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NEW AUSTRALIAN SPECIES OF THE FAMILY  
*CALOPTERYGIDÆ*.

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Only one species of this exceedingly beautiful and interesting family has so far been described from Australia, viz., *Diphlebia lestoides* Selys. Two additions are now made, one being a common East Indian species, and the other a beautiful *Diphlebia* from Northern Queensland.

It is probable that systematic collecting in the Cape York and Port Darwin districts would add several more species of this family to our Australian Odonata, since the *Calopterygidae* are exceedingly well represented in the tropical zone.

1. *DIPHLEBIA EUPHŒOIDES*, n.sp.

♂. Total length 48-52 mm., abdomen 35-38 mm.; wings, fore 29-31 mm., hind 28-30 mm. Wings rather broad; suffused almost completely with dark brown or black (in the young ♂ with pale yellowish-brown); the only portions not suffused being the tip beyond the pterostigma and also the basal part of the wing including the costal, subcostal, and median spaces. *Pterostigma* 4 mm. black. *Nodal Indicator*  $\left\{ \begin{array}{l} 5-8 \text{ circ. } 24 \\ 5-6 \text{ circ. } 20 \end{array} \right\}$  Head: All parts jet black; vertex and genæ hairy; a slight dark brown patch close under the eyes next the vertex; middle of labium dirty grey. Front ocellus transparent; antennæ black, nearly 3 mm. Thorax: *Prothorax* jet black with four bright blue spots, two narrow transverse elongated, one of which is basal and the other anal, and two lateral, oval, pointed inwards. *Meso-* and *metathorax* soft rich sky blue, dorsal ridge black, widening into a black triangular patch next the prothorax and

curving round to join the subhumeral black rays of which there is one on each side, reaching to the fore wing-joins, and below it a parallel lateral black ray reaching to the hind wing-join; all the sutures marked by thin black lines. Wing-joins black, spotted with blue; scuta and scutella blue. Underside dirty grey or brown, edged with black. Legs black, powdered with grey. Abdomen cylindrical, 1-3 slightly swollen. Colour: 1, blue, with black suture; 2, blue, suture broadly black, a black semi-elliptical spot two-thirds of the way from the base and connected to it by a thin black line along the dorsal ridge; sides of 2 black; 3, basal two-thirds blue, rest black, a thin black line along the dorsal ridge, sides and underpart black; 4-7, jet black; 8, blue; 9, blue between broadly black sutures, the black on the basal suture sharply pointed inwards along the dorsal ridge; 10, black with a pair of oval blue spots; 9, swollen below into a small pointed tubercle. Underside black, powdered with grey around the genital appendages of segment 2, which are large and black. Appendages: *Superior* forcipate, nearly 2 mm., jet black, tips blunt, slightly clubbed and downy, nearly touching; seen sideways the tips are slightly curved downwards. *Inferior* (two) about 1 mm., subcylindrical, black, tips blunt, in some specimens divergent, in others close together and parallel.

♀. Total length 44-46 mm.; abdomen 31-33 mm.; wings, fore 32-34 mm., hind 31-33 mm. Wings longer and narrower than in ♂, generally almost completely suffused with dull brown or yellowish-brown; sometimes, especially in immature specimens, hyaline. Pterostigma 4 mm., brown or dark brown. There are two distinct types of the ♀ which I shall designate *A* and *B*. In *A* the ground colour of the thorax and abdomen is either dull olive brown, slightly metallic, or else dull smoky black. In *B* it is bright yellowish-brown. Head: *Vertex*, *A*, dark olive brown, *B* pale brown; a curved black band between the antennæ touching the front ocellus; behind this an irregular black band or series of spots reaching from eye to eye and enclosing the two other ocelli. Behind this the occiput is swollen, almost tubercled; colour next the eyes black; a black or dark brown line across the

occipital ridge. *Eyes* black, bordered in front by a bright creamy or yellowish band. *Clypeus* and *labium* brownish, darker in *A* than *B*; *labium* pale dirty brownish, mouth deeply edged with black. *Thorax* as in ♂, but with the blue parts replaced by the ground colour of *A* or *B*. Underside dusted with grey. *Legs* black, dusted with grey on underside of femora. *Abdomen* cylindrical; 8 slightly narrowed basally; 10 very small. Colour as mentioned above and marked as follows:—dorsal ridge black, swelling out in 4-8 into an anal black spot; 3, with a wide black spot three-fourths of the way from the base; 2, with a suspicion of the same. Sides edged with dull black. These markings are very conspicuous in *B*, but indistinct in *A*. Segments 8-10, very much swollen below, ovipositor large, ending in a pale blunt tip pointed slightly upwards and carrying below the tip two curved filaments, black, divergent and inclined downwards, about 0.6 mm. long. *B* has a brown colouration on sides of 9 and 10. Underside, *A* black, dusted with grey; *B* shining black. *Appendages* black, 1 mm., subcornute, separated.

*Hab.*—Kuranda, N.Q., Nov.-Feb., where it is fairly abundant on the small and densely wooded mountain creeks, but it is not found along the main river. I have also received specimens from the Cape York district.

It has a graceful easy flight, often fluttering like a butterfly round twigs and leaves. It is extremely fond of settling on logs or twigs near the water with expanded wings. The females are very retiring, and are generally found a short distance in the bush away from the creek where the males are disporting themselves. One form of the female is about as common as the other, and it is possible that the difference is only one of age, the form *A* being the fully matured female; though, as I found both forms common late in the season, I cannot say for certain that this is the case.

