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PRESENTED  
15 MAR 1939

BRITISH MUSEUM (NATURAL HISTORY)

RUWENZORI EXPEDITION  
1934-5

VOL. III. No. 5.

EPHEMEROPTERA AND NEUROPTERA

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LONDON

PRINTED BY ORDER OF THE TRUSTEES OF THE BRITISH MUSEUM

MADE AND PRINTED IN GREAT BRITAIN BY  
JARROLD AND SONS, LTD., NORWICH AND LONDON

## 5. EPHEMEROPTERA AND NEUROPTERA

By D. E. KIMMINS X 104  
(With Plate)

THE following species are represented in the small collection of Ephemeroptera and Neuroptera made by the Ruwenzori Expedition, 1934-5. Unless otherwise stated all were collected by Dr. F. W. Edwards.

### EPHEMEROPTERA

#### CAENIDAE

*Caenis edwardsi* sp. n.

#### BAËTIDAE

*Centroptilum* spp. (3).

### NEUROPTERA

#### MYRMELEONIDAE

*Nemoleon notatus* (Rambur).

*Creoleon nubifer* (Kolbe).

*Macroleon quinquemaculatus*  
(Hagen).

#### ASCALAPHIDAE

*Helicomitus festivus* (Rambur).

#### NEMOPTERIDAE

*Nemopistha imperatrix* (Westwood).

#### HEMEROBIIDAE

*Hemerobius nairobicus* Navás.

*H. errans* Navás.

*H. elatus* Navás.

*Notiobiella ugandensis* sp. n.

*Eumicromus africanus* (v. d. Weele).

#### CHRYSOPIDAE

*Chrysopa congrua* Walker.

*Chrysopa baronissa* (Navás).

*Ankylopteryx maculata* sp. n.

#### BITTACIDAE

*Bittacus weelei* Esben-Petersen.

### CAENIDAE

#### *Caenis edwardsi* sp. n. (Fig. 1)

UGANDA: Fort Portal, 5000 feet, xii.34-i.35. 102 ♂.

♂ (dried). *Head* dark purplish-brown, eyes blackish. Antennae dark brown. *Pronotum* brownish, paler than head; meso- and metanota shining brownish. *Fore-legs* not widely separated, smoky-brown except tarsi, which are whitish. Middle and hind *legs* whitish, femora with a brownish apical streak on anterior surface. *Wings* whitish hyaline, *C*, *Sc* and *R* purplish-brown, other veins paler.

*Abdomen* yellowish-brown, apices of segments darker. Basal lateral margins of 2-6 with small, pale, rounded projections, lateral margins of 7-9 with pale

streaks. Forceps single-segmented, short, slightly curved and pointed, yellowish brown. Tails whitish, segments with faint dusky joints.

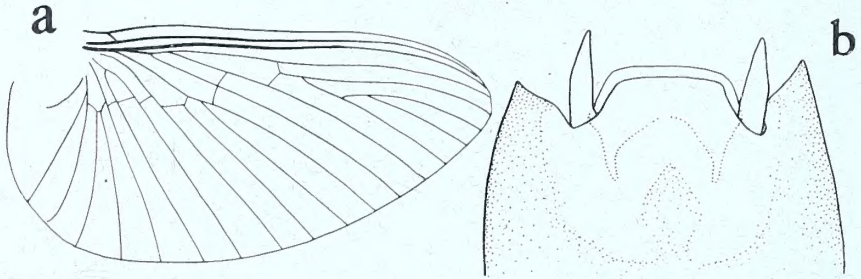


Fig. 1.—*Caenis edwardsi* sp. n. ♂. (a) wing. (b) genitalia from beneath.

Length of body, 3 mm.

Length of wing, 3.5 mm.

This species is about the size of *C. cibaria* Etn., but the grey abdomen of the ♂ of the latter will separate it from *C. edwardsi*.

## BAËTIDAE

### *Centroptilum* spp.

Three species of this genus are represented in the collection; two from Ruwenzori, Namwamba Valley, 10,200 ft., and one from Kenya, Thika, 4500 ft. All are females and in rather poor condition and therefore I shall do no more than record the presence of the genus in these districts. Other records of the genus on the African continent include Algeria, Sudan, Belgian Congo, and South Africa.

