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TWO NEW SPECIES OF HESPERIIDAE FROM WESTERN KENYA (LEPIDOPTERA, HESPERIIDAE)

by

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With 7 text-figures and one plate

The belt of lowland forest that stretches from West Africa eastward ends in a number of isolated forests in East Uganda and West Kenya, the most eastern extremity being the Kakamega Forest in the Western Province of Kenya, about 50 km north of Kisumu. Although impoverished as compared with the Congolese fauna, the fauna of these isolated forests is interesting, because much subspeciation has taken place there (Carcasson, 1964). In some cases the isolation appears to have led even to speciation, and below two new species are described from the Kakamega Forest. The former, *Celaenorrhinus lourentis*, is a member of a wide-spread genus of forest species, most of which (17 out of 23 African species) occur in the Cameroon and Congolese region. The second species, *Metisella kakamega*, however, belongs to a genus that is particularly distributed in Eastern Africa; several species are confined to the East African highland forests and the apparently closest relative of *M. kakamega*, viz., *M. medea* Evans, is such a highland forest species.

This illustrates the statement of Carcasson (1964), that many of the isolated forests at the eastern extremity of the lowland forest belt merge with highland forest. This phenomenon of merging makes these forests the more interesting and we are greatly alarmed at the progressing deforestation and conversion into production forest of the Kakamega Forest. Without a speedy general timber-felling prohibition the Kakamega Forest will certainly not reach the end of the century and may even have vanished, or at least finish to be a natural forest, within ten years.

***Celaenorrhinus lourentis* spec. nov.**

Male (holotype). — External characters (pl. 1, figs. 1-2). Length of

fore wing 16.5 mm. Very closely resembling *C. galenus* (Fabricius), which flies with it. On the upperside of the fore wing the upper part of the cell spot is slightly narrower than the lower part, the basal spot in space 1b is absent, the median spots in space 1b (below the large spot in space 2) are conjoined and there is no dense ochreous superscaling. On the upperside of the hind wing the yellow-orange area in spaces 4-5 is rectangular, not fused to the spots in spaces 3 and 6 and separated from the yellow fringes by a fine dark brown line; in space 3 there is a single, submarginal spot. On the underside of the hind wing there is a yellow spot in space 7 over the origin of vein 7.

Genitalia (fig. 1). Uncus entire, pointed. The ventro-distal part of the valvae is relatively narrow and widely separated from the dorso-distal part. Unfortunately, the dorso-distal part is broken off in both valvae of the single known male, but from the remnants it is clear that this part is relatively broad.

Female. — External characters. Similar to the male. On the upperside of the fore wing there may be a small basal spot in space 1b and the cell spot is of even width throughout or very little narrowed in its upper part.

