

Holotypus und Paratypen in meiner Sammlung.

Die von CLOSS 1911 gegebene Raupenbeschreibung von *Pseudoclanis postica* WKR., die auch im SEITZ, S. 563, wiedergegeben ist, bezieht sich nach einer persönlichen Notiz von CLOSS an anderer Stelle auf eine Raupe aus Usambara (ehem. Deutsch Ostafrika), also auf eine *Pseudoclanis postica postica* WKR.

Abb. 5 zeigt nun eine Raupe von *Pseudoclanis postica* WKR. aus Elisabethville, Belgisch Kongo, also von *Ps. postica evestigata*, der in dieser Arbeit neubeschriebenen Unterart. Ich kann nicht sagen, ob die Färbung dieser Raupe dieselbe ist wie die der von CLOSS beschriebenen aus Usambara. Bemerkenswert ist jedoch, dass der letzte Schrägstrich der abgebildeten Raupe aus Elisabethville wesentlich stärker ist als die anderen Schrägstriche und dass er bis zum Horn verläuft. Da CLOSS nichts darüber schreibt, dass die Raupe aus Usambara eine stärkeren letzten Schrägstrich hat, könnte man vermuten, dass die beiden Unterarten *Ps. postica postica* WKR. und *Ps. postica evestigata* nicht nur durch die Genitalien unterschieden sind, sondern auch durch diese Raupenzeichnung. Genaueres hierüber lässt sich aber erst nach Vorlage weiteren Materials sagen.

#### LITERATUR

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## New species and new additions to the Odonata of the Belgian Congo

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This paper is a continuation of the descriptions of new species of Odonata and new additions to the Belgian Congo fauna which I have found in the accumulated undetermined material of the Musée Royal du Congo Belge and deals with some of the rich zygopterous material, the bulk of which, among the smaller species, is contained in the genera *Pseudagrion*, *Ceriagrion*, *Enallagma* and *Elatoneura*. Of these, *Ceriagrion* has been dealt with here, with two new species and two species not hitherto reported from the Congo. I regard the genus as more primitive than the *Pseudagrions* and probably ancestral to the latter, which show a much higher specialization as well as a great development of black distinctive markings.

Belonging to the Anisoptera, two new species of Gomphidae are described and the hitherto unknown females of two others; the hitherto unknown female of a Libelluline, *Notiothemis robertsi* FRASER is also described.

#### GENUS CERIAGRION SELYS.

*Ceriagrion sanguinostigma* n. sp. — Fig. 1.

*Male*. Abdomen 31 mm. Hindwing 21 mm.

*Head*: labium palest yellow; labrum glossy orange red changing to blood-red at the base; vertex and anterior half of occiput dull reddish brown, the posterior half of occiput traversed by a broad streak of bright chrome and the anterior border of postocular space finely lined with black; beneath head uniformly pale. Prothorax and thorax dull ochreous on dorsum changing abruptly to greenish yellow on the

sides and beneath. Legs orange with black spines. Wings very palely tinted with yellow, venation ferruginous; pterostigma diamond-shaped, oblique, but slightly longer than broad, the centre blood-red narrowly bordered with bright ochreous and framed in stout dark nervures, covering one cell or rather less in the hindwings; 12 postnodals in fore-