## MYRMELEONIDAE

### *Nemoleon notatus* (Rambur)

*Myrmeleon notatus* Rambur, 1842, Ins. Névr.: 406. Walker, 1853, List Neur. Ins. B.M. 2: 369. Hagen, 1866, Stett. Ent. Z. 27: 445.

*Nemoleon notatus* (Rambur) Navás, 1909, Mem. Prim. Congr. Nat. Esp.: 147.

UGANDA: Masaka, 1 ♂.

*Distribution*.—Senegal, Nigeria, Zululand, Malaga.

### *Creoleon nubifer* (Kolbe)

*Creagris nubifer* Kolbe, 1897, Deutsch. Ost-Afr. 4. Netzfl.: 25. Banks, 1911, Ann. Ent. Soc. Amer. 4: 15. Navás, 1911, Rev. Zool. Afr. 1: 241. Navás, 1912, Rev. Zool. Afr. 1: 406.

*Creoleon nubifer* (Kolbe), Esben-Petersen, 1928, Beitr. Kennt. Faun. D. S. W. Afrikas, 2: 209.

*Creagris damarinus* Péringuey, 1910, Ann. S. Afr. Mus. 5: 448.

KENYA: Thika, 4500 ft., 1 ♀.

*Distribution*.—East Africa from Abyssinia to Natal; N. Nigeria.

**Macroleon quinquemaculatus** (Hagen)

*Myrmeleon quinquemaculatus* Hagen, 1853, Monatsber. Akad. Berl.: 482.

*Formicaleo quinquemaculatus* (Hagen) 1866, Stett. Ent. Zeit. 27: 405.

*Macroleon quinquemaculatus* (Hagen), Banks, 1911, Ann. Ent. Soc. Amer. 4: 12.

*Myrmeleon polyzonus* Gerstaecker, 1884, Mitth. Naturw. Ver. Neu-Vorpomm. Rügen, 16: 21.

*Myrmeleon rapax* Kolbe, 1897, Deutsch. Ost-Afrika, 4, Netzfl.: 20.

UGANDA: Ruwenzori, Kilembe, 4500 ft., 1 ♂; Masaka, 1 ♀.

*Distribution*—East, South, and West Africa.

There are in the British Museum collections three examples of this species labelled by W. F. Kirby as having been part of Walker's series of *Myrmeleon lethalis*. This must have been an error on the part of Kirby or a predecessor, as two of the examples entered the Museum after the publication of Walker's Catalogue, and all three disagree entirely with Walker's description of *lethalis*, which is a *Formicaleon* (*Banyutus* Navás).

## ASCALAPHIDAE

**Helicomitus festivus** (Rambur)

*Bubo festivus* Rambur, 1842, Névropt.: 356.

*Ascalaphus festivus* (Rambur), Walker, 1853, List. Neur. Ins. B.M. 2: 419.

*Encyoposis* (?) *festivus* (Rambur), McLachlan, 1871, J. Linn. Soc., Zool. 11: 264.

*Helicomitus festivus* (Rambur), van der Weele, 1907, Notes Leyden Mus. 28: 153. 1908, Coll. Zool. Selys., 8: 175.

UGANDA: Masaka, 2 ♀.

*Distribution*.—Throughout tropical Africa and Madagascar.

I suspect that at some future date it may be necessary to divide this species into several species or sub-species. Examination of examples from different parts of Africa has revealed differences in the vestiture of the extreme base of the costa of the anterior wings of the males. Some are clad only with very short, fine setae; others with longer black setae, directed basally, and some have a large tuft of silky hairs, directed basally. The material in our collections at present is insufficient to decide the value of this character as a specific distinction, but it seems to me to be worthy of mention.

## NEMOPTERIDAE

**Nemopistha imperatrix** (Westwood)

*Nemoptera imperatrix* Westwood, 1867, Tr. Ent. Soc. Lond. (3) 5: 507.

*Halter imperatrix* (Westwood), Kirby, 1900, Ann. Mag. N.H. (3) 6: 460.

