

1. Grande taille : 25 mm. (Libéria) *lemur.*
- Petite taille : moins de 20 mm. 2.
2. Face dorsale de l'abdomen uniformément sombre, valves génitales des ♂ grêles (Congo, Gabon, Cameroun) *Collesi.*
- Face dorsale de l'abdomen varié de brun et de flave 3.
3. Valves génitales des ♂ grêles (Côte d'Ivoire, Guinée) *nutricula.*
- Valves génitales des ♂ spatuliformes (Cameroun) *Carayoni.*

Schidium bamoun n. sp. — Type : une ♀ ailée du Cameroun : Baïgom (Mus. Paris).

Long. 13 mm. — Flave avec les côtés de la tête et du thorax bruns, deux lignes sur la tête, la ligne médiane du pronotum, des lignes sur le mesonotum légèrement rembrunies mais presque indistinctes. Abdomen varié de flave et de rouge. Pattes fauves avec de petits anneaux blanchâtres.

Tergite VIII de la femelle court, fortement rétréci à l'apex, celui-ci avec une saillie médiane triangulaire flanquée de deux apophyses longues, étroites et convergentes.

Cette espèce se distinguera des autres espèces ailées de l'Afrique noire française à l'aide du tableau suivant :

1. Face dorsale de la tête et du pronotum avec des bandes longitudinales foncées, bien marquées (Congo, Gabon) *Haugi.*
- Face dorsale de la tête et du pronotum sans bandes longitudinales ou des bandes indistinctes 2.
2. Milieu du bord apical du tergite VIII des ♀ avec une saillie triangulaire (Cameroun) *bamoun.*
- Milieu du bord apical du tergite VIII échanuré 3.
3. Long. 17 mm. Bord interne des saillies apicales du tergite VIII des ♀ angulé. Echanerure médiane très profonde (Côte d'Ivoire, Guinée) *assinienis.*
- Long. 13-14 mm. Bord interne des saillies apicales du tergite VIII des ♀ sinué. Echanerure médiane très faible (Guinée) *Lamottei.*

1949

Gomphidae from the Belgian Congo (Order *Odonata*)

by Lt. Col. F. C. FRASER, I. M. S. Retd.

The exact position of the family Gomphidae in the Order Odonata is extremely doubtful : whilst many species show evidence of high specialisation, the widely separated eyes and the incomplete fusion of the inferior anal appendages of the males, align them with the *Zygoptera*. The widely broken character of the distribution of species belonging to many genera again serves to emphasize the archaic nature of the family and this is strikingly illustrated in the distribution of the Gomphidae of the Belgian Congo.

Dr H. SCHOUTEDEX has dealt adequately with this family in the Cat. Faune Ent. Congo Belge (*Ann. Musée Congo Belge*, 1934, Zool. Ser. III, II), but only as part of the whole Odonate fauna of the region. In this work he lists 10 genera and 30 species but, in the light of further material, I believe that some of these are synonyms. The present paper is concerned purely with the Gomphidae and is limited to descriptions and notes made on some 145 specimens sent to me for study by Dr SCHOUTEDEX to whom my best thanks are due. The material is the property of the Musée du Congo Belge and types and allotypes will be found in that Institution.

The affinities of the Ethiopian Gomphidae with the Oriental had been previously limited to the two genera *Ictinogomphus* COWLEY and *Paragomphus* COWLEY but this relationship is now broadened by the discovery of species among the new material before me, belonging to the genera *Microgomphus* SELYS and *Gomphidia* SELYS, genera which had always been regarded as purely Oriental in character and distribution. The present writer has collected species belonging to both genera for over a decade and has always found them to be remarkably local and restricted in their distribution, so that to find species as far

removed as Central Africa comes as a great surprise. How such a connection was made and for how long it has endured it is impossible to say but must have been long before the formation of the arid desert regions now stretching across Northern Africa and Central Asia, these offering impassable barriers for the spread of insects accustomed only to a habitat of moist hot jungles. The nearest Oriental species of these two genera to the African coast are to be found in the Western Ghats of India, a distance of over 2000 miles of ocean intervening and forming a barrier to migration as impossible as the desert regions of the north. It is necessary to say that Wegener's theory of floating continents might serve to explain the distribution of these ethiopi-oriental genera if we postulate that their main characters have remained largely unchanged since eocene times, for the distance then separating the shores of India from Africa would have been negligible as regards the possibility of migration from one continent to the other.

I have great pleasure in dedicating the first African Microgomphine to Dr H. SCHOUTEDEN.

SYSTEMATIC.

FAMILY GOMPHIDAE

Subfamily 1. ICTINOGOMPHINAE FRASER.

Numerous cross-veins between the sectors of arculus in forewings proximal to the forking of the superior sector: more than 2 cross-veins in the hindwings; all triangles crossed, the subtrigone of forewing 2 or more often, 3-celled.

Genus ICTINOGOMPHUS COWLEY.

Ictinogomphus ferox (RAMBUR).

Ictinus ferox RAMBUR, 1842, *Ins. Nérop.*, 172; — SELYS, 1854, *Bull. Acad. Belg.* (2), XXI: 86; SELYS, 1857, *Mon. Gomph.*, 288; — CAMPION, 1923, *Ann. Mag. Nat. Hist.* (9), 12: 671.

Material examined: 1 male and 2 females, Iswa (Lac Albert), I-13. IX.34: 4 males, Mahagi Post, XI.34: 2 males, Tsina (Lac Albert), VI.34: 2 males and 2 females, Kasenji (Lac Albert), VI.35, all. coll. (H. J. BRÉDO); 3 males, Tang, Terr. N.39 (A. P. CONRADI); 1 male, Lisala, 1934 (Dr TABACCO); 1 female, Entebbe, Uganda, 21.IX.37

(H. J. BRÉDO); 1 female, Kilo: Kere-Kere, without date (Dr TURCO): 1 male, Bambesa, 28.V.37 (J. VRIJDAGH) and 1 female, Kattenji, VIII.34 (J. LEROV).

None of the specimens differ to any extent from the type. My own specimens exhibit transitional forms between *ferox* and *pugnax* SELYS, so that I am of opinion that the latter is synonymous with the first. CAMPION (loc. cit.) appears to have thought that the type of *ferox* was in the Selysian collection as he states that M. SEVERIN had informed him that the type could not be found in the Brussels Museum collection: actually the type is in the Paris Museum where SELYS himself stated it to be. The type of *pugnax* is in the Hope collection, Oxford University, and it differs only from *ferox* by the black at base of frons above confluent with that on the crest, a condition which is however not uncommon in *ferox*, especially in the females.

Ictinogomphus Regis-Alberti (SCHOUTEDEN). (Figs. 1 and 19, 5).

Material examined: 3 males, Ebuku, I.IX.35; 3 males, Bomboma, 8-29.IX.35 and 1 male, Bambesa, VI.38, coll. MM. A. BAL and J. VRIJDAGH, 2 males, Lingunda, 25.IV.35 (A. BAL).

This species was hitherto known from a single incomplete female and is, as its author claimed, an insect of magnificent size and colouring. It is easily distinguished from *ferox* by its darker colouring, more graceful build and the six yellow stripes on each side alternating with black ones. The male has not been described.

Male. Abdomen 58-60 mm. Hindwing 48-50 mm. Pterostigma 6 mm.

Head: labium bright chrome yellow: labrum black with a rectangular yellow spot on each side: anteclypeus citron yellow, postclypeus black on its lower half, bright citron yellow for the upper half: frons broadly black in front and again at base above, a medial narrow prolongation from the latter meeting the black in front so as to cut the greenish yellow above into two transversely elongate spots: bases of mandibles yellow, the free and inner border sinuously black. Vertex black, occiput bright chrome yellow narrowly bordered with black along its strongly arched free border. Behind head glossy black bordered broadly with citron yellow against the eyes and with a minute round isolated yellow spot at the middle height.

Prothorax black with a large oval yellow spot on each side: pterothorax black marked with citron yellow or green as follows: - 6 yellow stripes on each side, and a very slightly interrupted mesothoracic collar in front: antehumeral stripes short, oblique and strongly divergent below where they narrow and are widely separated from the collar.

a small spot on the anterior part of the antealar sinus, narrow juxta-humeral stripes clubbed above, then narrowing and again widening where they are continued on to the mesinfraepisternum, 2 narrow stripes on the mesepimeron, the posterior of which is incomplete above the level of the spiracle, a broad oblique stripe over the centre of the metepimeron and finally a narrow bordering of the posterior edge of the same part. Black beneath thorax marked with two large triangular yellow spots posteriorly which just meet at a point medially.

Wings similar to the female in venational details save that the discoidal field of forewing has only 2 rows of cells at the beginning

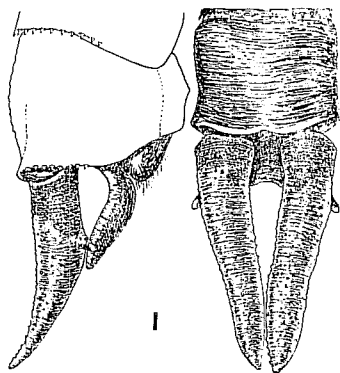


Fig. 1. — Anal appendages of male *Ictinogomphus Regis Alberti* SCHOUTEDEN, lateral and dorsal aspects.

instead of 3 (This is however subject to variation in the female). Legs black, the bases and flexor surfaces of femora yellow. Abdomen black marked with citron yellow as follows: - segment 1 with a narrow apical band confluent with an oblique band which passes towards the base: segment 2 with a narrow apical band interrupted laterally posterior to the oreillets, and a lanceolate longitudinal stripe on middorsum: segments 3 to 6 with paired basal triangular spots occupying about one fourth the length of segments and notched on middorsum: that on segment 3 confluent laterally with a creamy white, conspicuous spot on

each side: 7 with about the basal half yellow but the marking produced slightly along the middorsum and also laterally towards the apex of segment: 8 with a narrow basal ring, 9 with basal and apical spots, 10 immaculate. Anal appendages black but the superiors citron yellow for the apical four fifths: superiors cylindrical, tapering to a point especially as viewed in profile, where the apex is seen to be slightly upturned: laterally a short nipple-shaped spine is seen just basal to the midpoint of appendages directed ventrally and slightly laterally but not visible from the dorsum. Inferior appendage about half the length of superiors, broadly and shallowly emarginate, the two branches widely splayed and curving up to meet the superiors. Penis shaped closely similar to that of *I. ferox* but without the ventral spine to the glans.

Habitat: West and Central Africa. In addition to the specimens mentioned at the head of this description, I have examined a second female in the British Museum collection bearing a label « West Africa » without further data (and undetermined at the time of my examination). The shape of the penis, closely resembling that of *ferox*, separates this species from the Oriental section of the genus and indicate a long separation of the African species from the parent stock. It is a much darker, more elegantly built insect than *ferox* and is especially to be distinguished by the 6 yellow stripes on each side of the thorax alternating with 6 black ones. The type is a female in the Musée du Congo Belge.

