

before the ocelli with a transverse closely punctured sulcus, the front smooth, elsewhere with a few scattered punctures. Antennae long and slender, all the segments longer than broad, decreasing in length, the penultimate in the ♂ a little longer than in the ♀. Thorax transverse (4.2 : 9), the sides evenly rounded and explanate, distinctly and closely denticulate, the anterior angles rounded, the posterior obtuse, along the middle with a broad sulcus, moderately coarsely and moderately closely punctured, not rugose. Elytra convex, much longer than the thorax (7 : 9), parallel, the side margins finely but distinctly denticulate, the dorsal surface with yellow ridges and tubercles, the humeral ridge well marked in front and behind but broken into two or three tubercles in the middle, the ridge nearest the suture also well marked in front and behind but widely interrupted in the middle, the median obsolete and only represented by a small tubercle near the base and a well-developed ridge behind the middle; the puncturation coarse, close and more or less serrate. Abdomen conical, coriaceous, impunctate.

♂. Anterior tibiae bispinate.

DAREBEELING : Ghum district, v.-vi. 1931 (Cameron). Type in my collection.

#### A NEW SUBGENERIC NAME FOR *LYGUS* REUTER 1875 *N&C* HAHN 1833 (HEMIPT.-HETEROPT.)

By W. E. CHINA, M.A.

WILKE engaged in the preparation of a paper on the generic names of British Heteroptera. I have found that the first valid type fixation for *Lygus* Hahn 1833 is that of Distant 1904 (*Trans. Brit. Ent. Rely.* 2 : 454), who cited *Comez pablinus* L. 1761. In spite of Kirkaldy's contention to the contrary (1906, *Trans. Amer. ent. Soc.* 32 : 139 footnote), this citation is valid. The name *Lygus* must therefore replace the subgeneric name *Lygocoris* Reuter 1875 leaving the subgenus *Lygus* Reuter 1875 et auct. without a name. For this concept I propose the new subgeneric name *Apolygus* nom. n. (type *Phyllocoris limbatus* Fallen 1829 fixed by Osburn 1912, *Kat. paläarkt. Hemiptera* for *Lygus* auct.).

The British species of *Lygus* Hahn included in the subgenus *Apolygus* China are :—*L. (A.) viridis* Fallen 1807; *L. (A.) contaminatus* Fallen 1829; *L. (A.) spinosus* Meyer-Dür 1841; *L. (A.) lucorum* Meyer-Dür 1843; *L. (A.) limbatus* Fallen 1829; *L. (A.) pratensis* L. 1768; *L. (A.) atomarius* Meyer-Dür 1843; *L. (A.) rubricatus* Fallen 1807; *L. (A.) cervinus* H.-S. 1842.

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#### NEW AFRICAN SPECIES OF *CERLAGRION* (ODONATA)

By Lt.-Col. F. C. FRASER, I.M.S. Retd., F.R.E.S.

THE genus *Ceragrion* Selys contains twenty-six species which are widely distributed throughout the Orient and Ethiopia. In this respect, as well as in others such as the venation of the wings and the nature of the habitats of the species, it agrees with the genus *Pseudagrion* Selys, to which it bears the closest relationship. This latter genus, however, is the more dominant of the two and this is especially so in the Ethiopian fauna. There are only nine species of *Ceragrion* found throughout Africa, as against thirty-two species of *Pseudagrion*. In Miss Longfield's report on six collections of Odonata from Africa (1936, *Trans. R. ent. Soc. Lond.* 85 : 493), it is found that in only one were *Ceragrions* included and all these belonged to a single species. On the other hand, four of the collections contained *Pseudagrions*, and in one, no fewer than eleven species are cited. This unequal proportion is found in all collections from that continent and not only in numbers of species but also in the number of specimens of individual species. Professor G. D. Hale Carpenter's collections, which have been the chief source of my own material, contained only thirty-five *Ceragrions*, as against one hundred and eighty *Pseudagrions*. This contrast in the numbers of the two genera is the more significant when one considers that *Ceragrions* are the more conspicuous insects and so are the more likely to attract the notice of collectors; moreover their bright red and orange colouring must be considered as "protective" in character and should therefore be of some advantage in the struggle for existence. In general, species of *Pseudagrion* are coloured blue, more or less extensively marked with black, and only a few bear brighter red or orange markings.