*Nemopistha imperatrix* (Westwood) Navás, 1910, Mem. R. Ac. Ci. Barc. 8 (18): 13. Navás, 1912, Gen. Ins. 136: 13.

UGANDA: Budongo Forest, 7.ii.35, 1 ♂.

The type of this species is a female, labelled "W. Africa." There are other

females in the British Museum collections from Ashanti and Gold Coast. This male appears to agree reasonably with them in body colouration and also in colouration of the hind wings. In particular it has the deep cream apex and a paler transverse band across the centre of the brown area before the apex of the wing.

## HEMEROBIIDAE

### *Hemerobius nairobicus* Navás

Navás, 1910, *Brotéria*, Zool., 9: 78.

UGANDA: Ruwenzori, Bwamba Pass (West Side), 5500-7500 ft., i.35, 1 ♂. Previously recorded only from Nairobi, the type locality.

This example from Ruwenzori agrees with one in the British Museum from Nairobi, determined by Dr. Nathan Banks. To Navás' description I would add that the anal plates of the male are each armed with a short spur on the dorsal margin, rather before mid-way.

### *Hemerobius elatus* Navás (Fig. 2)

Navás, 1914, *Voyage Alluaud et Jeannel Afr. Or.*, *Névropt.*: 30.

KENYA: Aberdare Range, Mt. Kinangop, 8000 ft., x.34, 1 ♂.

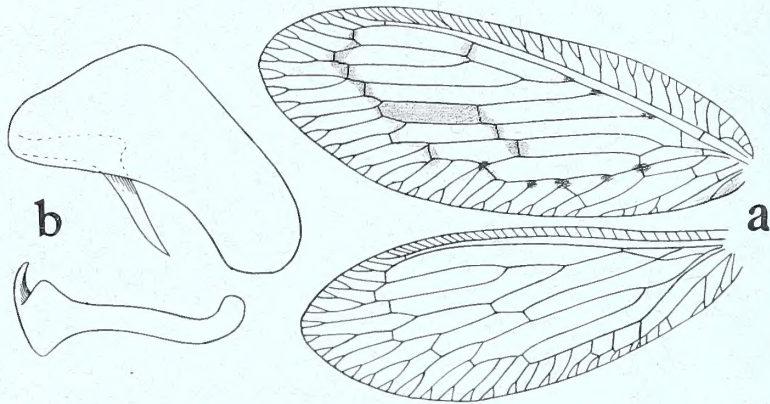


Fig. 2.—*Hemerobius elatus* Navás. ♂. (a) wings. (b) tenth sternite and parameres, lateral.

The abdomen of the male type is missing, but I have little doubt that Dr. Edward's specimen is conspecific. The wings are narrower than in *H. errans*, and the inner and outer gradates in the anterior wing are farther apart.

*Distribution*.—Mt. Kenya.



**Hemerobius errans** Navás (Fig. 3)

Navás, 1914, Voyage Alluaud et Jeannel Afr. Or., Névropt.: 31.  
 Esben-Petersen, 1920, Ann. S. Afr. Mus., 17: 508.

UGANDA: Ruwenzori, Nyamgasani Valley, 6400 ft., xii.34-1.35 (*D. R. Buxton*), 1 ♂.

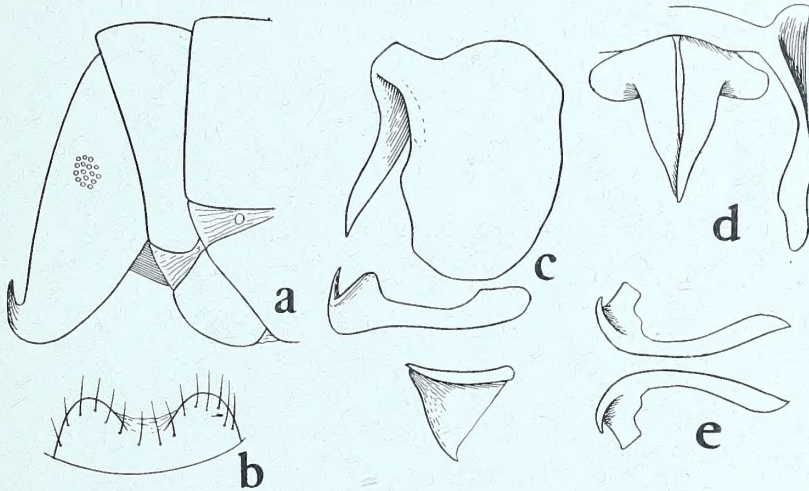


Fig. 3.—*Hemerobius errans* Navás. ♂. (a) apex of abdomen, lateral. (b) ninth sternite, ventral. (c) tenth sternite, parameres and hypandrium, lateral. (d) ditto, from behind. (e), parameres from above.