Genus **GOMPHIDIA** SELYS (Fig. 8).

Dr SCHOUTEDEN when describing his new species *Diastatomma bredoi* and *quarrei*, and probably also *sjostedti*, noted that they differed from the genotype *bicolor* SELYS by the subpterostigmal cells being of the same size as those immediately posterior to themselves, and that the superior anal appendages were simple and unbranched. It may also be said that the inferior appendage was well formed, although almost obsolete in the genotype. On account of these differences, he split the genus *Diastatomma* into two sections. There are examples of *bredoi* in the present collection, and I possess a single female of *quarrei* in my own collection. When examining these I was struck by their close resemblance to the oriental Gomphidias: I therefore removed and examined the penes when it at once became evident that these species were actually *Gomphidias*, the highly specialised watch-spring apex of the penile organ being unmistakable and quite unlike the blunt simple form found in genus *Diastatomma*.

The genus *Gomphidia* is much more closely related to *Ictinogomphus* than to *Diastomma* and differs from the former by the absence of lateral foliations to segments 8 and 9 of the abdomen and by the superior anal appendages compressed instead of cylindrical. It differs from the latter by the presence of a well-developed inferior anal appendage, by the superior anal appendages unbranched and by the character of the cells beneath the pterostigma, which are not smaller and more numerous than the row immediately posterior to themselves. The genus differs from both by the highly characteristic shape of the penis (fig. 8) which has two long flagellae like curled watch-springs at its apex. All the African species differ from the oriental ones by a greater number of yellow stripes to the thorax. Genotype: *Gomphidia T-nigrum* SELYS. Distribution: Oriental and Ethiopian.

Gomphidia bali n. sp. (Figs. 2, 8 and 19, 12).

Male. Abdomen 50 mm. Hindwing 34 mm. Pterostigma 5 mm.
Head: labium bright citron yellow: labrum black with a small

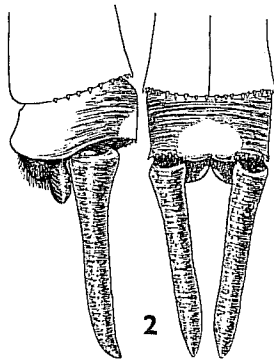


Fig. 2. — Anal appendages of male *Gomphidia Bali* n. sp., dorsal and left lateral aspects.

rounded spot of yellow on each side: anteclypeus bright yellow, post-clypeus black with a large bright yellow spot on each side: frons broadly citron yellow above and in front, its base black up to halfway

to crest: vertex and occiput black but the latter with a large central yellow spot. Prothorax black, unmarked. Pterothorax black marked with citron-yellow as follows: - a complete rather broad mesothoracic collar, elongate rectangular antehumeral spots converging above, diverging below and well separated from the collar: juxta-humeral interrupted stripes consisting of a small upper triangular spot and a short stripe below which may also be broken up into two isolated spots: laterally 3 yellow stripes, one on the mesepimeron closely parallel to the humeral suture, a medial slightly anterior to the postero-lateral suture and a third much broader centred on the metepimeron. Legs black, femora dark reddish at base. Wings hyaline with dark brown rays at base projecting into the subcostal and cubital spaces and confluent at base, extending outwardly as far as the 1st antenodal and the Cuq: membrane brown: base of wings deeply incised, with projecting tornus: pterostigma black, narrow: nodal index. $\frac{10-19}{11-14} | \frac{19-11}{14-12}$: anal triangle

5-celled: triangles 4-celled: subtriangles 2-3 celled: 2 Cuqs in all wings: hypertrigones crossed 3 times in forewings, twice in the hind: 5 rows of cells in anal field. Only 6 cells beneath pterostigma. Abdomen black, segment 1 with a small middorsal and a very large lateral yellow spot, segment 2 with the orcillets yellow, as well as a narrow middorsal stripe tapering posteriorly and usually slightly interrupted, segments 1 and 5 with small lateral basal spots, 6 without yellow markings, 7 with its basal half yellow, 8 and 9 black, 10 black with a conspicuous bright yellow spot situated on the sloping apical portion of dorsum. Anal appendages: superiors twice as long as segment 10, cylindrical, a little tumid at base, nearly parallel-sided thereafter but tapering sub-apically as far as apex which is very slightly upturned, black. Inferiors very short and vestigial, small oval nipple-like processes about one sixth the length of superiors. Female unknown. Genitalia, including penis, hardly distinguishable from that of *Gomphidia T-nigrum* SELYS.

Habitat: 3 males, Gele, Belgian Congo, 9.II.35, 9.III.35 and 29.XI.35, and 1 male, Lingunola, Belgian Congo, 25.IV.35, all collected by A. BAL. This new species closely resembles *Gomphidia bredoi* (SCHOUTEDEN) and *Gomphidia quarrei* (SCHOUTEDEN) and is distinguished from both by the interrupted juxtahumeral stripes and presence of blackish brown rays at bases of wings, the latter enabling them to be distinguished at a glance. I have examined the penes of all three species and find that all closely resemble the highly characteristic one of *G. T-nigrum* SELYS (Fig. 8). *Type* in the Congo Belge Museum, Tervueren.

Gomphidia bredoi (SCHOUTEDEN) (Fig. 3).

Diastatomma bredoi SCHOUTEDEN, 1934, *Ann. Mus. Congo Belge. Zool. Ser. 3*, 2 (Cat. Raison. Faune Ent. Congo Belge), 3, 1 : 56.

Material examined : 1 female (without abdomen), Bambesa, 10.X.37, (J. VRIJDAGH) : 1 male, Bomboma, 13.IX.35 (A. BAL) : 1 male, Lingunda, 25.IV.35 (A BAL) : 1 female, Bambesa, VII-VIII.34 (H. J. BRÉDO) : 1 male, Ebuku, 1.IX.35 (A. BAL).

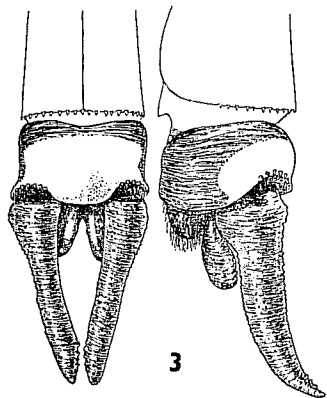


Fig. 3. — Anal appendages of male *Gomphidia Bredoi* (SCHOUTEDEN). dorsal and left lateral aspects.

These specimens agree well with the original description by Dr SCHOUTEDEN but also include his *D. aberrans*, some males having the aberrant *ti* in the hindwings made up of 3 cells and some possessing a single celled *ti* on one side, whilst that on the other is 3-celled. It is thus évident that *D. aberrans* is not more than a simple venational variation of *D. bredoi*. The penis resembles that of *G. T-nigrum* SELYS.

Gomphidia quarrei (SCHOUTEDEN) (Fig. 4).

Diastatomma quarrei SCHOUTEDEN, 1934, loc. cit. 57.

Material examined : 1 male, Lulua Riv. Kapelekese, XI.33 (G. F. OVERLAET); 1 female, Uganda, 1927 (G. H. CARPENTER).

The female is rather teneral but agrees in markings and venational details with the type male in the Museum Congo Belge, which was hitherto the only known specimen. The formation of the penis leaves no doubt as to its correct place in the genus *Gomphidia*.

Genus **DIASTATOMMA** BURMEISTER (Fig. 9).

The authorship of the genus belongs to BURMEISTER although this author included several other genera under the name. With the subsequent weeding out of the latter, the name was finally reserved for *Aeshna tricolor* BEAUVOIS. « BEAUVOIS » mentioned as the author of the genus by Dr SCHOUTEDEN is an obvious lapsus calami for « BURMEISTER ».

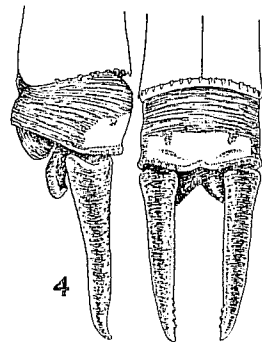


Fig. 4. — Anal appendages of male *Gomphidia Quarrei* (SCHOUTEDEN). left lateral and dorsal aspects.

The genus is here reserved for those species in which the superior anal appendages possess a long internal branch, the inferior anal appendage is obsolete, the cells beneath the pterostigma are smaller and more numerous than in the adjacent space and, lastly, the penis has a simple, hooded, non-flagellated apex. I have seen only two species, both of which are included in the present collection. *D. selysi* SCHOUTEDEN and *D. multilineata* n. sp. Both of these differ from *tricolor* (BEAUVOIS) by the antehumeral stripes widely separated from each other and from the mesothoracic collar, and from *bicolor* SELYS by the presence of a narrow juxtahumeral stripe. *D. selysi* and *multilineata* are very closely

related, but the former has the inner branch coming off obliquely from the main stem and thus forms more than a right angle with it, whilst *multilineata* has the branch coming off at a right angle as in *tricolor*. These points will serve easily to differentiate the four species.

Diastatomma Selysi SCHOUTEDEN (Figs 6 and 9).

Material examined: 7 males and 5 females as follows: 4 males and 2 females, Bambesa, VII.34 (J. LEROY): 2 females (var. *aberrans*), Eala XII.34 (J. CHESQUIÈRE): 1 male, Bambesa, VIII.38, 1 female, VI.37 and 1 male, Bambesa, 19.XI.37 (J. VRIJDAGH): 1 male, Lulua: Kapanga X.33 (G. F. OVERLAET).

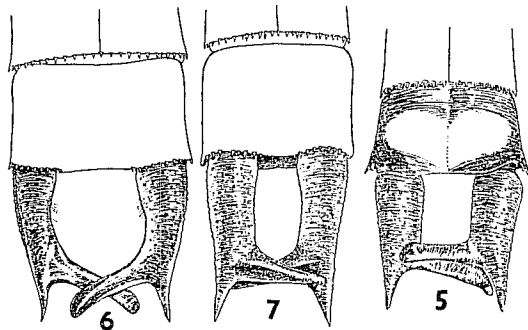


Fig. 5. — Anal appendages of male *Diastatomma soror* SCHOUTEDEN, dorsal view.
 Fig. 6. — The same of *Diastatomma Selysi* SCHOUTEDEN.
 Fig. 7. — The same of *Diastatomma multilineata* n. sp.

As stated above, some of these specimens exhibit different venation in the opposite wings, one being typical, the other as in the aberrant form *aberrans* SCHOUTEDEN. All have been determined by the character of the branch of the superior anal appendages which continues obliquely inwards the direction of the stem of the appendages instead of coming off at a right angle.

