

- 29 (30) Pronotum with sides more or less parallel anteriorly ... (33)
- 30 (29) Pronotum with sides not parallel anteriorly—Oriental genera (31)
- 31 (32) Pronotum with sides convergent at base *Sadiya*
- 32 (31) Pronotum with sides divergent at base *Proyadiya*
- 33 (34) Tibiae sulcate near femora *Rhadamanthus*
- 34 (33) Tibiae smooth above (35)
- 35 (36) Pronotum rounded posteriorly (37)
- 36 (35) Pronotum approximately square *Dinez*
- 37 (38) Second tarsal segment with very broad lobes, an Oriental genus *Timomenus*
- 38 (39) Second tarsal segment lobes are not very large, a South American species *Sarcinatrix*
- 39 (40) Exceptionally long and slender earwigs from South America *Acanthocordax rhachynotus*
- 40 (39) Not exceptionally long and slender earwigs (41)
- 41 (42) First tarsal segment twice as long as the third (43)
- 42 (41) First tarsal segment about equal in length to the third (45)
- 43 (44) Pronotum subquadrate, tergites of abdomen spiny but not laterally extended posteriorly *Eparchus*
- 44 (43) Pronotum narrow, tergites of abdomen laterally and posteriorly extended *Narberia*
- 45 (46) Pronotum narrow longer than broad (47)
- 46 (45) Pronotum subquadrate *Syntonus*
- 47 (48) Pronotum with a pair of anterior lateral spines and a medium posterior spine *Acanthocordax*
- 48 (47) Pronotum without lateral spines *Cordax*

Discussion

I have sunk the genus *Cosmicula* Hincks 1947 because the species is very similar to those of *Emboros* Burr 1907. The genus *Archidux* obviously belongs to this subfamily and is therefore included here instead of in the Neolobophorinae, where it was placed by Burr. The subfamily is widely distributed from South America, through Africa, the Orient and the East Indies, including New Guinea, but is absent from Australia. As in the Forficulidae it would appear that there are probably too many genera but I have decided at this stage to make no more changes than are really needed.

A NEW SPECIES OF *Lestinogomphus* MARTIN 1912 (ODONATA), AND THE HITHERTO UNDESCRIBED MALE OF *Microgomphus camerunensis* LONGFIELD 1951

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In April 1957 the writer found a solitary female *Lestinogomphus* flying over grass beside a stream crossing the road at Batati, near Bida, Niger Province, N. Nigeria. The specimen was of special interest in having a pair of cornua on the ridge of the occiput, which are absent in the two previously known species of the genus, *L. angustus* Martin 1912 and *L. africanus* (Fraser 1926), of which the latter is the only one hitherto recorded from Nigeria. The specimen was unquestionably a *Lestinogomphus* by the long cylindrical tenth abdominal segment which without its appendages was more than half as long again as the ninth, and the narrow base of the hindwing which was almost the same shape as the forewing, giving the insect the general appearance of one of the Zygoptera. In addition, part of the abdomen became detached in transit home, and during repair the opportunity was taken to remove a few unlaidd eggs which were visible at the broken end. These were moistened and examined microscopically, when they were found to be exactly like those previously described by the writer from *L. africanus* (1960), with a long coiled filament round the posterior pole, differing only in their smaller size (0.44–0.49 × 0.23–0.26 mm.).

Further visits to the locality failed to produce any further specimens, so the male is still unknown. However, in view of the especially interesting character of the occiput, it seems desirable to describe the species as new, although from only one sex, and the name *L. minutus* is proposed.

In March 1954 a male *Microgomphus* was found dead and tangled in a spider's web on a bush beside a stream through a patch of forest at Ado-Ekiti, Ondo Province, West Nigeria. Miss Longfield, who had described *M. camerunensis* from a single female taken near Kumba in West Cameroun, considered both by the markings and the geographical origin that this was the male of that species. However, as the male lacked the lateral yellow spots on segments 3-7 of the abdomen, the writer refrained from describing it as the missing male until both sexes could be found occurring together in the same locality. In 1962 a short series was reared from some larvae dredged from gravel in a shallow river running through forest at Jemaa, Plateau Province, N. Nigeria, where they were occurring among large numbers of *Paragomphus*. These consisted of four males and a female, the former agreeing exactly with the Ado-Ekiti specimen, and the