As the ♂ genitalia of so many African species are as yet unfigured, I am using the example of *H. errans* taken by Mr. Buxton to make good one of the omissions.

*Distribution*.—Kenya (Mt. Kinangop), Cape Town, Orange Free State.

**Notiobiella ugandensis** sp. n. (Fig. 4)

UGANDA: Budongo Forest, 7.ii.35, 1 ♂.

♂. *Head* yellowish, with brown markings:—a spot in the centre of the labrum; the genae; a triangular patch on each side of the vertex, adjoining the eyes; terminal segments of maxillary and labial palpi. Antennae yellowish. *Pronotum* parabolically produced in front, yellowish, with obscure brownish markings (possibly the result of decomposition). Meso- and metanota yellowish, with brownish spots at wing bases. *Legs* yellowish.

*Abdomen* yellowish. Ninth tergite short, apical margin of ninth sternite with a broad shallow excision. Anal plates large, with apices incurved, dilated

and truncate. A group of 9–10 trichobothria on the basal half of each anal plate. Tenth sternite large, narrow above, its lower angles curved inwards towards each other. From the lower half of each apical margin extends a long finger-like process directed upwards and in the example before me, crossing its fellow.

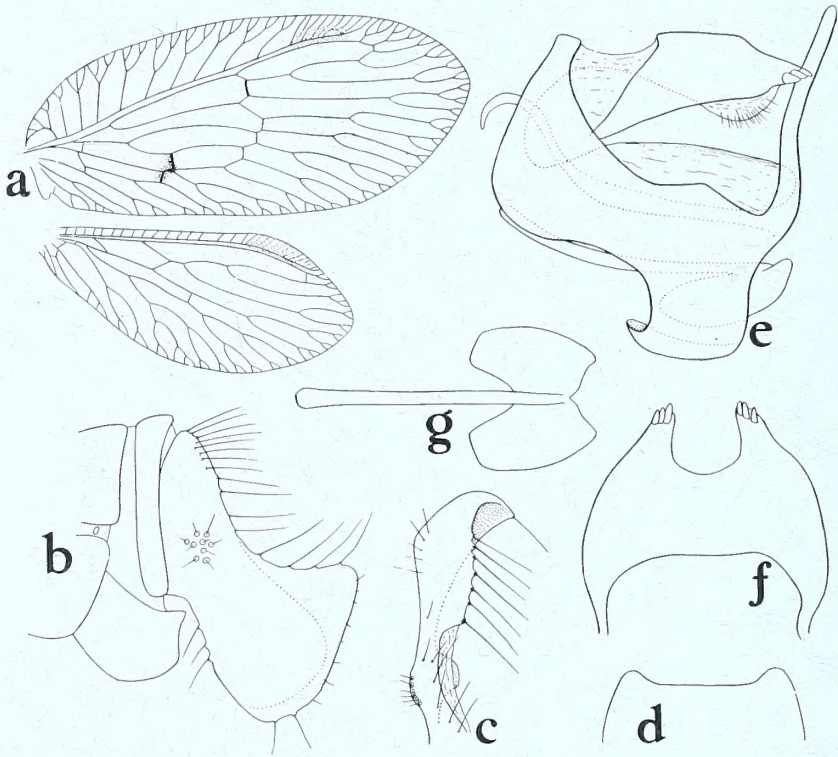


Fig. 4.—*Notobiella ugandensis* sp. n. ♂ (a) wings. (b) apex of abdomen, left lateral. (c) right anal plate from behind. (d) special margin of ninth sternite. (e) tenth sternite, aedeagus and parameres from side. (f) aedeagus from above. (g) parameres from above.