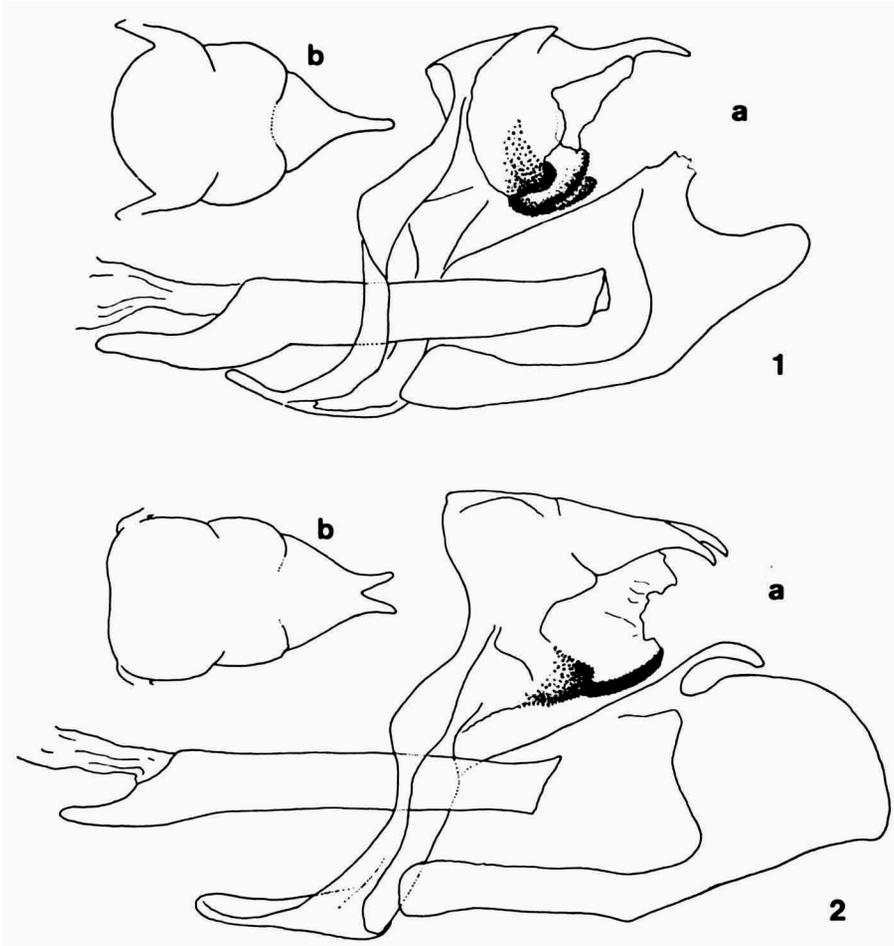
Genitalia (fig. 3). The ventral sclerite of the eighth abdominal segment is basally sac-like invaginated. At the ventral side this sac, which may be called the antrum, is distally continued into a more or less membranous fold of the seventh segment, which covers the greater part of the ventral sclerite of the eighth segment. It is bell-shaped and its depth is subequal to its greatest width (along the distal edge).

Material. — 1♂ (holotype) and 4♀ (paratypes), Kenya, Western Province, Kakamega District, Kakamega Forest, 21.iv.1971, J. H. Lourens. All types in the Rijksmuseum van Natuurlijke Historie, Leiden.

The species is named in honour of my friend, J. H. Lourens, who put me in touch with the rich and interesting East African fauna and collected this new species.

Discussion. — *C. lourentis* shows the greatest resemblance to *C. galenus*. The latter is a wide-spread species, that occurs from Sierra Leone to Ethiopia and Rhodesia. It is a variable species, that is usually larger and more extensively spotted than *C. lourentis*, with, at least in the male, an enlarged yellow area on the upperside of the hind wing by fusion of several spots. In Kenya, however, the spotting of *C. galenus* is often reduced and the specimens may be rather small, thus resembling *C. lourentis* very closely. The prevailing form in Kenya (forma *opalinus* Butler) has a dense powdering of ochreous scales on the upperside, but if this character is not apparent, the Kenyan specimens of *C. galenus* may be distinguished from

C. lourentis by the following characters: the upper part of the cell spot of the fore wing is usually distinctly narrower than the lower part, the median spots in space 1b on the upperside of the fore wing are usually separate



Figs. 1-2. Male genitalia of *Cetaenorrhimus* species (a, side view; b, dorsal view of tegumen and uncus). 1, *C. lourentis*, holotype (Kenya, Kakamega Forest); 2, *C. galeus* (Kenya, Kakamega Forest).

(but fused in specimens outside Kenya); on the upperside of the hind wing there are always two spots in space 3, a submarginal and a median one, and these spots are, at least in the males, usually fused with the yellow area in spaces 4-5 to form a patch that also includes the spot in space 6 and that is often incompletely or not at all separated from the yellow fringes by a

