

THREE NEW SPECIES OF AFRICAN ODONATA.

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Aciagrion steeleae sp. n. (Fig. 1).

N. RHODESIA: Lake Bangweulu, near Monfuli, from stream, 1. x. 1946 (*M. Steele*), 1 ♂.

♂. Labium blueish white; labrum, clypeus, and frons to level of antennal bases, blueish green, remainder of frons black, post-ocular spots and back of head blueish. Prothorax blueish, with a median black stripe. Synthorax blueish above and on sides, marked with black as follows: a median stripe on dorsum, extending on each side of the dorsal carina halfway to the humeral suture; a thin line on the humeral suture, interrupted midway. Ventrally with whitish pruinescence. Legs blueish white, with black spines; anterior and median femora marked with dark brown on anterior surface towards apex, anterior tibia with a narrow brown streak.

Venation piceous, membrane hyaline; pterostigma blueish grey, slightly smaller in hind wing. *A'* starts at *A*_c; three antenodal cellules between discoidal cell and subnodus; fore wing with 10-11 postnodal cross-veins, hind wing with 9.

Abdomen long and slender, slightly dilated apically. Segments 1-2 pale blueish, 3-7 yellowish at sides. Dorsum of segments 1-7 with a broad, black line, expanded apically on each segment and becoming progressively wider until

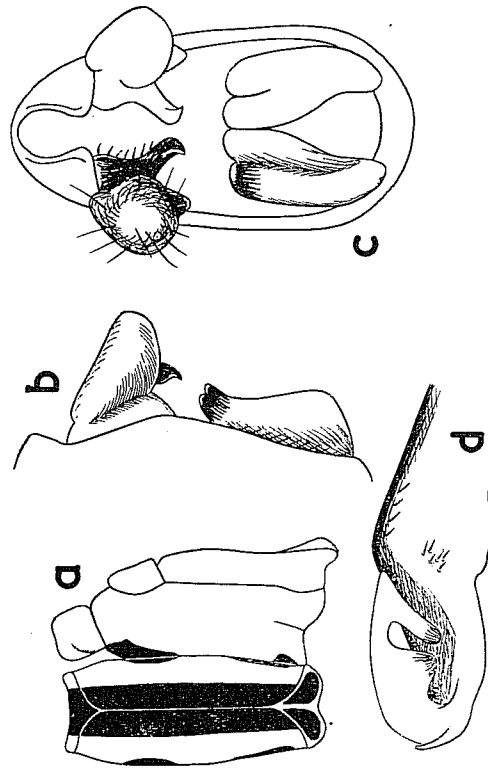


FIG. 1.—*Aciagrion steeleae* sp. n. ♂. *a*, Diagram of thoracic pattern; *b*, anal appendages from left; *c*, anal appendages from behind; *d*, penis from left.

it almost entirely covers the dorsal surface of the seventh segment. Segments 8-10 blueish. Anal appendages brownish, inferiors paler and tipped with black. Superiors shorter than tenth segment, subtriangular in side view, and with the inner, basal part produced in a stout, blackened, hooked process, somewhat resembling the thumb of a ski glove. Inferiors about half as long as superiors, the upper apical angle curved tailward and blackened.

Length of abdomen, 25 mm., of hind wing, 16 mm.

♂ Holotype in British Museum (Nat. Hist.). The apical segments of the abdomen have been a little crushed and the shape of the apical margin of the tenth tergite is obscure. This species resembles *A. gracile* rather than *A. africanum* in its branched superior anal appendages, but it may be distinguished from the former by its much shorter inferior appendages. From *A. africanum* it may be separated by its branched superior appendages. *A. steeleae* differs from both in the form of the apical part of the penis.

Anax bangweulensis sp. n. (Fig. 2).

N. RHODESIA: Lake Bangweulu, Kapola, N. of Kapata, 27.x.1946 (*M. Steele*), 1 ♂.

♂ (slightly teneral?). Face and frons dull yellowish orange, with a trace of greenish, frons unmarked. Vertex blackish with a narrow, transverse, yellowish band between the posterior ocelli. Thorax yellowish, with a greenish tinge, the lower margins of the epimera black. Roots of the wings reddish brown. Legs with coxae, trochanters and femora reddish, tibiae and tarsi picaceous. Abdomen with segments 1 and 2 greenish yellow, remaining segments reddish brown (possibly developing yellowish markings later). Anal appendages yellowish brown. Superiors about twice as long as tenth segment, moderately stout, from above with inner margin convex, broadest before the middle, tapering to an apex

