

A NEW SPECIES OF *AFROPTILUM* (*AFROPTILOIDES*)  
FROM EAST AFRICA (EPHEM., BAETIDAE)

BY M.T. GILLIES

In the course of a revision of the Afrotropical mayflies formerly placed in the genus *Centroptilum* Eaton, Gillies (1990) erected the genus *Afroptilum*, comprising the two subgenera *Afroptilum* s.str. and *Afroptiloides*. The latter name was applied to a small group of species inhabiting stony streams and characterised by two-tailed nymphs with flattened bodies and a fringe of fine setae along the dorsal aspect of the tibiae. The south African species, *A. (A.) varium* (Crass) was chosen as the type species of *Afroptiloides*, and a species from West Africa, *A. (A.) bicaudatum* Gillies was described at the same time.

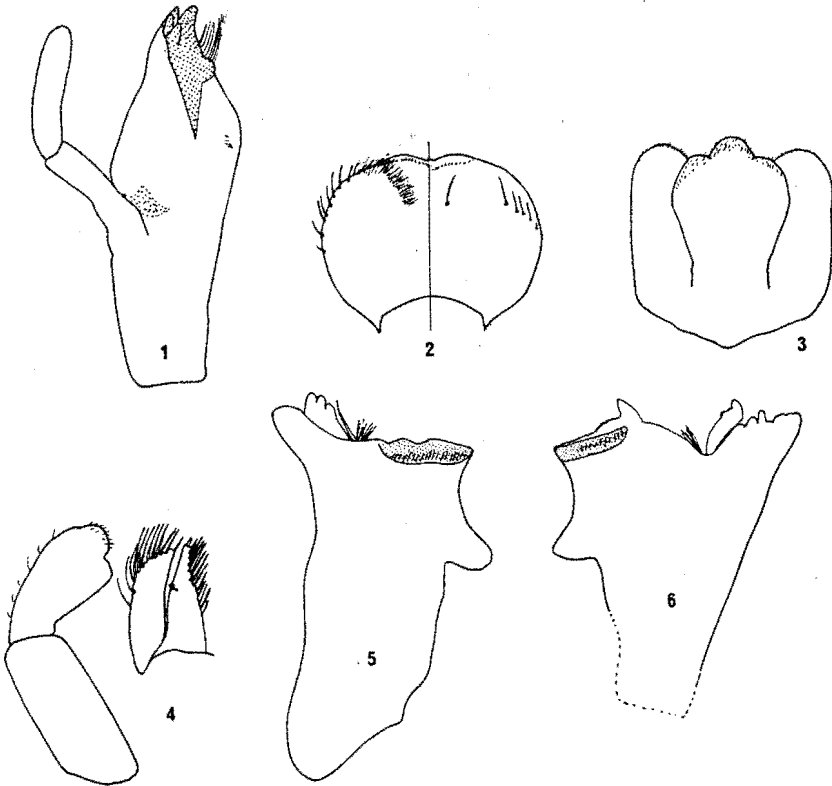


Fig. 1-6. — *A. (A.) varium*, mouthparts. 1, maxilla; 2, labrum, ventral surface on left; 3, hypopharynx; 4, labium; 5,6, right and left mandibles.

Certain morphological details were omitted by Crass in his description of *C. varium*. On the basis of material held in the British Museum (Natural History), I take the opportunity here to expand his account and include figures of the mouthparts. A description of a new East African species is also given.

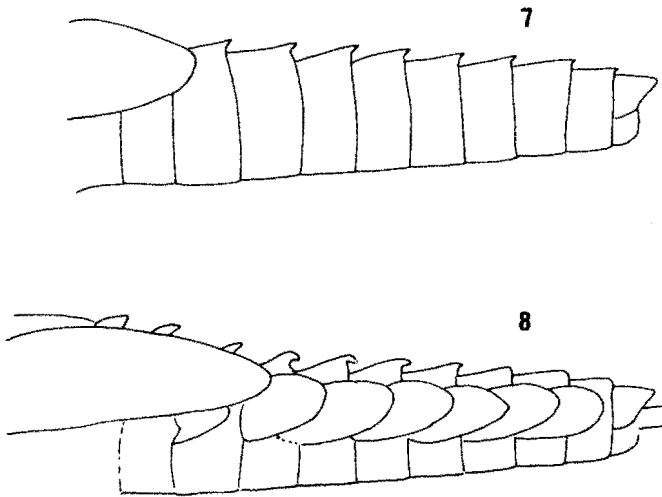
*Afroptilum (Afroptiloides) varium* (Crass)

*Centroptilum varium* Crass, 1947: 85.