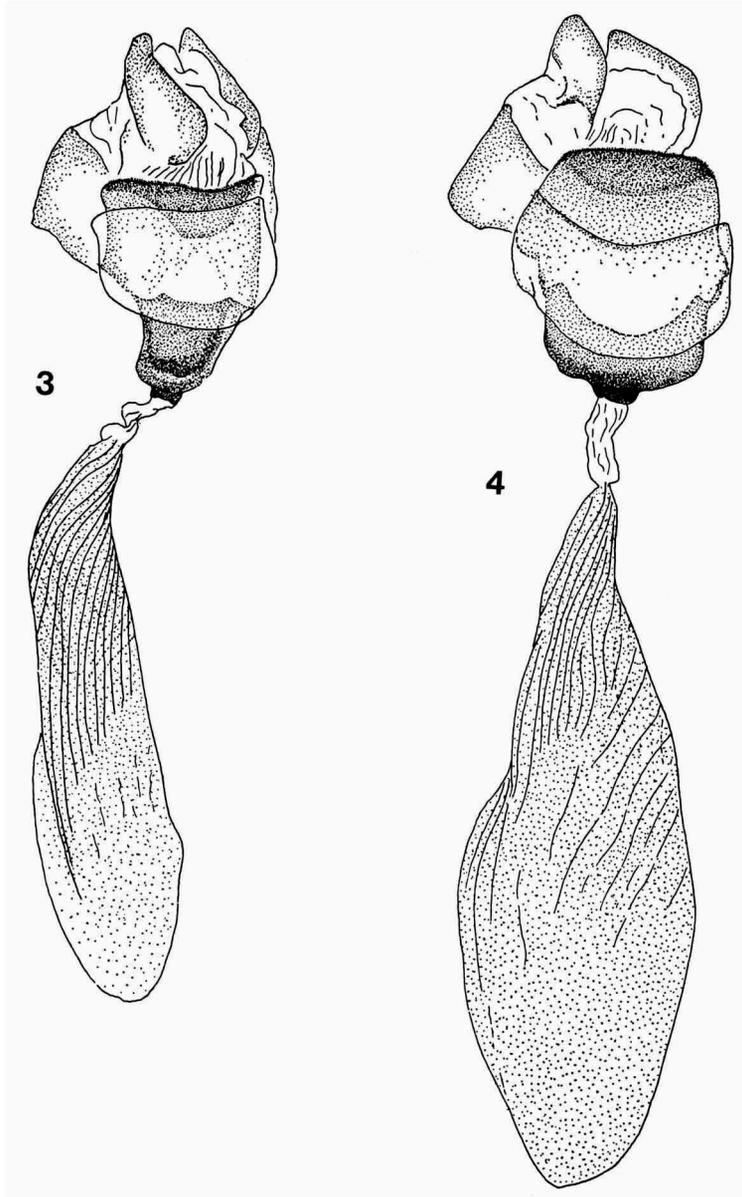
dark marginal line; on the underside of the hind wing there is no spot in space 7 or this spot is very vaguely indicated by a few yellow scales.

The genitalia of *C. galenus* are quite different from those of *C. lourentis*. The male of *C. galenus* (fig. 2) has a bifid uncus and very differently shaped valvae, the female (fig. 4) has the antrum shallow and broad, its depth being about half its width. There may be also some difference in the striation of the bursa, but this is difficult to observe as the bursa is easily twisted and folded during dissection.

The other *Celaenorrhinus* species with a large yellow-orange area in spaces 4-5 of the hind wing are *C. homeyeri* (Plötz), *C. medetrina* (Hewitson) and *C. ovalis* Evans (in the last two species only in the male). *C. homeyeri* is easily separated from *C. lourentis* by the absence of spots in spaces 4 and 5 on the upperside of the fore wing (sometimes also absent in *C. galenus*, but so far known always present in *C. lourentis*). *C. medetrina* and *C. ovalis* (for their separation, see Lindsey & Miller, 1965) are larger than *C. lourentis*, with more extensive spots, on the upperside of the fore wing with the upper part of the cell spot distinctly narrower than the lower part and with a large basal spot in space 1b, and on the upperside of the hind wing with a median spot in space 3, like *C. galenus*. The uncus of *C. medetrina* and *C. ovalis* is undivided, but very broad, and the valvae are differently shaped.