Diastatomma soror SCHOUTEDEN (Figs. 5 and 19, 13).

Diastatomma soror SCHOUTEDEN, 1934, *loc. cit.* 59.

Material examined: 3 females, Tshibalaka, Lutui, 16.X.33 (G. F.

OVERLAET): 1 female, Luashi, XIII.33 (FREYSE): 1 male, 1 female, R. Luiza, 16.X.33 and 1 female, Kapele Kere, 15.XI.33 (G. F. OVERLAET).

Dr SCHOUTEDEN'S excellent description leaves no doubt about the determination of this male and the relationship of the females. The male type was from Pange: 1,25 and, up to the present time, was the only specimen known: the female, hitherto unknown, is now described below. The male agrees closely with the description of the type but the middorsal hour-glass shaped yellow stripe on segment 2 extends the whole length of segment and at the apical border becomes confluent with the lateral yellow, thus enclosing two subdorsal black stripes which are deficient apically.

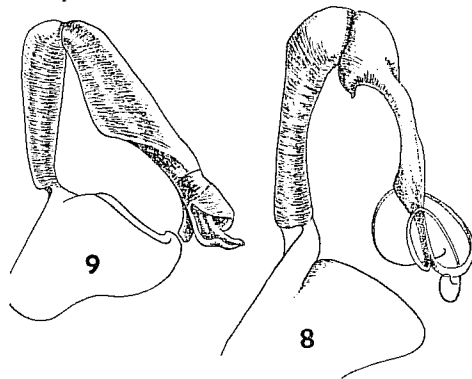


Fig. 8. — Penis of *Gomphidia Balli* n. sp. (Resembles also *G. T. nigrum* SELYS).
 Fig. 9. — Penis of *Diastatomma Selysi* SCHOUTEDEN.

Female. Abdomen 42 mm. Hindwing 38 mm.

Differs from the male in the following particulars. Lateral lobe of labium entirely citron yellow, only the middle lobe narrowly bordered with black. All bright markings are vivid citron yellow or pea-green. Behind the head is bright citron yellow with the eyes narrowly and irregularly bordered with black, this enclosing an oval yellow spot behind the occiput: the latter strongly arched and narrowly emarginate at its centre. Prothorax dull black. Thorax entirely similar to the male, with the triangular area enclosed between the antehumeral stripes and the mesothoracic collar black, and the latter bordered anteriorly

with the same colour as also the antehumeral stripes posteriorly. The lateral green stripes are also bordered anteriorly and posteriorly with black, the remaining areas being chestnut or mahogany red. The femora are of a similar castaneous colouring save the distal ends and a row of short robust spines which are black. Wings: costa bright citron yellow to as far as the pterostigma which latter is dark reddish brown between stout black nervures: venation otherwise reddish brown. Nodal index rather variable.

11-18 | 18-12 | 10-17 | 15-10 | 10-17 | 17-10 | hts $\frac{3}{3} | \frac{3}{2}$;
11-13 | 13-11' | 9-11 | 11-10' | 13-12 | 11-10

sts, in one specimen 2-celled in left forewing, 3-celled in the right, but 2-celled in all other wings. Abdomen greenish yellow marked with black as follows. - segment 1 similar to the male, segment 2 with narrow irregular subdorsal black stripes deficient apically, narrower than in the male and enclosing an irregular lanceolate middorsal yellow stripe: segment 3 with a broad middorsal black stripe, diffuse and poorly marked basal to jugal suture but well defined thereafter and formed as a long triangle with its base resting on the apical border of segment: segments 4 to 6 with thick dorsal black stripes not quite extending to base of segments and expanding triangularly at apices of segments: segment 7 with its apical half black, this tapering basally to as far as the jugal suture, leaving the sides broadly yellow: 8 and 9 broadly black, marked on each side with a 7-shaped yellow spot, broadest on segment 8: segment 10 entirely greenish yellow save for a very narrow basal border of black. Anal appendages black, conical, as long as the segment, separated by a yellow conical protuberance.

This very beautiful species resembles *Megalogomphus superbus* FRASER in its unusual colouring of green, black and reddish. The female from Kaple Kere becomes the allotype.

Diastomma multilineata n. sp. (Figs. 7 and 19, 14).

Male. Abdomen 46 mm. Hindwing 37 mm. Pterostigma 5 mm.

Head: labium greenish yellow, middle lobe finely bordered with black: labrum black with two oval yellow spots converging anteriorly: anteclypeus yellow, postclypeus black with a large triangular yellow spot on each side: frons greenish yellow, its lower part in front black and confluent with the black of postclypeus: bases of mandibles citron yellow: vertex black, occiput green, its posterior border raised and bordered finely with black: behind head dark reddish brown with a large diffuse yellow spot outwardly which is centred by a small black spot. Prothorax black: pterothorax black marked with greenish yellow

as follows: - a complete broad mesothoracic collar, rather narrow antehumeral stripes squared above, pointed below but well separated from the mesothoracic collar: narrow and rather sinuous humeral stripes broadened above and below, a medial spot in the antalar sinus, 3 narrow lateral stripes, an anterior on the mesepimeron, a medial bordering the postero-lateral suture and curving forwards below the thoracic spiracle and a third centred on the metepimeron, making a total of 5 stripes on each half of the thorax. Abdomen black (Colours largely lost from postmortem decomposition), segment 1 yellow laterally, segment 2 with the ventral border yellow, 3 with a basal yellow ring, very narrow on dorsum but broadening laterally and below to extend to about half the length of segment, 7 with the basal half yellow but this extending laterally nearly to apical end of segment, 8-10 apparently black. Anal appendages black: superiors slightly longer than segment 10, elongately triangular with the apex tapered rather abruptly and acutely: from the inner side of the appendage subapically a long flattened branch projects at right angles to the stem of the appendage and overlaps the similar branch of the opposite appendage, ending in a bevelled point. In profile these appendages are also elongately triangular with the apical end turned slightly upward in a gentle curl and with the inner branch just showing as a fine spine. Inferior appendage vestigial, a mere transverse ridge which is hardly discernible. Wings hyaline, evenly enfumed but the colour gradually deepening towards the apices and posterior border: pterostigma black to blackish brown, covering 10 cells and the latter followed by a row of 7-8 cells: in the hindwing covering about 9 cells and the latter covering some 7 cells. Nodal index $\frac{13-21 | 21-14}{13-14 | 16-15}$: the 1st and 8th the primary ante-

nodals: *Cuqs* $\frac{5 | 4}{3 | 3}$: *hts* 3 in all wings, triangles 4-celled, *sts* $\frac{3 | 3}{2 | 1}$: anal triangles 6-celled, anal loop 4-celled, 5 rows of anal field cells, anal vein pectinate.

Female. Abdomen 48 mm. Hindwing 41 mm.

Much more robust than the male and differing in a few respects. Yellow markings generally more extensive: two small basal spots to labrum situated medially to the lateral oblique spots, lateral spots of postclypeus much larger. Occiput with central part of border raised and minutely emarginate. Segment 2 with a middorsal yellow stripe. (This is probably present in the male also but obliterated in the present specimens). Legs reddish brown but distal ends of femora, the tibiae and tarsi black. Anal appendages shortly conical, with pointed apices, black. Vulvar scale as long as segment 9, narrow, deeply cleft

into 2 narrow prong-like branches which lie closely parallel. Venation of wings differs in only minute particulars and not exceeding the variations normally met with in the males themselves.

Habitat: 2 males, Butu Liti, 22-28.VII.35 (A. BAL): 1 male, Butu Bombenga, 16.VIII.35: 1 male, Lingunola, 8.IV.35: 1 female, Bomboma, 22.IV.35: 1 male, Gele, 9.XI.35 (A. BAL). This species closely resembles *D. selysi* SCHOUTEDEN in its markings but differs by the branch of the superior anal appendages coming off at a right angle as in *D. tricolor* (BEAUV.).

Subfamily 2. **EPIGOMPHINAE** WILLIAMSON.

Numerous cross-veins between the sectors of arculus in forewings proximal to the forking of the superior sector: more than 2 cross-veins in the hindwings in this same space: all triangles free of cross-veins. (Only one African genus, viz, *Microgomphus* SELYS).

Genus **MICROGOMPHUS** SELYS.

Microgomphus SELYS, 1857, *Mon. Comph.* 100. — SELYS, 1859, *Bull. Acad. Belg.*, (2) VII: 533. — LAIDLAW, 1922, *Rec. Ind. Mus.*, 24: 380. — FRASER, 193, *Fauna Brit. Ind. (Odonata)*, 2: 351.

Small slender Comphines coloured black marked with green or citron yellow: arboreal by nature. Wings with all triangles entire and without basal subcostal antenodals. Superior anal appendages with a long slender inner branch converging on and meeting the branch from the opposite appendage: inferior appendage rectangular with apex more or less bifid. Genotype: *Microgomphus chelifer* SELYS.

Distribution: Hitherto restricted to the Indo-Malayan region and Sondaic Archipelago but now extended to Africa.

Microgomphus Schoutedeni n. sp. (Figs. 10 and 19, 1).

Male. Abdomen 27 mm. Hindwing 22 mm. Pterostigma 2-2,25 mm.

Head: labium yellowish at base changing to blackish brown at apical border: labrum glossy black with an obscure greenish yellow spot on each side: anteclypeus pale green, postclypeus and lower part of frons in front glossy black, the crest of frons pale green: rest of head black. Occiput deeply concave, fringed with short black hairs. Prothorax uniform dark purplish brown. Pterothorax dark reddish or purplish brown marked with green or citron yellow as follows: - a complete or slightly

interrupted mesothoracic collar: short antehumeral stripes broadly divergent below where they are widely separated from the collar, converging above but not meeting the antealar sinus, which latter bears a small oval spot in its floor: two moderately broad lateral stripes, an anterior a little posterior to the humeral suture, broadening inferiorly to as far as the coxae and covering most of the mesepimeron, and a posterior covering the posterior three fourths of the metepimeron. Legs black, rather long, the hind femora extending to the middle of segment 2 and bordered with a row of closely-set, gradually lengthening

spines. Wings hyaline: nodal index variable $\frac{11-14}{11-10} | \frac{14-9}{9-9} | \frac{8-14}{10-10} | \frac{14-9}{10-10}$
no basal incomplete antenodals: the 1st and 4th or 5th the primary antenodals: 1 *Cu₁* to all wings: anal-loop obsolete: anal-triangle 3-rel-

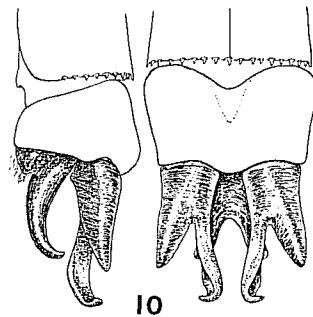


Fig. 10. — Anal appendages of male *Microgomphus Schoutedeni* n. sp., seen from the left side and dorsum.

led: pterostigma dark brown between thick black veins, braced, covering 3½-4 cells: tornus rightangled. Some wings show slight yellow rays in the subcostal and cubital spaces. Abdomen black marked with citron-yellow (the most adult male is chalky white with pruinescence beneath thorax to as far as the base of segment 3): segment 1 greenish with a narrow transverse subapical black line: segment 2 has two large spots at the sides, the anterior of which includes the large rounded oreillet. Dorsally a narrow lanceolate stripe is seen broadening apically and meeting a short transverse mark at the jugal suture: segments 3-7 with narrow basal annules, covering about one sixth of the segments

but increasing to about one third on segment 7. Superior anal appendages pale green, as long as segment 10, broad at base, conical, divaricate, keeled above from base to pointed apex: within, a long narrow branch springs, arising well away from base of appendage and directed obliquely medially so as to converge on the branch from the other appendage: the apices of these branches spoon-shaped, hollowed out on the outer side and with the point of apex curled strongly over and outwards (Fig. 10). Inferior appendage glossy black, cleft for about its apical half into two short branches which are slightly divaricate and obtuse at apex.