From all these facts, I am forced to conclude that the genus *Pseudagrion* arrived in Africa long before *Ceragrion*, and that, when the latter followed, it found itself in opposition to an already strongly established and nearly related genus which occupied those habitats which would have been suitable for itself. That opposition apparently still prevails. As I have remarked in a former paper (1929, *16th Indian Soc. Congress* 4 : Zool. 8-9), a species which has established itself in such numbers as to give it an easy dominance, will be able to resist the invasions of after-comers; it is only when some natural catastrophe such as a cyclone, volcanic action, flood or fire has overwhelmed it, that the ground is opened up for the invasion of new-comers, but even in such cases, species often show a remarkable aptitude to recover their dominance in the course of a few years. In the Odonata, this is due to overlapping in the larval stage, and in the Lepidoptera, probably to delayed emergence from the pupal stage. These "mistakes" in the emergence stage seem to be a wise provision on the part of Nature to bridge such catastrophes, otherwise many species would stand to be wiped out in the course of a single generation.

The first *Ceragrion* to be described from Africa was *C. glabrum* (Burm.) in 1839, and it was not until 1914, seventy-five years later, that any more species belonging to the genus were reported from that continent. In that year, Campion gave the descriptions of three new species from West Africa (*Ann. Mag. nat. Hist.* (8) 14 : 277), viz. *C. citrinum*, *C. corallinum* and *C.*

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*ignitum*. In 1920 Kis described a fifth species, *C. suave*, from the Belgian Congo, and in 1924, a sixth, *C. kordofanicum*, from the Sudan. To these I now add three more new species from Uganda, collected by Professor G. D. Hale Carpenter. Champion gave a key for the identification of the four species known in 1914, and it will be useful to revise this so as to include the nine species known from Africa to-day.

Key to the African species of genus *Ceratigrion*.

1. The anal vein separating from the posterior border of wing at the level of the anal tracheal cross-vein . . . . . 2.
2. The anal vein separating from the posterior border of wing distinctly proximal to the level of the anal tracheal cross-vein . . . . . 6.
2. 1 to 5 stout spines grouped at each end of the apical notch on segment 10 . . . . . *glabrum*.
3. No stout spines at the ends of this notch . . . . . 3.
3. Arculus situated markedly distal to the level of the distal antenodal; occiput bright brick-red; 2 black teeth on the inner sides of superior anal appendages . . . . . *bidentatum*.
- Arculus at or but slightly distal to the level of distal antenodal; occiput dull brown or ochreous; without teeth or but a single one on inner side of superior anal appendages . . . . . 4.
4. Posterior border of inferior anal appendages strongly angulated . . . . . 5.
4. Posterior border of inferior anal appendages obliquely bevelled, not angulated . . . . . *suave*.
5. Head, prothorax and thorax largely bluish-green . . . . . *bakeri*.
5. Head, prothorax and thorax largely orange or reddish . . . . . *kordofanicum*.
6. Pterostigma quadrate, its costal and distal borders slightly sub-equal; 7 spines on the hind femora . . . . . *platystigma*.
- Pterostigma elongate, its costal border much longer than distal; only 5 spines on the hind femora . . . . . 7.
7. Wings tinted conspicuously with yellow; abdomen largely citron yellow . . . . . *citrinum*.
- Wings untinted or but palely so; abdomen reddish . . . . . 8.
8. Thorax dark green on dorsum; inferior anal appendages with a robust tooth on posterior border . . . . . *corallinum*.
- Thorax dark reddish-brown on dorsum; inferior anal appendages without a tooth on posterior border . . . . . *ignitum*.

*Ceratigrion bakeri* sp. n.

Male: Abdomen 30 mm. Hind-wing 23 mm.  
 Head: labium pale straw yellow, rest of head above, as well as eyes, bluish-green. Prothorax bluish laterally, shaded with brown on dorsum; thorax bluish-green, somewhat darker on dorsum than on the sides and resembling rather closely *C. azureum* (Selys) (but the colour in this latter more of a turquoise blue). Legs yellow with black spines, five of the latter on posterior femora (the usual number in the genus). Wings palely tinted, pterostigma pale yellow with darker cinereous centre, nearly twice as long as broad; 13 postnodals to fore-wings, 11 to 12 to the hind-wings; arculus slightly distal to the level of distal antenodal; anal vein in hind-wing separating from the posterior border of wing at the level of anal tracheal cross-vein, but a little proximal to this level in the fore-wing. Abdomen long and slender, segment 1 yellow, the remaining segments bright brick-red with the joints finely darker. Anal appendages reddish, superiors only half the length of segment 10, shortly unguinate, curled down and inwards and with a single minute black tooth on the inner side; inferiors conical, projecting obliquely upwards and tapering to

an obtuse point, somewhat longer than superiors. Excision on segment 10 wide and shallow.