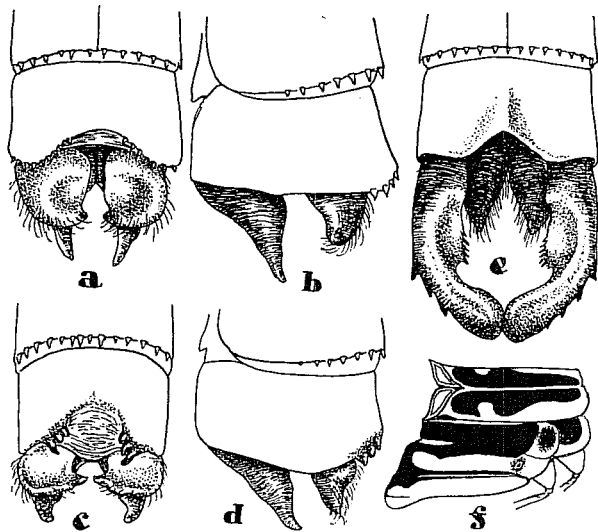


Fig. 1. — Anal appendages of *Ceriagrion sanguinostigma* n. sp., a, Dorsal view; b, Left lateral view, and *Ceriagrion annulatum* n. sp.; c, Dorsal view; d, Left lateral view; e, Dorsal aspect of the anal appendages of *Lestes dissimulans* n. sp.; f, Thoracic markings of the same species right-dorsal aspect.

wings, 10 in the hind; anal vein separating from the border of wing at a distance equal to the cross-vein *Ac*. Abdomen blood-red on dorsum and sides, yellow on ventrum; anal appendages ferruginous, superiors short, outer and apical borders rounded and ending medially in a short black obtuse spine, superior surface broadly indented internally, and inferior border, as seen in profile, deeply notched owing to a folding and inwardly rotated condition of the appendage. Inferiors distinctly

longer than superiors, very broad at base, then tapered rapidly to a fine point which is directed straight posteriorly; no angulation of the lower border as in most species. Segment 10 deeply and broadly concave and fringed, except medially, with a row of small black spines.

*Habitat* : A single male, the holotype, from Ucle : Bambesa, XII.37, collected by J. VRIJDACH. The rather short, blood-red pterostigma together with the horizontal tapered inferior anal appendage without posterior angulation form a complex possessed by no other species and serve to distinguish it without difficulty.

*Ceriagrion annulatum* n. sp.

*Male*. Abdomen 31 mm. Hindwing 21 mm.

Head : labium pale ochreous, labrum and the whole of face and vertex as well as the anterior half of the occiput dark warm reddish brown (maroon), the posterior half of occiput rather bright ochreous sharply defined from the darker brown, beneath head uniform pale ochreous. Prothorax and thorax ferruginous, darker on the dorsum but changing to pale citron yellow low down on the sides and beneath. As in the case of the former species and of many Coenagriens, there are small black spots at the superior ends of the humeral and postero-lateral sutures. Wings uncoloured, venation ferruginous, pterostigma blood-red as in the above species, encircled with pale yellow and framed in thick darker nervures, diamond-shaped but narrower and elongate, nearly twice as long as broad, covering one cell. Legs yellow with black spines. Abdomen ferruginous but the dorsum from segment 3 marked with black as rather broad apical annules continued as narrow dorsal stripes which do not quite extend to bases of segments where they leave short conspicuously pale yellow basal annules on segments 3 to 7; the latter segment almost entirely black, but the remaining ones dark reddish brown as also are the anal appendages. Superior appendages flattened and shaped rather like an oyster shell, the outer border as seen from above rounded, the posterior slightly crenate and curled up, the inner border concave and with a prominent black obtuse spine at the posterior angle; seen in profile this appendage is triangular, the base a little tumid and the apex slightly up curved. The inferior appendage very broad at base and tapering to a fine point, its posterior border slightly waved but in no wise angulated, the whole appendage directed obliquely upwards. Segment 10 with apical border U-shaped, deeply excavate and with three black tubercles in a line at each end of the limbs of the U-shaped border, the external tubercle larger and more spinelike.

*Habitat* : A single male, the holotype, from Elisabethville, III.36, collected by Charles SEYDEL. The combination of an elongate blood-red pterostigma with an oblique tapered inferior anal appendage without posterior angulation and with the apical border of segment 10 possessing tubercles form a complex possessed by no other species. The colouring of the abdomen rather resembles that of *C. cerinorubellum* FRASER but all other characters differ; the tuberculated 10th segment resembles *C. glabrum* (BURM.) but the latter has the tubercles grouped together to form a prominent tuberculated spine and its pterostigma is narrow, elongate and a pale golden yellow. The narrower and more elongate pterostigma is quite different from that of *C. sanguinostigma* which also differs in most other characters.