Aedeagus in the form of a convex plate, attached by its basal angles to the tenth sternite and supporting a large membranous structure, the lower part of which appears to be an eversible tube. Apex of the convex plate with a deep rounded excision, the resulting lateral angles each armed with three short, stout teeth. Parameres with a slender fused stem and somewhat quadrate apical flanges.

*Wings* with neuration and pattern as in figure. Veins yellowish-green, the cross veins between the first and second branches of the radius, the medius and

cubitus, and the branches of the cubitus in anterior wing dark brown. Pterostigma in both wings yellowish.

Length of anterior wing, 6.5 mm.

Length of posterior wing, 5 mm.

This species is obviously related to my *N. hargreavesi* from Sierra Leone, but the form of the anal plate differs from that of any *Notiobiella* known to me. From *N. decora* Kimmins (Uganda) it differs in its less elongate wings.

### ***Eumicromus africanus* (v. d. Weele) (Fig. 5)**

*Micromus africanus*, Van der Weele, 1909, in Sjöstedt, Kilimandjaro-Meru Exped., 2 (13), Neuroptera (2): 17.

Esben-Petersen, 1928, Ann. Mag. N.H. (10) 1: 447, pl. xvi, fig. 3.

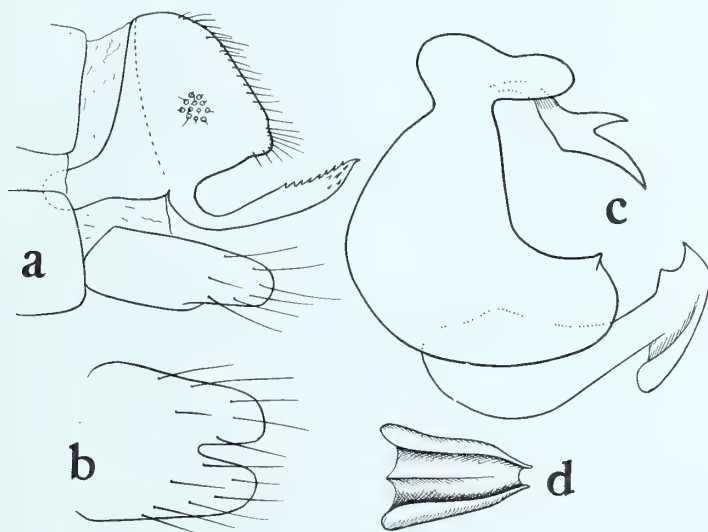


Fig. 5.—*Eumicromus africanus* (Van der Weele). ♂ (a) apex of abdomen from side. (b) ninth sternite from below. (c) tenth sternite, aedeagus and parameres from side. (d) hypandrium from below.

UGANDA: Fort Portal, Mpanga Forest, 4000 ft., 25.i.35, 1 ♂.

I take this opportunity of figuring the male genitalia of this species.

*Distribution*.—Kilimandjaro, Abyssinia, Natal.

## CHRYSOPIDAE

**Chrysopa congrua** Walker

Walker, 1853, List Neur. Ins. B.M. 2: 238.

Hagen, 1866, Stett. Ent. Zeit., 27: 391-2.

Esben-Petersen, 1915, Ent. Mitt. 4: 86. *id.*, 1920, Arch. Nat., 84A (9): 158. *id.*, 1928, Ann. Mag. N.H. (10) 1: 446. *id.*, 1928, Land Sußwasserf. D. S. W. Afr. II, 4: 219. *id.*, 1930, Denks. Akad. Wiss. Wien, 102: 205.

*Chrysopa concolor* Walker, 1853, List Neur. Ins. B.M. 2: 239.

*Chrysopa bequaerti* Navás, 1912, Rev. Zool. Afr. 1: 409.

UGANDA: Kigezi Distr., Mabungo Camp, 6000 ft., xi.34 (*J. Ford*), 1 ♂ 5 ♀; Fort Portal, 5000 ft., xii.34-1.35, 1 ♂.

Generally distributed in Africa, except possibly along the Mediterranean shores.