There is no doubt as to the specific distinctness of this beautiful insect, though perhaps it will be as well to give the points of difference between it and *D. lestoides* Selys, the only other known species of the genus, which is common in Victoria and Southern

New South Wales. The following characteristics will at once distinguish the two species:—

♂. The ♂ of *D. lestoides* is a larger insect than *D. euphæoides*, but its wings are decidedly narrower. Moreover, the wings of *D. lestoides* ♂ are never clouded even with the palest brown, while those of *D. euphæoides* ♂ even in very immature specimens are distinctly clouded. In *D. lestoides* ♂, about half-way between the nodus and pterostigma, there is a milk-white bar of thickness varying from 1.5 to 3 mm. running across the wing; this is absent in *D. euphæoides*. In *D. lestoides* ♂ the ground colour of the whole abdomen is blue; in *D. euphæoides* ♂ only the first three segments and 8-9 are blue, the rest being black. As regards the appendages, the superior ones in *D. lestoides* are distinctly larger than those of *D. euphæoides*; while the inferior are absolutely different; those of *D. euphæoides* being subcylindrical and with blunt rounded tips, while those of *D. lestoides* are scarcely one-fourth as long as the superior, and are wide and distinctly square at the tips, and even somewhat hollowed out so as to appear slightly bifid when viewed laterally. It may also be observed that the abdomen of *D. lestoides* ♂ is distinctly flattened, rather wide, and of practically the same width from end to end, while that of *D. euphæoides* is much narrower and varies in width, being widest at 1-2, then tapering gracefully to 7, then slightly enlarged again to 10. It is also distinctly rounded and not flattened. The second segment of the abdomen is hairy in *D. lestoides* ♂, smooth in *D. euphæoides*.

♀. The two females, if placed side by side, would be more difficult to distinguish, as they are very similar in general colouration and appearance. But *D. lestoides* ♀ is distinctly larger than *D. euphæoides* ♀; its wings are very seldom suffused with brown, and are much narrower than those of the latter, especially towards the tips, which in *D. euphæoides* are beautifully rounded. The pterostigma is always very pale brown between black nervures in *D. lestoides*; in *D. euphæoides* *B* it is a medium brown, and in *A* a very dark brown. The appendages are very similar.

The specific name is adopted on the suggestion of M. Martin so as to maintain the uniformity of the specific nomenclature in use for this genus.

Note on *D. lestoïdes* Selys.—In making the foregoing comparison, I have had recourse only to my own series of this insect, taken during Dec.-Jan., 1905, on the Snowy River, Jindabyne, N.S.W. M. René Martin, in his remarks\* on the specimens sent him from Victoria, says:—"Elle varie tellement pour la taille et la coloration qu'on serait tenté de voir deux espèces distinctes, quand on considère un grand mâle *tout vert mat* ou bleu luisant ayant un abdomen de 35 à 36 mm. et 7 anténodales, et d'autre part un petit mâle plus ou moins varié de noir sur le corps, ayant un abdomen de 30 mm. et seulement 4 anténodales, mais on trouve toutes les tailles et toutes les colorations intermédiaires."

The specimens to which these remarks apply were taken on the Goalburn River, Victoria, if I mistake not. On the Snowy River I took and examined hundreds of specimens, and I can truly say I found exceedingly little variation in size, not more than 2 mm. either in length of abdomen or expanse of wings. The newly emerged ♂ has a flabby brownish abdomen marked with black, very similar to that of the ♀, and it takes some weeks before the rich blue colour has covered the whole body. A male some days old shows the blue colouration beginning from the 2nd segment downwards, and one can meet with them in all stages of colouration. But I am certain that the insect is never *dull green (vert mat)*. Dried specimens generally lose their colour entirely and turn dull black or brown, but several well-matured specimens I had, turned a deep dull green and remained so for many weeks, though that colour has now disappeared. Doubtless some of M. Martin's specimens reached him in this condition. As regards the variation in size, it must be due to the colder climate and the later advent of summer in Victoria, whereby many specimens never reach full maturity; for even on the Snowy River at the end of January most of the specimens were flabby, ill-nourished, and but half-matured.

\* Mémoires de la Société Zoologique de France, 1901, pp. 243-244.

## 2. *Rhinocypha tinctoria* Ramb.

A single male of this species which I now possess, in very bad condition, was taken in 1869 on the Endeavour River, Cooktown, by one of Sir William Macleay's collectors. The species is an exceedingly common one all over Oceania and the Indies, and it is a practical certainty that it must occur at Cape York and Thursday Island; though the absence of any collections of Odonata from that district accounts for its not being recorded before.

The specimen I possess is possibly var. *semitincta* from the degree of suffusion of the wings, but all colouration has been obliterated long ago. It would be useless to attempt to describe it; the description of the type is given by Rambur, and Selys also has remarks on the species [Ramb., *Ins. Névr.* p. 237 (1842); Selys, *Syn. Calopt.* p. 64 (1853); *Mon. Calopt.* p. 253 (1854); *Bull. Acad. Belg.* (2), xxvii. p. 663 (1869); (2), xxxv. p. 490 (1873); (2), xlvii. p. 395 (1879)].