

A NOTE ON THE GENUS *NOTIOTHEMIS* RIS, WITH THE DESCRIPTION OF A NEW SPECIES (ORDER ODONATA)

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

AMONG a small series of specimens representing species belonging to the sub-family TETRAETHEMINAE (family LIBELLULIDAE), collected by Professor G. D. Hale Carpenter in Uganda during the year 1928, are three belonging to the little known genus *Notiothemis* Ris. One of these is a variety of *N. jonesi*, the genotype, whilst the other two belong to a new species. In describing these, I have been greatly assisted by the loan of a typical male of *N. jonesi* Ris from Mr. J. E. H. Robert's collection of Odonata.

*Notiothemis jonesi* Ris.

*Notiothemis jonesi* Ris, 1916, *Cat. Coll. Selva* 16: 1054, fig. 613.  
Ris, 1920, *Ann. S. African Mus.* 13: 300.

Our knowledge of the genus *Notiothemis* has up to the present been restricted to four males of *N. jonesi* Ris—the type from Batwa, Usunbura, in the Morton collection now housed in the Royal Scottish Museum; a male from Eldoret, East Africa, viii.13; and two males from Mt. Fongosi, Zululand, all in the South African Museum. To these I am now able to add two more males, one of which is a well-marked variety, whilst the other is typical save for some minor venational differences. This latter specimen is from Homa Pt., Kavirondo, Lake Victoria, vii.28, coll. Willinson, and shows some deformity of the venation in the left fore-wing, where Riii and Riiii are fused for their distal halves and a supplementary vein to the Bridge is present, resulting evidently from this deformity. Other details of the venation are as follows:—nodal index  $7-8 \mid 8-7$ ; hypertrigones traversed once in the fore-wings, free in the hind; anal-loop made up of 8 cells in both hind-wings; discoidal cell of right fore-wing normal, that of the left four-sided as in *Tetraethemis*.

*Notiothemis jonesi* var. *auricolor* var. n. (fig. 2, a).

Male. Abdomen 21 mm. Hind-wing 24 mm.

Differs from type by the greatly restricted dark markings on the thorax and legs: this character is not due to a general condition as might be suspected, for the insect is actually an elderly adult with the wings becoming palely infuscated from age.

Head and prothorax similar to type; thorax bright citron yellow on dorsum, pea-green on the sides, marked with reddish-brown and dark blackish-brown as follows:—a blackish-brown quadrate spot of moderate size on middorsum situated at the junction of the upper and middle thirds and falling just short of the antealar sinus, the yellow middorsal carina bisecting it finely; a narrow reddish-brown to ferruginous antohumeral stripe broad below but tapering above to a fine point which ends at about the level of the middle of the quadrate spot but without becoming confluent with it; a narrow blackish-brown posthumeral stripe, broadest above where it sends a fine prolongation inwards bordering the antealar sinus but not quite extending to middorsal carina, the yellow here becoming confluent with the yellow of antealar sinus; this stripe very sinuous or eruculate in outline and bordered obscurely behind by brownish which fades into the green ground-colour. A median lateral

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stripe commencing below the hind-wing axillary and running downwards over the spiracle at which point it expands to include that organ. Both stripes continued below under the thorax to meet their fellows from the opposite side. Finally the extreme posterior angle of

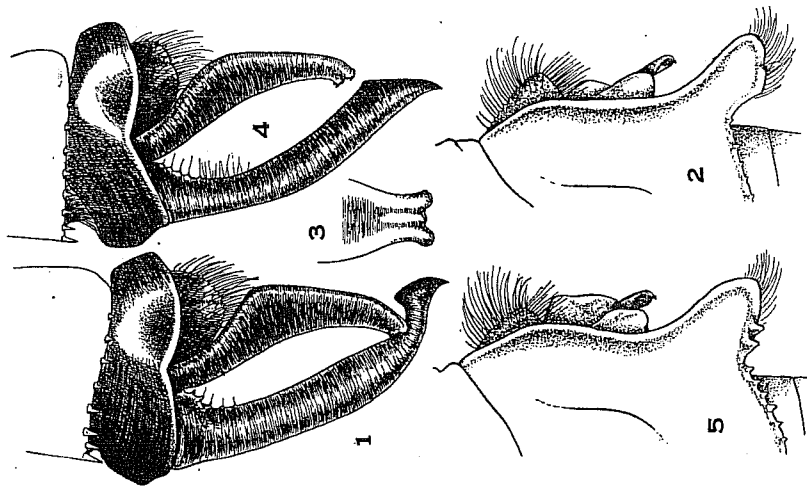


FIG. 1.—1. Anal appendages of *Notiothemis jonesi* Ris, male, seen from the right side. 2. Genitalia of same. 3. Apex of inferior anal appendage, ventral view. 4. Anal appendages of *Notiothemis rogersi* sp. n., seen from the right side. 5. Genitalia of same.

the metepimeron blackish-brown. Legs black, femora greenish-yellow on their inner sides. Venation:—Anal-loop made up of 6 and 8 cells in the hind-wings, hypertrigones of fore-wings traversed once in the hind, CuP well separated from the hinder

angle of discoidal cell in hind-wing, discoidal cells normal in fore-wing, but with costal side not recessed as it is in the type and other specimens examined. Nodal index 9-8 | 8-9 : 2 Cu<sub>1</sub> in the hind-wings : no supplementary veins to Bridge.

*Habitat*: UGANDA: Fort Portal, Western Province, 3.xii.27, coll. G. D. Hale Carpenter (alt. c. 5000 ft.).