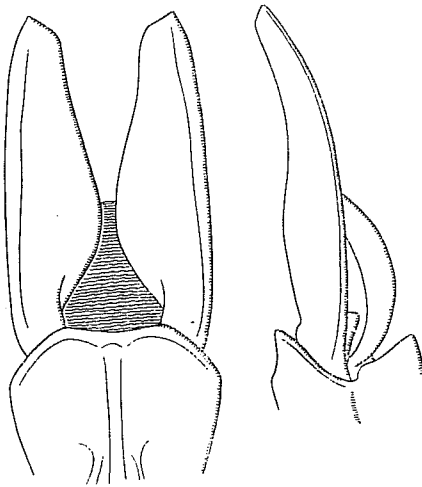


FIG. 2.—*Anax bangweulensis* sp. n. ♂. Anal appendages, dorsal and lateral.

which is right-angled, not acute. Dorsal surface convex, from the side slightly upcurved, apex obliquely truncate, and with a small, basal, ventral projection. Inferior appendage about half as long as superior, forming a truncated, upcurved triangle with two pairs of small blackish teeth at its apex.

Wings hyaline, each with a small, yellowish brown patch at its base in the costal and subcostal regions, in costal extending to first antenodal, in subcostal to second or third. Costa bright yellow, nodus and pterostigma ochreous yellow, other venation reddish brown. Membranule in both wings dark grey, with basal third white. R_3 in all wings strongly arched toward R_2 at the level of the apex of the pterostigma.

Length of hind wing, 46 mm.; of abdomen (without appendages) 48 mm.

♂ Holotype in British Museum (Nat. Hist.). This specimen bears an extraordinary resemblance at first glance to a small *Anax speratus* Hagen and might easily be mistaken for that species. If the colours of the living insect are equally alike, any smaller example resembling *A. speratus* Hagen should be examined carefully in the field. The chief difference lies in the superior anal appendages, which are tapered, not dilated, apically. R_3 in all wings is more strongly arched towards R_2 near the apex of the pterostigma. The superior appendages are even more like those of the American *Anax longipes* Hagen, but are relatively more tapered and with less acute apices, and the inferior appendage is rather longer. The general similarity of this species also to *Anax longipes* Hagen revives the question as to the identity of the male *Anax* attributed to *dorsalis* (Burmeister) by Martin. If his figure of the anal appendages is accurate, the suggestion that it was an *Anax longipes* with a misplaced locality label is probably the right explanation, but it would not require a big error in illustrating to make the anal appendages agree with the present species.

Paragomphus nyasicus sp. n. (Fig. 3).

NYASALAND: "Dallys" and "Ramens" (West shore of L. Nyasa, about twelve miles north of Fort Johnston) 6., 11.ii.1947 (*R. H. Lowe* and *R. C. Wood*), 4 ♂, 3 ♀. Mboleia, 17.xii.1946 (*R. H. Lowe* and *R. C. Wood*), 1 ♀. L. Nyasa, Monkey Bay, 1, 7, 16, 29.ix.1915 (*W. A. Lamborn*), 3 ♂, 1 ♀. Lingadzi River, 25.ii, 6, 9.iii.1915 (*W. A. Lamborn*), 1 ♂, 2 ♀. Bowa District (*J. B. Davey*), 1 ♂, 1 ♀.

♂. Labrum, face and frons yellow; anterior margin of labrum very narrowly brownish, basal half of frons and whole of vertex dark brown. Occipital plate yellow, its hind margin slightly concave, dorsal surface concave, with a transverse, central convexity. Thorax dull yellowish, marked with very pale and darker brown as in Fig. 3a; in some examples the dorsal pattern is very faint. Legs yellowish, much shaded with dark reddish brown, tarsi picaceous. Wings hyaline, venation dark brown, costa yellow anteriorly as far as pterostigma, which is dark reddish brown.

Abdomen dull yellowish brown, with darker brown markings. Segments 1-2 moderately dilated, 3-7 slender, cylindrical, 8-10 dilated, foliate expansions

of 8-9 large. Segment 2 with two dorsal and two lateral brown spots; 3-6 each with a short, basal, dorsal line, a transverse, sub-basal line, two lateral spots, a pair of obscure apical spots (sometimes fused dorsally) and an apical ring, brown, 7-10 reddish ochraceous, 7-9 blackish apically, foliate expansions brown, 10 sometimes blackish above.

Superior anal appendages reddish yellow, above at the base rather darker, the down-curved apex black. Inferior appendages reddish brown, the apical, digitate branch yellowish, with a minute black point apically (Figs. 3*b*, *c*). Genitalia of second segment blackish (Fig. 3*d*).