*Centroptilum varium* Harrison & Hynes, 1988: 18.

*Afroptilum (Afroptiloides) varium*, Gillies, 1990: 99.

In his description of the mouthparts, Crass gave a figure of the left mandible only. A more complete set of figures is presented here (figs 1-6).



Figs 7-8. — Abdomen, lateral view. 7. *A. (A.) varium*; 8. *A. (Afroptiloides)* sp. (Kimmins) [from Kimmins, 1955].

The tibiae have a single row of long, fine setae along the dorsal surface in addition to stout, spine-like setae on the margins. The denticles on the tarsal claws, while mainly disposed in a single row, also include a few that form an incomplete second row (see fig. 19). As noted by Harrison & Hynes (1988), the nymphs have a row of median abdominal spines on the posterior margins of terga I-IX (fig. 7), that on tergum I being vestigial. A species from Malawi (Kimmins, 1955) is figured here (fig. 8) for comparison.

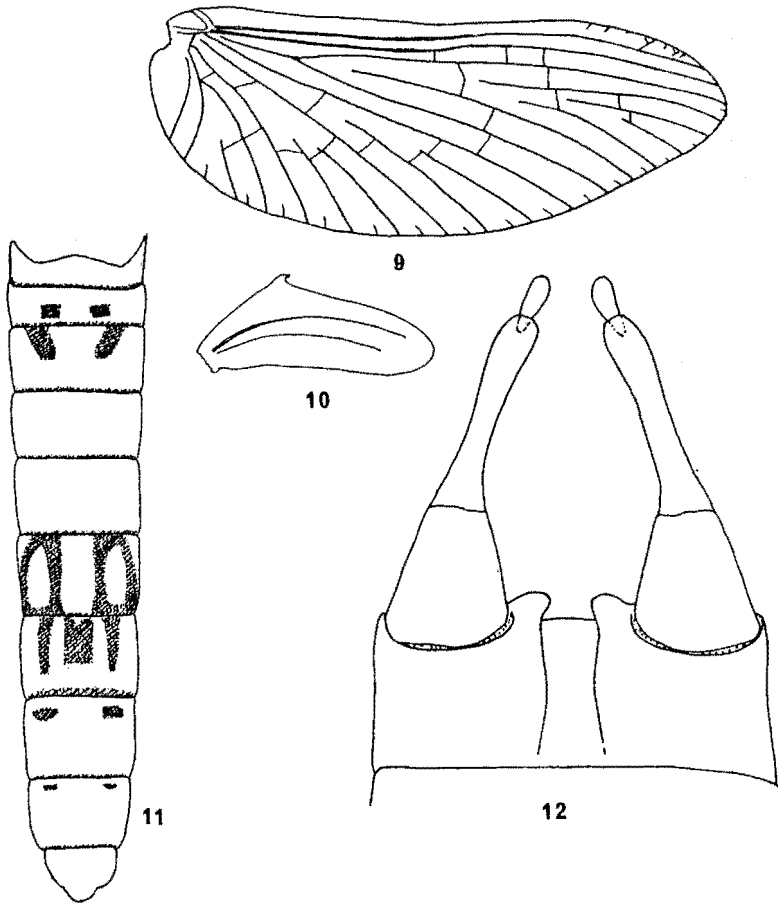
**Material examined.** Paratypes, 1 ♀, 2 nymphs, SOUTH AFRICA: Natal, Yarrow stream, Karkloof, 25.iii.1944 (*R.S. Crass*) [British Museum (Natural History), B.M. 1947-408].

**Afroptilum (Afroptiloides) variegatum** sp. n.

♂ *imago* (in spirit). Eyes pale yellowish-orange, round, well separated and inclined outwards. Thorax fawn; legs cream (forelegs missing); fore wing (fig. 9) hyaline, hind wing (fig. 10) narrow, rounded at apex, costal spur short and projecting backwards, 2 veins. Abdominal terga white with striking dark maroon markings (fig. 11) maximal on II, III, VI and VIII; venter cream, tails white; forceps (fig. 12) cream, inner lip of basal forceps segment prominent, a well defined line of demarcation at junction of 2nd and 3rd segments, terminal segment elongate, pear-shaped.