Female. Abdomen 26 mm. Hindwing 24 mm. Pterostigma 2.5-2.75 mm. Closely similar to the male in colour and markings (but rather obscure in the sole female due to postmortem changes): mesothoracic collar complete: basal yellow annule of segment 7 less than one third the length of segment. Occiput of similar shape to the male: hind femora rather longer and the spines coarser, less numerous and therefore more widely-set. Wings distinctly tinted with yellow at base: nodal index — 9-14 | 15-11; 2 *Cuqs* in forewings, 1 in the hind. Anal appendages 9-10 | 11-10; black, shortly conical. Vulvar scale short, about half the length of segment 8, deeply cleft for quite half its length, the two branches narrow and parallel.

Habitat: 1 male from Kapanga, Belgian Congo, XI.32, coll. G. F. OVERLAET; 1 male and 1 female, Bambesa, V.38, coll. J. VRIJDAGH. This is the only representative of the genus known from African limits, so that its small size and conspicuously branched appendages should easily distinguish it. The anal appendages are rather similar to those of *M. loogali* FRASER from Burma, but in this latter, the antehumeral stripes are broadly confluent with the mesothoracic collar and the inferior anal appendage is only shallowly notched. (In my description of *M. loogali* (*Fauna Brit. Ind. Odonata* 2: 360) I stated that the inferior anal appendage was triangular but this is correct only as the appendage is viewed from the side: viewed dorsally, it is as in *Schaubedeni* rectangular but with the apical border only shallowly concave.)

Subfamily 3. **GOMPHINAE** WILLIAMSON.

Only 2 cross-veins between the sectors of arculus in forewings proximal to the forking of the superior sector: only a single cross-vein (rarely 2) in this same space in the hindwings: usually all the triangles free of veins (always in the case of the Ethiopian genera).

Genus **PARAGOMPHUS** COWLEY.

- Orychogomphus* SELYS (pars), 1854, *Bull. Acad. Belg.*, (2), XXI, 30.
Lindenia KIRBY, 1890, (pars), *Cat. Odon.*, 57.
Mesogomphus FORSTER, 1906, *Jahrb. Nassau. Ver. Naturk.*, 59, 323
 (proc. by *Mesogomphus* HANDLIRSCH, 1906 (*Fossil Ins.*, 592)).
Paragomphus COWLEY, 1931, *Entomologist*, 67, 201.
 Genotype *Gomphus cognatus* RAMBUR.

Paragomphus cognatus (RAMBUR).

Material examined: 1 male, Kasenji, 1933 (J. LEROY): 1 male, Bambesa, XI.34 (J. LEROY): 1 female, Lubumbashi, 2.X.34 (CH. SEYDEL): 1 female, Bambesa, VIII.38 (J. VRIJDAGH): 1 female, Lac Albert, Iswa, 1935 (H. J. BREDO): 1 female, Thepaza, III.34 (G. F. OVERLAET).

A widely spread and common species but which I have found is much more common further south in the continent, large numbers having reached me from Limbe. It differs broadly from other species by the irregular nature of the lateral markings of thorax.

Paragomphus elpidius RIS.

Material examined: 1 male, Kapanga, XI.32 (G. F. OVERLAET): 1 male, Kapanga, Mwene Ditu, I.V.33 (CH. SEYDEL).

The characteristic broad pale markings on the dorsum of thorax leave no doubt about the identity of these two specimens. The antehumeral stripes are confluent medially for their upper halves which curve outwards and are nearly confluent with a narrow juxta-humeral stripe on each side. Laterally the markings are of a very much reduced type of the markings in *cognatus*.

Paragomphus sp.

There is a very teneral male from Lulua Kapanga, VI.33, collected by G. F. OVERLAET, which bears some resemblance to *P. moka* LONGFIELD, but which I hesitate to identify with certainty on account of the poorly developed markings and the somewhat distorted anal appendages.

Paragomphus sp.

This specimen is a female from Bambesa, collected by M. HENRARD, -V.39. The general colouring is sandy with dark brown markings: the antehumeral stripes are deficient in the upper third, the humeral stripes in their lower half, whilst laterally the only markings visible

are dark points on the spiracle. The prothorax is sandy yellow laterally, dark reddish brown dorsally and with the posterior lobe broadly crenate. The legs are sandy yellow but all tibiae and tarsi conspicuously black. The wings are hyaline and untinted, pterostigma ochreous between black nervures and covering about 5 cells: there are 13 antenodals and 10 postnodals in the forewings, and 10-11 antenodals and postnodals in hindwings. The abdomen is sandy yellow marked with dark brown but is much discoloured from decomposition. - segment 2 has 4 short dark lines, the basal pair horizontal, the apical oblique: segments 3-7 appear to be yellow with the middorsal carina, jugal sutures and apical rings black: segments 8-10 dark reddish brown on dorsum paling to yellow laterally but with the foliations on 8 and 9 black. The vulvar scale is minutely triangular and deeply notched at apex. The specimen is much like *rusticatus* FRASER but it has a higher nodal index and the tibiae are black.

Paragomphus hageni SELYS?

A female from Kilo Kere-Kere, collected by Dr TURCO, without date however, may belong to *P. hageni* but the abdominal markings do not quite agree with that species. Segment 2 reddish brown with middorsal and lateral yellow stripes, the latter bordered below with blackish brown: segments 3-6 with a black lateral stripe broadening basally where it encloses a bright yellow spot, and confluent apically with a black ring, a second bright yellow spot being enclosed here at the point of confluence: segment 7 with the basal half citron yellow but this traversed longitudinally by fine middorsal and subdorsal black lines. Segments 8 and 9 dark reddish brown, 10 and the short acuminate anal appendages sandy yellow.

Paragomphus atratus SELYS (Figs 11 and 19, 9).

Material examined: 5 males and 2 females all from Bambesa, collected by MM. J. VRIJDAGH and HENRARD on IV to IX.38 and V. 39.

All specimens are typical, with slightly interrupted mesothoracic collar, antehumeral and humeral stripes and three pale stripes on each side of thorax. There are three dark species of *Paragomphus* found in the Belgian Congo, viz, *atratus* SELYS, *abnormis* KARSCH and a new species *acuminatus*, which latter LE ROI confused with *atratus*. *P. atratus* SELYS has a complete humeral stripe, the others, without a trace of this in the case of *acuminatus* and with only a small upper spot in the case of *abnormis*, which latter is easily distinguished from all other species by the presence of a basal subcostal antenodal vein in all wings.

The anal appendages of *atratus* are pointed at the apices but are not tapered to a fine point as in the case of *acuminatus*.

Paragomphus abnormis (KARSCH) (Figs. 12 and 19, 11).

Onychogomphus abnormis KARSCH, 1890, *Ent. Nachr.*, 16: 377 (1 male, Barombi Stal., Cameroons. Type, Berlin Museum). 1891, *Id., ibid.*, 17: 72. SELYS, 1892, *Ann. Soc. Ent. Belg.*, 36: 7.

Material examined: 1 male, Bambesa, IX.38 (HENRARD): 1 male, Bambesa, V.39 (J. VRIJDAGH): 1 male, Uele (Bambesa), without date (J. VRIJDAGH).

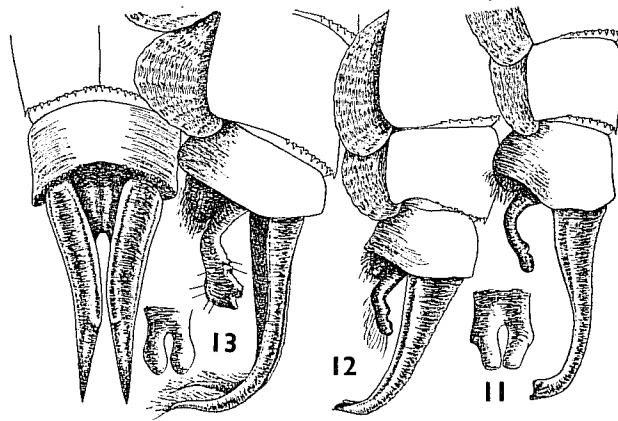


Fig. 11. -- Anal appendages of *Paragomphus atratus* (SELYS), left lateral aspect. (Apex of inferior anal appendage inset).

Fig. 12. -- The same of *Paragomphus abnormis* (KARSCH), left lateral aspect.

Fig. 13. -- The same of *Paragomphus acuminatus* n. sp., dorsal and left lateral aspects. (Apex of inferior appendage inset).

It is more than half a century since KARSCH described his *Onychogomphus abnormis* from a single male, and I have been unable to find any further records of this rare and interesting insect, so that the inclusion of 3 more males in the present collection is of more than usual interest. A few details are given as follows.

Male. Abdomen 32 mm. Hindwing 25 mm.

Head: labrum black narrowly bordered with yellow: clypeus black with the anteclypeus and a triangular spot on each side of postclypeus bright citron yellow: frons broadly greenish, its base above narrowly black: vertex and occiput black, the latter simple, concave and without the usual spines behind. Pterothorax with a rather broadly interrupted mesothoracic collar, oblique antehumeral stripes confluent below with the collar to form inverted figures of 7, a vestigial humeral stripe represented by a small superior triangular spot, and lastly, 3 lateral stripes, all citron yellow. Wings with costa and pterostigma black: antenodals in forewings varying from 13 to 15, postnodals from 9 to 10: hindwing with 8 to 10 antenodals and 9 to 10 postnodals. *All wings of all three specimens bear a subcostal antenodal* (This is the only species in the genus which possesses such cross-veins although they do occur as an aberration in one or more wings of other species. In the present collection, a female of *P. atratus* has one in the right forewing, and another female possesses one in the left hindwing). It seems obvious that the possession of a subcostal vein in *abnormis* is both constant and of a specific nature. Segments 3 to 6 and the base of 7 are narrowly cylindrical, the dilatations of 8 and 9, by comparison, much broader than in other species of the genus.

