

A NEW GENUS AND SPECIES OF *LIBELLULIDAE* FROM
CELEBES (Odon.).

By

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In July 1936 Dr. L. J. TOXOPEUS of Bandoeng (Java) returned from a collecting-trip to South and Central Celebes. Amongst many interesting Odonata turned over to me for examination, there is one very peculiar form which represents a new genus of the archaic and interesting tribe *Tetrathemini* of the family *Libellulidae*. I am thankful to Dr. TOXOPEUS that he has been willing to entrust me with the study of his material, which contains a number of species not previously known from Celebes.

Although no general paper on the Odonata of Celebes has ever been published, in recent years very great strides have been made in our knowledge of these insects, and material of a good many additional species has accumulated in the Buitenzorg Museum. Therefore, in a subsequent paper, I hope to publish a list of the known dragonflies of Celebes, and the opportunity will then be taken to describe some more new species and also to give notes on others.

The present paper deals only with the new genus discovered by Dr. TOXOPEUS.

Genus *Celebophlebia*, gen. nov.

Of the *Tetrathemini*.

Stature of *Nannophlebia*. — Head small, strongly globular, eyes more transverse than in *Nannophlebia* and median eye-line very short, barely as long as the vertex. Frons very little projecting, completely rounded; furrow shallow and only indicated on the upper portion. Vertex raised, obtuse-triangular in frontal view.

Prothorax with the posterior lobe rather small, rounded, very shallowly notched on middle, elevated and with long soft pile along margin.

Legs moderately robust, femora comparatively strong. Posterior femora with short and scanty hairs, their inner margin finely serrate: a row of 18-20 minute conical teeth, progressively longer from shortly after the base to the apex, and a single, short terminal spine. Middle femora with a row of about 15 interior spines, increasing rapidly in length towards the end. Anterior femora with a similar row of 6 spines, which are restricted to the middle of the length. Armature of tibiae similar to *Nannophlebia*. Tarsal claws toothed.

Wings narrow and very long, neuration rather dense, anal area narrow in both pairs. In the anterior pair the nodus is placed slightly distal (17 : 16),

in the hinder pair slightly proximal to the middle (14.5:16.5) of the wing. Triangle in front wing with the costal side fractured, the two portions about equally long; triangle of hind wing normal, proximal side coinciding with arcus and much shorter than costal side. Sectors of arcus united for a long distance, and then separating sharply at an acute angle, the stalk arising from the lower end of it. Arculus placed mid-way between Ax_2 and Ax_3 . In front wing Cu_1 and Cu_2 arise from a single point at the anal angle of the triangle; in hind wing these veins are widely separated and Cu_1 originates from the middle of the distal side of t . Last antenodal cross-vein complete, 10 in front wing, 9 in hind wing; postnodals 8-9. M_2 , Rs and M_3 with a shallow costal convexity. One row of cells between Rs - $Rspl$, $Rspl$ weakly indicated. One supplementary bridge cross-vein (Bcs) in all wings. 1 + 1 Cux in front wing, 2

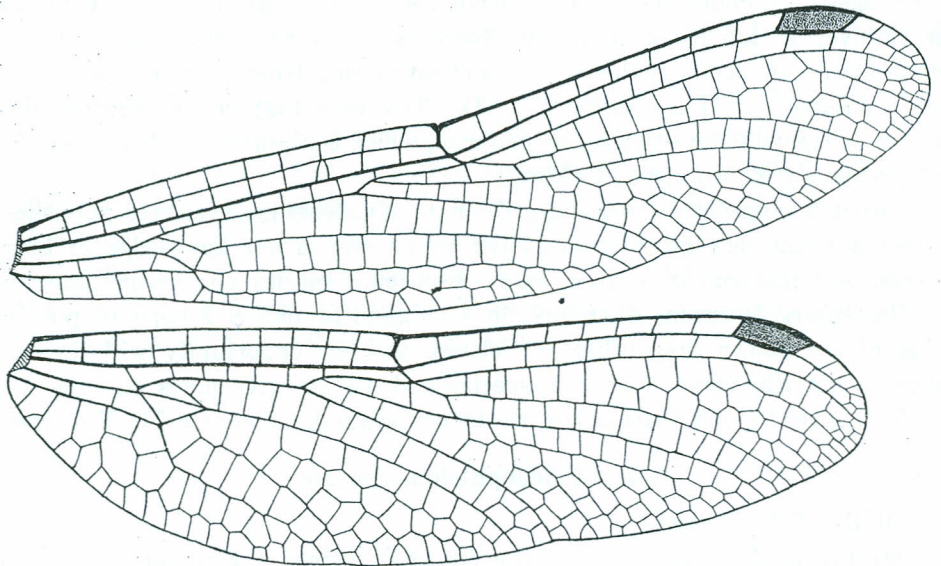


Fig. 1. *Celebophlebia dactylogastra*, gen. et spec. nov. ♂. Right pair of wings.

