HELIAESCHNA CYNTHIAE, A NEW SPECIES OF DRAGONFLY FROM UGANDA (ORDER: ODONATA)

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

In 1928, *Trans. R. ent. Soc. Lond.* **76**: 136, I described a new species of dragonfly under the name *Gynacantha libyana*. Since then I have received more specimens and now find that the species should have been placed in *Heliaeschna*, a genus very closely allied to *Gynacantha* and only separated by the presence of cross nervures in the median space. Along with the additional specimens of *H. libyana*, is a single male, closely resembling *H. libyana* but considerably smaller and with entirely differently shaped anal appendages. I am able also to describe now the female of *H. libyana*, this sex being unknown at the time the original description was made.

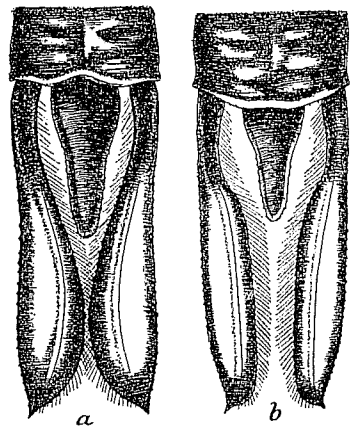

Fig. 1.—a. Anal appendages of *Heliaeschna cynthiae* sp. n., b. The same of *Heliaeschna libyana* (Fraser).

Heliaeschna libyana (Fraser).

Female. Abdomen 53 mm. Hind-wing 52 mm.

Exactly similar to the male in colouring. The oblique blackish-brown stripe on the sides of thorax is bordered anteriorly by a yellow stripe of equal thickness. (This stripe is partially lost in the males under examination, probably from postmortem changes.) The legs are reddish throughout save for the proximal ends of tibiae and distal ends of femora, which are blackish. Wings similar to those of the male but the basal dark reddish-brown rays rather more extensive. Venational details: 10 cells in discoidal cells of fore-wings, 7–9 in the hind-wings; 2 rows of cells in fork of IRiii and 6–8 rows between it and Rspl; 5–6 median cross nervures; 9–10 cubital nervures; nodal index $\frac{24–33}{28–25}\,|\,\frac{34–26}{26–25}$; 9–11 hypertrigonal cross nervures; 1 complete and 1–3 incomplete basal antenodal nervures.

Anal appendages very narrow at bases (the ends have been fractured off, as so often happens during ovipositing in species of *Gynacantha* and *Heliaeschna*).

Habitat: Uganda: Entebbe, alt. 3800 ft. A single female (*Capt. C. Pitman*).

Heliaeschna cynthiae sp. n.

Male. Abdomen, including anal appendages, 52 mm. Hind-wing 45 mm.

Colour exactly similar to that of *H. libyana* save that there is no sign of the oblique stripes on the sides of thorax. The legs are entirely reddish, including the ends of femora and tibiae.

Wings very broad, reticulation more open than in *H. libyana*, very palely and evenly infumated throughout and with dark reddish-brown rays at the bases of all, exactly similar to those seen in *H. libyana*; membrane pale greyish; pterostigma covering 4–5 cells, shorter than in *H. libyana* but similar in colour; 7 cells in all discoidal triangles; 2 rows of cells in fork of IRiii and 5–6 between it and Rspl; 4–5 cross nervures in median space; 10–11 cubital cross nervures in fore-wings, 8–9 in the hind-wings; anal-loop with 14–15 cells; nodal index $\frac{22–31}{22–24}\,|\,\frac{28–20}{21–21}$; anal triangle 3 celled (*H. libyana* has 4 and not 3 as stated by me); 1 complete and 1 incomplete basal antenodal nervure in all wings.

Anal appendages 7 mm. in length and relatively longer for the size of the insect than in *H. libyana*, pale reddish-brown, narrow for the basal two-fifths, then expanding gradually on the inner side which is strongly convex; the apical fifth again contracting and tapering to a fine point. Inferior appendage half the length of superiors, tapering to an obtuse apex.

Habitat: Uganda: Entebbe, Lake Victoria. A single male (the type) (*Dr. G. D. Hale Carpenter*), 5.xi.27. This new species is named after Miss Cynthia Longfield. The type is in my collection.

The definitions given for the two genera *Gynacantha* and *Heliaeschna* have differed in only one respect, viz., that of the median space, which is traversed by one or more nervures in the latter, but always free of such nervures in the former. I now add a second and, perhaps, a more important character to distinguish them, viz., the presence of additional basal antenodal nervures in *Heliaeschna*. These are quite unknown in genus *Gynacantha* in so far as species of the Old World are concerned, but they are invariably present in two aberrant New World species, *G. membranalis* Karsch and *G. gracilis* Burmeister; probably these two will need removing to a new genus.

Key to the African species of genus Heliaeschna.

1. Conspicuous blackish-brown markings at the bases of all wings . . 2.
   Basal markings of wings vestigial or absent . . . . . 4.