Paragomphus acuminatus n. sp. (= *P. atratus* (L.F. ROU) nec. SELYS).
(Figs. 13 and 19, 8).

Male. Abdomen 37 mm. Hindwing 25 mm. Pterostigma 3.75 mm.

Head: labium brown: labrum and whole of face below frons save the postclypeus, which is pale, dark reddish brown: frons olivaceous green above with the base narrowly blackish brown: bases of mandibles yellow: vertex and occiput dark reddish brown, the former simple with a slightly concave border. Prothorax and pterothorax dark purplish brown marked with greenish yellow as follows: - a rather broadly interrupted but narrow mesothoracic collar: lanceolate antehumeral stripes converging closely on the antealar sinus but strongly divergent below where they are tapered and are arrested just short of the mesothoracic collar. Laterally a narrow oblique stripe on the anterior half of mesepimeron, a second stripe rather broader on the middle of metepimeron, and a third vestigial stripe between these, extending for only a short distance above spiracle. Legs reddish brown darkening to black on the tibial ends and tarsi: extensor surface of anterior femora greenish yellow. Wings hyaline: pterostigma braced, narrow, slightly swollen, covering 4-5 cells, very dark reddish brown; nodal index. $\frac{11-13}{10-10} | \frac{14-9}{10-8}$

no basal subcostal antenodals: anal-triangle 4-celled; base of hindwing squarely and deeply excavate: anal vein pectinate. Abdomen black, the sides of segments 1 and 2 and base of 3, as also a baso-lateral spot on segments 4-6 greenish-yellow: segment 2 has a middorsal lanceolate stripe continued on to dorsum of segment 3: segment 7 with its basal half yellow but bisected by the black middorsal carina: segments 8-10 blackish brown, dark ochreous laterally, the lateral foliations on segments 8 and 9 very broad and dark reddish brown. Anal appendages of the same colour: superiors about as long as segments 9 and 10 together, broad at bases which are well separated, then tapering to a thin acuminate point, the ends curved sharply downwards and very hairy beneath. Seen from above they first incline towards each other meeting at their middles and are then gradually divergent: the dorsum is strongly keeled. Inferior appendage less than half as long, directed downwards and posteriorly at first and then almost horizontally posteriorly, the outer border presenting two small subapical teeth: seen from above, the appendage is deeply bifid, each branch shortly fusiform in shape so as to enclose a small foramen.

Female. Abdomen 35 mm. Hindwing 29 mm.

Colour and markings entirely similar to those of the male. The lateral foliations on segments 8 and 9 well developed but smaller than in the male. Anal appendages twice as long as segment 10, very acute at apex which is black. The wings strongly tinted with yellowish to as far as the proximal end of pterostigma; nodal index. $\frac{10-14}{10-10} | \frac{15-10}{10-9}$

Vulvar scale small, two triangular lobes not quite extending to apical border of segment 8 and with inner borders strongly divaricate.

Habitat: 1 male, Eala, Belgian Congo, 1.35, coll. J. Ghesquière; 1 female, XII.34, also from Eala. This new species is easily distinguished from all other Paragomphines by its long tapering, almost filamentous superior anal appendages which are clothed with hair beneath.

Genus CRENIGOMPHUS SELYS.

Two species belonging to this genus are represented in the present collection, viz. *C. hartmanni* (FORSTER) and *renei* FRASER, the latter by both sexes, that of the female being hitherto unknown. In the Proc. R. Ent. Soc. Lond., 1936, (B) 5: 137, I have shown that *Dentigomphus* MARTIN (nom. nud.) is a synonym of *Crenigomphus*. No genotype was cited for this genus but in the Paris Museum collection, I found a spe-

cimen labelled *Dentigomphus rubrithorax* MARTIN, which the latter evidently intended to be the genotype of his genus. This specimen, which I found to be a new species, was a bright ferruginous like a boiled lobster, the effects of postmortem changes. Thus MARTIN had named his species from artificial characters, so that I renamed it as *renei*, in honour of my late colleague. A second male, collected by G. HALE CARPENTER, in Uganda, is in my collection and is the *type* of *renei*. One of the two females in the present collection, becomes the *allotype*.

Crenigomphus hartmanni (FORSTER).

Material examined: 1 female, Iswa, IX.31 (J. BREDO): 1 female, Bomboma, 1925 (A. BAL): 1 female, Usambata, 4.I.31 (LA FERRE). (I have also examined 2 males from Uganda (G. HALE CARPENTER and Captain PITMAN, and 1 female from Limbe, Central Africa (Mrs WISE). The species has already been reported from the Belgian Congo by Dr SCHOUTEDEN, viz, 3 males and 1 female from Bunia, Ituri.

The specimens are rather paler than usual and the markings are brown and often ill-defined. A dark lateral, very oblique stripe on each side of segment 2, appears to be a specific character for *hartmanni* as it is present in all specimens. This stripe is continued along segments 3 to 7 but is interrupted basal to the jugal sutures on all. The occiput is distinctly curled up and is furnished along its free border by about 12 small black spines. The crest of frons, as is usual in this genus, shows an irregular row of small black spines or points, the nature of which is by no means clear. The long black pterostigma conspicuously contrasted with the bright yellow costal margin is unique and enables species of *Crenigomphus* to be recognised at a glance.

Crenigomphus renei FRASER.

Dentigomphus rubrithorax MARTIN, (nom. nud.) (Type labelled as such in the Paris Museum).

Dentigomphus sp. MARTIN, 1912, *Ann. Soc. Ent. France*, 80: 482 (Description of genus but no genotype or species given).

Crenigomphus renei FRASER, 1936, *Proc. R. Ent. Soc. Lond.*, (B) 5, 7: 138.

Material examined: 1 female (Allotype), Ishwa (Lake Albert), -35 (H. J. BREDO): 3 males and 1 female, Tang. Terr. Ukerewe, 1939 (R. P. CONRADT). (In addition I have seen the type male from Uganda and MARTIN'S male in the Paris Museum).

Female. Abdomen 32-33 mm. Hindwing 28-30 mm.

Ground colour a dull pale ferruginous marked with pale greenish yellow. Resembles the male in all but sexual characters. In my original description, I gave the ground colour as that of the markings, but, in the case of the thorax, it would be better to reverse this as now given. - a narrow complete mesothoracic collar; oblique, very slightly sinuous narrow antehumeral stripes tapering below to a point which is well separated from the collar, bevelled above and falling short of the antecular sinus; narrow humeral stripes clubbed above, very slightly sinuous. The humeral, both lateral sutures and a short stripe near the posterior border of metepimeron dark reddish brown, that on the first lateral suture deepening to blackish brown below and most conspicuous against the sandy yellow surrounding it. Both sexes have the occipital border spined, these numbering from 12-14 in the male: behind the head is pale yellow save for an oval, glossy black tubercle at upper border of eyes. The nodal indices of the two females are:
 8-13 | 14-8 7-13 | 14-8
 9-9 | 10-10' 9-10 | 10-9 pterostigma covering nearly 5 cells in the Lake Albert specimen but nearly 6 in the other which has a slightly denser venation. Males. Abdomen 35, hindwing 28 mm.

Genus *PODOGOMPHUS* KARSCH.

Podogomphus KARSCH, 1890, *Ent. Nachr.*, 16: 374, 381 (genotype *P. spinosus* KARSCH); SELYS, 1892, *Ann. Soc. Ent. Belg.*, 36: 101, Ris, 1921, *Ann. S. African Mus.*, 18: 3: 341, SCHOUTEDEN, 1934, *Ann. Mus. Congo Belge*, loc. cit., 62.

It is more for the sake of convenience that I keep *Podogomphus* apart from *Notogomphus* although I feel that they are synonymous. The latter name appears to have priority although the name was only suggested by SELYS in 1859; but the name was validated by KARSCH when he gave a short definition in his key to the African Gomphines, and cited two species as belonging to it. Thus I am inclined to agree with Miss LONGFIELD and if the name *Notogomphus* SELYS should be finally adopted in the future, *Gomphus ruppeli* SELYS will become the genotype. Two species of *Podogomphus* are represented in the present collection.

Podogomphus lujai SCHOUTEDEN (Figs. 14 and 19, 10).

Material examined: 3 males, Lulua Kapanga, III-IV.31, 2 males, Lulua Zhapaza, III.31, 1 female, Lulua Kapanga, IV.31 and 1 female, Lulua

Tshibalaka, X.33 (all G. F. OVERLAET), 1 male, Bambesa, V.37 (J. VRIJDAGH), 1 male, Kivu, Mulungu, 1 female, Kalonge, 25.V.38 (F. H. HENDRICK).

All agree well with the description given by Dr SCHOUTEDEN save that the measurements seem to be rather larger.

Male. Abdomen 40-41 mm., hindwing 34-36 mm., and the nodal index generally higher. 16-17 antenodals and 12 postnodals to forewings: 12 antenodals and 12-13 postnodals to hindwings. The colour and markings of the abdomen, obscured in the type, are well marked in some of the present specimens. Black marked with green as follows: - segment 1 and 2 grass green with a broad subdorsal blackish brown stripe on each side enclosing a middorsal green stripe which is dilated

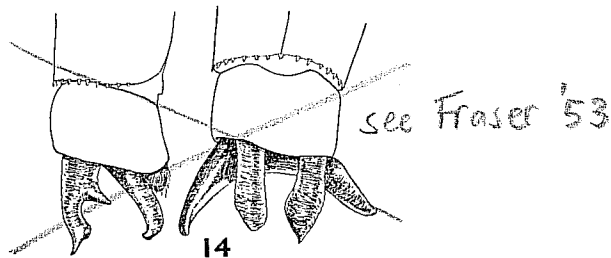


Fig. 14. — Anal appendages of *Podogomphus Injai* SCHOUTEDEN, male, right lateral and dorsal aspects.

at its centre: auricles green bordered narrowly with black: segment 3 with middorsal stripe tapering finely basally and a lateral basal spot which also tapers basally: segments 4-6 immaculate: 7 nearly entirely greenish yellow but with two apical triangular black spots confluent at their bases on middorsum and extending for about the apical third of segment: segments 8-10 blackish but with the sides dark ochreous or reddish brown. Anal appendages black.

The female differs from the male in several respects: the occiput is more raised and more deeply emarginate: the penultimate spine on the femora is longer, more robust and thickened at its base: the yellow on abdominal segment 3 is prolonged laterally to the apical end, segments 4 to 6 have lateral yellow spots followed by a short stripe on segments 4 and 5, but absent on 6, the remaining segments as in the male but 9 and 10 may have some lateral yellow.