***Metisella kakamega* spec. nov.**

Male (holotype). — External characters (pl. 1, figs. 3-4). Length of fore wing 12.4 mm. Closely resembling *M. orientalis* (Aurivillius), which flies with it, and *M. medea* Evans. On the upperside of the fore wing the cell spot is rectangular, the yellow basal costal streak overlaps the basal half of the cell spot, the outer edges of the cell spot and the spot in spaces 9-10 are not in line, the latter being placed slightly more towards the termen, and there is no spot in space 4. On the upperside of the hind wing the spots are arranged as in *M. orientalis* and *M. medea*; there are no submarginal spots in spaces 4 and 5. The fringes of the hind wing are yellow-orange. On the underside of the fore wing the spots are arranged as on the upperside, the cell spot is not continued basad, there are some yellow scales in space 4 against the spot in space 5 and there is a small spot in space 1b under the spot in space 2 and separate from the spot in space 1b that lies against vein 1. On the underside of the hind wing the spots are arranged as in *M. orientalis* and *M. medea*; in the dark area between the submarginal spots and the termen there is a series of vaguely outlined, nar-



Figs. 3-4. Female genitalia of *Celaenorrhinus* species. 3, *C. lourentis*, paratype (Kenya, Kakamega Forest); 4, *C. galenus* (Kenya, Kakamega Forest).

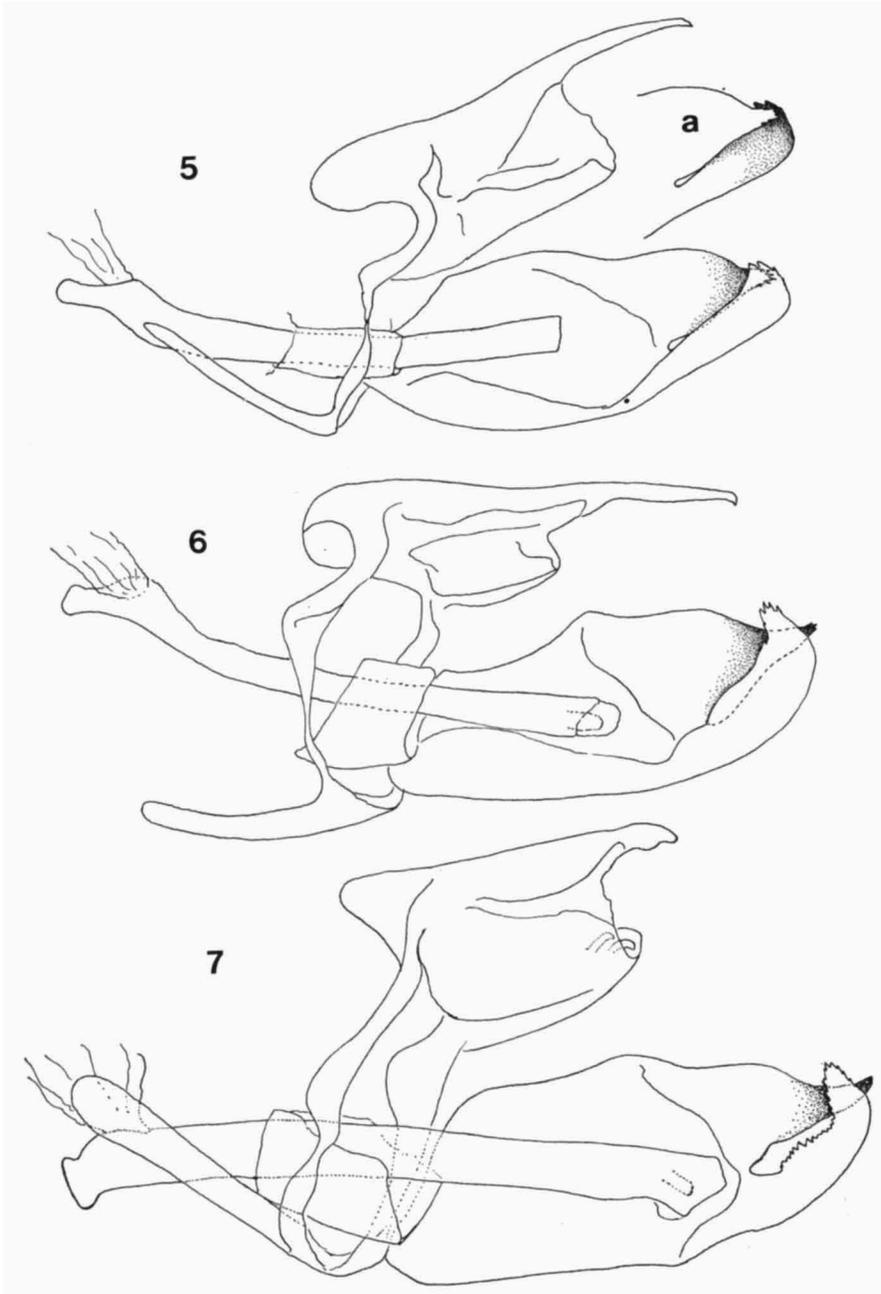
row, yellow marginal spots; all spots are well visible through the brown superscaling.