in hind wing. All triangles and hypertriangles uncrossed. No normal subtriangle: Cux_2 widely distant from arculus in hind wing. Cu_1 and Cu_2 in front wing straight; discoidal field consisting of only one row of cells, and distinctly narrowed towards the wing-margin. Anal loop present, though irregular in outline, consisting of 4 cells. Pterostigma small. Membranula absent in front wing, replaced by a tuft of soft hairs in hind wing (not shown in fig. 1).

Abdomen of male cylindrical, slender and spindle-shaped; basal segments much inflated dorso-ventrally, less so in lateral dimension. Tenth abdominal segment very small.

Genitalia of second segment prominent. Lobus anterior very small. Hamulus strongly modified and of enormous size. Genital lobe narrow.

Anal appendages with the superior pair longer than the inferior one, about equal in length to the ninth segment of abdomen.

Female unknown.

Genotype: *Celebophlebia dactylogastra*, sp. n.

Habitat: Celebes.

***Celebophlebia dactylogastra* sp. n.** (fig. 1-2).

Material studied: — One male (adult), S.W. Celebes, northeastern slope of Quarles Mts., Todjamboe, 1000 m alt., July 17, 1936, L. J. TOXOPEUS leg.

Male (holotype). — Labium yellow-green, the median lobe very small, and indistinctly bordered with black; lateral lobes with a narrow black stripe, slightly widening basally, along the inner margin of each, and distal margin also finely lined with black, mesially; the black marking thus formed is rather vase-shaped and occupies only the median one-seventh of the labium. Labrum bordered with black along its entire margin so as to enclose two large, squarish green basal spots, which are separated from each other by a heavy, longitudinal, black bar. Mandible-bases and clypeus green. Frons green with a heavy, trilobate, shiny black basal spot, covering the greater part of the surface; the lateral divisions of this spot descend along the margin of compound eyes, ceasing abruptly at about two-thirds of their way down; median division still broader, expanding a little sideways apically and fitting close against the clypeal suture. Vertex glossy black; ocelli reddish. Eyes brown. Occiput black, shiny, with a yellow twin-spot on middle. Rear of the head glossy black with no other pale markings than a small, reniform, yellow side-spot along the eye-margin.

Prothorax black with traces of yellow spots along anterior lobe and the sides of the median lobe; posterior lobe elevated, yellow with a brownish basal spot upon middle; pile yellow.

Ground-colour of synthorax deep black; a broadly elongate, green humeral band, continuous over most of the mesinfraepisternites, but narrowing and not touching the ante-alar sinuses above, clear green. Sides with two very broad bands of the same colour, covering most of the metepisternum and the posterior three-fourths of the metepimerum. The green humeral band is equal in width to the black fascia posterior to it but the black stripe along second lateral suture is much narrower and ventrally meets its fellow of the opposite side. Thorax otherwise green underneath.

Legs long and slender though more strongly built, comparatively, than in *Nannophlebia*. Coxae and trochanters green. Basal two-thirds of posterior femora with a yellow-green stripe on both sides; middle femora black, save for a narrow basal yellow ring; anterior femora black with the basal two-thirds yellow interiorly. Outer surfaces of hind tibiae bright ochreous, inner surfaces yellow-brown; remainder of legs all black.

Wings shaped as for genus, neuration as described earlier and as appears from fig. 1. Membrane sub-hyaline, unspotted. Pterostigma brownish-black,

2.3 mm long. Nodal index $\frac{9 \ 10.10.8}{9. \ 9. \ 9.8}$.

Abdomen very slender, shaped as in most species of *Nannophlebia*. Colouring mainly black. Segm. 1 with the sides and a small triangular dorsal spot green; 2 also green, with the exception of narrow basal and terminal black streaks, both of which are widest on middle and restricted to the dorsum. Tips of genital lobe and hamulus black. Segm. 6 black, ringed with green or ochreous. On segm. 3 the green marking is largest, covering slightly less than the middle



Fig. 2. *Celebophlebia dactylogastra*, gen. et spec. nov. Male. Left side view of genitalia and right side view of anal appendages.

of the sides; anteriorly, it is limited by a line that runs obliquely upwards from near the lower basal edge of the segment to the transverse suture but, posteriorly, it is cut-off transversely, so that the ring is almost separated on mid-dorsum into two parts. On segm. 4-6 the rings are placed approximately on middle, occupying about one-fourth of their length, those on segm. 4-5 being rather constricted mid-dorsally. Segm. 7 black, dorsum with a small ochreous twin-spot on middle. Remaining segments black, unmarked.