In addition to the greater extent of the pale ground-colour, this variety differs from type by the normal character of the discoidal cell in the hind-wing. *Type* will be deposited in the British Museum (Natural History).

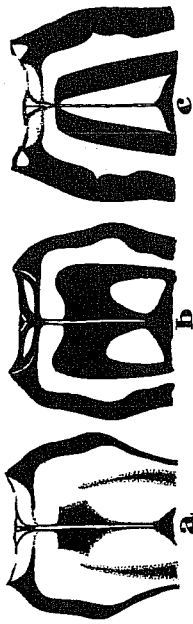


FIG. 2.—Thoracic dorsal markings of:—a. *Notiothemis jonesi* var. *arvicolor* var. n. b. *Notiothemis jonesi* Ris, typical. c. *Notiothemis robertsi* sp. n.

**Notiothemis robertsi** sp. n. (figs. 1, 4 and 5, 2, c).

Male. Abdomen 20-22 mm. Hind-wing 23-25 mm.

Head with labrum bright ochraceous, the middle lobe and the borders of the lateral lobes narrowly black; labrum glossy steely blue-black, face and frons pale bluish-green (pale turquoise blue) with two transversely oval slightly metallic blackish spots and a broad sharply limited blue-black basal stripe on the front and upper parts of frons respectively, vesicle metallic blue-black, occiput dark reddish-brown; behind eyes steely blue-black.

Prothorax pale greenish with the suture and border of posterior lobe narrowly outlined with reddish-brown. Thorax pea-green marked with dark blackish-brown as follows:—moderately broad antehumeral stripes meeting at a point just short of the anterior sinus and diverging slightly below so as to enclose a long narrow yellow triangle of the ground colour with its apex directed upwards, 3 lateral stripes of even thickness, the first post-humeral, with very sinuous or crenulate anterior border and with its upper end prolonged finely medially along the lower border of anterior sinus, which is itself narrowly outlined in black; a second stripe running obliquely downwards from the axillary of the hind-wing and crossing the spiracle; finally a vesigial stripe on the posterior angle of the mesepimeron.

The two former stripes descending to lower part of thorax and passing across the pectus to meet their fellows from the opposite side. Legs black save for the inner side of the anterior femora which are greenish-yellow. Armature and claw-hooks as for genus. Wings hyaline, pulvily tinted with yellow at extreme bases especially in the subcostal and cubital spaces; pterostigma rather short and broad, covering 2 cells, narrowing slightly distally, dark reddish-brown in colour; no supplementary veins to Bridge; nodal index 9-10 | 11-8

7-9 | 9-9, 1 cubital cross vein (Cu<sub>2</sub>) in fore-wings, 3 in the hind; anal-loop made up of 6 to 8-8 | 8-7, 1 cubital cell separated from the lower angle of discoidal cell in hind-wing; base of 7 cells; Cu<sub>1</sub> slightly separated from the lower angle of discoidal cell in hind-wing; normal in shape, that of hind-wings with costal side recessed as in *N. jonesi*; hypertriangles traversed once

in all wings: 3 rows of cells between the anal-loop and base of wing. Abdomen black marked with greenish-yellow as follows:—the sides of segments 1 and 2 and basal three-fourths of 3 rather broadly, tapering posteriorly on the latter segment and finely interrupted by the transverse carina. The dorsum of segment 2 with subapical and subbasal transverse yellow stripes which are connected with the lateral yellow areas: on segment 3 the lateral yellow continued basally over dorsum to meet this colour on the opposite side; segments 4 to 6 with lateral yellow stripes similar to those on 3 but becoming shorter and shorter from segment to segment and vestigial on segment 6; segment 7 wholly bright yellow save for a narrow apical black ring; segments 8 to 10 wholly black. Anal appendages black: superior nearly three times as long as segment 10, broad at base which is minutely spined along its outer lower border, then narrowing, cylindrical to the end which ends in an acute point and bears an obtuse point below subapically. Inferior appendage about one-fifth shorter, triangular, curved gently upwards to its apex, which is truncate and shallowly notched. Genitalia of second segment very similar to that of *N. jonesi*, differing chiefly by the shape of the lobe, which is broader, less sharply pointed, obtusely angulated to body axis and bears 3 or 4 robust spines on its free posterior border.

*Habitat*: UGANDA, shores of Lake Victoria during July-August, collected by G. D. Hale Carpenter. The type will be deposited in the British Museum (Natural History).

This new species differs from *jonesi* in the following points:—Dorsal marking of thorax, steely black labrum (pale green in *jonesi*), 3 Cugs in hind-wing (2 only in *jonesi*), all hypertriangles traversed (only those of fore-wings in *jonesi*), base of discoidal cell of hind-wing distal to areculus, shape of anal appendages etc.

The venational differences between *jonesi* and this new species call for some amendments in the definition of the genus *Notiothemis* as follows:—Base of discoidal cell in hind-wing at the level of or considerably distal to the areculus: 2 to 3 Cugs in hind-wings; anal-loop made up of 6 to 10 cells; discoidal cell of fore-wing normal in shape or, more rarely, 4-sided, that of hind-wing normal or with the costal side recessed. This new species is named after Mr. J. E. H. Roberts in acknowledgment of much helpful criticism and loans of material and literature.

The extreme variability of the venation found in all of these supposedly archaic forms and the frequent occurrence of a four-sided discoidal cell simulating that found in the Anisozoptera is a matter for consideration. It might be thought that insects of such antiquity would have long ago arrived at a state in which the venation is fully crystallised. That it is not so, or appears to be not so, is, I believe, due to a process of degeneration which one would expect to meet in types approaching extinction, and what is actually exhibited in their venation is a reversion to an older archaic type.