**Ceriagrion platystigma** FRASER — Fig. 2.

FRASER, 1941, *Proc. R. ent. Soc. Lond.* (B) 10 : 63, fig. A, 1, 2 and 4.

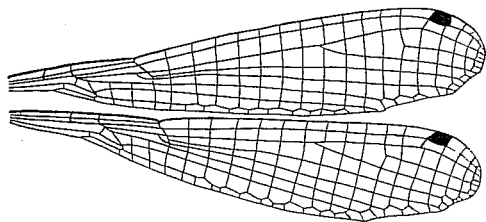


Fig. 2. — Wings of a specimen of *Ceriagrion platystigma* FRASER from Dakwa, Belgian Congo.

The type and allotype were described from specimens from Lake Victoria, Uganda and since then I have seen other specimens from other East African localities. Among the material from the Belgian Congo, I have found some twenty specimens of both sexes, so that the species is more widely spread than at first thought. Localities in the Belgian Congo are : Male and female from Tshuapa : Bamania, 1936, collected by R. P. HULSTAERT (3 males and 7 females); Uele : Bambesa, XII.37; VI-XI.38; III and V.39, 3 males and 6 females all collected by J. VRIJDAGH; Haut Katanga : Elisabethville, X.36, 3 pairs collected by Charles SEYDEL.

Also among the same material was a single defective *Coenagrion* with the end of the abdomen missing but very distinct by the posterior border of the wings shallowly notched as in the genera *Leptocnemis* and *Talocnemis*, the former from the Seychelles, the latter from Madagascar. I had provisionally named this as a new genus and species but a further examination has revealed many characters approaching those of *C. platystigma*. This has led me to reexamine the wings of the latter species and I find to my astonishment that its wings possess the crenulations, a character unique in the genus *Ceriagrion*. I do not think that this character of the wings is of sufficient importance as to require the removal of *platystigma* to a new genus, since the frons bears the characteristic ridge and the male anal appendages are of the shape characteristic to the genus *Ceriagrion*. A reexamination of specimens from Uganda shows that the crenulated condition of the wing borders is by no means constant and may be present only in the forewings or altogether absent; the species differs from others of the genus by its Platystictine pterostigma.

**Ceriagrion whellani** LONGFIELD

LONGFIELD, 1952, *Proc. R. ent. Soc. Lond.* (B) 21 : 42, fig. 2.

This species, which was first described from a Southern Rhodesian specimen, is now found to be moderately common in the Belgian Congo. Specimens have been collected from : — Eala, XII.37, by J. CHESQUIÈRE; Uele: Bambesa, in every month of the year by H. BRÉDO, P. HENRARD and J. VRIJDAGH, about 20 males and 3 females.

The species is to be especially determined by the very small and abbreviated angulated apex of the inferior anal appendages of the male and by the narrow superior appendage of the same length as the inferiors. Both *platystigma* and *whellani* are new additions to the Belgian Congo fauna.

**Ceriagrion corallinum** CAMPION

CAMPION, 1914, *Ann. Mag. nat. Hist.* (8) 14 : 279.

LONGFIELD, 1952, *Proc. R. ent. Soc. Lond.* (B) 21 : 43, fig. 1.

This species has already been reported from the Belgian Congo by Dr SCHOUTEDEN from Dima and Albertville; I am now able to augment these from about a score of specimens taken in the following localities : Uele : Bambesa, during every month in the year by J. VRIJDAGH and H. J. BRÉDO, a large number of males; Lomami : Kambaye, 1951, a male by P. QUARRÉ; Lulua : Kapanga, IX.33, a male by F. G. OVERLAET; Elisabethville, a male by J. BEQUAERT; Boma, XI.45, a male by J. VRIJDAGH;

Eala, IV.35, a female by J. GHESQUIÈRE : Uvira, a male by Ch. SEYDEL; Bunia, II.34, several males by J. LEROY.