Genitalia (fig. 5). Uncus long and slender. Cucullus slightly broadening towards its distal extremity, where it is bent upwards to a slightly raised apex; the apex bears a few teeth that scarcely extend beyond the dorsal edge of the costal apex. Dorsal edge of costa wavy, but not distinctly bent about the middle. In distal half of valva costa greatly expanded into a triangular structure, distally overlapping the apex of the cucullus (on the outer side). This distal end of the triangular costal structure (= apex of costa) is finely serrated and does not reach beyond the cucullus.

Material. — 1 ♂ (holotype), Kenya, Western Province, Kakamega District, Kakamega Forest, 26-28.x.1974, R. de Jong. The specimen is in the Rijksmuseum van Natuurlijke Historie, Leiden.

Discussion. — *M. kakamega* can be distinguished from the variable *M. orientalis* by the following characters. In *M. orientalis* the basal costal streak on the upperside of the fore wing is often absent or, if present, does not or only slightly overlap the cell spot and the spot in spaces 9-10 does not extend usually beyond the cell spot; on the underside of the fore wing the upper and lower spots in space 1b are usually fused; on the underside of the hind wing the narrow marginal spots are absent; at least in Kenyan specimens of *M. orientalis* the fringes of the hind wing are usually black or at most tornally yellow. The genitalia of *M. orientalis* are quite different from those of *M. kakamega*, the uncus is much shorter and broader and the cucullus has a strongly serrated dorsal edge and is sharply bent upwards (fig. 7).

From *M. medea* the new species is more difficult to distinguish. In *M. medea* there is usually a spot in space 4 on the upperside of the fore wing (fused with the spot in space 5), the cell spot is continued basad on the underside of the fore wing, and there are no marginal spots on the underside of the hind wing. The genitalia of *M. kakamega* are also very much like those of *M. medea* (fig. 6), but in the latter species the shape of the valvae is different, the dorsal edge being distinctly bent about the middle. The cucullus of *M. medea* is of a more even width and distally distinctly bent upwards to a large, serrated apex, that usually amply extends beyond the dorsal edge of the costal apex. The latter structure is narrower than in *M. kakamega* and less strongly serrated or not serrated at all; it usually extends beyond the cucullus. There is some variation in the valvae of *M. medea*. I have studied specimens from three localities in Kenya (Limuru, Mt. Kenya, Mt. Elgon); they all show the same general features and are distinct from *M. kakamega*.



Figs. 5-7. Male genitalia of *Metisella* species. 5, *M. kakamega*, holotype (Kenya, Kakamega Forest) (a, outside of distal end of left valva); 6, *M. medea* (Kenya, Limuru); 7, *M. orientalis* (Kenya, Nairobi, Karura Forest).