This species is very closely related and rather similar to the next species *leroyi* SCHOUTEDEN, from which it is best separated by the shape of the anal appendages, the superiors having the ventral spine nearer the middle of appendage and with the apex more abbreviated and with a blunt tubercle beneath it.

Podogomphus leroyi SCHOUTEDEN (Fig. 15).

Material examined: 1 male, Bambesa, XI.34 (F. LEROY): 1 male, Bambesa, 10.I.38, (J. VRIJDAGH).

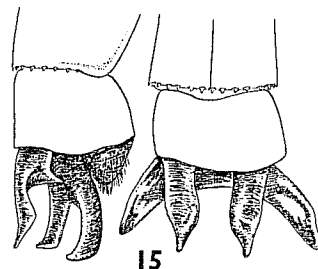


Fig. 15. — Anal appendages of *Podogomphus leroyi* SCHOUTEDEN, male, right lateral and dorsal aspects.

I place these two specimens as *leroyi* SCHOUTEDEN because of the unusual colouring of the basal abdominal segments which are all largely pale green. It is necessary to add to the primary description, some further particulars lost in the type male from postmortem changes. The labium has the middle lobe brown, the lateral bright citron yellow, the bases of mandibles and also two small rounded spots on the labrum citron yellow. The occiput is grass green with its free, slightly arched and slightly notched border, finely black. Lastly the pterothorax has two blackish brown stripes on each side. Anal appendages as in figure 15.

GENUS **NOTOGOMPHUS** SELYS.

Only a single species of this genus is represented in the present collection, viz. *N. dorsalis* (SELYS). It should be noted that the hind femora of the female of this species are quite typical for those of *Podogomphus*.

Notogomphus dorsalis (SELYS).

Material examined: A single female from ?, Bambesa, IX.31 (J. BREDO).
The specimen does not differ from some I have from Uganda: it is a widely distributed but not a common species, which has not hitherto been reported from the Belgian Congo.

Genus **LESTINOGOMPHUS** MARTIN.

Lestinogomphus MARTIN, 1911, *Ann. Soc. Ent. France*, 80 : 484.
Echinopterogomphus FRASER, 1926, *Trans. Ent. Soc. Lond.*, 1926 : 355.
FRASER, 1928, *Ibid.* 1928 : 130.

I described this remarkable genus of Gomphines as new under the name of *Echinopterogomphus* on account of Martin's faulty description of his genus *Lestinogomphus*. Although I have not seen the type, the points of resemblance far outweigh those dissimilar, and the characters of the abdomen and anal appendages are so remarkable that it is unlikely that different insects are concerned here. The apical end of segment 1 is thickened and cylindrical but there is no telescoping of segments involved here: segment 8 is not more slender than the adjacent ones and the probability is that the segment concerned was compressed artificially in the genotype. The comparative length of the end segments is as described by MARTIN, viz, segment 8 half as long again as segment 9, which latter is only half the length of the elongated segment 10. The anal appendages are as described by MARTIN and as figured by myself (loc. cit. 1928).

Genotype. — *Lestinogomphus angustus* MARTIN.

Lestinogomphus angustus MARTIN.

Material examined: 3 males, 20.IV.38, V.38 and VIII.38, Bambesa (J. VRIJDAGH): 1 pair, Kapanga, XI.32 (G. F. OVERLAET): 1 female, Bambesa, V.39 (HENRARD).

The venational details of these specimens and the markings of the abdomen agree more closely with *angustus* MARTIN than with *africanus* (FRASER), thus segments 3 to 5 have well marked apical black rings and basal yellow ones: there are paired subdorsal oval yellow spots on 4 and 5, these being broadly confluent over dorsum on segment 3. None of the specimens that I have examined, including the present 7 specimens, possess an anal loop as described by MARTIN and I am sure this is an error for the normal cells of the anal field, the wing being far too narrow here (as mentioned by MARTIN himself) to contain an

anal-loop. MARTIN does not mention also the prominent spines adorning the tornus of the hindwings.

The exact position of this curious genus and the species is obscure: apart from the fact that they belong to the subfamily Gomphinae, their relationship to other African genera and, in fact, to all other Gomphines, is by no means clear.

Genus **PHYLLOGOMPHUS** SELYS (Figs. 16 and 17).

Four species belonging to this genus have been described, viz, *aethiops* SELYS (genotype), *helenae* LACROIX, *coloratus* KIMMINS and *selysi* SCHOUTEDEN, the latter only being represented in the present

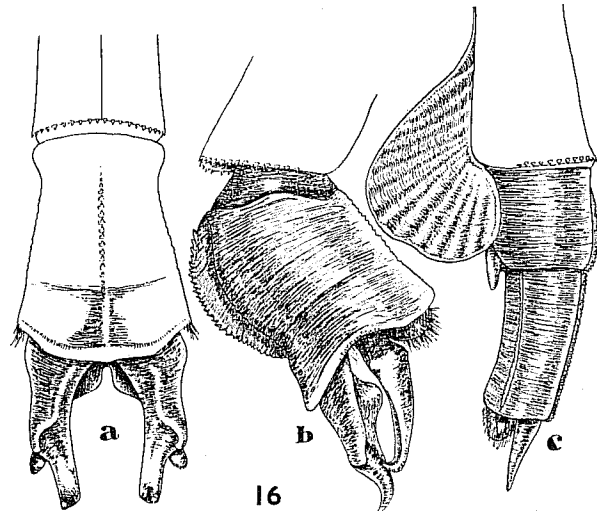


Fig. 16. — End of abdomen and anal appendages of male *Phyllogomphus Selysi*.
a. Dorsal view. b. Right lateral view. c. Left lateral view of female.

collection. I possess a single female from Sierra Leone which agrees with *helenae* in most respects but differs by the costa conspicuously citron yellow (black in *helenae*). This may be a new species but unfor-

unately I have not been able to trace the whereabouts of the type of *helenae* and until I have been able to make comparisons, I hesitate to describe it as such. LACROIX's specimen has the face brownish but this is bright greenish yellow in my example: the abdominal markings are also prolonged on to segments 5 and 6. These differences may be due to better preservation. Although the measurements are similar to those of *helenae* it is certainly far from being a slenderer species than *aethiops* (Figs. 19, 2, 4).

Phyllogomphus selysi SCHOUTEDEN (Figs. 16, 17a, 19, 3).

Material examined: 1 female and 6 males, Bambesa, 27.VI.38 (J. VRIJDAGH): 2 males, Bambesa -34 (BREDO): 1 male, Lulua: Riv. Luiza, 16.X.33 (G. F. OVERLAET): 7 males, Eala, XI.34 and 1.35 (J. Ghesquière).

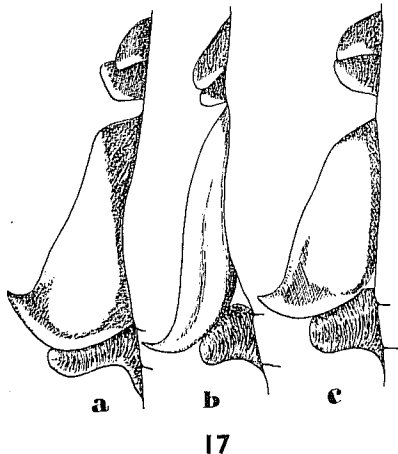


Fig. 17. — Genitalia of *Phyllogomphus* SELYS.
a. *P. selysi* SCHOUTEDEN. b. *P. aethiops* SELYS. c. *P. coloratus* KIMMINS.

All specimens are true to type but the majority show but few of the paler markings owing to postmortem changes. This species differs from both *aethiops* and *coloratus* by the shape of the posterior hamules

(Fig. 17) being broader than in *coloratus*, which are again much broader than in *aethiops*. (It is necessary to point out that in KIMMINS' figure C (*Ann. Mag. Nat. Hist.* (10) 7: 218, 1931) the legend should read « posterior hamule » and not « posterior appendages »).

P. selysi, *coloratus* and *aethiops* all differ from *helenae* by the absence of a humeral stripe and a medio-lateral one on the pterothorax.

Genus **NEUROGOMPHUS** KARSCH.

Neurogomphus KARSCH, 1890, *Ent. Nachr.*, 16: 372. SELYS, 1892, *C. R. Ann. Soc. Ent. Belg.* 36: 100. KARSCH, 1899, *Ent. Nachr.*, 25: 171.
Oxygomphus TILLYARD, 1917, *Biology Dragonflies*: 282 (nom. nud.).
LACROIX, 1921, *Ann. Soc. Linn. Lyon*, 67: 48. FRASER, 1936, *Proc. R. Ent. Soc. Lond.*, (B) 5: 139.
Karschiogomphus SCHOUTEDEN, 1934, *Ann. Mus. Congo. Belge, (Zool.)*, 3, 2, *Cat. Faune Ent. Congo Belge*, 3, 1: 60.
Neurogomphus SCHOUTEDEN, 1934, *loc. cit.*: 65.

Gomphine dragonflies of moderately large size, coloured black marked sparingly with grass green. Venation irregular, rather closely reticulated: pterostigma short and stout, strongly braced, oblique at distal end, acute proximally, usually smaller in the forewing, resembling that of *Sapho* in shape: all triangles free: nodal index very variable, even in specimens belonging to the same species: a subcostal basal antenodal almost invariably present in all wings and occasionally duplicated (in *Ghesquerei* type, the forewings possess an aberrant cross-vein in the median space): anal triangle 4-celled (occasionally 3-celled): base of hindwing deeply incised in its outer half, tornus acute: anal-loop absent: only a single *Cu₁* in all wings: discoidal field of forewing of 2 rows of cells nearly to level of nodus: *1A* inclined to be pectinate: 2 rows of cells between *R₁₁* and *R₁₁₁* from about midway between nodus and pterostigma: membrane almost obsolete: 2 rows of anal cells in forewings, 3 in the hind. Head rather wide, frons rounded and face sloping as in *Leptogomphus*, occiput hollowed out above, its free border produced and either minutely emarginate or with 2 or 3 small medial spines, tumid posteriorly. Thoracic dorsal markings: moderately broad, oblique, tapering antehumeral stripes confluent with a broad mesothoracic collar in front which is always interrupted at its middle, and confluent or not with a humeral stripe which is usually vestigial but may be partially or wholly complete. Abdomen tumid at base, segment 1 with thickened, rounded, hirsute, apical margin dorsally, segments 3 to 7 narrow and cylindrical but broadening at apical end

of 7 : segment 8 twice as broad as the apex of 7 and with rather broad lateral foliations which are spined along the border : segment 9 much narrower than 8 and only about two thirds of its length, also with lateral foliations but very much narrower than on segment 8 : segment 10 as narrow as 9, its basal half cylindrical, its apical half abruptly swollen, especially as seen in profile. Anal appendages : superiors conical, tapering evenly to a fine point, widely divaricate : inferior with its branches of about the same length as superiors and even more divaricate. Genitalia : penis shaped as in *Gomphus* (sens strict) but the apex split into two flagellae resembling the tongue of an adder : anterior hamules small curved hooks largely hidden by the enormously enlarged posterior hamules which are scimitar-shaped and directed strongly forwards so as to slightly overlap the apical margin of segment 1 (in profile, these hamules resemble an erect penis).