**Chrysopa baronissa** (Navás)

*Cintameva baronissa* Navás, 1921, Rev. Ac. Ci. Zaragoza, 6: 73.

KENYA: Nairobi, Ngong Forest, 6500 ft., 22.x.34, 2 ♂, 2 ♀.

Previously recorded from East London, Cape Province.

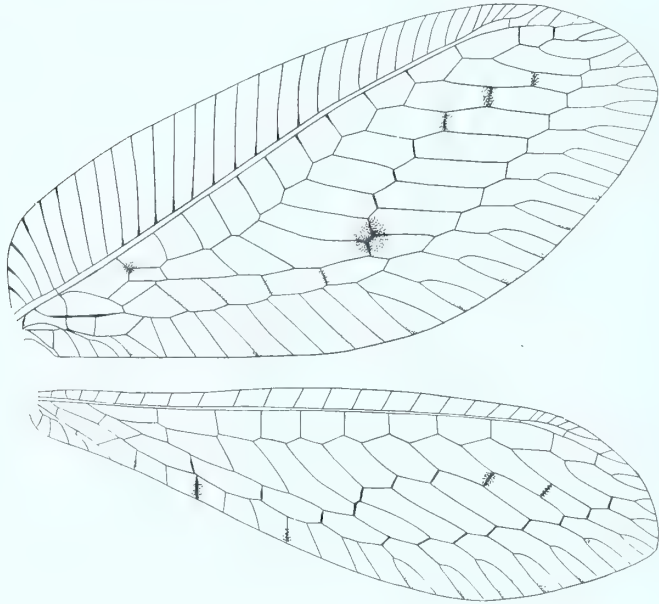
**Ankylopteryx maculata** sp. n. (Fig. 6)

Fig. 6.—*Ankylopteryx maculata* sp. n. Wing.

♀. *Head* greenish-yellow, immaculate; labrum and clypeus creamy-white. Apical segment of maxillary palpus annulated about mid-way with fuscous.

Antennae yellow, longer than anterior wings, basal segment unmarked, dilated on its inner surface. *Pronotum* broader than long, narrower in front than behind, anterior margin rounded; in colour yellowish, without brown markings. Meso- and metanota yellowish, the former with indications of a pale, fuscous transverse band. *Legs* yellowish, apical segment of tarsi not darker than preceding segments; tarsal claws strongly dilated at their bases. *Abdomen* yellowish-green. *Wings* hyaline, spotted with brown as in fig. Venation greenish, gradate cross-veins and some other cross-veins brown, particularly within the brown spots. Stigma indistinct.

UGANDA: Masaka, type ♀ and 1 paratype (with abdomen damaged).

I have been unable to reconcile these specimens satisfactorily with any of the described African species, and I have deemed it better to describe them as new rather than risk an incorrect distribution record due to an error in determination.

## BITTACIDAE

### *Bittacus weelei* Esben-Petersen

*Bittacus weelei*, Esben-Petersen, 1913, Rev. Zool. Afr. 3: 142, figs. 7-8. Lestage, 1917, Rev. Zool. Afr. 5: 112. Esben-Petersen, 1921, Coll. Zool. Selys, fasc. 5 (2): 139, fig. 160. Lestage, 1929, Rev. Zool. Afr. 18: 16.

*Bittacus testaceus* Weele nec Klug, 1909, in Sjöstedt's Kilimandjaro-Meru Exped. 2: 21, fig. 3.

*Bittacus negus* Navás 1915, Mem. Ac. Ci. Barc., 11 (23): 27

UGANDA: Masaka, 1 ♂.

*Distribution*.—Tanganyika (Kilimandjaro), Belgian Congo, Uganda, Nyasaland, Sudan (Darfur and Nuba Mts.), Cameroons, Nigeria (Northern Provinces).

In a cleared example the claspers of the ninth tergite appear less broad at the base than in Esben-Petersen's figure, and they carry, each on its inner surface towards the base, a short finger-like projection terminating in a tuft of setae. Inner apical surfaces armed with about a dozen short, black spines.



Plate X

UGANDA: BUNYORO

Path through Budongo Forest

Habitat of *Notiobiella ugandensis* Kimmins

**PRESENTED**

**15 MAR 1939**