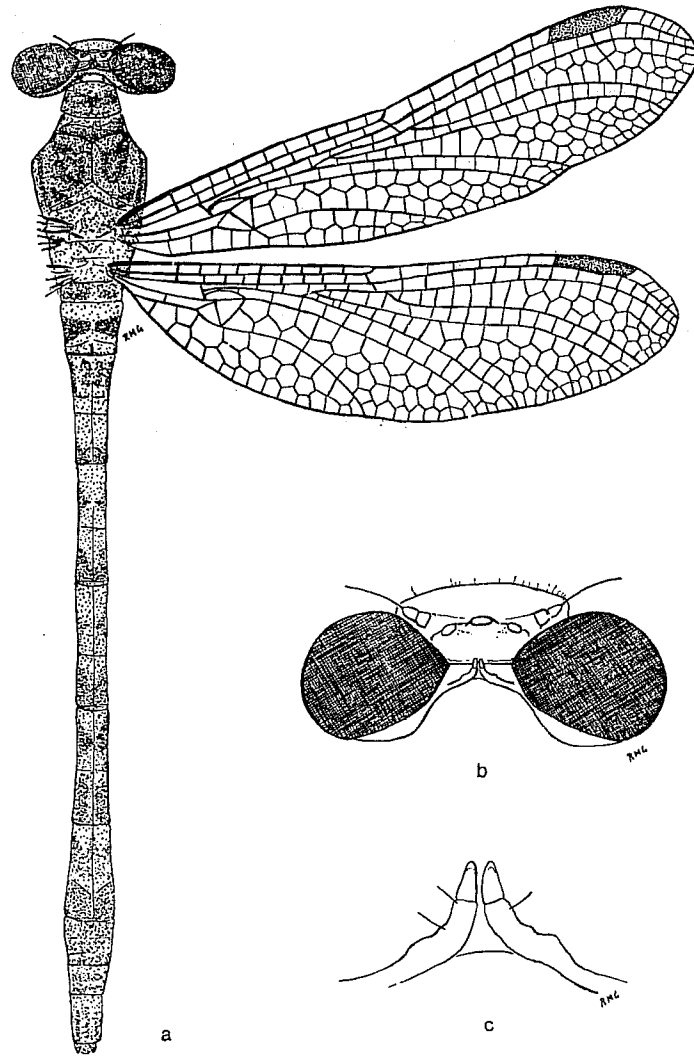


Fig. 1

Fig. 1 (a) *Lestinogomphus minutus*, female; (b) ditto, head enlarged; (c) ditto, occipital ridge, showing cornua.

latter with the type of Miss Longfield's species. The larvae resembled that figured and described by Fraser (1956) from Nyong in the former French Cameroons, and believed to be a *Microgomphus* from its likeness to Indian species. One of the male specimens is here described as the allotype of *M. camerunensis* Longfield 1951.

Lestinogomphus minutus sp. nov.

Female holotype (mature)—Head: labium, labrum, clypeus, and frons ochreous with an ill-defined olivaceous band across the clypeo-frontal suture: vertex brown, occiput paler brown; the occiput carries a pair of slender yellowish cornua arising just anterior to the hind margin at each end of the central third, pointing antero-dorsally and curved inwards so that the tips lie close to each other (fig. 1, b and c).

Thorax: prothorax ochreous brown; pterothorax yellowish brown with brown markings, generally similar to *L. africanus* but with pattern less definitely marked; a brown humeral stripe (mostly subhumeral except at the dorsal end); two pale antehumeral stripes, the outer complete, the inner a short oblique streak framed by a brown rhomboidal area whose anterolateral angle meets the anterior collar, and anteromedial angle carries a short vaguely-defined projection in an anterior direction; the pale central Y between the rhomboids, so clearly marked in *L. africanus*, is here ill-defined and not sharply contrasted; a narrow brown stripe (incomplete dorsally) on the first lateral suture, and another (complete) on the second; legs ochreous yellow, with tarsi pale brown; anterior surface of fore-femora brown, posterior ochreous; remaining legs faintly streaked with brown.

Abdomen: ochreous with brown markings, pattern somewhat ill-defined, but distributed as shown in fig. 1a; slender, slightly dilated near base, with a width of 2 mm. at base of second segment, narrowing to 1 mm. at 4th, and widening to 1.6 mm. at hind end of 7th, then narrowing to 0.8 mm. at 10th; length of 8th, 9th, 10th (without appendages) 1.4, 0.85, and 1.5 mm. respectively; appendages very short, 0.37 mm., wide at base and ending in a sharp point; vulvar scale triangular, deeply bifid, cleft to its base unlike *L. africanus* (fig. 2, a and b).