Habitat: UGANDA: 2 males from a rock pool in Sir Samuel Baker's old camp at Patiko, Gulu district, 23.vii.28, collected by G. D. Hale Carpenter. Type in my own collection. This species is distinguished from all other African species by its blue head, prothorax and thorax. It is named after Sir Samuel Baker at the request of Professor Hale Carpenter.

= *Varians* (Maitin, 1908)?

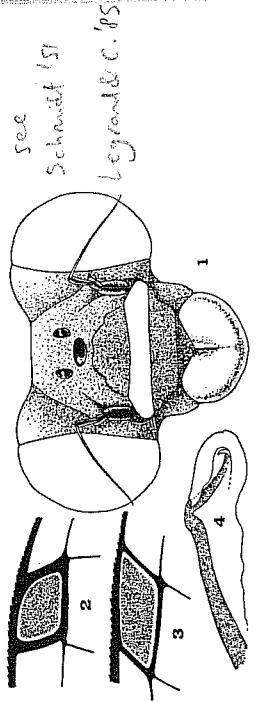


FIG. A.—1, Head of *Ceratigrion platystigma* sp. n. Note the prominent frontal ridge; 2, pterostigma of the same species; 3, pterostigma of *Ceratigrion glabrum* (Burm.), which represents the normal shape for the genus; 4, penis of *Ceratigrion platystigma* sp. n.

*Ceratigrion platystigma* sp. n.

Male: Abdomen 35 mm. Hind-wing 21 mm.  
 Head: labium and beneath head pale straw yellow, rest of head above dull uniform reddish-brown. Prothorax and thorax olivaceous brown, the dorsum of latter a warmer, darker brown and with three small black points at the upper ends of humeral and lateral sutures, the first and last of these being very conspicuous. Legs longer than is usual for the genus, reddish with black spines which, on the hind femora, number 7 instead of the conventional 5. Wings palely tinted with yellow, pterostigma pale golden yellow with darker centre, subquadrate, the costal side distinctly shorter than posterior and the proximal side shorter than distal, the whole organ in shape very similar to that found in the *Platyserictridae*; 12 postnodals in fore-wings, 10 in the hind-wings; arculus situated slightly distal to the distal antenodal; anal vein separating from posterior border of fore-wing slightly proximal to the level of the anal tracheal cross-vein, but at that level in the hind-wing. Abdomen bright crimson throughout with black, superiors only half the length of segment 10, triangular in profile and from above; inferiors but slightly longer, broad at base, obliquely truncate, the apex tapering and minutely bifid. As seen from above, this appendage is nearly straight on its outer border, is rapidly tapered and has the apex curled inwards. Segment 10 narrowly but deeply incised on the dorsum and without marginal spines.

Female: Abdomen 34-35 mm. Hind-wing 24 mm.

see  
 Schmidt 51  
 Legend & C. 85

Coloured like the male but rather more olivaceous. Abdomen reddish-brown clouded with blackish which forms broad subapical annules on segments 2 to 5 and less so on segment 6. Basally the segments are finely yellow, this colour broadening laterally and below. Anal appendages shortly conical, yellow. Wings palely tinted with yellow, pterostigma pale ferruginous with darker centre, of similar shape to that of male; 12 post-nodals to fore-wing, 11 to the hind-wing; arculus at the level of distal antenodal; anal vein separating as in the male.

**Habitat:** UGANDA: 1 male and 1 female from N.W. shores of Lake Victoria, vii.1927; 1 female, Entebbe, Victoria-Nyanza, 21.ix.28, all collected by G. D. Hale Carpenter. This species is distinguished from all others of the genus by the shape of its pterostigma, by its longer legs and by the greater number of spines on the posterior femora. The species is an aberrant one but I have hesitated to give it generic rank, since the head bears the characteristic frontal ridge and the genitalia are also characteristic of the genus. Type in my own collection.

*Cerriagrion bidentatum* sp. n.

Male: Abdomen 20 mm. Hind-wing 19 mm.

Head: labium and beneath eyes pale olivaceous green; labrum and genua olivaceous, vertex and clypeus dark chocolate brown to as far as a line drawn transversely just posterior to the ocelli, beyond which it becomes abruptly brick-red. Prothorax and thorax olivaceous, darker on dorsum but paling to light ochraceous laterally and to almost white beneath thorax. Legs short, femora yellowish, tibiae and tarsi ferruginous with black spines, these latter numbering 5 on the hind femora. Wings palely tinted with yellow, pterostigma pale ochraceous with darker centre, nearly twice as long as broad; 10-11 post-nodals to fore-wings, 10 to hind-wings; arculus situated far distal to distal antenodal; anal vein separating from posterior border of wings at or before the level of anal tracheal cross-vein. Abdomen bright crimson throughout. Anal appendages reddish tipped, with black, superior less than half the length of segment 10, conical and with apex hooked downwards as seen in profile, but subquadrate as seen from the dorsum and with an inner apical black tooth, followed more basally by a smaller and slimmer one. Inferiors broad at base, tapering to an obtuse apex which is directed obliquely upwards, below which is a triangular plaque which gives a bifid appearance to the appendage. From above, the apex of the appendage is pointed and is bordered inwardly by a finely ringed with black. Segment 10 rather broadly and shallowly excised and without marginal denticles.