2. Superior anal appendages razor-shaped, 2·5 times as long as inferior appendage; 4 cells in the anal triangle; 9–10 cells in the discoidal triangles of fore-wings . . . . . *libyana* (Fras.).
   Superior anal appendages lanceolate, length variable; 3 cells in the anal triangle; 7–8 cells in the discoidal triangles of fore-wings . . . 3.

3. Superior anal appendages 3 times as long as the inferior (2·7 to 1·0); length of hind-wing 54 mm.; femora reddish, distal ends of femora and whole of tibiae and tarsi black . . . . . *lanceolata* Le Roi.
   Superior anal appendages only twice the length of inferior; length of hind-wing 45 mm.; legs entirely reddish . . . . . *cynthiae* sp. n.

4. Wings hyaline, uncoloured; pterostigma 3 mm. in length, black; only 5 cells in discoidal triangles; length of hind-wing 42 mm. *ugandica* McLachlan.
   Wings uniformly tinted with fuliginous; pterostigma very long, brown; 8 cells in the discoidal triangles; length of hind-wing 48–51 mm. *fuliginosa* Selys.

Book Notice.

Étude biologique de la race rurale de Culex pipiens *L.* By P. Lacour. pp. 125, 16 figs. 8vo. Clermont-Ferrand. 1937.

This book is an account of breeding experiments carried out by the author on a race of *Culex pipiens*. It comprises nine chapters as follows :—

Conditions of breeding for anautogenous *C. pipiens*.
An examination of some morphological characters.
The life of the " moustique rural " in nature.
A biological study of the larva.
Absence of autogenism in the " moustique rural."
Eurygamy and egg-laying.
The absence of cyclical fatigue.
Hibernation.
General considerations of the life-cycle.

The book is completed by a bibliography and a chapter on conclusions.

Much of the work described in the book is original, and of it a large part was carried out under natural conditions and the remainder under strict laboratory conditions by the author.

The mosquito called " moustique rural " by Prof. Lacour is *Culex pipiens pipiens* Roubaud.

ADDITIONS TO THE FAMILY CORDULIIDAE INCLUDING DESCRIPTIONS OF TWO NEW SPECIES AND A NEW GENUS (ORDER—ODONATA)

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

Mr. Kenneth Morton of Edinburgh has kindly delegated to me the task of describing a new Corduliine which he has had in his collection for a long time past. The specimen is labelled " French Guiana," but although there exists some doubt about the locality, there are also strong reasons to believe it to be correct as the specimen was received with other insects from French Guiana. The placing of this species has offered some difficulty, as although the venation is purely that of *Gomphomacromia*, the general facies differs from that of other species belonging to the genus and the anal appendages are rather typical of those found in *Macromia*. On account of these doubts, Mr. Morton has suggested the specific name of " *dubitalis*," which I have adopted.

I take this opportunity to deal with some other species belonging to the same family; these are as follows :—

1. A new *Idionyx* which I have had in my possession since 1933, but which I hesitated to describe because I did not possess the male. There seems little prospect of obtaining this now, and as species of the genus are usually founded on female characters, viz., from the shape of the vesicle, which, in this particular species, is highly specialised, I have now decided to name and describe it.

2. The undescribed female of *Somatochlora braueri* (Selys) from New Zealand. I also figure the male anal appendages which have not been shown before. Martin (1906, *Cat. Coll. Selys* **17** : 20) described them as having a slight swelling on the outer side, but it would be more correct to state that they are strongly elbowed and angulated inward near their middle, as shown in my figure. This species is the only one of the genus found in the southern hemisphere, most others being palaearctic, and as such, has always been regarded as an anomaly. I find that it possesses two striking characters which are unshared by any other species in the genus, and I regard these as sufficiently important to remove it to a new genus of its own, which I name *Antipodochlora*.

3. Additions to the descriptions of the superior anal appendages of *Paracordulia villosa* (Rambur) (fig. 1, *e* and *f*). No author dealing with this species appears to have noticed that, in addition to the subbasal spine, there is a second and much smaller ventral spine situated near the middle of the appendages. Martin (*op. cit.*) neither mentions it in his description nor shows it in his figure, which latter is so poor as to be unrecognisable; it is very distinct in my specimens and, concerning the type in the Vienna Museum, Professor Rebel has kindly informed me as follows: ". . . der basale (proximale) Dorn des Anhänges kurzer und etwas breiter als in ihrer Skizze ist. Auch der distale, kleine Dorn ist vorhanden aber sehr klein. In der Daraufsicht erscheint die innere Begrenzung der Anhänge nicht so gleichmässig gerundet, was aber durch eine andere Lage der Anhänge verursacht sein kann." I therefore give a fresh figure of these appendages.

4. The undescribed female of *Procordulia grayi* (Selys).

Systematic.

Gomphomacromia dubitalis sp. n. (fig. 1, *a* and *b*).

Head : labium, labrum, clypeus and frons dark reddish-brown, the latter with a very deep median fissure dividing the upper surface of face into two triangular facets, the middle