Wings: hyaline with brown veins; nodal formula

$$\begin{array}{c|c|c|c} 6 & \frac{10}{11} & \frac{1}{0} & 7 \\ \hline 6 & \frac{9}{9} & \frac{9}{9} & 6 \end{array}$$

primary antenodals 1 and 5; branches of arculus separate, very close in forewing, but more visibly spaced in hindwing; 3 cross-veins between Rs and MA in forewing, 2 in hind; 4 bsq (5 in right hind); 1 Cuq in each wing; arculus at 2nd Ax in forewing, slightly proximal in hind; 2 rows of cells in discoidal field for 7 and 6 cells in forewings, 4½ and 5 in hind; base of hindwing

narrow with anal field reduced and no anal loop; pterostigma brown, 2.3×0.6 mm.

Length of abdomen (excluding appendages) 23 mm.; length of hindwing 17 mm. Taken flying over grass near a stream, Batati, near Bida, Niger Province, Nigeria. 18.iv.57.

The new species can be distinguished from the two previously known, *africanus* and *angustus*, by its occipital horns, small size, and shape of the vulvar scale (figs. 1 and 2).

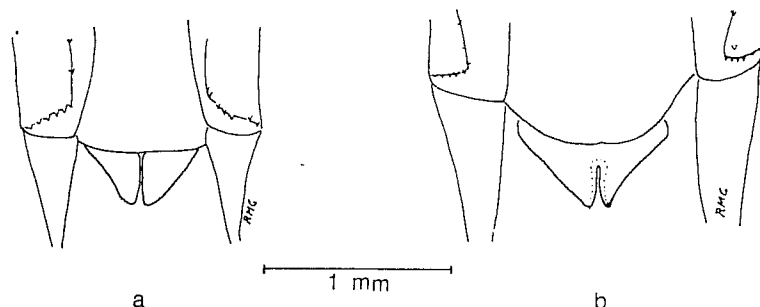


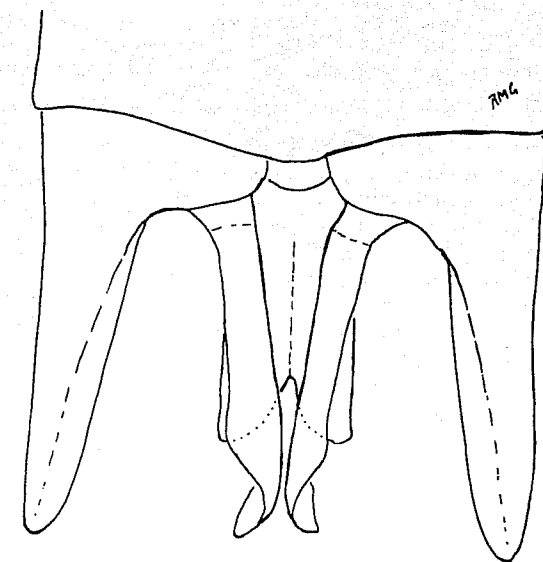
Fig. 2

Fig. 2: Vulvar scales; (a) *L. minutus*; (b) *L. africanus*.

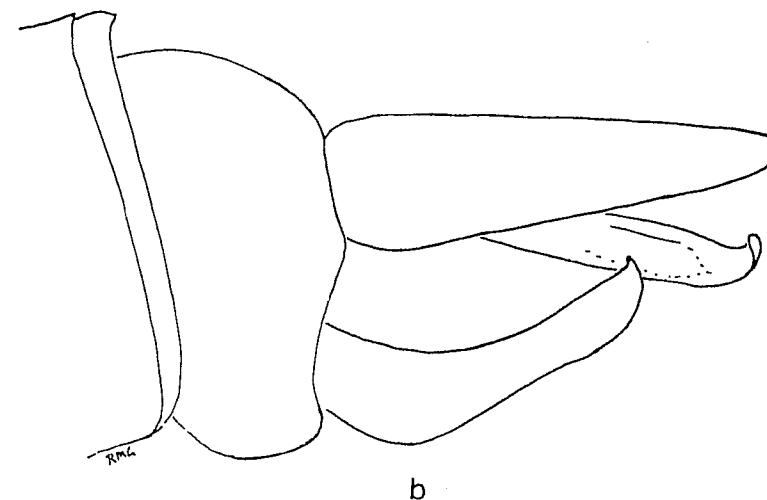
Microgomphus camerunensis Longfield 1951

Male allotype (semi-teneral) — Colours and markings as described for the holotype with the following exceptions: — The pale lateral spots on segments 3-7 are absent, abd. segm. 1 is yellow only posterior to the transverse carina (the amount of yellow is variable in the series, and one of the paratypes has this segment almost entirely yellow), and the pale markings on the thorax are citron-yellow instead of green (this is doubtless an age difference, as the holotype was mature. The single female in the bred series has all the pale markings yellow, as in the males); the dark markings in all the bred specimens are brown rather than black.