Genitalia very prominent. Lobus anterior short and broad, sparsely pilose, depressed, distal margin a little swollen and very slightly notched on middle. Hamulus of enormous size; basal portion of exterior branch in the form of a disk-like, somewhat oblique and outcurved circular plate, its lateral portion prolonged into a conspicuous finger-shaped process, which is curved anterad and strongly mesiad so that the apex meets its fellow on the opposite side; in profile view these long hamular processes are cylindrical in form and coloured shiny black, while interiorly, they are strongly hollowed out. The interior branches of the hamulus are in the form of very slender, contiguous, and evenly curved hooks, black in colour, the tips of which are slightly outcurved. Genital lobe long and narrow, tips rounded and almost meeting ventrally.

Anal appendages yellow, much longer than tenth abdominal segment, rather small. Superiors in dorsal view separated at base, thence a little incurved, continuously equidistant but closely approximated, with pointed tips; in profile view shaped as in fig. 2. Inferior appendage much shorter than upper pair, triangular in outline. Superior appendages with a diffuse, blackish-brown

stripe over the entire length and with the apices also black; inferior one black-tipped.

Length: abd. + app. 28, hind wing 30, pterostigma 2.3 mm.

Among many other characters this remarkable species differs from the Tetrathemine genera *Tetrathemis*, *Nannophlebia* and *Archaeophlebia* in that the line of contact between the compound eyes is extremely short, thus resembling other primitive genera of the same group, e.g. *Hypothemis*, *Bironides*, *Hylaeothemis* and *Eothemis*. Yet *Celebophlebia* is, I think, more closely related to *Nannophlebia* than to any of the last mentioned genera and evidently is the most archaic of the two. Venationally, it differs from *Nannophlebia* by the greater number of cross-nerves between the anterior longitudinal wing-veins, by the presence of more than one cubito-anal cross-vein, by the supplementary bridge cross-nerve, and by the absence of a membranula. The three first mentioned characteristics are considered decidedly archaic, while the absence of a membranula is apparently shared only by the most primitive member of the tribe, viz. *Hypothemis* (Fiji Islands). The membranula of *Celebophlebia* being replaced by a small tuft of hairs is quite unique in the *Libellulidae*.

Further points of difference between our new genus and *Nannophlebia* are found in the extraordinary development of the genital hamule and the great reduction of the anterior lobe of the genitalia, two features shared also by *Hypothemis*, from which, however, it differs widely in a number of other characters.

I am inclined to give *Celebophlebia* a place under Group I, paragraph I, 1 B. in RIS's key to the genera, between *Archaeophlebia* and *Nannophlebia* (see RIS, Cat. Coll. SELYS, Libellulinen, fasc. 9, 1909, p. 17-18).

A Synonymic Note on *Celebothemis delectollei* RIS. — Advantage may be taken of the present occasion to adjust a case of synonymy in the family Libellulidae.

In *Treubia* 8, 1926, p. 470-471, Col. F. C. FRASER established a new genus *Parathemis*, with *metallica*, sp. n. as genotype, a species that was held by its creator to come from Java.

Since considerable doubt had arisen as to the habitat of this species, it was omitted from the author's "Annotated List of the Odonata of Java" (*Treubia* 14, 1934, p. 451), and since moreover the type must be considered as lost, the question of its affinities remained undecided.

The collection made for me by Dr. TOXOPEUS in Celebes contains a number of *Celebothemis delectollei* RIS in excellent condition, and comparing these with the description and sketch of *Parathemis metallica* in Col. FRASER's paper, I soon noticed that the males of *Celebothemis* apply very well to the description of *P. metallica*, so obviously in fact, that there can be no doubt as to their being conspecific.

In the FÖRSTER collection, now in the University Museum of Michigan, Ann Arbor, is a male of *Celebothemis delectollei*, labelled by FÖRSTER himself *Neonyx nitens*. I am not aware of this name having been used in literature but, if so, it should be considered also a synonym of *Celebothemis delectollei* RIS.