Female: Abdomen 30 to 32 mm. Hind-wing 20 to 21 mm.

A more robust insect than the male and more soberly coloured. The head very like the male's but the labrum yellow and the rust-red area on occiput not quite so conspicuous. In some specimens this area is uniform dull brick-red, whilst in others it is a brighter red medially, changing to bright ochraceous near the eyes. Dorsum of prothorax and thorax dark olivaceous green paling on the sides and beneath to whitish, which latter is further enhanced by some pruinosity beneath thorax. Legs carmine. Abdomen dull ferruginous paling to olivaceous green laterally and deepening to dark reddish-brown on the terminal segments. Intersegmental joints on segments 2 to 7 finely ringed with black. Wings palely tinted with yellow, pterostigma olivaceous; 11 post-nodals in fore-wings, 9-10 in the hind-wings; arculus arising not quite so far distally as in the male, anal vein as in the male.

**Habitat:** UGANDA. Several of both sexes from Budama, x.1927, collected by G. D. Hale Carpenter. Type and allotype female in my own collection.

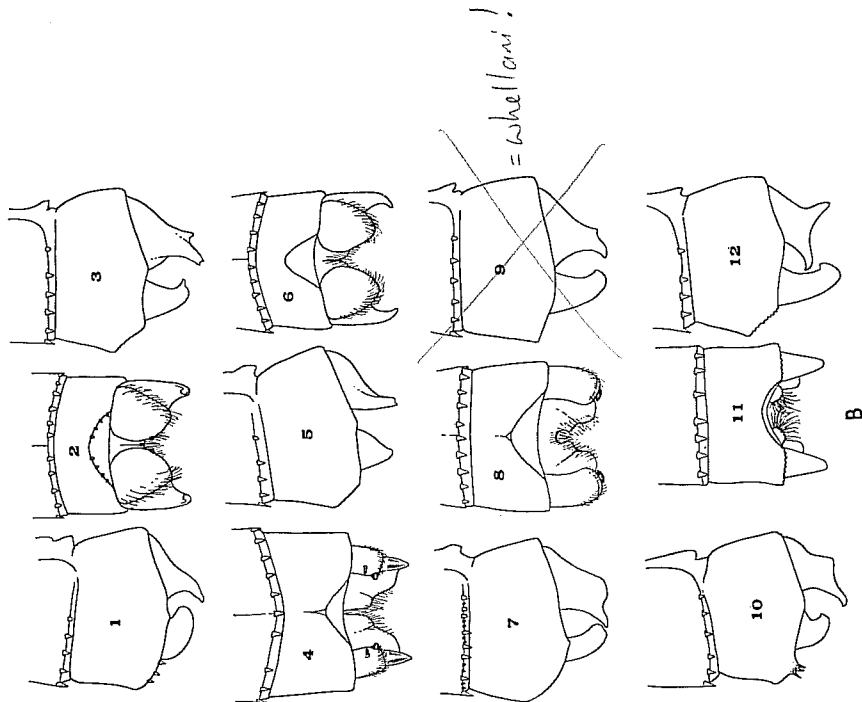


FIG. B.—Anal appendages of:—1, *Cerriagrion bakeri* sp. n., seen from the right side; 2, the same, dorsal view; 3, *Cerriagrion bidentatum* sp. n., seen from the right side; 4, the same, dorsal view; 5, *Cerriagrion platystigma* sp. n., seen from the right side; 6, the same, dorsal view; 7, *Cerriagrion suavis* Ris. seen from the right side; 8, the same, dorsal view; 9, *Cerriagrion corallinum* Champion, seen from right side; 10, *Cerriagrion grahami* (Barn.) seen from the right side; 11, *Cerriagrion kortofanicum* Ris. seen from the dorsum; 12, the same, seen from the right side.

This species is distinguished from other African forms by the extreme distal position of the arculus, by the shape of the anal appendages and their armature.

*Cerigiopsis korlufanicum* Ris.

This species is known only from a single immature male from the Sudan, so that I have been fortunate to find a male and female among the material collected by Professor Hale Carpenter; as these were taken *in cop*, there can be no doubt about their relationship, and moreover they are in excellent condition and fully adult. They are from UGANDA: Budama, Bunyuli district, x.1927.