Oreillets prominent, rounded, yellow with a cluster of black denticles posteriorly; superior anal appendages with a stout external branch tapering to a blunt point, yellowish tipped with grey, and a slender inner branch of equal length, brown, cylindrical for half its length; then slightly inflated and hoodlike, triquetral in section; then laterally compressed and bladelike, twisted downwards and outwards; inferior appendage dark brown, bifid for slightly less than the last third of its length, the points not markedly divergent, with lateral borders remaining parallel (fig. 3, a and b).



a



b

Fig. 3

Fig. 3: *Microgomphus camerunensis*, male, appendages (a) dorsal, (b) from left.

Wings: nodal formula $\frac{10 \left| \begin{array}{c|c} 14 & 15 \\ \hline 14 & 14 \end{array} \right| 10}{10 \left| \begin{array}{c|c} 9 & 10 \\ \hline 9 & 10 \end{array} \right| 10}$, primary Ax 1 and 5 (1

and 6 in right forewing); 4 cross-veins between Rs and MA in forewing, 3 in hind; bsq present, 6 and 7 in forewings, 5 in hind; a single Cuq in each wing; arc at 2nd Ax (or extremely close to it) in forewings, proximal in hind; AT with 3 cells in a single row; discoidal field of forewings with 2 rows, 8 cells long in left and 7 in right; in hindwings commencing with 3 rows and immediately becoming 2 for the next 3 cells; pterostigma yellowish brown framed with dark brown veins, 2.4 × 0.5 mm in forewing, 2.5 × 0.6 mm. in hind.

Accessory genitalia: anterior hamule directed ventroposteriorly with a terminal claw curving posteriorly and a subterminal curving dorsolaterally; posterior hamule directed ventrally, its terminal claw curving anteriorly; in lateral view the posterior hamule hides the anterior and the upper part of the tip of the penis. The penis has been left untouched in the allotype and details of its lateral aspect are taken from a paratype bred from the same batch of larvae. Vesicle of penis inflated, very prominent ventrally and its width (1.35 mm.) almost that of the segment beneath which it lies; cordate in ventral view, with two rounded lobes anteriorly, the groove between them holding the terminal lobe of the penis when retracted; penis proper consisting of the usual three joints, the last two not very clearly separated; terminal joint when viewed laterally shaped like the open jaws of some ungainly animal, with the paired flagella protruding like a tongue; in lateral view each flagellum is shaped roughly like a parallelogram attached by one of its acute angles, with the opposite angle produced to form the flagellar process; the two flagella have their borders united as far as their two obtuse angles, forming a bell-like cavity in the base of which is a small rounded body like the ovary of some bell-shaped flower; flagella with a comparatively heavily chitinised midrib and a lightly chitinised border, the latter finely striated; a row of backwardly directed scalelike spines joining the two obtuse angles of the parallelogram; under the bell are a few backwardly directed spines (fig. 4, a and b); above the bell of the flagellum, between it and the upper part of the terminal joint of the penis, is a transverse flap of thinly chitinised membrane, attached below and free above, expanded laterally into a pair of small horns; laterally, as in fig. 4, all that is visible is the small upright horn; right and left horns are joined together by the membranous flap.

Length of abdomen (excluding appendages) 24.5 mm.; length of hindwing 22.5 mm. Specimen emerged on 23.iv.62 from a larva dredged from gravel in the Jemaa River, running through the forest between Kafanchan and Old Jemaa in Plateau Province,

N. Nigeria, on 8.iv.62.

Three paratype males, emerging between 4.iv and 18.iv.68 from larvae dredged from the same spot, had nodal formulae of

$\frac{10 \left| \begin{array}{c|c} 13 & 14 \\ \hline 12 & 12 \end{array} \right| 10}{10 \left| \begin{array}{c|c} 10 & 11 \\ \hline 10 & 10 \end{array} \right| 10}$, $\frac{9 \left| \begin{array}{c|c} 13 & 13 \\ \hline 13 & 14 \end{array} \right| 9}{10 \left| \begin{array}{c|c} 9 & 10 \\ \hline 10 & 10 \end{array} \right| 9}$, and $\frac{9 \left| \begin{array}{c|c} 15 & 14 \\ \hline 13 & 13 \end{array} \right| 9}{10 \left| \begin{array}{c|c} 11 & 10 \\ \hline 10 & 10 \end{array} \right| 10}$. The second of these had

two Cuq in the right forewing, and the third two in both forewings. Respective lengths of abdomen (without app.) were 24.5, 25.5, and 25.5; hindwings 20.5, 22.5, and 22.5 mm.