♀ *imago*. Thorax and legs cream; wings as in ♂. Tergal pattern as in ♂.

*Nymph* (fig. 23). Body flattened dorso-ventrally, with median hooked spines on metanotum and abdominal terga I-VIII. Antennae short, about equal to width of head.

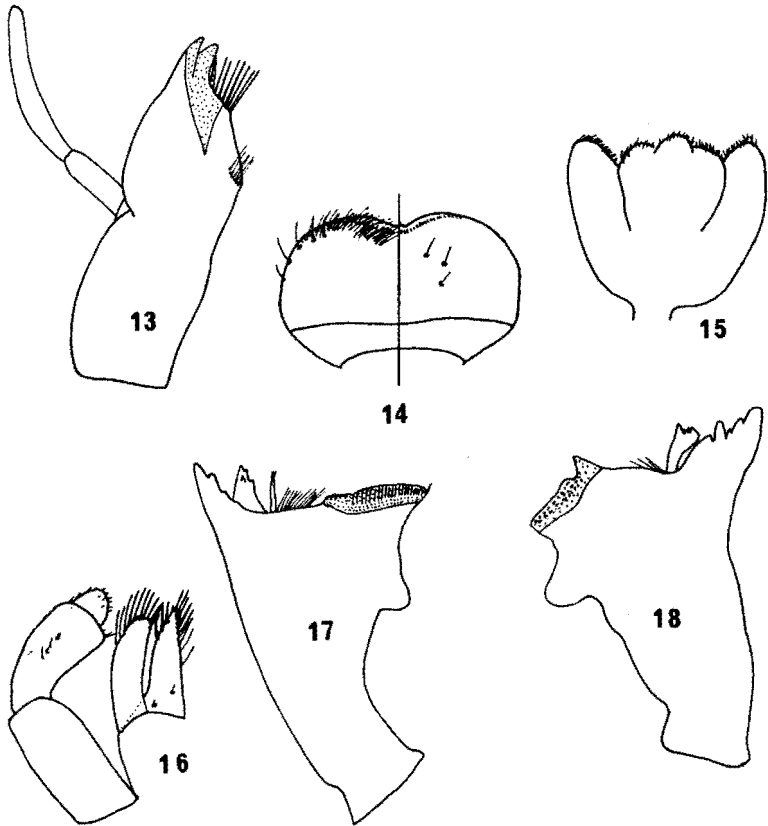


Figs 9-12. — A. (*A.*) *variegatum*. 9, fore wing; 10, hind wing; 11, ♀ tergal markings; 12, ♂ forceps.

Mouthparts (figs 13–18): left mandible with canines fused, a few fine setae at base of prosthema; right mandible with separate canines, prosthema bifid at apex, a conspicuous tuft of setae at its base; maxillary palp with two segments; apical segment of labial palp cap-like. Legs (figs 19, 20): fore femur markedly broader than others, the hair fringe along posterior margin with finer, more numerous setae; all tibiae with dorsal line of fine setae; tarsi with a few stout setae only, tarsal claws with a double row of fine teeth. Abdominal terga with conspicuous, variegated dark markings, distributed as in adult; venter unmarked; gills present on I–VII (figs 21), asymmetrical, rounded at apex, anterior margin with sparse fine setae. Tails: outer half of inner margins with well developed fringe of fine hairs; median filament a minute stub.

Length: body, ♂ 4–4.5 mm, ♀ 5 mm; wing, ♂ 5 mm, ♀ 5.5 mm; mature nymph, 4.5 mm.