The male has the upper surface of the head, dorsum of prothorax and thorax a rich coppery red and the abdomen bright crimson throughout; this latter is so short that I at first thought that some of the end segments were missing. The wings are palely tinted with yellow; the pterostigma golden brown with darker centre; 10 postnodals to the fore-wings, 9 to the hind-wings. Abdomen 23 mm. and hind-wing 10 mm.

The female has not hitherto been described:—

Female: Abdomen 26 mm. Hind-wing 18 mm.

A more robust insect than the male and with the reddish colouring replaced by olivaceous. The abdomen uniform pale olivaceous with, on segments 3 to 7, rather ill-defined but distinct paired, subapical dorsal blackish-brown spots; a similarly coloured elongate spot on each side of segment 9. Anal appendages shortly conical, olivaceous. Wings palely tinted with yellow, pterostigma coloured as in the male, nodal index, and position of arculus and origin of anal vein as in the male.

The characteristic shape of the inferior anal appendages and the fact that these are shorter than the superiors will serve to separate this species from all other African ones. The anal appendages, as viewed in profile, are strikingly similar to those of *C. praecernissum* Lieftinck, an oriental species of the genus with which Dr. Ris compared *C. korlufanicum*. It was probably this similarity that led him to consider that the latter species was more nearly related to the oriental fauna than to the Ethiopian; very little if anything, however, separates the two geographical sections of the genus and no hard and fast lines can be drawn between them.

NOTES ON CERATOPOGONIDAE (DIPTERA)

By J. W. S. MACFEE, F.R.E.S.

*Culicoides victoricae* sp. n.

A dark brown species with the wings well clothed with macrotrichia and adorned in a characteristic manner.

♀. Length of wing about 1.6 mm., greatest breadth 0.7 mm.

Head very dark brown or blackish. Palpi dark brown, third segment only slightly inflated, with shallow pit: lengths of last three segments about 25, 10, and 9 units respectively. Antennae darkish brown, torus very dark: segments 4-10 from oval to somewhat vasiform; 11-16 missing. Thorax very dark brown or blackish with a silvery pruinoscence, the adornment consisting of large bands or patches, not small spots. Scutellum very dark. Wings (fig. 1) with characteristic adornment as shown in diagram. Macrotrichia (not shown in figure) abundant, covering greater part of wing surface, numerous in anal cell and extending nearly to base between M and Cu. Halteres with white or cream-coloured knobs. Legs dark brown, the knees dark but with narrow paler band on each side. T. P. about 2.4. Fourth tarsal segments cylindrical, not cordiform. *Alatomena* very dark brown. Spermathecae two, highly chitinised, sub-equal, obovate.

AUSTRALIA: Victoria, Coontoo, 19.ix.1924, 2 ♀♀, "biting man" (G. F. Hill).

This species resembles in some respects *C. multinaevatus* Taylor but the distal pale area in cell R5 of the wing is single, not divided into three separate pale spots. The adornment of the wings is rather closely similar to that of the European species *C. injunctatus* Goet.

The type is in the British Museum collection.

*Palpomyia bicolor* sp. n.

A brown species with a pale, yellowish, abdomen, colourless wings, and all the femora armed.

♀. Length of wing about 2.5 mm., greatest breadth 0.8 mm.

Head blackish. Palpi dark brown, the segments sub-cylindrical, third not inflated and without a pit: lengths of last three segments about 23, 14, and 10 units respectively, the last with a rounded end. Antennae brown, the bases of all segments paler than rest, yellowish: segments 4-10 short, sub-cylindrical, sub-equal, about 13 by 7 units; 11-14 elongate, about 35-42 by 6-8 units; 15 about 45 units long, without styllet. The combined lengths of segments 3-10, 4-10, and 11-15 about 114, 90, and 203 units respectively. Thorax dark brown, with a group of bristles above each wing. No thoracic tubercle. Scutellum dark brown, bearing about 5 bristles. Wings undorned, colourless; without macrotrichia. Costa extending about four-fifths length of wing. Veins almost colourless. Second radial cell rather more than twice length of first. Distance separating bases of M1 and M2 about twice length of cross-vein. Fork of Cu slightly distal to level of base of M2. Halteres with pale brown knobs. Legs yellowish-brown with knees, both extremities of tibiae (very narrowly), and last 2-3 segments of tarsi somewhat darker. Hind legs with in addition practically whole length of femur dark brown. Posterior coxae dark brown,

<sup>1</sup> The unit used is approximately 3.7  $\mu$ .