The only female to emerge from these larvae (on 21.v.62) had the lateral spots figured by Miss Longfield, which were absent in all the males, and agreed with the holotype in all respects except for the thorax being marked with yellow instead of green. The

nodal formula was $\frac{10 \left| \begin{array}{c|c} 15 & 16 \\ \hline 14 & 15 \end{array} \right| 1}{9 \left| \begin{array}{c|c} 11 & 11 \\ \hline 11 & 10 \end{array} \right| 9}$; abdomen 27 mm.; hindwing 24.5 mm.

A very teneral male of this species was found beside a shallow river with a gravel bottom in forested country 20 miles west of

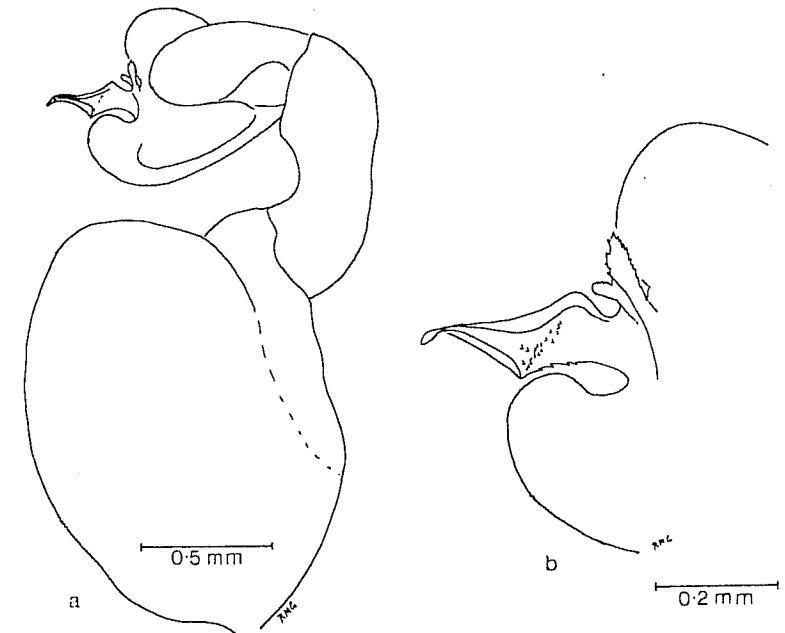


Fig. 4

Fig. 4: *Microgomphus camerunensis*, male, (a) penis, from left; (b) ditto, tip enlarged, showing flagellum.

Marnfe in West Cameroun on 19.x.62. No other records of this species are known.

The male of *M. camerunensis* can be distinguished from all the other African species of the genus by the inferior appendage being bifid for no more than its final third. The other species are figured as having it bifurcating for over half its length. The divisions are less divergent than any species except *M. schoutedeni* Fraser 1949. *M. bivittatus* Pinhey 1961 whose male is unknown, is unlikely to be confused, as this species is unique in having two pale antehumeral stripes instead of one.

The holotype of *L. minutus* and the allotype of *M. camerunensis* are in the writer's collection, and will ultimately be bequeathed to the British Museum (Nat. Hist.), London.

Acknowledgements

The writer wishes to thank Miss Cynthia Longfield for her interest in his work, and for examining the original male of *M. camerunensis* from Ado-Ekiti; and also his wife for assistance in dredging larvae from the Jemaa River, and for finding the single female larva which proved the identity of the males beyond all doubt.

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REVIEW

BULLETINS OF THE BRITISH MUSEUM (NAT. HIST.)—ENTOMOLOGY

A taxonomic revision of the Australian Aeolothripidae (Thysanoptera).

Mound, L. A., 1967.

Vol. 20, No. 2, pp. 41-74, 54 text-figures. 15/-

Nineteen species of this family are recognised from Australia, and these are included in 7 genera. One species is Holarctic; one is recorded from India; but the rest are endemic. With one exception the type specimens of all the Australian species have been examined, and all the species are re-described. Keys to genera and to species are given. Three new species and two new genera are described. The figures illustrate taxonomic characters; references and an index are included.

A. Brindle.