, ventral view of eighth sternite of female.

Fig. 7. *Dictya texensis*, new species, lateral view of anterior clasper of male.

Fig. 8. *Dictya texensis*, new species, ventral view of eighth sternite of female.

Fig. 9. *Dictya lobifera*, new species, lateral view of anterior clasper of male.

Fig. 10. *Dictya lobifera*, new species, ventral view of eighth sternite of female.

Fig. 11. *Dictya incisa*, new species, lateral view of anterior clasper of male.

Fig. 12. *Dictya borealis*, new species, lateral view of anterior and posterior claspers of male.

Fig. 13. *Dictya borealis*, new species, ventral view of eighth sternite of female.

*a.c.*, anterior claspers; *p.c.*, posterior claspers; *o.f.*, outer forceps.
eighth sternite is deeply excavated. There is some variation in the width and depth of the excavation of the sternite, but this is all within a moderately narrow range and may be largely due to drying.

*D. pictipes* has a wide distribution. In the north the species ranges from Nova Scotia to Saskatchewan and Wyoming and south to Texas. It was originally described from Washington, D. C., and the Museum collection contains one of the original lot collected by Osten Sacken.

**Dictya texensis**, new species

*Figures 7 and 8*

The genitalia of both sexes show characteristic differences. While the apical portion of the anterior clasper is distinctly notched near the middle, there is no deep emargination such as occurs in *incisa*, new species. This form is apparently intermediate between the species with the curved claspers and those which have parallel sides or are more or less clubbed apically. The eighth sternite of the female is gently emarginate apically and bears a small median convexity.

*Types.*—Holotype, male, Austin, Texas, February 22, 1900, and allotype, female, Austin, October 7, 1899 (Wheeler Collection). Paratypes, male, Austin, February 22, 1900 (Wheeler Collection), and female, Morgan, New Jersey, August 7 (Weiss and West).

**Dictya lobifera**, new species

*Figures 9 and 10*

The male may be readily distinguished by the presence of the narrow lobe on the anterior surface of the anterior claspers.

*Types.*—Holotype, male, Ormond, Florida (Slosson Collection); allotype, female, Lake Worth, Florida (Slosson Collection). Paratypes, female, Biscayne Bay, Florida (Slosson Collection); female, Salt Meadows, New Jersey, July (A. J. Weldt); female, Orange Mts., New Jersey, July (A. J. Weldt); female, Cerro Cabras, near Puerto del Rio, Cuba, September 11, 1913. Paratypes in the Canadian National Collection.

**Dictya incisa**, new species

*Figure 11*

The broad, broadly excised anterior claspers render the male easily identifiable. In the presence of the posterior depressed portion *incisa* apparently shows a relationship to *umbrarum* Linnaeus. The blunt apex is usually wide but from most views appears narrower than shown in the figure.

*Types.*—Holotype, male, and paratype, male, G. Zuni River, Arizona, July 27 (Wheeler Collection).

**Dictya borealis**, new species

*Figures 12 and 13*

The male of this species can usually be recognized without spreading the genitalia, as the apical part of the posterior clasper is normally visible and its shape is
characteristic. In the female the eighth sternite is rather shallowly emarginate in the middle. The length varies from 5 to 6.25 mm.

Types.—Holotype, male, Birtle, Manitoba, August 3, 1928 (R. D. Bird); allootype, female “Wisconsin” (Wheeler Collection). Paratypes: male, Glen Souris, Manitoba, September 3, 1923 (H. A. Robertson); male and female, Maryfield, Saskatchewan, August 31, 1916 (N. Criddle); female, Bottineau, N. D., August 22, 1923 (H. A. Robertson); female, Saskatoon, Saskatchewan, June 5, 1922 (N. J. Atkinson); female, Strathclair, Manitoba, August 5, 1923 (H. A. Robertson); female, Port Hope, Ontario (W. Metcalfe). Paratypes in the Canadian National Collection.