Genotype. — *Neurogomphus fuscifrons* KARSCH. Distribution : Tropical East, Central and West Africa.

Only thirteen specimens are known which have been included under seven specific names, but how far these run to synonymy is by no means clear, and will remain so until all the types can be examined vis-a-vis. Unfortunately the type of one, *martininus* LACROIX, has been lost, and the types of *fuscifrons* in the Berlin Museum, are not available for examination. KARSCH's description of the latter is lamentably inadequate, the thoracic markings being barely mentioned and the genitalia not at all. LE ROI, who added to the description of *fuscifrons*, failed to supply the necessary details of the thorax but gave good figures of the end of the abdomen and so showed for the first time, the highly characteristic features of this organ. KARSCH, in 1899, expressed the view that *Neurogomphus* was doubtfully distinct from *Phyllogomphus* SELYS, an opinion which no specialist in the Order will share with him. The hamules in *Phyllogomphus* slope posteriorly just as markedly as do those of *Neurogomphus* slope forward : the foliations on the sides of segments 8 and 9 of *Phyllogomphus* are enormous, and in no species do we find a subcostal basal antenodal : other characters separating the two genera are not hard to find and all we can say is that they belong to the same subfamily Gomphinae. The general resemblance of the end segments of the abdomen in the two genera is solely due to convergence and not to any close relationship.

Until more material becomes available, it seems best to retain the present names but my present opinion is that *martininus* and *Ghesquierei* are synonymous and that, most probably, both are synonyms of *fuscifrons*. *Uelensis* is probably a synonym of *agilis* although this is by no means certain : *vicinus* is a synonym of *uelensis* as shown by

an analysis of the venation given below, and, lastly, *Wittei* is a good species. A specimen in the MORTON collection, which I determined as *agilis* (MARTIN) some years ago, is either a new species or a variety of *Wittei*, probably the last.

Notes on the 13 known specimens.

Specimens examined by myself are the type of *Ghesquierei* SCHOUTEDEN, under the generic name of *Karschiogomphus*; the two types of *agilis* MARTIN, under the generic names of *Notogomphus* and *Oxygomphus*; a male in the MORTON collection determined as *agilis*; a female in the Congo Belge Museum determined as *Wittei* SCHOUTEDEN and a male, in the same collection, determined as *uelensis* SCHOUTEDEN.

1. *N. fuscifrons* KARSCH. A female, the genotype and type, in the Berlin Museum. Dorsum of thorax with a broad antehumeral stripe on each side : pterostigma 4 mm. : primary antenodals, the first and seventh : nodal index $\frac{13-21}{14-14} | \frac{21-15}{14-14}$ total for hindwing 56. Abdomen 49 mm., hindwing 47 mm.

Habitat : Cameroons.

2. *N. fuscifrons* KARSCH. Allotype male, in the Berlin Museum. Dorsum of thorax as for female : pterostigma 4 mm. : primary antenodals, the first and seventh : nodal index, — $\frac{17-20}{16-15} | \frac{21-16}{16-14}$ total for hindwing 61. Abdomen 51 mm., hindwing 45 mm.

Habitat : Upper Cameroons.

3. *N. fuscifrons* KARSCH. Paratype female described by LE ROI, believed to be in the Königsberg Museum. Specimen in a bad state, preserved in alcohol, with markings of thorax as for *fuscifrons* type. Pterostigma : 4.5 mm. : primary antenodals the first and seventh : nodal index. — $\frac{17-20}{7-13} | \frac{18-?}{13-?}$ (apices of 3 wings missing). Abdomen 47 mm., hindwing 44 mm. (ca.).

Habitat : Uele Dist, Belgian Congo, between Angu and Yakoma.

4. *N. martininus* (LACROIX). A female, the type, described as an *Oxygomphus*. (Type was loaned to R. MARTIN who took it to Chile, where it was lost sight of after MARTIN's death. LACROIX in litt.). Pte-

rostigma 3,8 mm.: primary antenodals the first and seventh: nodal index. — $\frac{12-19}{15-12} | \frac{20-14}{14-13}$, total for hindwings 54. Abdomen 51 mm., hindwing 43,5 mm.

Habitat: Bangu, Congo.

5. *N. Ghesquierei* (SCHOUTEDEN). Type a male in the Congo Belge Museum, described under the new genus *Karschiogomphus*. Pterostigma 3,5 to 4 mm. Dorsal markings of thorax similar to those of *martinius*, viz, oblique antehumeral stripes, diverging strongly in front where they are confluent with a stout mesothoracic collar interrupted at its middle: above confluent with a vestigial humeral spot and strongly angulate at this level, so that the whole marking is Z-shaped: primary antenodals the first and seventh: nodal index $\frac{12-19}{15-13} | \frac{19-15}{12-13}$, total for hindwings 54. Abdomen 51 mm., hindwing 39 mm. (This specimen exhibits the remarkable aberration of a cross-vein in the median space of each forewing).

Habitat: Stanleyville, Belgian Congo.

6. *N. Wittei* SCHOUTEDEN. Type a male in the Congo Belge Museum. Pterostigma 3 mm.: dorsal markings of thorax similar to the last but the humeral stripe is partially or entirely complete, extending halfway down the dorsum: primary antenodals the first and fourth or fifth: nodal index $\frac{10-11}{9-7} | \frac{11-10}{9-9}$, total for hindwings 34. Abdomen 36 mm., hindwing 30 mm.

Habitat: Moba, Belgian Congo. The species differs from all the foregoing by the low nodal index and by the presence of a humeral stripe (Fig. 19, 6).

7. *N. Wittei* SCHOUTEDEN. A female in the Congo Belge Museum, which I have determined as the allotype. Pterostigma 3 mm.: dorsal markings of thorax similar to the male: primary antenodals the first and fifth or sixth: nodal index $\frac{11-14}{10-9} | \frac{17-12}{10-12}$, total for hindwings 41. Abdomen 40 mm., hindwing 34 mm.

Habitat: Kilo: Kere-Kere, Belgian Congo, 1934, coll. Dr TURCO. This specimen is determined as *Wittei* mainly on account of the similar thoracic markings: its size is slightly larger and the venation rather closer than in the male. The face is pale yellowish brown, the vertex blackish brown and the frons pale green. The occiput is hollowed out

above and the free border strongly convex and produced, the centre being slightly emarginate. The lateral markings of thorax and the colour and markings of the abdomen are obscure but a black stripe appears to be developing on the postero-lateral suture whilst segment 2 has an obscure middorsal lanceolate spot bordered on each side by a broad dark line (a similar marking is found in *agilis*): the middorsal carina of segments 3 to 5 is finely yellow and there are baso-lateral yellow spots on these same segments as well as on 6 and 7: 8 and 9 have diffuse lateral yellow spots, whilst 10 has the basal half black and the apical half yellow. The anal appendages shortly conical, dark, about half the length of segment 10.

8. *N. Wittei?* A male formerly in the Morton collection but now in the Royal Scottish Museum, Edinburgh. Pterostigma 3-4 mm.: nodal index $\frac{11-14}{10-9} | \frac{17-12}{10-12}$, total for hindwings 41: primary antenodals the first and fifth: markings of thorax similar to *Wittei* but the antehumerals are distinctly broader, especially at their confluence with the mesothoracic collar, and the humeral stripe is complete, extending on to the mesinfra-episternum. Laterally the sides are broadly greenish yellow with narrow black stripes on the two lateral sutures. Abdomen 45 mm., hindwing 36 mm.

Habitat: Kenya, Mt Gori, Suna, Kavironda.

9. *N. uelensis* SCHOUTEDEN. The type is a male in the Congo Belge Museum with pterostigma 3-4 mm.: nodal index. $\frac{9-17}{10-12} | \frac{15-10}{11-10}$, total for hindwings 43: primary antenodals the first and fifth: dorsal thoracic markings - broad antehumeral stripes tapering posteriorly, confluent broadly anteriorly with an interrupted mesothoracic collar and posteriorly with an upper triangular spot. Abdomen 42 mm., hindwing 33 mm. Segment 2 and the greater part of 3 are pale, probably green during life, the former with subdorsal blackish brown stripes incomplete basally.

Habitat: Bambesa, Belgian Congo. The sides of this species are broadly greenish or yellow posterior to the first lateral suture.

10. *N. uelensis* SCHOUTEDEN. A male in the present collection which I place as *uelensis* on account of the colour and markings of the sides of thorax and segments 2 and 3 of the abdomen. Pterostigma 3-4 mm.: nodal index $\frac{13-15}{13-11} | \frac{14-15}{11-13}$, primary antenodals the first and fifth.

Dorsal and lateral markings of thorax similar to those of the type. Abdomen 42 mm., hindwing 33 mm.

Habitat: Liketa, Belgian Congo, 12.VI.36, (J. GUESQUIÈRE). The total of antenodals and postnodals in hindwings is 48 as compared with 43 in the type but all other characters agree (Figs. 19, 7).

11. *N. vicinus* SCHOUTEDEM. A teneral male in the Congo Belge Museum, the type, which I have not examined but which was separated from *uelensis* on account of its apparent closer venation. This however is more apparent than real as the total number of nodal cross-veins in the hindwing is only 41 compared to 43 in the type of *uelensis*.



Fig. 18. — *Neurogomphus agilis* (MARTIN), from the type male, showing the extraordinary genitalia in profile. End of abdomen (segments 7-10) inset to show the highly characteristic shape of segment 10.

so that I am inclined to think that it is only a venational variety of that species.

Habitat: Kibombo, Belgian Congo.

12 and 13. *N. agilis* (MARTIN). The type is a male in the Genoa Museum under the genus *Notogomphus*: there is a second male in the Paris Museum under the MS name of *Oxygomphus agilis*. An examination of these two shows that they are identical save for the nodal indices which may however be expected to show the usual irregular venation peculiar to the genus. Nodal indices of the two specimens.