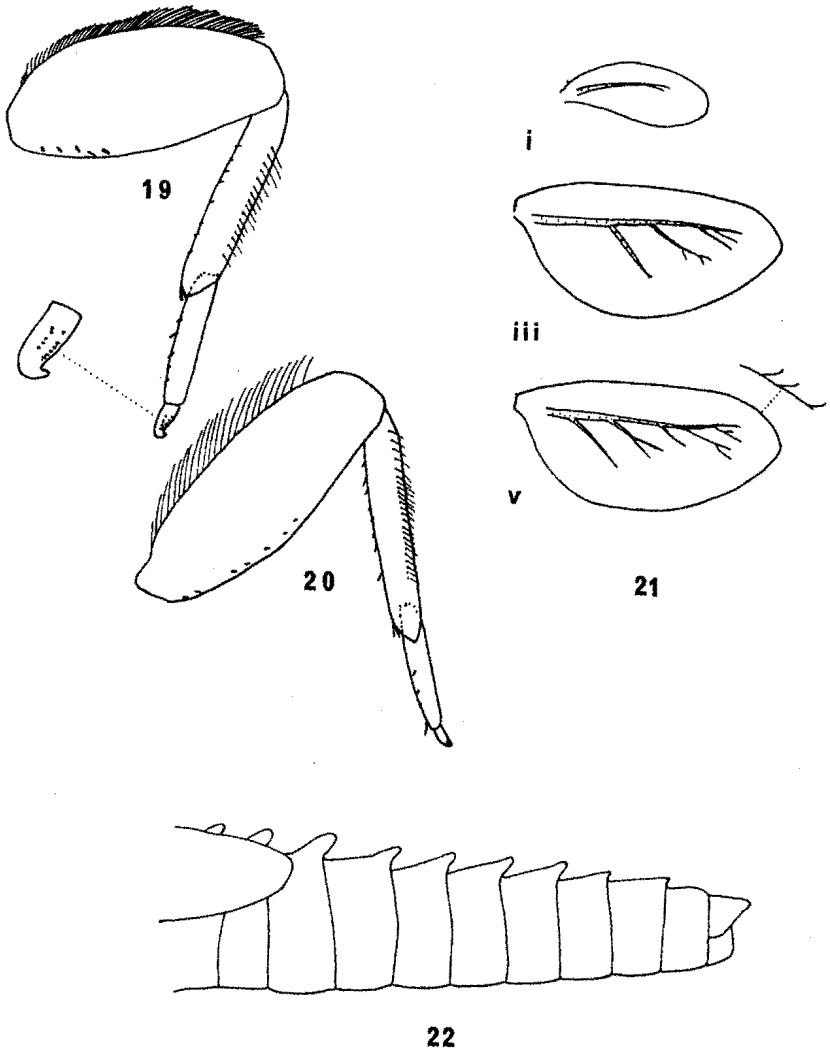
Holotype ♂ imago, TANZANIA: Amani, 5/6.i.1963 [in British Museum (Natural History)]; paratypes, 3 ♂♂, same provenance,



Figs 13–18. — *A. (A.) variegatum*, mouthparts. 13, maxilla; 14, labrum, ventral surface on left; 15, hypopharynx; 16, labium; 17, 18, right, left mandibles.

26/27.xi.1962, 8/9.xii.1962; 2 ♀♀, 8/9.xii.1962, 5/6.i.1963; 3 nymphs, R. Sigi, Chemka, Amani, 7.vi.1952, 25.ii.1985, Ukungwi stream, Amani, 7.iii.1985.

The association of adults and nymphs is based on the close similarity of the abdominal tergal markings and on the small size of both adults and mature nymphs. I have a single ♂ from the same locality with



Figs 19-22. — A. (*A.*) *variegatum*, nymph. 19,20, fore, hind legs; 21, gills; 22, abdomen, lateral view.

generally similar markings but with median abdominal spines and a body length of 7 mm. The distribution of the spines, as well as the large size, indicate its specific distinctness. *A. (A.) variegatum* differs from all described species of *A. (Afroptiloides)* by the striking abdominal pattern. The nymph also differs from *A. bicaudatum* Gillies by the presence of setae on the tails and of median spines on the abdominal terga. From *A. varium* (Crass) the adults and nymphs are distinguished by the abdominal markings, the adults by the basal forceps segment and the hind wing, the nymphs by the setae on the labrum and the absence of teeth on the outer canine of the right mandible.