**Ceriagrion glabrum** (BURMEISTER)

This common and wide-spread species is represented by numerous examples from many localities in addition to the long list given by Dr SCHOUTEDEN : Eala (J. GHESQUIÈRE), Uele : Bambesa (J. VRIJDAGH and P. HENRARD), Elisabethville (SEYDEL and BRÉDO), Moka (VRIJDAGH), Tshuapa : Bokuma (R. P. HULSTAERT), Kagera (M'Banghue) (BRÉDO), Soanolu (DARTEVELLE), Tshibaba (OVERLAET) and Uvira (SEYDEL). The measurements of these specimens varies widely, covering the largest and smallest recorded and so does not substantiate the Reinigan rule.

Genus **LESTES** LEACH.

**Lestes dissimulans** n. sp.

*Male.* Abdomen 29.5 mm. Hindwing 19 mm.

Head : Labrum, epistome and genae turquoise blue (now somewhat faded), rest of dorsum of head dark green metallic, occiput and beneath head glossy black. Prothorax black with some ill-defined metallic green spots on dorsum. Thorax bluish grey marked with dark green metallic bands, — broad antehumeral stripes separated by the pale middorsal carinal ridge, the outer border of the stripes very irregular, the upper fourth produced outwardly in the shape of a broad hook; a second expansion at the middle which is rounded and separated from the first expansion by a deep notch; below the second expansion the stripe becomes abruptly narrowed. A very broad posthumeral stripe extending posteriorly to slightly beyond the first lateral suture, blackish brown below but metallic green in its upper portion. A small diffuse blackish spot below the posthumeral band and another spot enveloping the spiracle. Lastly a stripe on the posterolateral suture which tapers below but expands above to become confluent with the posthumeral band anteriorly and extend posteriorly below the wing-root. Pectus with four black spots arranged in a quadrangle and with two long pyriform spots between them nearer the mid line. Legs bluish with broad black stripes, tarsi black. Wings hyaline, pterostigma blackish brown, paler along costal and distal borders, rather more than twice as long as broad, distal end vertical, proximal side oblique. 10 postnodals in forewings, 8 to 9 in the hind. Abdomen bluish grey marked dorsally with black, — segment 4 with a broad basal black spot, seg-

ment 2 with a broad stripe extending whole length of segment save for a narrow basal pale annule, and divided along its whole length by the pale yellow middorsal carina, segments 3 to 7 similar to 2 but band on the last segment broader apically, segment 8 entirely black except for small basal and apical blue spots seen very obscurely, segment 9 with its apical third blue, segment 10 black on dorsum, blue laterally. Anal appendages very similar to those of *L. simulans* MARTIN but the inner basal angulation poorly developed and is certainly not present as a well-defined spine; inferior appendages similar to those of *simulans*.

*Habitat* : A single male, the holotype from Dakwa, 9.VII.33, collected by J. LEROY. The species is very similar to *simulans* MARTIN but differs by the broad black and green metallic posthumeral band and by the absent basal spine to superior anal appendages.

Family **GOMPHIDAE**

**Paragomphus longiventris** n. sp. — Fig. 3.

*Male.* Abdomen 37 mm. Hindwing 25 mm. Pterostigma 4.0 mm.

Head : labium pale yellow; labrum yellow narrowly bordered in front and more broadly at the base with black; anteclypeus pale yellow, postclypeus blackish; frons greenish yellow with a broad band of black just below the crest and a narrow black border at its base adjacent the eyes; vertex and occiput black. Prothorax black with a small geminate spot of yellow on the dorsum of middle lobe. Thorax blackish brown marked with greenish yellow as follows, — a broadly interrupted mesothoracic collar, oblique antehumeral stripes narrowly pyriform in shape, tapering inferiorly where they fall well short of the mesothoracic collar; a narrow humeral stripe constricted at its middle, the sides greenish yellow traversed by narrow oblique black stripes on the two sutures and a streak of black along the lower border of metepimeron. Legs black, only the anterior pair of femora yellow on the flexor surface, short. Wings hyaline, costa yellow, venation otherwise black, 13 to 14 antenodals and 8 to 9 postnodals in forewings, 9 to 10 antenodals and 8 to 10 postnodals in the hind. Abdomen black marked with sharply defined yellow as follows - segment 1 yellow with only its base black, segment 2 with a bilobate middorsal stripe, the oreillets and the sides where it extends forwards on the apical border, segments 3 to 6 with basal and medial annules divided dorsally by the black carinal ridge, segment 7 with rather more than its basal half yellow, 8 entirely black,

9 with only a small basal spot on each side, 10 with its apical half yellow. Anal appendages yellow changing gradually to dark brown at the apices; superiors 2.75 mm long, inferior only about half that length; superiors separated at base, converging and again diverging towards the apices which are truncate and shallowly emarginate at apices but with the outer angle produced into a minute point.