13-15 | 16-12 12-15 | 14-12
11-11 | 11-11' (44) : 12-11 | 12-10' (45). Pterostigma 3-1 mm.: primary

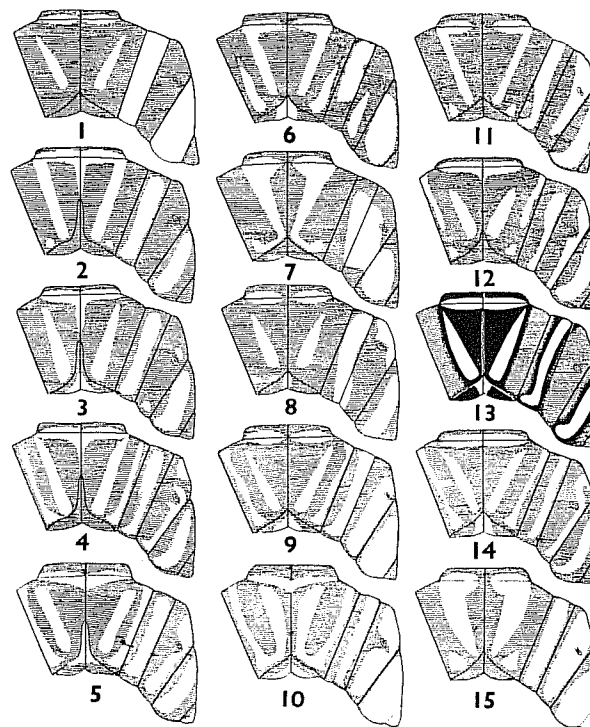


Fig. 19. — Markings of thorax, diagrammatic: dorsum and right side only shown. 1. *Microgomphus Schoutedeni* n. sp.; 2. *Phyllogomphus aethiops* SELYS; 3. *Phyllogomphus Selysi* SCHOUTEDEM; 4. *Phyllogomphus helene* LACROIX; 5. *Ictinogomphus Keyis Alberti* (SCHOUTEDEM); 6. *Neurogomphus Wittci* SCHOUTEDEM; 7. *Neurogomphus uelensis* SCHOUTEDEM; 8. *Paragomphus acuminatus* n. sp.; 9. *Paragomphus atratus* (SELYS); 10. *Podogomphus Lajai* SCHOUTEDEM; 11. *Paragomphus abnormis* (KARSCHI); 12. *Gomphidia Balii* n. sp.; 13. *Diastatomma soror* SCHOUTEDEM; 14. *Diastatomma multilincata* n. sp.; 15. *Neurogomphus agilis* (MARTIN).

antennodals the first and fifth. Dorsal markings of thorax, — antehumeral stripes very broad below, tapered very abruptly in the upper half and angulate on the outer border. Separated above from a triangular humeral spot. Laterally two broad black stripes, an anterior on the first lateral suture and a posterior on the anterior half of the metepimeron.

Habitat: Portuguese Guinea, W. Africa. The 2nd segment of abdomen has a middorsal lanceolate stripe and this is continued as a fine stripe on the following segments (Figs. 18 and 19, 15).

APPENDIX

Shortly after this paper was completed I received a further 29 specimens of Gomphines from Dr SCHOUTEDEN which call for no remarks except for the additional data on localities. There are however, two females of *Paragomphus abnormis* (KARSCH), of which only the male was so far known: the description of this female is given below.

Diastatomma selysi SCHOUTEDEN, 5 males, all from Bambesa, 3.III.37 and 4.III.38, collected by J. VRIJDAGH.

Diastatomma multilineata FRASER, 1 male, Bomboma, II.35, coll. A. BAL.

Gomphidia quarrei (SCHOUTEDEN), 1 male, Bambesa, 18.V.38, J. VRIJDAGH.

Podogomphus leroyi SCHOUTEDEN, 1 male, Bambesa, 9.V.38, J. VRIJDAGH.

Phyllogomphus selysi SCHOUTEDEN, 3 males and 2 females, Bambesa, 8-9, VI.37 and 18.V.38, J. VRIJDAGH.

Paragomphus atratus (SELYS), 3 males and 1 female, all from Bambesa, J. VRIJDAGH, 25.II.38, 20.V.38 and 24.III.37. One pair are decidedly teneral and the yellow colouring is more extensive. One male shows an incomplete basal antennodal in the left forewing.

Paragomphus elpidius (RIS), 2 females, Bambesa, 2.II.38 and 9.V.38, J. VRIJDAGH collected.

Paragomphus abnormis (KARSCH), 1 male and 2 females, all from Bambesa, 10-15, III.38 and 1.VI.38, J. VRIJDAGH. All agree in the possession of an incomplete basal antennodal in all wings. The description of the female follows,

Abdomen 31 mm. Hindwing 26 mm. Pterostigma 3,5 mm.

Head: Dark reddish brown with green markings as follows, - a transverse stripe on labrum, the whole of postclypeus, a triangular spot on each side above latter and a broad stripe overlapping crest of frons. Occiput black with a row of small spines behind on each side to the number of 7 or 8. Behind head blackish brown obscurely marked with yellow. Thorax as in the male, the antehumeral citron yellow stripes narrow and confluent with a slightly interrupted mesothoracic

collar below to form inverted figures of 7. Wings slightly and evenly enfolded, nodal index, — 14-15 antennodals in forewings and 9 to 10 in the hind: 10-11 postnodals in all wings: all wings with an incomplete antennodal at the base of subcostal space. Abdomen dark reddish brown marked with citron yellow as follows, — segment 1 with a small basal triangular dorsal spot and a very large lateral one on each side: segment 2 with a fine middorsal stripe extending from end to end of segment, and a moderately broad stripe on each side slightly interrupted at the site of the oreillets: segment 3 with a basal lateral triangular spot on each side and a rather broad dorsal stripe which is bisected by the black middorsal carina and the jugal suture: segments 4 to 6 with the same dorsal marking as on 3 but not extending to the apical ends of segments: segment 7 with rather more than the basal half of dorsum and subdorsum yellow: segments 8 and 9 with large lateral rounded spots: segment 10 and a conical process separating the anal appendages largely yellow, the appendages nearly twice the length of segment 10, very slender and finely acuminate, blackish brown. Vulvar scale very small and inconspicuous, formed of two small slightly separated triangular processes.

Crenigomphus hartmanni FORSTER, 2 males and 1 female, Bunia, II and III.37, J. LEROY collected.

Lestinogomphus africanus (FRASER), 2 males and 2 females, Bambesa, J. VRIJDAGH.

It is possible that *L. angustus* MARTIN may be a xerophilic form of *africanus* in which the markings are strongly contrasted against a black background. One of the present females differs from any others which I have seen by possessing a very short stout pterostigma, measuring only 2 mm. In the other specimens, this organ is 3 mm. for the males, 3,5 mm. for the females. It is of smaller stature than the other female. Abdomen 27,5 mm. and hindwing 21 mm., to 32,5 mm. and 25 mm. respectively. Beyond these two characters, I can see no other differences. The smaller size does not entirely account for the wide differences in the sizes of the pterostigma.

BIBLIOGRAPHY.

- CAMPION, 1923, *Ann. Mag. Nat. Hist.* (9) 12 : 659.
COWLEY, 1934, *Entomologist*, 67 : 201 and 274.
FRASER, 1934, *Fauna Brit. Ind.*, (Odonata) 2 : 351 and 381.
1926, *Trans. Ent. Soc. Lond.* 1926 : 355.
1928, *Ibid.* 1928 : 130.
1936, *Proc. R. Ent. Soc. Lond.* (B) 5 : 138.
1940, *Trans. R. Ent. Soc. Lond.* 90 : 541 (*Penes of Gomphidae*).
1948, *Ibid.* (A) : 23 : 44.
FORSTER, 1898, *Ent. Nachr.* 24 : 166.
1906, *Jahrb. Nassau Ver. Naturk.* 59 : 323.
KARSCH, 1890, *Ent. Nachr.* 16 : 372.
1891, *Ibid.* 17 : 72.
1899, *Ibid.* 25 : 171.
KIRBY, 1890, *Cat. Odon.* 57.
LAGROIX, 1921, *Ann. Soc. Linn. Lyon*, 67 : 48.
LAIDLAW, 1922, *Rec. Ind. Mus.* 24 : 380.
LE ROI, 1915, *Zentr. Afr. Exp. (Zool.)* 345.
MARTIN, 1911, *Ann. Soc. Ent. France*, 80 : 480.
1908, *Ann. Mus. Civ. Genova*, 43 : 657.
1915, *Voy. Alluaud Jeannel Afr. Orient. Odon.* 35.
RAMBUR, 1842, *Ins. Névropt.* 172.
RIS, 1920, *Ann. S. Afr. Mus.* 18 : 3 : 338.
1909, *Bericht Senckenbg.* : 24.
SCHOUTEDEN, 1934, *Rev. Zool. Bot. Afr.* 24 : 226.
1934, *Ann. Mus. Congo Belge (Zool.)* 3, 2 (*Cat. Raison Faune Ent. Congo Belge*, 3, 1 : 53).
SELYS, 1854, *Syn. des Gomphines*.
1859, *Add. Syn. des Gomphines*.
1869, *Secondes Add. Syn. des Gomphines*.
1873, *Troisièmes Add. Syn. des Gomphines*.
1858, *Mon. Gomphines*.
1892, *Ann. Soc. Ent. Belg.* 36 (*Gomphines d'Afrique*) : 86.

Un Carabique microphthalme nouveau du Katanga

par P. BASILEWSKY
(Musée du Congo belge, Tervuren)

Limnastis Leleupi nov. sp.

Long. 2,5 mm. — Ailé, entièrement dépigmenté, d'un ferrugineux testacé. Téguments adutacés, à microsculpture isodiamétrique peu visible, entièrement pubescent.

Tête grosse et robuste, sa largeur au niveau des yeux dépassant de loin la moitié de celle du pronotum; yeux très petits et nullement saillants, deux fois plus courts que les tempes. Cou très épais, sans aucune constriction dans la région post-oculaire. Front peu ponctué, pourvu de deux sillons obliques bien marqués. Mandibules courtes mais acérées, peu saillantes. Avant-dernier article des palpes maxillaires fortement renflé, le dernier très petit. Antennes moyennes, dépassant la base du pronotum de près de trois articles, moniliformes, le premier très brièvement, les autres densément pubescents.

Pronotum très grand, sub-carré, un peu plus large que long, faiblement convexe, la base un peu plus étroite que le bord antérieur; ce dernier assez fortement concave, les angles antérieurs saillants mais arrondis, appliqués contre le cou; côtés assez largement arrondis en avant, nettement sinués en arrière, les angles postérieurs vifs, légèrement aigus au sommet; base faiblement concave. Sillon longitudinal médian à peine distinct; dépressions basilaires très superficielles; gouttière marginale assez étroite en avant, très fortement élargie en arrière. Largeur maximale assez nettement déportée en avant du milieu. Toute la surface est couverte d'une ponctuation faible et d'une pubescence jaune couchée.

Elytres étroits, allongés et aplanis, subovoïdes, plus larges que le pronotum, la largeur maximale située près du milieu. Repli basilaire