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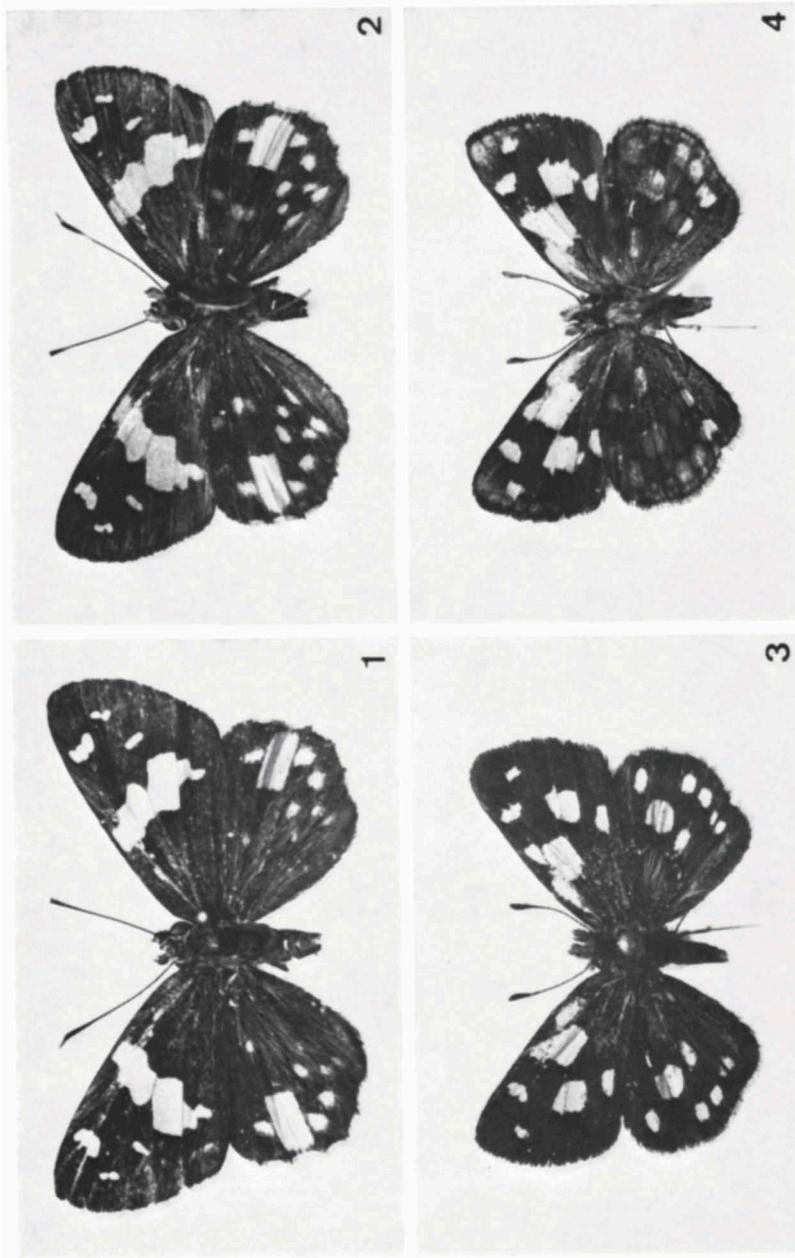
POSTSCRIPT

After having sent this paper to the printers', I received a recent article by L. A. Berger (*Lambillionea*, 75 (1975): 13-15) on the specificity of *Celaenorhinus intermixtus* Aurivillius. This species, generally considered a form of *C. galenus*, possesses an undivided uncus, like *C. lourentis*, but from the description by Berger it appears that *C. intermixtus* differs from *C. lourentis* by the following characters:

1. External characters. On the upperside of the fore wing the median spots in space 1b are conjoined, with the lower spot always placed closer to the termen (in *C. lourentis* the upper spot is closer to the termen). Other external characters are not given by Berger.

2. Male genitalia. According to Berger the uncus of *C. intermixtus* is "allongé", contrary to the uncus of *C. galenus* which is "très courte". In *C. lourentis* the uncus is as long as in *C. galenus*. The valvae also appear to be distinct, but as the valvae of the single known male of *C. lourentis* are incomplete, a closer investigation of this difference has to wait further material.

3. Female genitalia. *C. intermixtus* has a triangular "plaque antévaginale". This probably refers to the structure called the antrum here. In *C. lourentis* the antrum cannot be called triangular, see fig. 3.



Figs. 1-4. Upper (left) and underside of Hesperiiidae. 1-2, *Celaenorhynchus lourentis* (♂, holotype; Kenya, Kakamega Forest); 3-4, *Metisella kakamega* (♂, holotype; Kenya, Kakamega Forest).