*Female.* Abdomen 36 mm. Hindwing 31 mm. Pterostigma 4.5 mm.

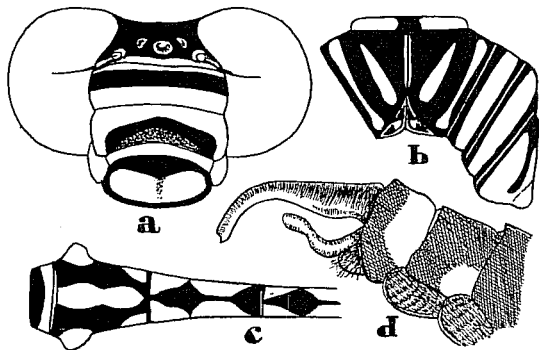


Fig. 3. — *Paragomphus longiventris* n. sp. — a, Head; b, Thoracic markings. (Diagrammatic); c, Basal segments of abdomen, dorsal aspect; d, Terminal segments of abdomen and anal appendages seen from the right side.

Similar to the male in the markings but the ground-colour a dark chocolate brown to almost black. The costa black (a dark ferruginous in two males and black beyond the nodus), venational details similar; one female has the wings evenly infuscated from old age, the others clearly hyaline: pterostigma black; segment 10 entirely yellow or with the base darkened in some.

*Habitat* : Bambesa, BELGIAN CONGO, all collected by J. VRIJDAGH on the following dates, — 27-28.VI.37; 21.II-III,38; IX.38 and V.39.

*Type*, allotype and all cotypes in the Musée du Congo Belge. This species is most nearly related to *P. atratus* (SELYS), the anal appendages being very similar but the inferior longer and the overall measurements much greater (Abd. 29 and hw. 24 in *atrata* as against abd. 37 and hw. 25 in *longiventris*). One male only has a basal incomplete antenodal in the right hindwing; the humeral stripe, in one pair, is interrupted

above and is greatly constricted at this level in all; in two males and three females the lateral black stripes tend to become confluent in their superior halves.

***Paragomphus abnormis* (KARSCH)**

*Onychogomphus abnormis* KARSCH, 1890, *Ent. Nachr.* 16 : 377.

1891, *ibid.* 17 : 72.

SELYS, 1892, *Ann. Soc. Ent. Belg.* 36 : 7.

A male from Bambesa, VIII.38, collected by J. VRIJDAGH differs from type in that the superior humeral yellow spot is absent on the thorax, otherwise its colouring and markings agree entirely with those I reported from the same locality in 1919 (*Rev. Zool. Bot. Afric.* 42 : 119). This specimen however has a basal incomplete antenodal in the right forewing only, whereas the type and paratypes have been found to possess this character in all wings (this character gives the insect its name). If my determination is correct and I think that there is no doubt about that, then the character is not entirely constant. The hindwing of this male is 22.5 mm, viz slightly shorter than in the type, in which it is 25 mm; size however is always variable and of little importance.

***Gomphidia bali* FRASER**

This species was described from three males from Gele and Lingu-nola, collected by A. BAL; the female which was unknown is represented now by a female from Bobey, I.VIII.35, collected by the same entomologist and a second from Tshuapa : Banya, 3.VIII.40, collected by the Rev. P. HULSTAERT.

*Female.* Abdomen 48 mm. Hindwing 36 mm. Pterostigma 5.25 mm.