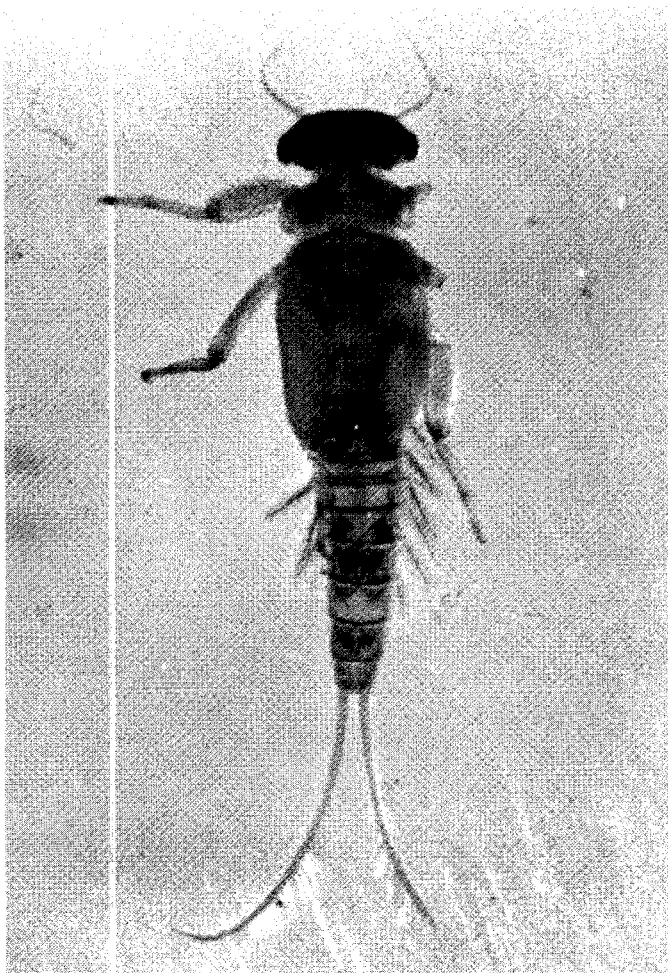


Fig. 23 — *A. (A.) variegatum*, mature nymph.

Gillies (1990) recognised the two species *A. varium* (Crass) from South Africa and *A. bicaudatum* Gillies from Guinea and three unnamed species, described (but not named) by, Kimmins (1955) from Malawi, by Demoulin (1956) from eastern Zaire and by Gose (1964) also from Zaire. A second species from Guinea, very similar to Gose's, was also recorded by Gillies. With the exception of *bicaudatum*, all species have a row of median spines down the metanotum and abdominal terga (fig. 8), their number and distribution differing from one species to another. Again, in all species except *A. bicaudatum* and Kimmins's species the inner margins of the tails are fringed with fine setae. Harrison & Hynes (1988) recorded the presence of two species similar to *A. varium* in mountain streams in Ethiopia and referred to earlier records from Mount Elgon in Uganda. Thus, it appears that the subgenus is widely distributed in Africa and includes a number of species.

## REFERENCES

- Crass, R.S., 1947. The May-flies of Natal and the Eastern Cape, *Ann. Natal Mus.* **11**: 37-110. Demoulin, G., 1956. Ephemeroptera, *Explor. Hydrobiol. Lac Tanganyika* **3**(7): 1-24. Gillies, M.T., 1990. A revision of the African species of *Centroptilum* Eaton (Baetidae: Ephemeroptera), *Aquatic Insects* **12**: 97-128. Gose, K., 1964. Description of some mayfly nymphs from Congo, *Kontyú* **32**: 55-64. Harrison, A.D. & Hynes, H.B.N., 1988. Benthic fauna of Ethiopian mountain streams and rivers, *Arch. Hydrobiol./Suppl.* **81**(1): 1-36. Kimmins, D.E., 1955. Ephemeroptera from Nyasaland, with descriptions of three new species and some interesting nymphal forms, *Ann. Mag. nat. Hist.* (12) **8**: 859-880.

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 REVIEW

'MEDICAL AND VETERINARY ENTOMOLOGY' By D.S. KETTLE. Second Edition, C.A.B. International, Wallingford, 658 pp, illustrated, paperback. 1990. Price £29.50.

This book was first published in 1984 by Croom Helm and quickly became established as a standard text. It recently went out of print and C.A.B. International have issued this welcome paperback reprint which includes corrections and minor amendments. The main emphasis of the text is on the general biology of the insects, mites and ticks of medical and veterinary importance. There are also brief taxonomic descriptions and accounts of those diseases in which the pathogens are transmitted by insects and acarines.

In his original review of the book Dr Richard Lane (*E.M.M.*, **122**: 116) commented that a few of the illustrations (from early classic texts) had been poorly reproduced and this slight imperfection remains (e.g. figs 13.1 and 14.6). However the majority of the illustrations serve their purpose well and, after all, identification is not the main purpose of the book.

There is no doubt that this comprehensive and important work will continue as an essential reference for students of pure and applied entomology as well as professionals working in the medical and veterinary fields and parasitologists. — K.G.V. SMITH



Fig. 23 — *A. (A.) variegatum*, mature nymph.