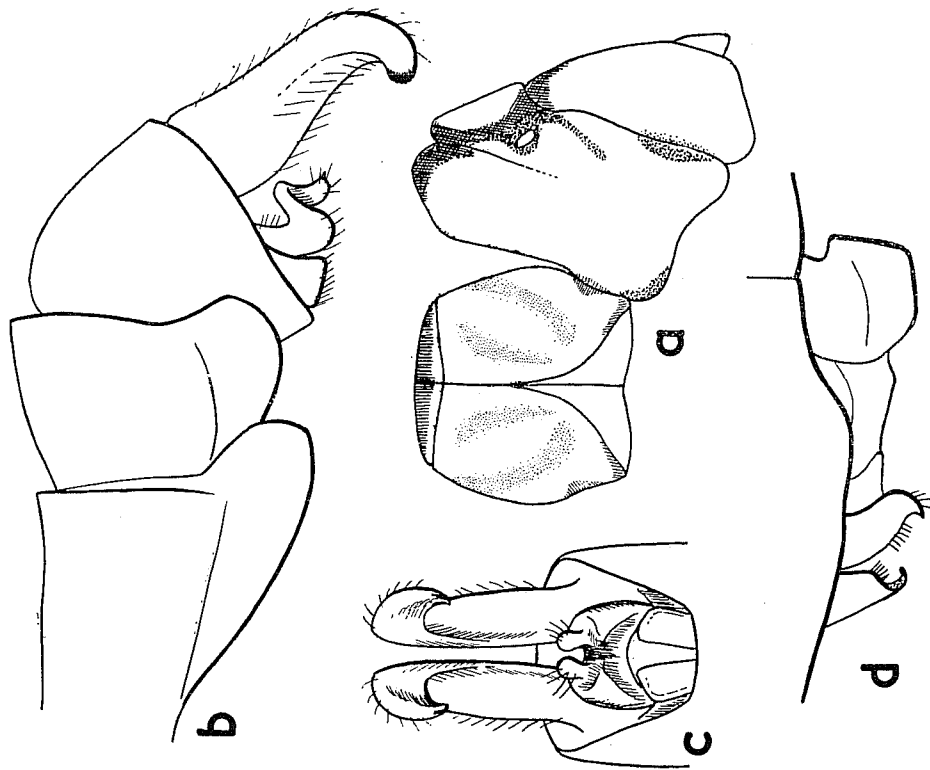


FIG. 3.—*Paragomphus nyasicus* sp. n. ♂. *a*, Diagram of thoracic pattern; *b*, apex of abdomen from left; *c*, anal appendages from below; *d*, genitalia of second segment from left.

♀. Very like the male. Vertex paler. Abdomen a little more robust. Markings of segments 2-6 similar, apical half of 7 and the whole of 8-9 dark red-brown, foliate expansions small, margins serrate; segment 10 and anal appendages yellowish, the latter pointed and slightly longer than 10. Ninth sternite with a small, convex ridge at its base, vulvar scale small, rounded, with a U-shaped excision.

Length of abdomen (without appendages), ♂, 26-30 mm., ♀, 28-32 mm.; of hind wing, ♂, 22-25 mm., ♀, 25-27 mm.

♂ Holotype, ♀ allotype ("Ramens", 11.i.1947) and paratypes in British Museum (Nat. Hist.). This species belongs to the *cognatus* group in the form of the hamules of the second abdominal segment, and general pattern of the male anal appendages. It differs from both *cognatus* (Rambur) and *elpidius* Ris in the relatively shorter and stouter superior appendages and in the shorter and more sinuous inferior appendages. It most resembles *elpidius*, but may be separated from it by the shorter inferior appendages, which are very different in form in ventral view. The pattern of the thorax is much less definite.

PROTRACTED LARVAL AND PUPAL STAGES IN ARCTIA CAJA (LEP., ARCTIIDAE).—On September 1, 1952, my son John, then aged 4½ years, brought in a Garden Tiger caterpillar which he had found on a chrysanthemum plant in the garden. This was placed on a potted plant of the same species in a breeding cage in my garage. It duly settled down for hibernation, and came out therefrom in a quite normal manner in the spring of 1953. But thereafter it grew very slowly. It was still a larva during the normal flight time of the species, and did not pupate until August, 1953. I expected that it would emerge in the autumn; but instead it surprised us very much by spending the winter, the second in its life, as a chrysalis. It did not emerge in the following spring, nor at the normal flight time in 1954. In fact I thought it was dead, until it emerged, quite unexpectedly on September 1, 1954 (the second anniversary of the taking of the caterpillar). The specimen is an aberration, with the anterior spots of the hind wings replaced by a wedge-shaped bar. It is in my son's collection. It is a fine and otherwise quite normal specimen, not crippled or marked in any way.

The Garden Tiger is indigenous to my land. But in the spring of 1952 I put out, on docks and nettles on the other side of my ground, about one hundred Woolly Bears which I had obtained from a dealer and which came in part from a stock that had been subjected for a protracted period to a forcing routine that produced three or four broods in a year. It occurs to me that it is just possible that the happening now reported may have been due to a natural reaction, consequent upon the experience of normal temperatures by an individual only one generation removed from stock so treated.—I. R. P. HESLOR; "Belfield," Poplar Road, Burnham-on-Sea, Somerset.