Similar to the male in most respects but more robust; the characteristic brown streaks at the base of the wings extend to as far as the level of the 1st antenodal. There are 19 to 21 antenodals and 10 to 11 post-nodals in forewings and 14 to 15 antenodals and 13 postnodals in the hind. The markings are similar to those of the male except that the humeral stripe is broadly interrupted above; the middorsal yellow stripe on segment 2 is linear and complete and is continued on to the basal third of segment 3; there are also a pair of minute basal dorsal spots on segments 4 and 5. The occiput is shallowly concave, simple and black centred with yellow. The anal appendages are rather long and acuminate.

A male from Lupula, collected by P. HENRARD, IX.35, is very teneral and so the yellow markings are much more extensive, the whole labrum citron yellow save its anterior margin; there are two large yellow

spots on the vertex and the apical two thirds of segment 10 and the anal appendages are yellow.

The female from Bobey has been designated the *allotype*.

#### *Neurogomphus uelensis* SCHOUTEDEN

The female of this species was unknown and is here represented by a very teneral specimen with the abdomen pressed flat, from Eala, XII.34, collected by J. GHESQUIÈRE. The yellow markings are more extensive than in the male but this is probably on account of the teneral condition of the specimen. The humeral triangular spot is larger and the double Z-shaped marking more prominent. There are basal incomplete antenodals in the forewings only; 17 to 18 antenodals and 14 postnodals in the forewings, and 11 antenodals and postnodals in the hind. The pterostigma is a bright golden yellow. This female becomes the *allotype*.

#### *Notogomphus anaci* n. sp.

*Female* (Male unknown). Abdomen 45 mm. Hindwing 41 mm.

Head: Labium, face and frons of the holotype have been destroyed by attacks of *Anthrenus*. Occiput and vertex black, the latter sinuous but with the centre produced and minutely notched. Prothorax and thorax a dark blackish brown (discoloured by postmortem staining?) and only the metepimeron on the right side has retained its greenish yellow colouring; dorsally there appear to be parallel yellow stripes bordering the middorsal carina (as in many species of *Notogomphus*) and on the sides ill-defined evidence of three black oblique stripes. Of the four legs still present, the right hind femur extends to the apical end of segment 2 and has 4 very long spines in addition to the shorter ones. Abdomen black, obscurely marked with yellow, the greater part of segment 2 and base of 3; segment 7 with not quite the basal half yellow (other markings obscured by postmortem staining). Anal appendages black, shortly conical. Vulvar scale very short, deeply bifid into two triangular lobes less than half the length of segment 9. Wings hyaline, pterostigma 6 mm in length, ochreous between thick black veins, covering 6 cells; 17 to 18 antenodals and 14 to 15 postnodals in forewings; 11 to 12 antenodals and 14 postnodals in the hind.

*Habitat*: A single female from Bambesa, XII.37, collected by J. VRIJ-DAGH. It is so far the largest species of the genus known; I have placed it in *Notogomphus* on account of the thoracic markings and the armature of the legs but its size throws some doubt as to its generic position.

*Type* in the Musée Royal du Congo Belge.

### Family LIBELLULIDAE

#### *Notiothemis robertsi* FRASER

*Notiothemis robertsi* FRASER, 1944. *Proc. R. ent. Soc. Lond.* (B) 13 : 40 (Male and *T. jonesi* var. *auricolor* described).

The female of this species has not been described; there is a single female from Eala, collected by J. GHESQUIÈRE and two more males from Bomboma and Dongo, collected by A. BAL, all specimens during 1935, without further data.

*Female*. Abdomen 20 mm. Hindwing 24 mm.

As is usual in species belonging to the subfamily Tetratheminae, the two sexes are exactly similar in colour and markings, the only differences being in the sexual characters and the stouter and more robust build of the female; owing to the broader abdomen of the latter, the yellow markings are correspondingly broader. Venational details of this specimen do not differ in any marked way from those of the male.

*Distribution*: Central and East Africa. The type male now in my own collection was taken on the shores of Lake Victoria, Uganda; Mr E. PINHEY has since taken the species at W. Kampala, Uganda during May, 1952. The allotype female in the collections of the Musée Royal du Congo Belge.